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The 9th SIDS International Conference June 1-4 2006 in YOKOHAMA Program and Abstracts

Program and Abstracts

The 9th SIDS International Conference

June 1-4 2006 in YOKOHAMA

www.sids.gr.jp

Co-sponsored by The Japan SIDS Research Society and SIDS Family Association Japan

Meeting with

the International Stillbirth Alliance (ISA)
and the International Society for the Study and Prevention of Infant Deaths (ISPID)

PROTECTING LITTLE LIVES, PROVIDING A GUIDING LIGHT FOR FAMILIES

The 9th SIDS International Conference

Program and Abstracts

Table of Contents

This conference is Endorsed by:

* Japanese Ministry of Health
* Kanagawa Prefecture
* Yokohama City
* Mother's and Children's Health and Welfare Association
* Japan Pediatric Association
* Japanese Society for Child Health
* Japan Society for Perinatal and Neonatal Medicine
* Japan Pediatric Society
* Japanese Society of Child Neurology
* Japanese Society for Acute Medicine
* Japan Society for Premature and Newborn Medicine
* Japan Association of Obstetrics and Gynecology
* Japan Association of Obstetricians and Gynecologists
* Japanese Midwife's Association
* Japan Academy of Midwifery
* Japan Society of Maternal Health
* Japanese Society of Child Health Nursing
* Japan Breastfeeding Association
* Network for Infant Health and Development

Welcome

Welcome!

I am happy to welcome you to the 9th SIDS International Conference. Fascinating scientific research, new solutions in management, healing sessions, culture and art are all part of our full and vibrant program. It is because of all of you that we have been able to put together a fantastic program. Thank you for coming!

A heartfelt thanks goes to the fantastic committee members who have volunteered their time to make this conference come to life. I would like to thank SIDS International, the International Society for the Study and Prevention of Infant Deaths (ISPID), the Japan SIDS Research Society and the International Stillbirth Alliance (ISA) for their help in putting this conference together.

We are proud to be able to bring this conference to Japan for the first time ever. For almost 20 years SIDS International has been gathering the greatest minds in the SIDS world at this event, and putting them together to find solutions. The passion and dedication of our participants has resulted in reduce-the-risks campaigns and a reduction of SIDS rates in many countries around the world. I hope that this conference will further increase the public's awareness of preventable risk factors and next help to organize campaigns for the reduction of stillbirth. This time we are glad to welcome ISA into the fold to work towards this goal. I also hope that this conference fosters understanding of the feelings of bereaved families and of the care they need.

What an amazing group that is gathering here to further our cause! Our participants come from three international scientific groups and twelve family associations from all around the world. Among our constituents we have members from twenty-five different countries, from all races and from all the world's major religions! I am so proud to be part of this diverse family, one that works together in peace.

Please enjoy these four days!

Sincerely,
Stephanie Fukui, Chair, 9th SIDS International Conference

This conference is dedicated to the memory of Andre Kahn

Andre Kahn helped us in the beginning visualizing stages of this conference. Unfortunately Andre passed away last year and was not able to see us through to the end. Andre loved Japan, visited us often and had many friends here. He looked forward to the day when all of his friends from the SIDS world could come to experience Japan. For many years of his life Andre helped forge the way for SIDS research and for a coordinated international effort by parents and researchers. His gentle temperament and open mind represent the spirit in which we all come together, to work together with open hearts and to learn from each other. Though Andre could not see us through to the final outcome, we believe that Andre's vision of the conference is reflected in these four days. We hope that through our conference, Andre will live on. Thank you, Andre, for all that you have given us.

Greeting from Her Imperial Highness Princess Takamado

It is a pleasure to be able to convey my greetings to you on the occasion of the 9th SIDS International Conference to be held in Yokohama, the first time that it will be held in Japan.

About twenty years ago, the term Sudden Infant Death Syndrome seemed to suddenly gain public attention. It had much media coverage and I recall that the traditional Japanese way of putting babies to sleep on their backs gained recognition in the United States and other countries. I remember thinking that it was rather ironic that it should be so, because it had just become quite fashionable in Japan to have babies sleeping on their tummies, thereby giving them a longer or deeper head, in other words, less flat and oriental, and more rounded and occidental.

There can be no doubt that the happiness, joy and hope that come from expecting and loving a newly born baby are directly converse to the depth of desolation and despair that result from losing that baby. Untimely and sudden death, particularly of an infant, is a difficult loss to bear, and I commend the work of the various support groups dedicated to easing the pain felt by families and parents that suffer such bereavement.

I strongly believe that the existence of a conference dedicated to the study of infant death from SIDS and stillbirth is extremely worthwhile, particularly in view of the fact that they are in many cases preventable. It is my hope that there will be an active exchange of information among parents, scientists, medical doctors from various fields and other specialists, and that it will lead to our seeing an even greater reduction in the incidence of infant mortality.

Each life that is brought into being is a precious one, and if it is in our power to prevent its loss, we must do everything to ensure its continued existence. We owe it to the many little lives that were lost accidentally in the past.

I wish you all a successful conference.

Thanks to our Sponsors!

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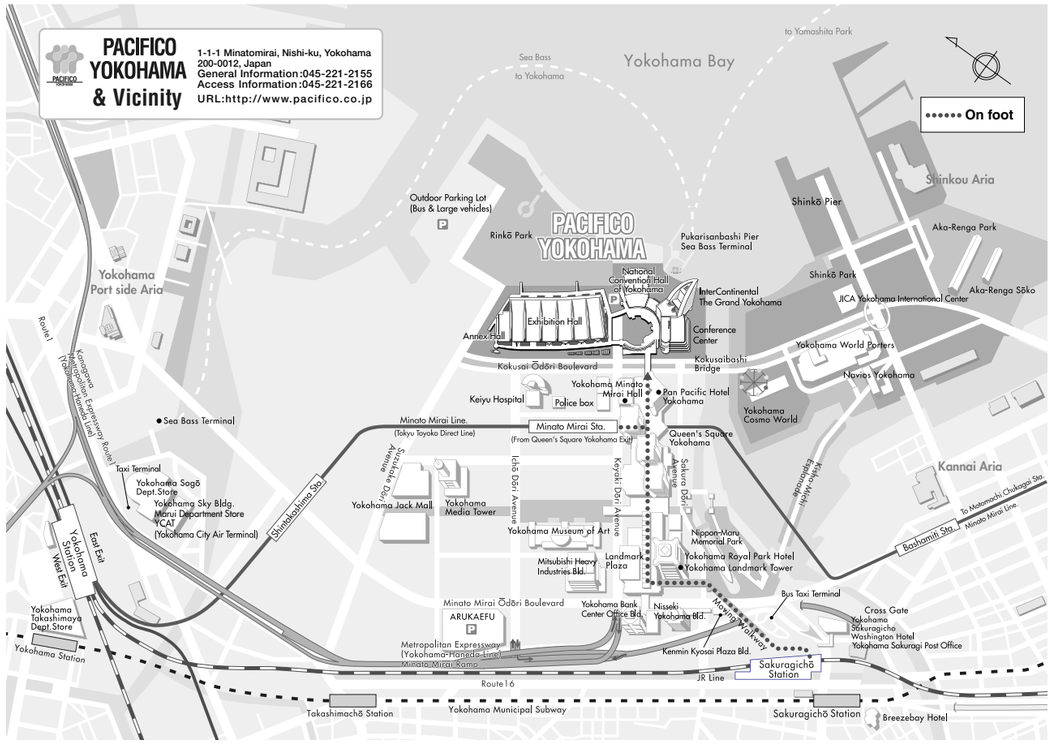
Access Map



Traffic Information

By Train	Shibuya Sta.	Tokyu Toyoko Line : Limited Express 27min. (Connecting to Minato Mirai Line)	Yokohama Sta.	Minato Mirai Line 3min. (Connecting from Tokyu Toyoko Line)	Minato Mirai Sta. From Queen's Square Yokohama Exit Go upto 2nd floor with red escarator	on foot 3min.	PACIFICO YOKOHAMA
	Shinjuku Sta.	JR Shonan Shinjuku Line 29min.					
	Tokyo Sta.	JR Tokaido Line, 25min.ca. 25min.					
	Shinagawa Sta.	Keikyu Express : Limited Express, KAITOKU 15min.		by Taxi 7min. (From taxi pool at 2nd basement of Porta shopping mall on the east exit)			
	Shin Yokohama Sta.	JR Yokohama Line 3min. Kikuna Sta. Tokyu Toyoko Line 6min (Connecting to Minato Mirai Line)		JR Keihin-Tohoku Line 3min.	Sakuragicho Sta.	on foot 12min. / by Bus 7min. (From bus stop #1) / by Taxi 5min.	
		JR Yokohama Line 15min. (Change to Keihin-Tohoku Line) / Yokohama Subway 15min.					
By Air	Narita Airport	JR Narita Express 90min. / Airport Limousine Bus 90min.	Yokohama Sta. YCAT Yokohama City Air Terminal Yokohama St. East.	Minato Mirai Line 3min. (Connecting from Tokyu Toyoko Line)	Minato Mirai Sta. From Queen's Square Yokohama Exit Go upto 2nd floor with red escarator	on foot 3min.	
	Haneda Airport	Keikyu Express 24min. / Airport Limousine Bus 30min.		by Taxi. 7min. (From taxi pool at 2nd basement of Porta shopping mall on the east exit)			

Driving To Pacifico

[From Tokyo]

Metropolitan Expressway	Toward Yokohama Park, Yokohane Route ▶▶▶	Minato Mirai Ramp,3min.ca. ▶▶▶	PACIFICO YOKOHAMA
	Toward Yokohama (over Bay bridge), Wangan Route ▶▶▶	Minato Mirai Ramp,3min.ca. ▶▶▶	

[From Kansai or Chubu]

Tomei Expressway Yokohama Interchange	Hodogaya Bypass,20min.ca. ▶	Kariba Interchange ▶	Toward Yokohama,Metropolitan Expressway,Kariba Route,10min.ca. ▶	Minato Mirai Ramp,3min ▶	PACIFICO YOKOHAMA

Parking Lot

Minato Mirai Public Parking Lot 045-221-1301	Capacity:1,200 (Standard-sized cars only)	Open 24 hours	Rates:Standard-sized car ¥520/1 hour (¥1,300 for max. 15hours between 8 and 23 on weekdays.)
Bus/Large Vehicles Parking Lot 045-221-1302	Capacity:40	Open 24 hours	Rates:Large vehicle ¥1,000/1hour

Floor Plan

PACIFICO YOKOHAMA
Conference Center

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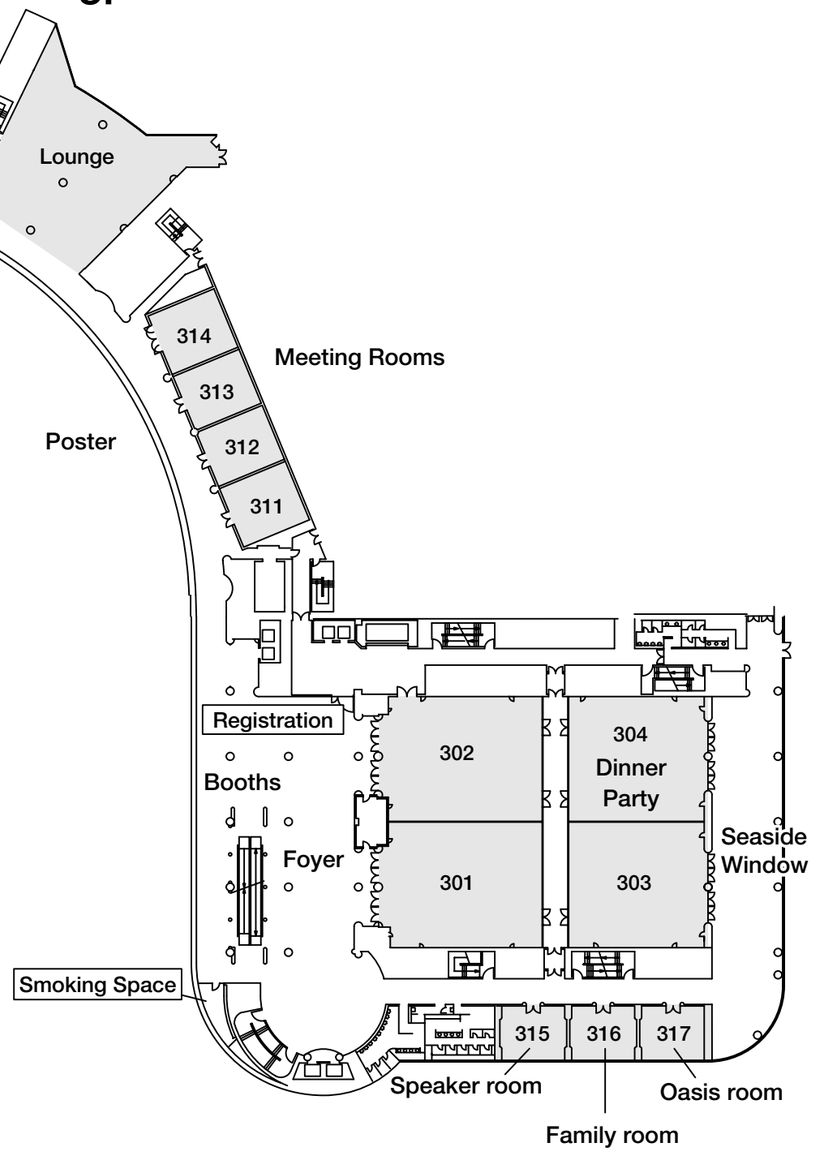

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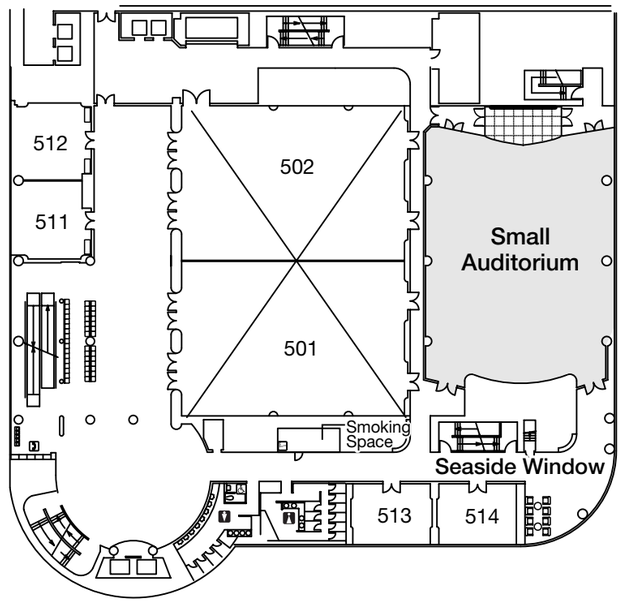

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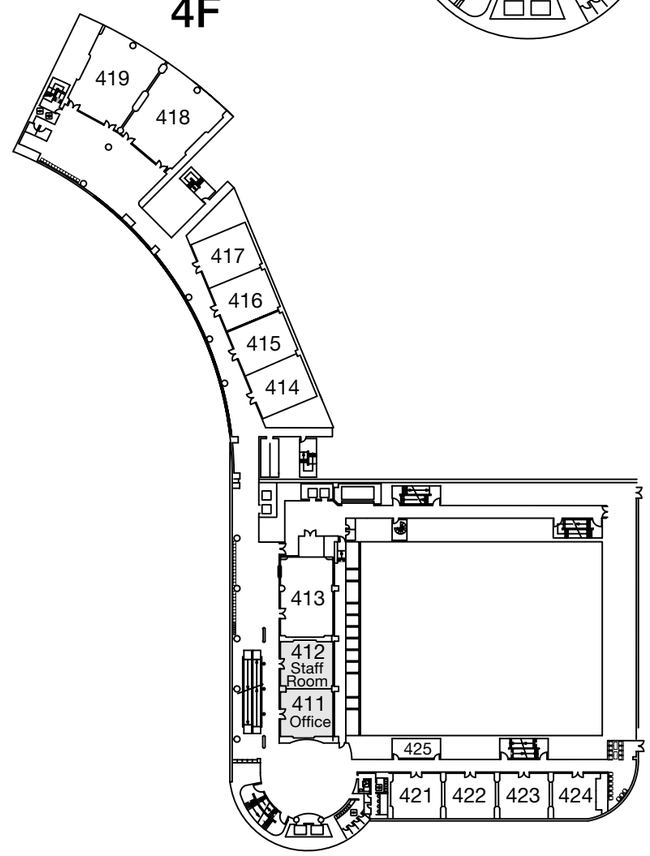

Program at a Glance

June 1, Thursday

8:00-9:00	General Registration Begins	Foyer
9:00-10:30	Opening Ceremony ∩	Small Auditorium
	SCIENTIFIC PLENARY ∩	Small Auditorium
	(S) Low Rate in Japan	
10:30-11:00	Break	Seaside Window
11:00-12:30	(S) Home Monitoring	Room 303
	(ST) Stillbirth: Japan and the World	Room 301
	(HP) Grief Care in Japan ∩	Small Auditorium
	(P) Art Therapy: Color ∩	Room 302
12:30-13:30	Lunch	Lounge
13:30-15:30	(S) Case History Discussion	Room 303
	(HP) Breastfeeding & SIDS ∩	Room 302
	(P) Art Therapy: Japanese Incense Ceremony/Brush and Ink © ∩	Room 511/512
	(ST) Classification and International Comparisons of Stillbirth ∩	Small Auditorium
15:30-16:00	Break / Healing Music	Seaside Window
16:00-17:30	(S) Co-sleeping: The Future ∩	Small Auditorium
	(ST) Pathologies of Stillbirth	Room 301
	(HP) Free Papers: Management: Finding New Solutions ∩	Room 302
	(P) Origami/Votive Offering ©	Seaside Window
	Japanese Flower Arrangement © ∩	Room 303
17:45	Memorial Service	Buses in Front of Hotel

June 2, Friday

8:00-9:00	ISPID Meeting	Room 313/314
9:00-10:30	PARENT PLENARY ∩	Small Auditorium
	(P) Grief Across Cultures	
10:30-11:00	Break	Seaside Window
11:00-12:30	(S) Genetic Risk Factors for SUD ©	Room 301
	(S) Definition and Diagnosis ©	Room 311/312
	(ST) In Utero Environment	Room 303
	(HP) How to care for bereaved /Infant Death ∩	Small Auditorium
	(P&HP) Free papers: New Ways to Find Solace ∩	Room 302
12:40-13:10	POSTER SESSIONS	Foyer
13:10-14:00	Lunch	Lounge
14:00-16:00	(S) Free papers: *Epidemiology* ©	Room 301
	(S) Free papers: *Pathology* ©	Room 311/312
	(ST) Intrauterine Growth Restriction	Room 303
	(HP) How to care for bereaved / *Stillbirth* ∩	Small Auditorium
	(P) Peer Support Meeting (Infant) ∩	Room 302
	(P) Aromatherapy	Oasis Room 317
16:00-16:30	Break / Tea Ceremony	Seaside Window
16:30-18:00	(S) Arousal Mechanisms Andre Kahn Memorial Symposium ∩	Small Auditorium
	(HP&ST) Advances in Perinatal Bereavement Management ∩	Room 302
	(P) Health Rhythms Music Therapy ∩	Room 301
	(P) Aromatherapy	Oasis Room 317
18:00	ISA General Assembly	Room 313/314
19:00	Dinner Party	Room 304

[May 31, Wednesday SIDS International Business Meeting]

June 3, Saturday

8:00-9:00	ISPID Working Group: Epidemiology, Pathology	Rooms 313/314
9:00-10:30	STILLBIRTH PLENARY ∩	Small Auditorium
	(ST) Unexplained Stillbirths	
	ISA Award	
10:30-11:00	Break	Seaside Window
11:00-13:00	(S) Thermal Mechanisms/Tissue bank	Room 303
	(S&ST) Infection in SIDS and Stillbirth	Room 301
	(HP) How to Explain Autopsy ∩	Small Auditorium
	(P) Peer vs. Pro Counseling: The Differences ∩	Room 302
13:00-14:00	Lunch (Not provided)	Lounge
14:00-17:30	TOURS & Workshops	
	(P) Befriender Course ∩	Room 302
	(HP) Supporting Parents when a Baby or Child Dies ∩	Small Auditorium
	Open Forum for Public (in Japanese): Safe Child Care from Fetus to Neonate	Room 301
	(P) Aromatherapy	Oasis Room 317
17:30-19:00	SIDS Japan Annual Befriender Meeting	Room 302
18:00	ISA Classification Meeting	Room 314

June 4, Sunday

8:00-9:00	ISPID Working Group: Physiology, Education / Psychosocial	Rooms 313/314
9:00-10:30	HEALTH PROFESSIONAL PLENARY ∩	Small Auditorium
	(HP) Effects of Death	
10:30-11:00	Break	Seaside Window
11:00-12:30	(S) From genetic process to integrative cardiovascular and breathing control	Room 301
	(ST) Free papers: Stillbirth	Room 311/312
	(HP) Risk Reduction: Message to Health Care Professionals ∩	Small Auditorium
	(P) Art Therapy: Communication © ∩	Room 303
	(P) Grief of the Family © ∩	Room 302
12:30-13:30	Lunch	Lounge
13:30-15:30	(S) Free papers: Physiology ©	Room 301
	(S) Free papers: Epidemiology HP ©	Room 311/312
	(ST) Stillbirth in Developing Countries	Room 303
	(HP) Effects of Death ∩	Small Auditorium
	(P) Peer Support Meeting (Stillbirth) ∩	Room 302
	(P) Aromatherapy	Oasis Room 317
15:30-16:00	Break / Tea Ceremony	Seaside Window
16:00-17:30	(S) Safe Sleep Environment ©	Room 301
	(S) Cardiopulmonary mechanisms ©	Room 311/312
	(ST) Preventing Stillbirth ∩	Small Auditorium
	(HP) Free papers: Reduce the Risk, New Solutions for High Risk Groups ∩	Room 302
	(P) Health Rhythms Music Therapy ∩	Room 303
	(P) Aromatherapy	Oasis Room 317
18:00	Closing Ceremony	Room 303
	Kareene Fitzgerald Award	

(S) = SIDS Scientific Track
(ST) = Stillbirth Scientific Track
(HP) = Health Professional Track
(P) = Parent Track
Combined Session
© = concurrent sessions in the same track

∩ Simultaneous Interpretation

Agenda

This agenda shows the day, time, conference track and meeting room in the order that they have been scheduled. There are four programs: Parent (P), Health Professional (HP), SIDS Scientific (S) and Stillbirth Scientific (ST). The number next to the author and title is the number assigned to the abstract that is printed in the body of the book.

The Agenda lists only the name of the presenter. Please see the abstracts in the body of the book for co-authors and affiliations.

Key to symbols used in this agenda:

Warning to Parents. This session contains content that may be difficult for sensitive bereaved parents.

Translated Session. The official language of the 9th SIDS International Conference is English. However, sessions of the Parent and Health Professional Programs and some others will have simultaneous translation, or in some cases consecutive translation to Japanese or to English. Sessions that are NOT marked with this symbol will be in English only.

May 30th 2006 Tuesday

9:00-All Day **SIDS International Executive Meeting** Room 421

May 31st 2006 Wednesday

12:00- **Volunteer Training** Rooms 411, 413

15:30-17:30 **Booth Set up** Foyer 3rd Floor
General Registration Foyer 3rd Floor
Speaker Registration Foyer 3rd Floor

9:00-All Day **SIDS International Business Meeting** Room 315

June 1st 2006 Thursday

8:00- **General Registration** Foyer 3rd Floor

9:00-10:30 **Opening Ceremony and Scientific Plenary** Small Auditorium 5th Floor

Welcome: Stephanie Fukui

Greeting:

- Her Imperial Highness Princess Takamado
- Toshinobu Sato, Director of Maternal and Child Health Division, Japanese Ministry of Health, Labour and Welfare
- Mayor of Yokohama
- Memorial for Andre Kahn

Andre Kahn helped us in the visualizing stages of this conference. Unfortunately Andre passed away last year and was not able to see us through to the end. Andre loved Japan, visited us often and had many friends here. He looked forward to the day when all of his friends from the SIDS world could come to experience Japan. For many years of his life Andre helped forge the way for SIDS research and for a coordinated international effort by parents and researchers.

The Star Festival called "Tanabata," a tradition from before the Edo period, is held every year in certain places in Japan including Yokohama. It is held on the 7th day of the 7th month. Legend has it that on this day the lover stars Alfair (the Shepard) and Vega (the Weaver), usually separated by the Milky Way, are finally able to meet. Preparation for this festival includes making a wish by writing a wish on a piece of paper and tying it to a specially erected bamboo tree. The wish can be for anything and can also include making a wish for the spirit of a loved one who has died.

The honor of making the first wish of our conference will be given to Marie Kahn, Andre Kahn's widow. This tree will be moved to the foyer later. Please help us decorate our tree by making a wish for Andre, yourself, your loved ones, a friend, or a loved one who has died.

Low Infant Death Mortality Rate in Japan

(Chair) Masamichi Sakanoue, *Kitasato University School of Medicine*
(Chair) Stephanie Fukui

1 (S) Hiroshi Nishida
REVIEW ON CHILD CARING ENVIRONMENTS AS THE CONSEQUENSE OF THE WORLD'S LOWEST INFANT MORTALITY RATE AND OF LOW SIDS RATIO IN JAPAN

2 (S) Ed Mitchell
SIDS EPIDEMIOLOGY: A VIEW FROM THE WEST

10:30-11:00 **Break** Seaside Window 3rd Floor

11:00-12:30 **SIDS Scientific Program**
Home Monitoring Room 303

(Chair) Satoshi Nakagawa
(Chair) Christian Poets

3 (S) Satoshi Nakagawa
WHICH PARAMETERS SHOULD BE MONITORED AT HOME TO PREVENT SIDS?

4 (S) Christian Poets
CARDIORESPIRATORY RECORDINGS DURING SUDDEN INFANT DEATH (SID)

5 (S) Raffaele Piumelli
DATA TRANSMISSION AND ANALYSIS IN DOCUMENTED MONITORING

6 (S) Carl E. Hunt
PRECURSORS OF CARDIORESPIRATORY EVENTS IN INFANTS DETECTED BY HOME MEMORY MONITORING

11:00-12:30 **Stillbirth Scientific Program**
Japan and the World Room 301

(Chair) J. Frederik Froen
(Chair) Takahiko Kubo
Introductory Remarks Jelka Zupan, WHO

7 (ST) Shoji Satoh
EPIDEMIOLOGY OF STILLBIRTH IN JAPAN

8 (ST) Jun Murotsuki
CHRONOLOGICAL CHANGES OF PERINATAL VITAL STATISTICS IN JAPAN

9 (ST) Takahiko Kubo
OUTCOME OF FETAL ANOMALIES PRENATALLY DIAGNOSED EARLY IN GESTATION

11:00-12:30 **Health Professional Program**
Grief Care in Japan Small Auditorium 5th Floor

(Chair) Shunpei Yokota
(Chair) Yasue Omori

10 (HP) Shunpei Yokota
A NATION-WIDE STUDY OF GRIEF CARE SYSTEM FOR BEREAVED FAMILIES IN GENERAL HOSPITALS

11 (HP) Atsuko Kotoku
SURVEYS OF BEREAVED FAMILIES, OBSTETRIC OR PEDIATRIC HOSPITALS, AND DAYCARE CENTERS ON CARE FOR THE BEREAVED AND SIDS RISK FACTORS

12 (HP) Yasuo Takeda
SUGGESTION ON GRIEF CARE SYSTEM

13 (HP) Yasue Omori
BEYOND GRIEF, ESTABLISHMENT OF THE CLINICAL FIELD OF DIABETES AND PREGNANCY IN JAPAN

11:00-12:30 **Parent Program**
Art Therapy, Color — Room 302

14 (P) Yoshiko Sugihara
GET A SENSE OF YOUR HEART AND SOUL WITH ART COLOR THERAPY (Separate registration required)

12:30-13:30 **Lunch** — Lounge

13:30-15:30 **SIDS Scientific Program**
Case History Discussion — Room 303

(Chair) Roger Byard
(Chair) Henry Krous

15 (S) Roger Byard
ASPIRATION OF GASTRIC CONTENTS, SUFFOCATION AND SIDS

16 (S) Torleiv Rognum
MEDICOLEGAL ISSUES IN SIDS

17 (S) Henry Krous
DILEMMAS IN THE DIAGNOSIS OF ENVIRONMENTAL HYPERTHERMIA IN SUDDEN INFANT DEATH

18 (S) Ryoji Matoba
SUDDEN INFANT DEATH SYNDROME (SIDS) OR ASPHYXIA? CAN PETECHIAL HEMORRHAGE DISTINGUISH THEM?

19 (S) Akihisa Kouno
SIBLINGS OF ABUSED CHILDREN WHO DIED AS SUDDEN INFANT DEATH CASES

13:30-15:30 **Stillbirth Scientific Program**

**This session has been made possible by the generosity of Stillbirth Scientific Program:*

SANDS (Stillbirth and Neonatal Death Society).

A UK registered charity, SANDS supports bereaved families when a baby is stillborn or dies soon after birth. SANDS also promotes research and changes in practice to reduce the number of stillbirths.

Classification and International Comparison of Stillbirths — Small Auditorium 5th Floor

(Chair) Adrian Charles
(Chair) Jun Murotsuki
Definition of Stillbirth, The International Stillbirth Alliance's Task Force on Stillbirth Definitions

20 (ST) Jason Gardosi
TOWARDS AN INTERNATIONAL CLASSIFICATION OF STILLBIRTH

21 (ST) Vicki Flenady
CURRENT CLASSIFICATIONS SYSTEMS FOR STILLBIRTH

22 (ST) J.Frederik Froen
INTEGRATING THE PURPOSES OF STILLBIRTH CLASSIFICATIONS

23 (ST) Grace Guyon
REGISTRATION AND REPORTING BIRTHS AND STILLBIRTHS AT BORDERLINE VIABILITY: THE EFFECT ON PERINATAL AND INFANT MORTALITY RATES

Free Papers

24 (ST) Fleurisca Korteweg
UNEXPLAINED CAUSE OF INTRAUTERINE FETAL DEATH USING DIFFERENT CLASSIFICATION SYSTEMS

25 (ST) Vicki Flenady
CLASSIFICATION OF THE CAUSES OF FETAL DEATH IN MULTIPLE AND SINGLETON PREGNANCIES

26 (ST) Vicki Flenady
UNEXPLAINED FETAL DEATH CONTRIBUTIONS: SINGLETON VS. MULTIPLE

13:30-15:30 **Health Professional Program**
Breastfeeding and SIDS — Room 302

(Chair) Shigeko Horiuchi
(Chair) Ritsuko Toda

27 (HP) Hiromi Eto
CHARACTERISTICS OF INFANTS' NIGHT SLEEP IN THE FIRST MONTH UNDER CO-SLEEP CONDITIONS

28 (HP) Ritsuko Toda
MOTHERS' POSTNATAL EXPERIENCES OF BREASTFEEDING IN HOSPITALS

29 (HP) Masumi Imura
SIDS: BREASTFEEDING AND CO-SLEEPING

30 (HP) Bernt Alm
BREASTFEEDING AND SIDS - SWEDISH AND INTERNATIONAL EXPERIENCES

31 (HP) Edmund Nelson
INTERNATIONAL CHILD CARE PRACTICES STUDY: BREASTFEEDING AND PACIFIERS

13:30-15:30 **Parent Program**
Art Therapy, Japanese Incense Ceremony/Brush and Ink — Room 511/512

32 (P) Eriyo Watanabe
INCENSE CEREMONY & CALLIGRAPHY (Separate registration required)

13:30-15:30 **Parent Program**
Death and Bereavement Around the World — Small Auditorium 5th Floor

(Chair) Pittu Laungani

CANCELLED **33 (P)** Withdrawn

34 (P) Waseem Alladin
THE ISLAMIC WAY OF DEATH AND DYING: A PSYCHO-SPIRITUAL PERSPECTIVE

35 (P) Stephanie Fukui
JAPANESE RITES OF BEREAVEMENT PROMOTING HEALTHY GRIEVING

Abstract numbers 34 and 35 will be presented in the Parent Plenary on June 2 at 9:00 a.m. in the Small Auditorium.

15:30-16:00 **Break** — Seaside Window 3rd Floor
Healing Music by Keiko Nanishi, Nanae Yutaka and Hiroshi Wada

16:00-17:30 **SIDS Scientific Program**

Co-Sleeping: Looking into the Future — Small Auditorium 5th Floor

(Chair) Aurore Cote
(Chair) Michio Fukumizu

36 (S) Michio Fukumizu
SLEEP ENVIRONMENTS IN JAPAN

37 (S) Tanya Armour
BENEFITS AND HARMS ASSOCIATED WITH THE PRACTICE OF BED SHARING: A SYSTEMATIC REVIEW

38 (S) Robert Carpenter
HOW CAN SIDS BE ELIMINATED

39 (S) Peter Blair
CO-SLEEPING & SIDS EPIDEMIOLOGY. OBSERVATIONS FROM CONTROLLED DEATH-SCENE INVESTIGATIONS
Panelists: Toshiko Sawaguchi, Tony Nelson, Hiroshi Nishida

16:00-17:30 **Stillbirth Scientific Program**

Pathologies of Stillbirth — Room 301

(Chair) Babill Stray-Pederson
(Chair) Michiko Yamanaka

40 (ST) Grace Guyon and Paula Corabian
STILLBIRTH INVESTIGATION PROTOCOLS: A SYSTEMATIC REVIEW

41 (ST) Makoto Takeuchi
PATHOLOGICAL ASSESSMENT OF FETAL DEATH

42 (ST) Michiko Yamanaka
MEDICAL MANAGEMENT OF LETHAL MALFORMED FETUSES DIAGNOSED IN UTERO

Free Papers

43 (ST) Fusun Gundogan
POSTMORTEM AND PLACENTAL LESIONS IN TERM STILLBIRTH

44 (ST) Fleurisca Korteweg
CAUSE OF INTRAUTERINE FETAL DEATH, VALUE OF AUTOPSY AND PLACENTAL EXAMINATION TO DETERMINE A PLACENTAL CAUSE

45 (ST) Luigi Matturri
THE NEW NATIONAL ITALIAN LAW FOR THE REDUCTION OF THE SUDDEN INFANT DEATH SYNDROME (SIDS) AND SUDDEN INTRAUTERINE UNEXPECTED DEATH (SIUD): OBJECTIVES AND GUIDELINES IN PATHOLOGIC AND FORENSIC MEDICAL DIAGNOSTICS

16:00-17:30 **Health Professional Program (Free Papers)**

Management of SIDS and Stillbirth Organizations: Finding New Solutions — Room 302

(Chair) Trond Mathiesen
(Chair) Atsuko Kotoku

46 (HP) Jutta Kjaerback
SUPPORTING BEREAVED FAMILIES WHEN A CHILD DIES SUDDENLY AND UNEXPECTEDLY

47 (HP) Rosemary Richardson
IMPLEMENTING BEREAVEMENT SUPPORT SERVICES FOR A BROAD RANGE OF FAMILIES IN NEW SOUTH WALES, AUSTRALIA: THE JOURNEY AND EXPERIENCE OF SEVERAL FAMILIES

48 (HP) Riripeti Haretuku
COLLABORATIVE RESEARCH WITH MAORI ON SENSITIVE ISSUES: THE APPLICATION OF TIKANGA AND KAUPAPA IN RESEARCH AROUND MAORI SIDS

49 (HP) Pauline Hopa
WORKING THE MAORI WAY- A BEST PRACTICE MODEL

50 (HP) Tania Pompallier
TAMARIKI MAORI COORDINATION

51 (HP) Trish Malins
THE RESPONSE TO SUDDEN UNEXPECTED DEATHS: THE POLICY-PRACTICE INTERFACE

52 (HP) Janet Carey
SUDDEN UNEXPLAINED INFANT DEATHS ARE PREVENTABLE. SO WHY ARE BABIES STILL DYING?

53 (HP) Trond Mathiesen
FACING THE FUTURE: EXPANSION OF MISSION, SERVICES AND PROGRAMS IN THE NORWEGIAN SIDS SOCIETY

16:00-17:30 **Parent Program**

Origami/Votive Offering — Seaside Window 3rd Floor

Origami

Practice the ancient Japanese craft of paper folding with beautifully colorful Japanese paper. This has been shown to be great brain exercise, math practice and improves fine motor skills!

We will be making a variety of objects, one of which will be the paper crane. The crane symbolizes happiness, good health and longevity in Japan. There is a well-known story about Sadako Sasaki who was two years old when the atomic bomb hit Hiroshima. When she was 11 years old, she developed leukemia. Because of an old Japanese legend which says that anyone who folds a thousand paper cranes would be granted a wish, Sadako began a project of folding 1000 paper cranes. Sadako hoped that the gods would grant her wish to get well. She completed over 1000 before dying at the age of twelve. Upon hearing this story, people from all over Japan and from around the world started sending thousands of paper cranes to the people of Hiroshima in hopes that they could heal. We have already made thousands of paper cranes for this conference wishing for health and healing of our constituents.

Votive Offering/Make a Wish Upon a Star

The Star Festival called “Tanabata,” a tradition from before the Edo period, is held every year in certain places in Japan including Yokohama. It is held on the 7th day of the 7th month. Legend has it that on this day the lover stars Alfair (the Shepard) and Vega (the Weaver), usually separated by the Milky Way, are finally able to meet. Preparation for this festival includes making a wish by writing a wish on a piece of paper and tying it to a specially erected bamboo tree. The wish can be for anything and can also include making a wish for the spirit of a loved one who has died. Please help us decorate our tree by making a wish for yourself, your loved ones or a loved one who has died.

16:00-17:30 **Parent Program**

Japanese Flower Arrangement — Room 303

Flower artist and teacher Keika Ikeda from the Sogetsu School of Japanese Flower Arrangement will teach the art of Japanese flower arrangement with help from assistants. (Separate registration required.)

17:45 **Memorial Service at Sojiji Temple** — Buses in Front of Hotel

The memorial service will take place in the beautiful Sojiji Buddhist temple complex. Monks chant to create the amazing calm of the Buddhist ceremony at the grand alter, an experience not to be missed. The evening will also include a vegetarian meal prepared by the monks and Zazen meditation. (Separate registration required.)

June 2nd 2006 Friday

8:00-9:00 **ISPID General Assembly** — Room 313/314
General Registration — Foyer 3rd Floor

9:00-10:30 **Parent Plenary**
Grief Across Cultures — Small Auditorium 5th Floor

(Chair) Toru Takeuchi
(Chair) Mayumi Okanaga

54 (P) Kunio Yanagida
DEATH OF A LOVED ONE

CHANGED **55 (P)** Pittu Laungani
HINDU BELIEFS AND ATTITUDES TO DYING, DEATH, AND REBIRTH

56 (P) Pauline Hopa and Performing Arts Group
GRIEF THEATRE PRODUCTION TAKOTO, TAKOTO, TAKOTO

Abstracts numbers 34 and 35 will also be presented.

10:30-11:00 **Break** — Seaside Window 3rd Floor

11:00-12:30 **SIDS Scientific Program**
Genetic Risk Factors for SUD — Room 301

(Chair) Kiyoshi Hayasaka
(Chair) Carl E. Hunt

57 (S) Kiyoshi Hayasaka
ANALYSIS OF PHOX2B, KVLQT1, HERG and SCN5A GENES IN JAPANESE VICTIMS OF SIDS

58 (S) Masaaki Narita
SEROTONIN TRANSPORTER GENE POLYMORPHISMS AS A RISK FACTOR FOR SIDS

59 (S) Seiji Yamaguchi
SUDDEN INFANT DEATH AND INBORN ERRORS OF METABOLISM

60 (S) Debra Weese-Mayer
SUDDEN INFANT DEATH SYNDROME: CASE-CONTROL DIFFERENCES IN GENES OF THE AUTONOMIC NERVOUS SYSTEM

61 (S) Carl E. Hunt
GENETIC AND ENVIRONMENTAL INTERACTIONS AND RISK FOR SUDDEN UNEXPECTED DEATH IN INFANCY (SUDI): AN OVERVIEW

11:00-12:30 **SIDS Scientific Program**
Definition and Diagnosis — Room 311/312

(Chair) Henry Krous
(Chair) Masahiro Nakayama

62 (S) Henry Krous
WHY MUST THE DEFINITION EVOLVE?

63 (S) Masahiro Nakayama
DIAGNOSTIC APPROACH TO SIDS FROM THE PATHOLOGY OF MEDULLA OBLONGATA

64 (S) Hajime Togari
JAPANESE NEW DEFINITION FOR SIDS

11:00-12:30 **Stillbirth Scientific Program**
The Environment In Utero — Room 303

(Chair) Ruth Fretts
(Chair) Noriyuki Suehara

65 (ST) David Olson
MATERNAL STRESS AND PRETERM BIRTH: THE INTRAUTERINE PARADIGM

66 (ST) Gordon Smith
FIRST TRIMESTER DETERMINATION OF ADVERSE PREGNANCY OUTCOME

67 (ST) Noriyuki Suehara
STILLBIRTH IN MULTIPLE PREGNANCY

11:00-12:30 **Health Professional Program**
How to Care for Bereaved Families, Infant Death Focus — Small Auditorium 5th Floor

(Chair) Masato Takeuchi, *Obstetrician, Japan International Cooperation Agency*
(Chair) Ann Deri-Bowan

68 (HP) Jenni Thomas
HOW TO SUPPORT BEREAVED PARENTS

69 (HP) Ann Deri-Bowan
BEREAVED FAMILIES - WHO DO THEY NEED

70 (HP) Yoko Hashimoto
HOW CAN WE CARE FOR BEREAVED FAMILIES?

11:00-12:30 **Parent/Health Professional Program (Free Papers)**
New Ways to Find Solace — Room 302

(Chair) Julia Kjaerstad, *SIDS International, Norwegian SIDS Society*
(Chair) Giampaolo Gabbi, *SIDS International, SIDS Italy*

71 (P&HP) Ayako Seno
THE OOZORA-NO-KAI FORMULA OF CARING FOR BEREAVED PARENTS

72 (P&HP) Anna-Karin Larsson
HOW DO WE RECIVE A MOURNING COLLEAGUE WHO HAS LOST A CHILD WHEN SHE RETURNS TO WORK

73 (P&HP) Sue Ellen Robertson
CREATING MEMORIES FOLLOWING THE DEATH OF A BABY OR YOUNG CHILD

74 (P&HP) Hiroko Yasuda
AN EXAMINATION OF EFFECTS OF WRITING IN COPING WITH PERINATAL LOSS

75 (P&HP) Karen Looi
GRIEF, TRAUMA, JUSTICE: A MODEL FOR VIEWING THE IMPACT OF THE SUDDEN AND UNEXPECTED DEATH OF A BABY OR CHILD

76 (P&HP) Karen Barrett
SUDDEN INFANT DEATH: THE ROLE OF CONTINUING BONDS IN A MOTHER'S GRIEF

77 (P&HP) Trine Giving-Kalstad
NEW WAYS OF PROVIDING PARENTAL BEREAVEMENT SUPPORT

78 (P&HP) Guenther Krueger and Chris Finlay
FOREVER REMEMBERED IN CYBERSPACE: AN ANALYSIS OF ONLINE MEMORIAL SITES FOR SUDDEN INFANT DEATHS

79 (P&HP) Gregory Taylor
FACILITATING OPPORTUNITIES FOR BEREAVED FAMILIES

12:40-13:10 **POSTER WALK** Foyer 3rd Floor

Health Professional Program (Poster Session)

Health Professional Poster Presentations

(Chair) Anat Shatz
(Chair) Riripeti Haretuku

80 (HP) Marcy Rein
REMEMBERING THE LIGHT

81 (HP) Shigeko Horiuchi
DEVELOPMENT OF THE ANGEL KIT: IMPROVING THE QUALITY OF CARE FOR PERINATAL LOSS

82 (HP) Mayumi Okanaga
DEVELOPMENT OF INTER-CULTURAL AND CULTURAL STRATEGIES OF FAMILY CARE FOR PERINATAL LOSS BY MIDWIFE FROM A COMPARISON OF JAPAN AND WESTERN AUSTRALIA

83 (HP) Withdrawn

84 (HP) Christine O'Meara
INFANT/TODDLER SAFE SLEEP AND SIDS RISK REDUCTION IN CHILD CARE (ITS-SIDS) PROJECT: NORTH CAROLINA'S STATEWIDE INITIATIVE

85 (HP) Noriko Kobayashi
AWARENESS OF SIDS PREVENTION: SLEEPING ARRANGEMENT, BED SHARING, AND BREAST FEEDING USING THE SIDE-LYING POSITION IN THE FIRST MONTH AFTER BIRTH

86 (HP) Raeleen de Joux
SLEEPING WITH THE ENEMY

87 (HP) Maarit Kivikko
GRIEF SUPPORT FOR MEN

12:40-13:10 **SIDS Scientific Program (Poster Session)**

Physiology Poster Presentations

Foyer 3rd Floor

(Chair) Aurore Cote
(Chair) Satoshi Nakagawa

88 (S) Olatunji Sonibare
BIAS IN REPORTED NEURODEVELOPMENTAL OUTCOMES AMONG EXTREMELY LOW BIRTH WEIGHT SURVIVORS

89 (S) Withdrawn

90 (S) Igor Kelmanson
INFANT BEHAVIOUR RELATED TO RISK OF SIDS

91 (S) Rosemary Horne
EFFECTS OF SLEEP STATE ON THE INITIAL VENTILATORY RESPONSE TO HYPOXIA IN SLEEPING PRETERM INFANTS

92 (S) Rosemary Horne
POSTNATAL DEVELOPMENT OF THE INITIAL VENTILATORY RESPONSE TO HYPOXIA IN SLEEPING PRETERM INFANTS

93 (S) Yoshiko Nishida
ANALYSIS OF SUCKING PRESSURE OF TONGUE-TIE IN BREAST-FEEDING INFANTS

94 (S) Sumio Fukuda
HEMODYNAMICS OF THE VERTEBRAL ARTERIES IN THE PREMATURE INFANTS COMPLICATED WITH FREQUENT APNEA

95 (S) Ineko Kato
EVALUATION OF HEART RATE BEFORE AND DURING SPONTANEOUS AROUSALS

96 (S) Peter Fleming
IS THE MATTRESS IMPORTANT IN HELPING BABIES KEEP WARM? PARADOXICAL EFFECTS OF A SLEEP SURFACE WITH VERY LOW THERMAL RESISTANCE

97 (S) Noriko Saito
AUTONOMIC NEURAL MECHANISMS OF NONNUTRITIVE-SUCKING-RELATED-TACHYCARDIA

98 (S) Suvi Viskari
CARDIOVASCULAR CONTROL DYSFUNCTION IN PRETERM INFANTS WITH BRONCHOPULMONARY DYSPLASIA

12:40-13:10 **Epidemiology Poster Presentations** Foyer 3rd Floor

(Chair) Ed Mitchell
(Chair) Toshimasa Obonai

99 (S) Ian Mitchell
SIDS: CHANGES 1987-2004 AND SUGGESTIONS FOR THE FUTURE

100 (S) Masayuki Kaji
PARENTS' RECOGNITION: EFFECTS OF PASSIVE SMOKING TO HEALTH PROBLEMS IN CHILDREN

101 (S) Masayuki Kaji
THE STUDY OF EFFECTIVE COUNSELING FOR SMOKING CESSATION AND PREVENTION OF PASSIVE SMOKING IN PEDIATRIC OUTPATIENT DEPARTMENT

102 (S) Tsuneo Nakagawa
REGARDING THE ESTABLISHMENT AND ACTIVITIES OF THE RESEARCH MEETING FOR PREVENTION OF CHILDHOOD TOBACCO EXPOSURE

103 (S) Tsuneo Nakagawa
PREVENTION OF SIDS AND OTHER PERINATAL COMPLICATIONS BY TABACCO CESSATION IN FEMALE JAPANESE UNIVERSITY AND COLLEGE STUDENTS- PROJECTIONS FROM A PILOT TRIAL IN NWUC

104 (S) Yuko Takahashi
JUNIOR'S QUIT SMOKING MARATHON

105 (S) Yuko Takahashi
PSYCHOLOGICAL RESPONSE AGAINST SMOKING AMONG JAPANESE STUDENTS

106 (S) Yuko Takahashi
IMPORTANCE OF ANTI-SMOKING CAMPAIGN AMONG JUNIOR-HIGH AND HIGH SCHOOL STUDENTS: SUPPORT SYSTEM TO PROMOTE QUIT-SMOKING BY MOBILE PHONE

107 (S) Maria Timischl
SIDS RISK FACTORS IN LOW BIRTHWEIGHT INFANTS - IS TARGETED INTERVENTION SUCCESSFUL?

108 (S) Maya Okamoto
SURVEY OF SUDDEN INFANT DEATH SYNDROME (SIDS) AWARENESS OF YOUNG PEOPLE IN 8 COUNRTIES

109 (S) Christina Isaksen
SUDDEN INFANT DEATH FROM ANTIQUITY TO PRESENT TIMES: AN EPIDEMIOLOGICAL REVIEW

12:40-13:10 **Pathology Poster Presentations** Foyer 3rd Floor

(Chair) Roger Byard
(Chair) Ryoji Matoba

110 (S) Luca Novelli
VERY-LONG-CHAIN-ACYL-COA DEHYDROGENASE DEFICIENCY:REPORT OF A CASE

111 (S) Ling Li
FORENSIC INVESTIGATION OF SUDDEN INFANT DEATHS IN THE STATE OF MARYLAND

112 (S) Rita Machaalani
ACTIVE CASPASE-3 AND TUNEL IN THE SIDS BRAINSTEM MEDULLA

113 (S) Meichien Say
SEROTONIN RECEPTOR 1A PROTEIN CHANGES IN THE SIDS BRAINSTEM AND IN PIGLET MODELS

114 (S) Anne-France Bongrand
A MULTIAGENCY PROTOCOL FOR MANAGEMENT AND INVESTIGATIONS OF SUDDEN INFANT DEATH IN INFANCY: YIELD IN A REFERENCE REGIONAL CENTRE

115 (S) Mechtild Vennemann
PATHOLOGICAL INVESTIGATION IN THE TOKEN STUDY

116 (S) Caroline Rouleau
LATE-PRESENTING CONGENITAL DIAPHRAGMATIC HERNIA: REPORT OF ONE CASE OF UNEXPECTED SUDDEN DEATH

12:40-13:10 **Stillbirth Scientific Program**

Stillbirth Poster Presentations — Foyer 3rd Floor

(Chair) Ruth Fretts

117 (ST) Jan Jaap Erwich
PLACENTAL INFLAMMATION IN PERINATAL MORTALITY

118 (ST) Fleurisca Korteweg
VALUABLE TESTS AFTER INTRA UTERINE FETAL DEATH

119 (ST) Fleurisca Korteweg
POSTMORTEM FIBROBLAST CULTURE AFTER PERINATAL DEATH

120 (ST) Fleurisca Korteweg
CLINICAL MANIFESTATIONS OF PLACENTAL BED PATHOLOGY

121 (ST) Agata Lesniak-Sobelga
CLINICAL AND ECHOCARDIOGRAPHIC ASSESSMENT OF PREGNANTS WITH AORTIC VALVE DISEASE - MATERNAL AND FETAL OUTCOME

122 (ST) Touhami Mahjoub
FACTOR V GENE POLYMORPHISMS AND SUSCEPTIBILITY TO TUNISIAN WOMEN WITH RECURRENT IDIOPATHIC PREGNANCY LOSS

123 (ST) Touhami Mahjoub
ANTI-BETA2-GLYCOPROTEIN I AND ANTI-ANNEXIN V AUTOANTIBODIES AND IDIOPATHIC RECURRENT ABORTION

Stillbirth Poster Presentations — Foyer 3rd Floor

(Chair) Vicki Flenady

124 (ST) Alio Amina
CESARIAN DELIVERIES AND THE RISKS OF SUBSEQUENT STILLBIRTH: BLACK-WHITE DISPARITIES

125 (ST) J. Frederik Froen
VIOLENT FETAL MOVEMENTS IN ANTEPARTUM STILLBIRTHS BY ACUTE ASPHYIA - 31 CASE REPORTS FROM MOMSTUDY

126 (ST) Fiona McKenzie
REVIEW OF LATE FETAL LOSS IN THE HUNTER REGION OF NEW SOUTH WALES AUSTRALIA

127 (ST) Uma Reddy
STILLBIRTH/ LIVEBIRTH RATIO BY RACE AND GESTATIONAL INTERVAL

128 (ST) Akemi Yamazaki
CASE STUDY: HOW A FAMILY SPENDS TIME FROM IUFD NOTIFICATION TO STILLBIRTH

129 (ST) Akemi Yamazaki
CASE STUDY: FEELINGS THAT PARENTS WHO EXPERIENCE STILLBIRTH CANNOT SHARE

130 (ST) Xiaoying Zheng
CHINESE LIFE EXPECTANCY AND POLICY IMPLICATIONS

13:10-14:00 Lunch — Lounge

14:00-16:00 **SIDS Scientific Program (Free Papers)**

Epidemiology — Room 301

(Chair) Mechtild Vennemann
(Chair) Katsuyuki Miyasaka

131 (S) Rachel Moon
AMERICAN ACADEMY OF PEDIATRICS 2005 GUIDELINES FOR SIDS RISK REDUCTION: BACKGROUND LITERATURE AND DISCUSSION

132 (S) Cliona McGarvey
EXAMINATION OF INFANT-PARENT BED-SHARING DURING THE LAST SLEEP PERIOD AS A RISK FACTOR FOR SIDS IN IRISH INFANTS DURING THE 10 YEAR PERIOD FROM 1994-2003

133 (S) Tom Matthews
ANALYSIS OF DATA RELATING TO THE DEATH SCENE OF INFANTS DYING SUDDENLY AND UNEXPECTEDLY, IN THE REPUBLIC OF IRELAND BETWEEN 1994 AND 2003

134 (S) Monique L'Hoir
COT DEATH AND SLEEPING SACKS

135 (S) David Mage
IS SIDS AN X-LINKED PHENOMENON?

136 (S) Mechtild Vennemann
PREVENTION OF SUDDEN INFANT DEATH SYNDROME (SIDS) DUE TO AN ACTIVE HEALTH MONITORING SYSTEM 20 YEARS PRIOR TO THE PUBLIC BACK-TO-SLEEP-CAMPAIGNS

137 (S) Jane Freemantle
SUDDEN INFANT DEATH SYNDROME AND UNASCERTAINABLE DEATHS- TRENDS AND DISPARITIES AMONG ABORIGINAL AND NON-ABORIGINAL INFANTS BORN IN WESTERN AUSTRALIA FROM 1980 TO 2001 INCLUSIVE

138 (S) Desaline Joseph
PASSIVE SMOKING IN NEWBORNS

139 (S) Anat Shatz
A STUDY OF INFANTS CARE PRACTICES IN ISRAEL

140 (S) Mechtild Vennemann
ARE AUTOPSIES HELPFUL FOR THE PARENTS OF SIDS VICTIMS?

14:00-16:00 **SIDS Scientific Program (Free Papers)**

Pathology — Room 311/312

(Chair) Torleiv Rognum
(Chair) Sachio Takashima

141 (S) Marianne Arnestad
AUTOPSY FINDINGS IN SUDDEN UNEXPLAINED DEATHS IN CHILDHOOD

142 (S) Martin Schlaud
THE TOKEN STUDY: AN INVESTIGATION INTO SUDDEN UNEXPLAINED DEATHS IN THE 2ND TO 24TH MONTH OF LIFE

143 (S) Roger Byard
SIDS AND ß-AMYLOID PRECURSOR PROTEIN STAINING OF THE BRAIN

144 (S) Colin Smith
ß-APP IMMUNOREACTIVITY IN SUDDEN UNEXPECTED DEATH IN INFANCY

145 (S) Marianne Arnestad
SIDS AS A RESULT OF MUTATIONS IN LONG QT SYNDROME GENES

146 (S) Siri Opdal
SEROTONIN TRANSPORTER GENE VARIATION IN SIDS

147 (S) Luigi Matturri
STILLBIRTH VERSUS SIDS. PATHOLOGY OF THE AUTONOMIC NERVOUS SYSTEM AND DNA POLYMORPHISMS IN SIUD AND SIDS

148 (S) Hidetoshi Taneguchi
LIPOCALIN-TYPE PROSTAGLANDIN D SYNTHASE LOCALIZES SPECIFICALY TO NEURONS IN BRAINSTEM OF SUDDEN INFANT DEATH SYNDROME VICTIMS

149 (S) Caroline Rambaud
PULMONARY HEMORRHAGE IN SUDDEN AND UNEXPECTED DEATH IN CHILDREN: NATURAL DEATH OR HOMICIDE?

150 (S) Margaret Wong-Riley
UNDERSTANDING ONE OF THE THREE RISK FACTORS OF SIDS: A CRITICAL PERIOD OF DEVELOPMENT IN BRAIN STEM NUCLEI INVOLVED IN THE CONTROL OF RESPIRATION

14:00-16:00 **Stillbirth Scientific Program**

**This session has been made possible by the generosity of:*

SANDS (Stillbirth and Neonatal Death Society).

A UK registered charity, SANDS supports bereaved families when a baby is stillborn or dies soon after birth. SANDS also promotes research and changes in practice to reduce the number of stillbirths.

Intrauterine Growth Restriction — Room 303

(Chair) Hamisu Salihu
(Chair) Makoto Takeuchi

151 (ST) Fusun Gundogan
PLACENTAL ETIOLOGIES OF FETAL GROWTH RESTRICTION AND STILLBIRTH

152 (ST) Jason Gardosi
SUBOPTIMAL GROWTH AND THE RISK OF STILLBIRTH

153 (ST) Uma Reddy
MEDICAL CONDITIONS AND THE RISK OF STILLBIRTH

154 (ST) Adrian Charles
THE AUTOPSY AND FETAL GROWTH RESTRICTION

14:00-16:00 **Health Professional Program**

How to Care for Bereaved Families, Stillbirth Focus — Small Auditorium 5th Floor

(Chair) Masato Takeuchi, *Obstetrician, Japan International Cooperation Agency*
(Chair) Shigeko Horiuchi, *Japan Academy of Midwifery*

155 (HP) Naoko Ota
POST-HOSPITAL SUPPORT FOR PARENTS WHO HAVE SUFFERED PERINATAL LOSS

156 (HP) Jillian Romm
TEACHING PHYSICIANS ABOUT CARING FOR BEREAVED PARENTS

157 (HP) Michael Berman
ANCESTRAL SONGS AND PROMISES, A PHYSICIANÅfS PERSPECTIVE ON THE CARE OF THE FAMILY WITH AN INTRAUTERINE DEATH

158 (HP) Sherokee Ilse
GIVING COMPASSIONATE CARE

14:00-16:00 **Parent Program**

Peer Support Meeting, Infant Death Focus — Room 302

Panel of Experts:
(Co-Chairs) Shigeko Osaki, Yoko Fukuhara, *SIDS Family Association Japan*
Takeo Yogo, *Pediatric Neurologist, Akitsu Institute for Severely Handicapped Children*
Tomoko Uno, *Clinical psychologist, Department of Neonatology, Metropolitan Bokutoh Hospital*

14:00-16:00 **Parent Program**

Aromatherapy — Oasis Room 317

Aroma therapists: Mayumi Kato *(Instructor)*, Michiyo Yada, Masako Nishikawa, Keiko Yamada *(Instructor)*
of the Aroma Care Institute, Nishikawa Ladies' Clinic, IFA, IMIS
With beautiful aromas and healing music, relax for a 15-minute shoulder massage. (Separate registration required.)

16:00-16:30 **Break (Tea Ceremony)** — Seaside Window 3rd Floor

Witness the meditative, ancient Japanese Tea Ceremony. Tea Ceremony started in 12th century Japan and developed into an art based on the priests' approach to it as an embodiment of Zen principles for appreciating the sacred in the everyday. The simplicity and efficiency of the ceremony is designed to help the participants be awakened to the simple beauty around them. Demonstrated by volunteers from the Yokohama Convention Bureau.

16:30-18:00 **SIDS Scientific Program**

Arousal Mechanisms, The Andre Kahn Memorial Symposium — Small Auditorium 5th Floor

(Chair) Hajime Togari
(Chair) Patricia Franco

159 (S) Patricia Franco
AROUSABILITY AND THE TRIPLE RISK MODEL FOR SIDS

160 (S) Ineko Kato
CHARACTERISTICS OF AROUSALS IN SIDS VICTIMS
*AWARDED 2006 Kaarene Fitzgerald Award

161 (S) Jun Kohyama
AROUSAL MECHANISMS SEEN ON POLYSOMNOGRAPHY - EXPERIENCE FROM A SUSPECTED SIDS PATIENT AND ALTE PATIENTS

162 (S) Ronald Harper
NEURAL MECHANISMS IN AUTONOMIC AROUSAL

163 (S) Rosemary Horne
DEVELOPMENT OF INFANT VENTILATORY AND AROUSAL RESPONSES TO HYPOXIA

16:30-18:00 **Health Professional Program**

Advances in Perinatal Bereavement Management — Room 302

(Chair) Janet Carey
(Chair) Liz Davis

164 (ST) Marianne Hutti
BEREAVEMENT COUNSELING ON THE CUTTING EDGE: USING RESEARCH TO GUIDE THE WAY

Free Papers

165 (ST) Petra den Hartog
PERINATALLY BEREAVED PARENTS SPEAK-WHAT PARENTS WANT HOSPITAL PROFESSIONAALS TO KNOW -FEEDBACK FROM PARENTS REGARDING THE SUPPORT THEY RECEIVED FROM HEALTH PROFESSIONALS AND HOSPITAL STAFF

166 (HP) M.F. Chan
ATTITUDES OF NURSES TOWARD PERINATAL BEREAVEMENT: FINDINGS FROM A STUDY IN HONG KONG

167 (HP) Belinda Jennings
AN EVALUATION OF MIDWIFERY CARE PROVIDED TO WOMEN EXPERIENCING PERINATAL DEATH - A QUALITATIVE PERSPECTIVE

168 (HP) Maxine Weber
INTERAGENCY REFERRALS FOR PERINATAL BEREAVEMENT SUPPORT - A BENEFIT FOR FAMILIES

16:30-18:00 **Parent Program** 🎧
Music Therapy: Health Rhythms — Room 301

169 (P) Facilitators: Haruki Niyekawa, Nozomi Nagasaka, John Yost
HEALTH RHYTHMS (Separate registration required.)

16:30-18:00 **Parent Program**
Aromatherapy — Oasis Room 317

Aroma therapists: Mayumi Kato *(Instructor)*, Michiyo Yada, Masako Nishikawa, Keiko Yamada *(Instructor)*
of the Aroma Care Institute, Nishikawa Ladies' Clinic, IFA, IMIS
With beautiful aromas and healing music, relax for a 15-minute shoulder massage. (Separate registration required.)

18:00 **ISA General Assembly** — Room 313/314

19:00 **Dinner Party (Separate registration required.)** — Room 304

19:00
Dinner and Drinks
Toast and Greeting

20:00
Entertainment featuring, Akaoni Daiko, *the Okinawa Festival Drummers and master facilitator John Yost.*

June 3rd, 2006 Saturday

8:00-9:00 **ISPID Working Group: Epidemiology** — Room 313
ISPID Working Group: Pathology — Room 314
General Registration — Foyer 3rd Floor

9:00-10:30 **Stillbirth Plenary** 🎧

**This session has been made possible by the generosity of:*
SANDS (Stillbirth and Neonatal Death Society).
A UK registered charity, SANDS supports bereaved families when a baby is stillborn or dies soon after birth. SANDS also promotes research and changes in practice to reduce the number of stillbirths.

Unexplained Stillbirths — Small Auditorium 5th Floor

ISA Young Investigator's Award
ISA Excellence in Stillbirth Research Award

(Chair) J. Frederik Froen
(Chair) Toshiko Sawaguchi

170 (ST) Ruth Fretts
UNEXPLAINED STILLBIRTH

171 (ST) Toshiko Sawaguchi
STRANGE RELATIONSHIP BETWEEN SIDS & STILLBIRTH ONLY IN JAPAN

172 (ST) Jason Gardosi
UNEXPLAINED STILLBIRTH AND SIDS: THE RELEVANCE OF INTRAUTERINE GROWTH RESTRICTION

10:30-11:00 **Break** — Seaside Window 3rd Floor

11:00-13:00 **SIDS Scientific Program**
Thermal Mechanisms/Tissue Bank — Room 303

(Chair) Toshimasa Obonai
(Chair) Thomas Bajanowski

173 (S) Peter Fleming
IS THERMAL STRESS A RISK FACTOR FOR INFANT ILLNESS OR DEATH?

174 (S) Toshimasa Obonai
PROPOSAL TO ESTABLISH THE CASE BANK OF SIDS IN JAPAN

175 (S) Thomas Bajanowski
THE REFERENCE CENTRE OF THE GERMAN SIDS STUDY-HOW TO RUN A TISSUE BANK?

176 (S) Torleiv Rognum
BIOBANK NETWORK-LIMITATIONS BY NEW LEGISLATION

11:00-13:00 **SIDS & Stillbirth Scientific Program**
Infection in SIDS and Stillbirth — Room 301

(Chair) Caroline Blackwell
(Chair) Hisashi Kawashima

177 (S&ST) Torleiv Rognum
CLUES POINTING TO THE POSSIBILITY OF BACTERIAL INVOLVEMENT IN SIDS

178 (S&ST) Hisashi Kawashima
IMMUNOLOGICAL CHARACTERISTICS OF INFANTS WITH CPAOA (CARDIO PULMONARY ARREST ON ARRIVAL) WHO WERE POSITIVE FOR VIRUS STUDIES

179 (S&ST) Jane Blood-Siegfried
A POTENTIAL MODEL FOR INFLAMMATION AND INFECTION IN SIDS

180 (S&ST) James Morris
GENETIC VARIATION AND RESPONSE TO INFECTION IN SUDDEN INFANT DEATH: BOTH DELETERIOUS AND NEUTRAL MUTATIONS ARE INVOLVED

181 (S&ST) Caroline Blackwell
ETHNICITY, SMOKING, INFLAMMATION AND SUDDEN DEATH IN INFANCY

182 (S&ST) Sean Blackwell
EXPLORING THE MECHANISMS OF INFECTION-MEDIATED FETAL DEATH

11:00-13:00 **Health Professional Program**

How to Explain Autopsy — Small Auditorium 5th Floor

(Chair) Toshiko Sawaguchi
(Chair) Roger Byard

183 (HP) Munehiro Sugiyama
MEANINGS OF AUTOPSY FOR BEREAVED FAMILIES -WHAT IS THE ROLE OF AUTOPSY?

184 (HP) Lisbeth Sveum
HOW TO EXPLAIN AUTOPSY - A POLICE APPROACH

185 (HP) Masako Miki
HOW THE JAPANESE POLICE DEAL WITH SIDS INCIDENTS

186 (HP) Swan Lip Beh
HOW TO EXPLAIN THE NEED FOR AN AUTOPSY IN A CASE OF SIDS: THE PERSPECTIVES OF A FORENSIC PATHOLOGIST UNDER THE HONG KONG CORONIAL SYSTEM

187 (HP) Ashild Vege
HOW TO EXPLAIN THE AUTOPSY? - THE PERSPECTIVE OF A FORENSIC PATHOLOGIST IN SCANDINAVIA

188 (HP) Toshiko Sawaguchi
THE PERSPECTIVE OF A FORENSIC PATHOLOLGIST UNDER THE JAPANESE SYSTEM

189 (HP) Roger Byard
HOW TO EXPLAIN THE AUTOPSY - REFLECTIONS FROM AUSTRALIA

11:00-13:00 **Parent Program/Health Professional Program**

Peer vs. Professional Counseling, The Differences — Room 302

(Chair) Keiko Yoshida, *Clinical Psychiatrist, Kyushu University Hospital*
(Chair) Graham Harris

190 (P&HP) Graham Harris
SOME PARENTAL SOURCES OF SUPPORT

191 (P&HP) Trine Giving-Kalstad, Bente Berntsen
PEER COUNSELLING AND PROFESSIONAL COUNSELLING - THE DIFFERENCES

192 (P&HP) Anne Giljohann
DIFFERENCES IN HELP FROM PEER SUPPORTERS AND PROFESSIONAL COUNSELLORS FOLLOWING BEREAVEMENT

193 (P&HP) Fumiko Okamoto
MUTUAL SUPPORT AMONG BEREAVED FAMILY GROUP MEMBERS AND ITS EFFECT

13:00-14:00 Lunch (not provided)

14:00-17:30 **Tours**

Board buses. (Separate registration required.) — 1st Level Entrance of Conference Center

Aromatherapy — Oasis Room 317

Aroma therapists: Mayumi Kato *(Instructor)*, Michiyo Yada, Masako Nishikawa, Keiko Yamada *(Instructor)*
of the Aroma Care Institute, Nishikawa Ladies' Clinic, IFA, IMIS
With beautiful aromas and healing music, relax for a 15-minute shoulder massage. (Separate registration required.)

14:00-17:30 **Workshops**

Befriender Course — Room 302

194 (P) Anne Giljohann
BEFRIENDERS TRAINING SESSION (Separate registration required)

14:00-17:30 **Workshop for professionals**

Supporting Parents when a Baby or Child Dies — Small Auditorium 5th Floor

195 (HP) Jenni Thomas
SUPPORTING PARENTS WHEN A BABY OR CHILD DIES (Separate registration required)

Open Forum for the Public (Japanese):
Safe Child Care from Fetus to Neonate — Room 301

Moderators: Hiroshi Nishida, Hiromi Eto
Akira Endou: *Effects of Mother Smoking*
Kubo Takahiko: *Effects of Antenatal Alcohol*
Takeo Sakai: *Breastfeeding*
Kazuhiko Cho: *Tongue Tie and SIDS*
Sachiyo Kataoka: *Car Seat Safety*
Utako Yamamoto: *Safe Antenatal Environment and Delivery*
Bernard T Kinane: *Safe Sleep Environment for Infants*

17:30-19:00 SIDS Family Association Japan Befriender Meeting — Room 302

18:00-20:00 ISA Classification Meeting — Room 314

June 4th, 2006 Sunday

8:00-9:00 **ISPID Working Group: Physiology** — Room 313
ISPID Working Group: Education/Psychosocial — Room 314
General Registration — Foyer 3rd Floor

9:00-10:30 **Health Professional Plenary**

Effects of Death — Small Auditorium 5th Floor

(Chair) Akiko Goto
(Chair) Anat Shatz

196 (HP) Michael Berman
DOCTORS CRY TOO, MODULATING THE EFFECTS OF PERINATAL AND INFANT DEATH ON THE PHYSICIAN

197 (HP) Sherokee Ilse
EMPTY ARMS AFTER THE LOSS OF A TREASURE

10:30-11:00 Break — Seaside Window 3rd Floor

11:00-12:30 **SIDS Scientific Program**

From Genetic Processes to Integrative Cardiovascular and Breathing Control — Room 301

(Chair) Sachio Takashima, *International University of Health and Welfare*
(Chair) Ron Harper

198 (S) Yuri Ozawa
DEVELOPMENTAL ABNORMALITIES OF NEUROTRANSMITTERS IN SIDS

199 (S) Toshiko Sawaguchi
COMPARISON BETWEEN SIDS & OREXIN-KO MOUSE INCLUDING MOLECULAR FACTORS

200 (S) Claude Gaultier
GENETICS OF DEVELOPMENTAL RESPIRATORY CONTROL DISORDERS

201 (S) Ronald Harper
RESPIRATORY AND CARDIOVASCULAR CONTROL MEACHANISMS AFFECTED BY DISTURBED DEVELOPMENT

11:00-12:30 **Stillbirth Scientific Program (Free Papers)**
Stillbirth — Room 311/312

(Chair) Jan Jaap Erwich
(Chair) Makoto Takeuchi

202 (ST) Vicki Flenady
FETAL MOVEMENT MONITORING: PRACTICE IN AUSTRALIA AND NEW ZEALAND

203 (ST) John Thompson
COMPARISON OF RISK FACTORS FOR UNEXPLAINED VERSUS EXPLAINED FETAL DEATH IN NEW ZEALAND

204 (ST) Adrienne Gordon
A PICTURE OF STILLBIRTHS IN NSW, AUSTRALIA: 2002 TO 2004

205 (ST) John Thompson
COMPARISON OF RISK FACTORS OF INTERMEDIATE VERSUS LATE FETAL DEATHS IN NEW ZEALAND

206 (ST) Vicki Flenady
INCREASING UNEXPLAINED FETAL DEATH RATE AT A TERTIARY HOSPITAL

207 (ST) Adrian Charles
KEMH PERINATAL LOSS CLINIC - FOLLOW UP 2003-2004

208 (ST) Glenn Gardener
KARYOTYPING OF STILLBIRTHS

11:00-12:30 **Health Professional Program**
Risk Reduction: Getting the Message to Health Care and Day Care Professionals
Small Auditorium 5th Floor

(Chair) Hiroshi Nishida
(Chair) Bernard T. Kinane

209 (HP) Hiroshi Nishida
REDUCE THE RISKS OF SIDS

210 (HP) Bernard T. Kinane
REDUCE THE RISK OF THE SIDS

211 (HP) Sadao Yamanami
CHANGING PATTERN OF OBSTETRIC PRACTICE FROM 1994 TO 2004 IN RELATION TO EARLY NEONATAL SUDDEN DEATH SYNDROME

211-A (HP) Kazuo Ito
THE SYNERGISTIC RISK OF SLEEPING IN A PRONE POSITION WITH THE INITIAL STRESS OF BEING KEPT IN A DAYCARE FACILITY

212 (HP) Dorothy Ford
HEALTH PROMOTION WITH HIGH-RISK FAMILIES: RISK REDUCTION FOR SIDS AND FATAL INFANT SLEEPING ACCIDENTS

213 (HP) Denise Thomas
SUDDEN AND UNEXPECTED DEATH IN INFANCY: CAN HEALTH PROFESSIONALS BRIDGE THE GAP BETWEEN EVIDENCE AND PRACTICE?

214 (HP) Joyce Epstein
ASSESSING THE IMPACT OF A MULTI-MEDIA CAMPAIGN ON CO-SLEEPING ADVICE

11:00-12:30 **Parent Program**
Art Therapy, Communication — Room 303

215 (P) Yoshiko Sugihara
COLOR COMMUNICATION (Separate registration required)
Translator: Kaoru Sasaki

11:00-12:30 **Parent Program**
Grief of the Family — Room 302

(Chair) Akiko Ohnogi, *Ohnogi Psychotherapy and Counseling Clinic*
(Chair) Sandra Graben

216 (P) Toru Takeuchi
TERMINAL CARE IN PERINATAL PERIOD

217 (P) Sandra Graben
ALLIANCE OF GRANDPARENTS, SUPPORT IN THE DEATH OF A GRANDCHILD

218 (P) Kazumi Wakabayashi
GRIEF OF THE FAMILY, COUPLE'S GRIEF

219 (P) Eline Grelland
CHILDREN'S WAY OF EXPRESSING OF GRIEF

220 (P) Risa Tanaka
MEMORY OF MY YOUNGER BROTHER AND MY MIND

12:30-13:30 **Lunch** — Lounge

13:30-15:30 **SIDS Scientific Program (Free Papers)**
Physiology — Room 301

(Chair) Adrian Walker
(Chair) Ineko Kato

221 (S) Kathleen Harris
GENETIC MAPPING OF AN AUTORESUSCITATION DEFECT IN SWR/J MICE

222 (S) Heidi Richardson
AROUSAL PATHWAYS AND PRONE SLEEPING IN INFANTS

223 (S) Patricia Franco
DECREASED AUDITORY AROUSAL RESPONSES IN SMALL FOR GESTATIONAL AGE INFANTS

224 (S) Jun Sakai
SUDDEN DEATH IN INFANCY AND SLEEPING ENVIRONMENT: HOW TO QUANTIFY THE RISK OF O_2 DEPRIVATION

225 (S) Anette von Bodman
INTERMITTENT HYPOXIA IN SUPINE VERSUS SIDE POSITION IN 0-5 D OLD TERM NEONATES

226 (S) Shirley Tonkin
POSITIONAL ASPHYXIA AND SIDS

227 (S) Sally Baddock
HEAD COVERING EVENTS AND INFANT SLEEP POSITIONS DURING BEDSHARE SLEEP

228 (S) Bazarrogchaa Tsogt
CAN TRADITIONAL CARE INFLUENCE THERMOREGULATION: A PROSPECTIVE CONTROLLED STUDY OF THE EFFECTS OF SWADDLING ON INFANTS THERMAL BALANCE IN A MONGOLIAN WINTER

229 (S) Silvia Noce
RELATIONSHIP BETWEEN GASTROESOPHAGEAL REFLUX AND CARDIORESPIRATORY EVENTS IN INFANTS WITH PREVIOUS APPARENT LIFE-THREATENING EVENTS

230 (S) Stephanie Yiallourou
HEART RATE AND BLOOD PRESSURE RESPONSES TO HEAD-UP TILTS IN SLEEPING INFANTS

231 (S) Henning Wulbrand
OXYGEN DESATURATION DURING NASAL OBSTRUCTION IN UPPER AIRWAY INFECTIONS IN INFANTS

232 (S) Betty McEntire
PROLONGED APNEA AND PROLONGED BRADYCARDIA FOLLOWING DTaP IMMUNIZATION IN PRETERM INFANTS: A RANDOMIZED MULTICENTER STUDY

13:30-15:30 **SIDS Scientific Program (Free Papers)**

Epidemiology Health Professional — Room 311/312

(Chair) Peter Blair
(Chair) Akemi Yamazaki

233 (S) Rachel Moon
PHYSICIAN PRACTICES REGARDING SIDS RISK REDUCTION: A NATIONAL SURVEY OF FAMILY PHYSICIANS AND PEDIATRICIANS IN THE US

234 (S) Hazel Brooke
MULTIDISCIPLINARY CASE REVIEW OF SUDDEN UNEXPECTED DEATHS IN INFANCY IN SCOTLAND: AUDIT OF A 3-YEAR NATIONAL PILOT

235 (S) Carol Evason-Coombe
DEATH SCENE INVESTIGATION OF SUDI- BENEFITS OF A MULTI-AGENCY APPROACH

236 (S) David Tappin
RANDOMISED CONTROLLED TRIAL OF HOME BASED MOTIVATIONAL INTERVIEWING BY MIDWIVES TO HELP PREGNANT SMOKERS QUIT OR CUT DOWN

237 (S) Alison Waite
RISK FACTORS IN FAMILIES EXPERIENCING TWO SIDS

238 (S) Adele Engelberts
SIDS IN THE NETHERLANDS

13:30-15:30 **Stillbirth Scientific Program**

Stillbirth in Developing Countries — Room 303

(Chair) Jelka Zupan, WHO
OPPORTUNITIES FOR STILLBIRTH PREVENTION IN DEVELOPING COUNTRIES
(Chair) Shoji Satoh

239 (ST) Hamisu Salihu
DETERMINANTS OF STILLBIRTH IN DEVELOPING SETTINGS AND PATHWAYS TO PREVENTION: AN OVERVIEW

240 (ST) Abdul Jokhio
EFFECTIVENESS OF TBA TRAINING ON PERINATAL AND MATERNAL MORTALITY: A CLUSTER RANDOMIZED CONTROLLED TRIAL IN RURAL PAKISTAN

Free Papers

241 (ST) Xiaoying Zheng
CHANGES IN STILLBIRTH RATES IN CHINA, 1970-2000

242 (ST) Mohamed Ali
LEVEL AND DIFFERENTIALS OF STILLBIRTH RATES IN 20 DEVELOPING COUNTRIES: A COMPARATIVE ANALYSIS

243 (ST) Abul Hasnat Milton
ASSOCIATION BETWEEN CHRONIC ARSENIC EXPOSURE AND STILLBIRTH IN BANGLADESH

244 (ST) Darios Getahun
RISK FACTORS FOR ANTEPARTUM AND INTRAPARTUM STILLBIRTH: BLACK-WHITE DISPARITY

13:30-15:30 **Health Professional Program**

Effects of Death — Small Auditorium 5th Floor

(Chair) Takeshi Horiuchi
(Chair) Akiko Goto

245 (HP) Akiko Goto
THE ROLE OF THE CARE GIVING TEAM FOR THE BEREAVED FAMILY IN OUR HOSPITAL

246 (HP) Hisako Watanabe
MOTHERS' UNRESOLVED GRIEF OF PERINATAL LOSS AND ITS EFFECT ON NEXT GENERATIONS

247 (HP) Jillian Romm
EFFECTS OF CARING FOR BEREAVED PARENTS ON DOCTORS AND NURSES

248 (HP) Keiko Ishii
"WITH ANGELS IN THE SKY - WAIS" AN INTERNET-BASED SELF-HELP GROUP FOR FAMILIES WHO HAVE EXPERIENCED STILLBIRTH OR MISCARRIAGE

249 (HP) Yuka Sato
"WITH YOU" A SUPPORT GROUP WHERE PARENTS SHARE THEIR EXPERIENCES OF STILLBIRTH AND NEONATAL DEATH

250 (HP) Noriko Izumiyama
"ANGEL'S BOUTIQUE" MEETING WITH BEREAVED PARENTS AND MAKING BABY CLOTHES FOR BABIES THAT HAVE DIED

13:30-15:30 **Parent Program**

Peer Support Meeting, Stillbirth Focus — Room 302

Panel of Experts:
Noriko Koto, Fumi Toba *(Co-Chairs) Befriender, SIDS Family Association Japan*
Yumiko Okada *(Clinical Psychologist, Kakogawa Municipal Hospital)*
Masato Takeuchi *(Obstetrician, Japan International Cooperation Agency)*

13:30-15:30 **Parent Program**

Aromatherapy — Oasis Room 317

Aroma therapists: Mayumi Kato *(Instructor)*, Michiyo Yada, Masako Nishikawa, Keiko Yamada *(Instructor)*
of the Aroma Care Institute, Nishikawa Ladies' Clinic, IFA, IMIS.
With beautiful aromas and healing music, relax for a 15-minute shoulder massage. (Separate registration required.)

15:30-16:00 **Break (Tea Ceremony)** — Seaside Window 3rd Floor

Witness the meditative, beautiful and ancient Japanese Tea Ceremony. Tea Ceremony started in 12th century Japan and developed into an art based on the priests' approach to it as an embodiment of Zen principles for appreciating the sacred in the everyday. The simplicity and efficiency of the ceremony is designed to help the participants be awakened to the simple beauty around them. Demonstrated by volunteers from the Yokohama Convention Bureau.

16:00-17:30 **SIDS Scientific Program**

**This session has been made possible by the generosity of:*

The Foundation for the Study of Infant Deaths (FSID)

Safe Sleep Environment — Room 301

(Chair) Hajime Nakamura
(Chair) Peter Fleming

251 (S) Hajime Nakamura
SAFETY CAR SEATS - THEIR BENEFITS, POTENTIAL HAZARDS AND ALTERNATIVES

252 (S) Peter Sidebotham
HAZARDOUS SLEEPING ENVIRONMENTS IN WHICH INFANTS MAY SLEEP ALONE-RESULTS FROM A CASE CONTROL STUDY OF POTENTIAL HAZARDS OF THE SLEEP ENVIRONMENT

253 (S) Bradley Thach
HEAVY WRAPPING, HEAD COVERING AND SOFT BEDDING - POSSIBLE MECHANISMS CAUSING SIDS

254 (S) Peter Fleming
MATTRESSES, MICROENVIRONMENTS AND MICROORGANISMS-DO THEY MATTER?

16:00-17:30 **SIDS Scientific Program**

Cardiopulmonary Mechanisms — Room 311/312

(Chair) Adrian Walker
(Chair) Hiroyuki Kitajima

255 (S) Adrian Walker
POTENTIAL CARDIOPULMONARY MECHANISMS FOR SIDS CHECK LIST

256 (S) Hiroyuki Kitajima
SIDS AND SUBCLINICAL PULMONARY HYPERTENSION

257 (S) Naoki Nishida
OVERLAPPING OF PATHOLOGICAL ABNORMALITY OF CARDIOVASCULAR AND CENTRAL NERVOUS SYSTEM IN THE CASES OF SUDDEN INFANT DEATH WITH PRONE-POSITIONED SLEEPING

258 (S) Rumiko Matsuoka
CHANNEL ABNORMALITIES AND SIDS

259 (S) Thomas Keens
DEVELOPMENTAL PATTERN OF AROUSAL RESPONSES TO RESPIRATORY STIMULI

16:00-17:30 **Stillbirth Scientific Program** 🎧

Prevention of Stillbirth — Small Auditorium 5th Floor

(Chair) Jason Gardosi
(Chair) Noriyuki Suehara

260 (ST) Gordon Smith
STRATEGIES FOR SCREENING AND STILLBIRTH PREVENTION

261 (ST) Hamisu Salihu
MANIPULATING IN UTERO FETAL NUMBER TO PREVENT STILLBIRTH

262 (ST) J. Frederik Froen
REDUCED FETAL MOVEMENT-SIGNIFICANCE AND MANAGEMENT

Closing Remarks: WHO Representative

16:00-17:30 **Health Professional Program (Free Papers)** 🎧

Reduce the Risks: New Solutions for High Risk Groups — Room 302

(Chair) Maxine Weber
(Chair) Hazel Brooke

263 (HP) Angela Doyle
SAFE SLEEPING PRACTICES FOR INFANTS LIVING IN WESTERN AUSTRALIAN ABORIGINAL COMMUNITIES

264 (HP) Riripeti Haretuku
SIDS PREVENTION IN MAORI COMMUNITIES - AN INDIGENOUS PERSPECTIVE

265 (HP) Paulina Hopa
A QUALITATIVE EXPLORATION OF THE EXPERIENCES OF MAORI PARENTS AND CAREGIVERS THE LIFE HISTORY APPROACH

266 (HP) Judith Bannon
CRIBS FOR KIDS - A SAFE-SLEEP EDUCATION PROGRAM

267 (HP) Bregje van Sleuwen
COMPARISON OF BEHAVIOUR MODIFICATION WITH AND WITHOUT SWADDLING AS INTERVENTIONS FOR EXCESSIVE CRYING

268 (HP) Maaike van Schaijk
HIGH RISK GROUPS BETTER DEFINED

269 (HP) Elizabeth Craig
BEDSHARING: DEVELOPING MESSAGES FOR MAORI NEW ZEALANDERS

16:00-17:30 **Parent Program** 🎧

Music Therapy, Health Rhythms — Room 303

Facilitated by Haruki Niyekawa, Nozomi Nagasaka and John Yost
HEALTH RHYTHMS (See abstract 169) (Separate registration required.)

16:00-17:30 **Parent Program**

Aromatherapy — Oasis Room 317

Aroma therapists: Mayumi Kato *(Instructor)*, Michiyo Yada, Masako Nishikawa, Keiko Yamada *(Instructor)*
of the Aroma Care Institute, Nishikawa Ladies' Clinic, IFA, IMIS.
With beautiful aromas and healing music, relax for a 15-minute shoulder massage. (Separate registration required.)

18:00-18:30 **Closing Ceremony** — Room 303

Presentation of the Kaarene Fitzgerald Award

Closing remarks by:
Stephanie Fukui, *SIDS Family Association Japan*
Maxine Weber *and new Executive Chairman, SIDS International (SIDSI)*
J. Frederik Froen, *International Stillbirth Alliance (ISA)*
Torleiv Rognum *and new Executive Chairman, International Society for the Prevention of Infant Deaths (ISPID)*
Hajime Togari, *Japan SIDS Research Foundation Society*
Hiroshi Nishida, *SIDS Family Association Japan*
Hiroshi Kanke, *SIDS Family Association Japan*

Committee

The 9th SIDS International Conference Planning Committee

Co-chairs

- **Hiroshi Kanke** *(SIDS Family Association)*
- **Stephanie Fukui** *(SIDS Family Association)*

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- **Shoichi Sakamoto** *(Tokyo University School of Medicine, Japan Association of Obstetricians and Gynecologists)*
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- **Kathi Matsura** *(SIDS Family Association)*

Health Professional Program

- **Takeshi Horiuchi** *(St. Marianna University School of Medicine)*
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- **Hiromi Eto** *(St. Luke's College of Nursing)*
- **Masato Takeuchi** *(Japan International Cooperation Agency)*
- **Akiko Goto** *(Kanagawa Children's Medical Center)*
- **Shunpei Yokota** *(Yokohama City University Hospital)*

SIDS Scientific Program

- **Ed Mitchell** *(University of Auckland, International Society for the Prevention of Infant Deaths)*
- **Hajime Togari** *(Nagoya City University Medical School, Japan SIDS Research Society)*
- **Henry Krous** *(Children's Hospital San Diego, University of California, San Diego School of Medicine)*

Stillbirth Scientific Program

- **Ruth Fretts** *(Brigham & Women's Hospital, Harvard Medical School)*
- **J. Frederik Froen** *(Brigham & Women's Hospital, Harvard Medical School, International Stillbirth Association)*
- **Vicki Flenady** *(Mater Health Service Australia)*

(International Stillbirth Alliance)

Marcia Bannon	Janet Carey	Deb Boyd	Liz Davis
Sue Hale	Julie MacPhail	Kiri Vaughan	Anne-Maree Stout
Hannah White			

Parent Program/Social Program/Fundraising/Public Relations

(SIDS Family Association)

Shinichi Fujimaki	Hideki Fukui	Misako Ikematsu	Kana Kanke
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Katsuo Tanoue	Naoko Tomita	Atsushi Watanabe	Yoshiko Yoshihara

SIDS International Executive Committee

- **Maxine Weber** *(SIDS and Kids, Australia)*
- **Hazel Brooke** *(Scottish Cot Death Trust, Scotland)*
- **Julia Kjaerstad** *(Norwegian SIDS Society, Norway)*
- **Giampaolo Gabbi** *(SIDS Italia, Italy)*
- **Debra Boyd** *(First Candle/SIDS Alliance, U.S.A.)*

SIDS International

In 1985 a group of representatives from SIDS Parent organizations met in Brussels for the first time. They realized the benefits that could be gained by working together. It was agreed the new organization would facilitate sharing of information, improve services to families, increase public awareness about SIDS, encourage liaison with health professionals, and encourage research to eliminate the sudden unexpected death of infants. The name SIDS Family International was adopted and the first Executive was formed with Kaarene Fitzgerald from Australia as Chair. At a Lake Como meeting in 1987, the name of the organization was changed to SIDS International (to better reflect the professional services provided by its members) with June Reed as its first chair.

Objectives

- The aim of SIDSI is to better understand the causes of, and thereby reduce the incidences of SIDS and other sudden unexpected deaths in infancy (SUDI).
- Act as an international voice and facilitate the international sharing of information on SIDS and SUDI related issues pertaining to statistical information, research, counselling, support, education and service provison.
- Conduct an International Conference every two years to facilitate the work.

Membership

Membership is open to country organizations who represent bereaved families who have experienced the sudden death of a baby. SIDSI currently has 13 countries as full members and has affiliation with a further 10 countries.

Japan SIDS Family Association

The SIDS Family Association Japan was founded in 1993 and now has 13 chapters nationwide. The membership consists of 564 bereaved families, 33 supporting members and 52 advisors (medical professionals, counselors, etc.) SIDSFAJ is an official not-for-profit volunteer organization governed by an executive committee whose positions are filled by bereaved parent members. We presently have two hired staff members. Our membership of bereaved families includes families who have suffered a loss through miscarriage (5%), stillbirth (26%), neonatal death (21%), infant death (38%) and child death (10%). About 31% of our bereaved families are SIDS families.

Purpose

SIDSFAJ has three main goals:

- to support families in Japan who have lost a baby for any reason
- to educate Japan about SIDS and about how to care for bereaved families
- to support research on SIDS and care for the bereaved

The SIDS Prevention Campaign

The SIDS Family Association Japan launched a SIDS prevention campaign in June of 1996 targeting medical professionals. In early 1997 a pamphlet was released that educated new parents about SIDS risk factors. These were distributed to hospitals and daycare centers. Over two million copies of the prevention pamphlet have been distributed since 1998. By 2001, the SIDS rate in Japan had been reduced by almost 50%.

Japan SIDS Research Society

The Japan SIDS Research Society was founded in 1995. The society's goals are to promote:

- research in SIDS
- information exchange between researchers within Japan and abroad
- work towards SIDS prevention and dissemination of information about SIDS

Activities include an annual conference, publication of a medical journal, creating guidelines for SIDS prevention, establishing a definition for SIDS and maintaining a web page (all in Japanese.)

International Stillbirth Alliance (ISA)

ISA Philosophy "Collaboration for understanding and prevention of stillbirths"

The International Stillbirth Alliance is a coalition created to enhance and increase the effectiveness of individuals and groups already working to promote stillbirth research, education and awareness. The ISA exists because of a collaborative effort between First Candle (USA), Perinatal Research Center (Norway), and SIDS & Kids (Australia). As more groups become members, the Alliance can grow to become an international central resource for stillbirth.

ISA's philosophy is based on forming relationships and bringing together experts from a variety of fields to create partnerships for the purpose of awareness, education and research. The organization serves as a centralized resource for connecting individuals and organizations including parents, researchers, medical professionals, public media, advocacy organizations and others who are interested in the prevention of stillbirth. Its advisory boards and action committees are volunteer-based.

ISA: goals

- Connect professionals, organizations and individuals for the purpose of initiating research, educating and promoting awareness of stillbirth
- Create a central repository for worldwide information related to stillbirth for families and researchers
- Educate about recommended precautionary methods through publicity campaigns aimed at the public and medical community

The International Society for the Study and Prevention of Infant Death (ISPID)

The International Society for the Study and Prevention of Infant Death (ISPID) exists to promote:

- the exchange of information among scientists who have special experience in the field of infant health and death
- research and training

ISPID is a registered society and recognized as a non-profit organization. ISPID is an amalgamation of the European Society for the Study and Prevention of Infant Death (ESPID) and the SIDS Global Strategy Task Force (GSTF), a merge of two scientific societies dedicated to the prevention of sudden infant death and research into its causes,

Abstracts

1 (S)

REVIEW ON CHILD CARING ENVIRONMENTS AS THE CONSEQUENSE OF THE WORLD'S LOWEST INFANT MORTALITY RATE AND OF LOW SIDS RATIO IN JAPAN

Hiroshi Nishida
Tokyo Women's Medical University, Japan

The infant mortality rate of Japan became less than 5 per 1,000 live births in 1988 and was 3.0 in 2003, which has been the world lowest. One of contributing factors of this signficant achievement is low incidence of SIDS, which was 0.44 per 1,000 live births in 1995 and 0.19 in 2003. Since child caring environments influence on both statistics, it is worth while to review their historical changes in Japan.
Terminology of child care in Japanese is Hagukumu, which means hugging infants like warming eggs by birds. Therefore basic concept of infant care for Japanese is living together closely in a nest, namely in a same room. Close and constant contact with attention to infants has been apparently contributing factors of lowing infant mortality and SIDS ratios.
This year is the 25th anniversary since the first nationwide SIDS research project sponsored by the government was launched in 1981. Thereafter Japan SIDS Family Association and Japan SIDS Research Association were founded in 1993 and in 1995 respectively. These three SIDS related groups have been working together to lower the incidence of SIDS in Japan through academic researches and prevention campaigns. Since I have been involved in these three groups from the very beginning, I will overview their contributions to lowering SIDS in Japan.

2 (S)

SIDS EPIDEMIOLOGY: A VIEW FROM THE WEST

Ed Mitchell
University of Auckland, New Zealand

Infant mortality in Japan is the lowest in the world (2002: 3.0/1000 live births). Postneonatal mortality (1-11 months) is also very low (2002: 1.3/1000). International comparisons of SIDS mortality are difficult as interpretation of pathology and death scene investigations varies from place to place. SIDS mortality in Japan is reported to be 0.27/1000, which is also low, but there is concern that this may be increasing. The West has much to learn from Japan.
Epidemiological studies of SIDS have been quite intensive in the West, but in Japan have been some what limted. However, one of the striking features of SIDS epidemiology has been it's consistency from country to country. Thus the findings of the epidemiological studies in the West are probably applicable to Japan.
The epidemiology of SIDS has changed since the "Back to Sleep" campaign has reduced SIDS mortality throughout the world. The previously reported increased risk in winter, colder latitudes and thermal factors are much less important, and socioeconomic disadvantage is more prevalent in SIDS cases now than in the past. However, the age distribution and increased risk for male infants remain unchanged.
Apart from thermal factors, modifiable risk factors discussed over the last 15 years remain importnat in 2006. These include maternal smoking, sharing the parental bedroom, co-sleeping, pacifiers, breastfeeding, safe sleeping environment. Even though there is a consistency to the findings there continues to be strenuous debate as to what should be recommended.

3 (S)

WHICH PARAMETERS SHOULD BE MONITORED AT HOME TO PREVENT SIDS?

Satoshi Nakagawa
Department of Anesthesia and Critical Care Medicine, National Center for Child Health and Development, Japan

The exact causes of sudden infant death syndrome (SIDS) remain unknown. Because of the reason, we still do not know which parameters are effective to predict such tragic events.
When we judge whether a certain monitoring method is effective or not, we must consider the following factors;
1. Are the parameters chosen for monitoring appropriate?
2. Does the monitor capture the biological information correctly?
3. Are the parameters transmitted to the users effectively?
4. Are the users intelligent enough to interpret the information which the monitor provides?
5. Is the target of monitoring is correct?

Suppose when a pulse oximeter is chosen for home monitoring, what are the advantages and what are the potential problems? Pulse oximeters provide the information on oxygen saturation (SpO2) and pulse rate. Are they the right parameters? Pulse oximeters capture these parameters when the patients are quiet, but when the patients move, the monitor may not provide the adequate information. Current models of pulse oximeter may provide false alarms, especially when the patients move vigorously. If the incidence of false alarms is high, users may stop using this monitor. When the monitor alarms low SpO2, however if the user does not understand what low SpO2 means for the patient, the alarm may be useless. When the user knows what low SpO2 means, but if he/she does not know the technique of CPR or respiratory support, the alarm may not activate the correct pathways. Who are the high risk infants of SIDS? Ex-premies? Siblings of SIDS victims? The ones who have history of apnea or acute life threatening events? They may not be the high-risk infants. The normal infants may have the risks as equally as, or higher than the so-called high-risk infants.
When we assess the efficacy of home monitoring, the factors listed above should be examined carefully.

4 (S)

CARDIORESPIRATORY RECORDINGS DURING SUDDEN INFANT DEATH (SID)

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The pathomechanisms leading to SID are still unknown. One way to gain more insights into these is an analysis of memory monitor downloads. There are now a number of recordings from cardiorespiratory monitors which were obtained during SID. In an analysis of 9 recordings of chest wall impedance and heart rate obtained during SID, gasping was the predominant pattern, being already present at the time of the monitor alarm in 3 infants and occurring within 3 min. after it in a further 4. One infant only began to gasp 13 min. after the first monitor alarm. The duration of gasping ranged from 3 s to 11 min. Primary trigger for the monitor alarm had been bradycardia in all but two infants, but there was no indication of heart block or ventricular tachycardia. Prolonged apnea (>20 s) began only up to 13.7 min. (median 2.7) *after* this alarm in 5 infants and 7 to 20 s *before* it in 3; in the remaining infant, stimulation occurred prior to any apnea. There was no evidence for any arousal reaction (e.g., body movements). These observations suggest that prolonged apnea is unlikely to be a primary mechanism in the sequence of events leading to most cases of SID. Also, bradycardia is unlikely to be a primary mechanism, as it was closely related to gasping, which is indicative of severe hypoxemia (triggering the bradycardia). Finally, gasping occurred in the majority of these SID victims, but was obviously not successful as an autoresuscitative mechanism. The latter data were confirmed in a similar study observing gasping in 23 of 24 infants immediately preceding death. These data differ from those obtained during imposed apnea (infanticide), which may show initial tachycardia.
These data will be compared with a polygraphic video recording of an infant during a severe ALTE who showed similar respiratory patterns.

5 (S)

DATA TRANSMISSION AND ANALYSIS IN DOCUMENTED MONITORING

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Home apnea monitors have been prescribed since the early '60s for "preventing the Sudden Infant Death Syndrome (SIDS)", even though the effectiveness of such intervention has not been demonstrated.
A recent Policy Statement of the American Academy of Pediatrics indicates that home monitors are useful in the case of apnoea, respiratory failure, airway obstruction, interruption of supplemental oxygen supply, or failure of mechanical respiratory support.
This electronic surveillance therefore has changed spectrum over the time, moving from a generic prevention measure to a more targeted strategy adoptable in infants exposed to hypoxemic events, that are potentially life-threatening or harmful for the integrity of the central nervous system.
We have previously found that the data transmission directly from the patient's home (telemedicine) is cost effective and allows a more comfortable management for the families with prompt access to information through data downloading and remote interpretation by expert personal.
In our first telemedicine system, data were sent from home to our Centre. We have now organized a network involving eight Italian children's hospitals belonging to the Health Promoting Hospitals (HPH) organization. A web site has been created to collect the data of infants monitored by the referral Centres. In the public area of the site (www.nannasicura.com/index2.html) information is available regarding home monitoring and SIDS, while in the area only accessible to doctors and nurses (www.sapiolife.adverteaser.com) the data and traces sent by the families of the monitored infants are stored. Our aim is to share the information and the traces with the Centres in order to create a common database for the harmonization of the home monitoring programs and data interpretation.
All the participating Centres use a new brand of home memory monitor incorporating both pulse oxymetry and transthoracic impedance. The data interpretation is therefore based not only on the evaluation of the events deriving from the impedance signals (central apnoeas and bradycardias) but also on the evaluation of the pulse oxymetry values and waveforms. The comparison between pulse and heart rate and the availability of the Pulse Transit Time (PTT), the Quality Indicator (Signal IQ) and the Perfusion Index (PI) signals should make it possible to have a more accurate interpretation of the tracings.

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6 (S)

PRECURSORS OF CARDIORESPIRATORY EVENTS IN INFANTS DETECTED BY HOME MEMORY MONITORING

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The Collaborative Home Infant Monitoring Evaluation (CHIME) is a study of cardiorespiratory events in infants at increased risk for SIDS and healthy term infants, and includes >700,000 hours of physiologic data during apnea and/or bradycardia events exceeding conventional or extreme event thresholds, and during 3 min periods automatically recorded when there was no apnea or bradycardia (non-event epochs). The objective for this new analysis, using non-event epochs for comparison, is to determine whether there are physiologic precursors of apnea and bradycardia events. We identified 85 infants who had at least 1 extreme event and selected 1 conventional event and 1 non-event epoch in proximity to the extreme event. For each conventional event and extreme event of interest, and each non-event epoch, we analyzed physiologic data in 3 preceding time intervals: Time-2h: up to 2 hours before; Time1h: up to 1 hour before; and Time-75s: the 75 seconds immediately before each event type. Based on paired within-subject comparisons of corresponding intervals preceding each event type, respiratory rate variability as measured by interquartile range is increased in Time-75s preceding conventional events and in Time-1h & Time-75s preceding extreme events. Total duration of respiratory pauses 5-19 seconds is also increased in Time-75s preceding conventional events and in Time-1h & Time-75s preceding extreme events. Oxygen saturation is lower in Time-75s preceding both conventional and extreme events. Based on longitudinal analyses of the progression from Time-2h through Time-75s, oxygen saturation progressively decreases preceding both conventional and extreme events, and progressive increases occur in heart and respiratory rate and in corresponding interquartile ranges. Total duration of respiratory pauses and of periodic breathing progressively increases preceding conventional events. Analyzing apnea events separately, respiratory rate interquartile range increases in Time-75s preceding conventional events and in Time-1h preceding extreme events, and total respiratory pause duration increases in Time-1h and T-75s preceding extreme events. In conclusion, respiratory and heart rate variability increase in the two hours preceding a conventional event and especially preceding an extreme event, and oxygen saturation levels decrease. Conventional and extreme events do not occur in isolation but rather are heralded by progressive physiologic instability.

7 (ST)

EPIDEMIOLOGY OF STILLBIRTH IN JAPAN

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Japan has become a country with the lowest perinatal mortality rate in all over the world. However, the low but significant still birth cases are still present. Despite, even in Japan, social, medical, economical and many other factors are apparently related with the cause of stillbirth, not only general Japanese but obstetricians are likely to escape discussions for the present status and the remnant duty for preventing unnecessary abortion or psychological trauma to mothers. Herein, I report the present epidemiological status and choronological change of stillbirth in Japan, based on Perinatal Registration Database by Japanese Society of Obstetrics and Gynecology, and discuss the presence and future in stillbirth in Japan.

8 (ST)

CHRONOLOGICAL CHANGES OF PERINATAL VITAL STATISTICS IN JAPAN

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The perinatal mortality rate was analyzed using Japanese vital statistics. For Japan as a whole, it is possible to compile a satisfactory series of vital statistics since 1900. The perinatal mortality rate significantly decreased with the year.Although the perinatal mortality rate fell by 70% between 1980 and 2000, it does not change for recent several years. Changes in the distribution of birthweight, maternal age, and plurality are thought to attenuate the observed reduction in perinatal mortality. In order to decrease perinatal mortality rate further it is necessary to improve the organization and quality of perinatal care.

9 (ST)

OUTCOME OF FETAL ANOMALIES PRENATALLY DIAGNOSED EARLY IN GESTATION

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Termination of pregnancy prior to 22 weeks' gestation is legally permitted in present Japan. Since prenatal screening test was introduced in many hospitals, many cases with fetal anomalies have been diagnosed early in gestation.
Our center is one of the biggest tertiary center with maternal-fetal unit in Japan and about 700 cases have been prenatally diagnosed since our center established in 2002. Outcome of fetal anomalies prenatally diagnosed prior to 22 weeks' gestation in our center was studied in this study. Many of the cases resulted in termination of pregnancy. Some of the cases were estimated good prognosis after birth. We discuss ethical issues of the fetal diagnosis early in gestation in Japan.

10 (HP)

A NATION-WIDE STUDY OF BRIEF CARE SYSTEM FOR BEREAVED FAMILIES IN GENERAL HOSPITALS

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Background: In supporting bereaved families, parents require continuing validation that the baby's death is no one's fault. Support groups and medical professionals are the key to this type of care. To study the prevalence and present status of the brief care system in Japan for bereaved families, a nation-wide survey was conducted.
Materials and Methods: A questionnaire was sent to 2,415 hospitals in which there were 100 beds or more, and pediatric clinics were working. In Japan, child emergency-room system has not been settled yet, and thus, most pediatric clinics involved were in the regional general hospitals.
Results: The questionnaires were returned from 1,070 hospitals (44%). Three hundreds seventy-eight hospitals among them (26%) experienced at least one cardiopulmonary- arrested (CPA) baby at admission or after short time hospitalization. The pediatric clinics which experienced these CPA babies were located in relatively large hospitals with over 300 beds (69% of total) and especially over 500 beds (36% of total). Among these hospitals, 27% of the CPA babies were diagnosed as having Sudden Infant Death Syndrome (SIDS). The number of larger hospitals which experienced SIDS babies was increased to 84% of the hospitals with over 300 beds, and 55% of all over 500 beds. In view of brief care for the bereaved families, approximately 43% of the medical professionals (pediatrician) assisted parents at the time of their baby's death, and 53% offered parents to make contact with support groups for brief care. The returned questionnaires also indicated that 53% of the medical professionals who assisted parents understood their behavior would be unsatisfactory, and, on the other hand, 28% of them believed to be successful. In the latter case, most pediatricians were aware on how to care these families. Next, the number of hospitals which employed skillful providers who supported bereaved families was examined. Only 75 of 1,070 hospitals (7%) had grief care system for parents affected. Most pediatricians (83% of all hospitals) recognized the need for establishing the grief care system in Japan.
Discussion: The grief care system for bereaved families was not prevalent in Japan yet. However, over half of the pediatrician who experienced the baby's death at the regional hospitals offered parents to make contact with support groups for brief care, and about 80% of them thought the need of establishing the grief care system in Japan.

11 (HP)

SURVEYS OF BEREAVED FAMILIES, OBSTETRIC OR PEDIATRIC HOSPITALS, AND DAYCARE CENTERS ON CARE FOR THE BEREAVED AND SIDS RISK FACTORS

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In 2003 SIDS Family Association Japan conducted two surveys for its project to investigate the actual state of psychological care for bereaved families in Japan. The first survey investigated parents who lost their babies to diseases including SIDS, as well as miscarriage or stillbirth. The second questionnaire surveyed obstetric and pediatric hospitals and daycare centers. Both surveys were in the form of a questionnaire and some questions concerning SIDS risk factors were added to the second survey.
The parent survey was designed to research:
1. what kind of professionals bereaved families meet at the time of death of their babies and how they feel about the conduct of these professionals
2. the type and quality of care that bereaved parents are receiving at hospitals in Japan
3. what support they think they need to cope with the loss of a baby.
Results showed that hospital staff are the group that is most likely to come into contact with bereaved parents at the time of death of their babies. Therefore it is very important that hospital staff give good care to bereaved parents. However, around 30% of the hospital staff were rated to have Bad or Very Bad conduct at the time of death. The police as a group was rated very low when it came to the treatment of bereaved families. According to our survey, bereaved parents felt the care they most wanted was: adequate information and careful explanation concerning cause of death and medical treatment, ample time to spend with the baby who died, and follow-up care. However, follow-up care seems to be seriously lacking in Japan.
The second survey, designed based on the results of the first survey, examined:
1. the type of care that hospitals are providing to bereaved families
2. the child care environment as related to SIDS risk factors.
Results showed that hospitals are conscientious about care for the bereaved but there is still room for improvement, especially in the area of follow-up care for bereaved families. SIDS risk factors are low in the hospital nurseries and daycare centers. However, using the back sleeping position exclusively or more widely could possibly prevent more babies from dying of SIDS. The response rate of the obstetric hospitals was low and the reasons for this need to be investigated further.

12 (HP)

SUGGESTION ON GRIEF CARE SYSTEM

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Grief care provides support for grieving parents and family who have lost a child.It appears that grief care will become an important theme of medicine in the perinatal and childhood in the future. However, grief care has some problems that must be addressed. Firstly, the way life is viewed must be addressed. Although the goal of medical treatment is to prolong life, the goal of grief care is to preserve dignity of character and the family's relationship with the patient. This is different to maintaining a patient's “physiological life”, which is achieved by current medical treatment. The goal of grief care is best described as remembering an “area of life”. Secondly, the death of a child during medical treatment must be defined. Death of a child means the medical end, the medical defeat, and the end of the relationship between the family and the medical staff. To address the problems with the grief care system, the following aspects need to be introduced: (1) interventional care should be provided daily before a child's death; (2) support should be provided for those grieving at the time of death; (3) letters should be sent out periodically to remind the grieving people they are not alone; and (4) periodical familial meetings should be arranged for the purpose of sharing thoughts and emotions. Here, we introduced an interventional grief care support program in cooperation with perinatal medical treatment.

13 (HP)

BEYOND GRIEF, ESTABLISHMENT OF THE CLINICAL FIELD OF DIABETES AND PREGNANCY IN JAPAN

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when I was a young trainee doctor, two years after graduation, I had to learn how to treat diabetic patients and we young doctors had many duties seeing the out and inpatients in the department of internal Medicine ot Tokyo women's Medical University.
At the same time, I had started an animal experiment for getting a medical degree. The purpose of the animal experiment on rabbits was to clarify the cause of Steroid diabetes as a side effect of using steroid hormones. During this period, I also got pregnant. After learning about the pregnancy, I had a strong desire for a spontaneous abortion because I wanted to continue my clinical and research study and other problem was who took care of our baby. Sometimes, I skipped rope in secret with the desire for a spontaneous abortion on the roof garden of my hospital.
However, after I felt fetal movement, my mind changed. Throughout the fetal movement, I always felt the sense of solidarity between mother adn fetus, and wished the fetus would grow safely and healthily.
While pregnant, I continued my animal experiment every day. Finally, I gave birth to a stillborn due to weak labor contraction of the uterus. But I thought my baby-committed suicide in the uterus, because he knew that if he was born now his mother would not be able to continue with the experiment and clinical work.
Then may grief was very strong. At that time, I met two diabetic women who were grieving after stillbirth, because they had diabetes during their pregnancies. However, their diabetes was not diagnosed and they were not given treatment, so their fetuses died.
In the 1960s, Japan had very few ciabetic young women and male doctors didn't allow them to get pregnant. Medical treatment for pregnant diabetic women and research had not been started in Japan. On the contrary, it had already been well advanced in Europe and USA. I decided through my heartbreaking experience that I would devote my life to diabetes and pregnancy, and to keep their diabetes under control So that diabetic women would never have to experience the grief of loosing their fetuses.
I believe mu dead child became a Higanbana - Cluster amaryllis- and every autumn blooms at the banks of the Imperial palace. I meet him there every Autumn Equinox Day. He reminds me of my medical activities

14 (P)

GET A SENSE OF YOUR HEART AND SOUL WITH ART COLOR THERAPY

Yoshiko Sugihara
World Children's Crayon Fund, Japan

What was the color of your soul during times of joy and times of sorrow? Through this workshop, feel out the colors which are connected to your mind and body and the color necessary for regenerating your spirit. What are your healing colors? In addition, looking at colors and motifs as manifested expressions of the soul, Yoshiko Sugihara will show us paintings from before and after her own loss, and discuss regeneration and the process of getting there.

15 (S)

ASPIRATION OF GASTRIC CONTENTS, SUFFOCATION AND SIDS

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Although it is generally recognised that SIDS is a diagnosis of exclusion, confusion remains concerning the diagnosis of suffocation in infancy and its separation from SIDS. Infants who suffocate under soft objects, or who are wedged, often have no pathognomonic pathological findings at autopsy to enable them to be differentiated from a typical SIDS death. Thus, without an accurate death scene examination and description, a number of cases would be incorrectly attributed to SIDS. This has certainly happened in the past, with a diagnostic shift observed in the mid to late 1990's, when SIDS numbers fell and deaths due to suffocation increased, demonstrating the usefulness of scene information. Aspiration of gastric contents is a very common finding at autopsy that may occur agonally, or as a post mortem phenomenon. It can only very rarely be blamed for causing death; e.g. in a review of nearly 200 infant and early childhood deaths only 3 cases were found where gastric aspiration was regarded as significant. While prone sleeping position increases the risk of SIDS, it does not mean that the mechanism of death is suffocation. Supine sleeping has not increased the rate or amount of aspirated gastric contents observed at autopsy.

16 (S)

MEDICOLEGAL ISSUES IN SIDS

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The medico-legal aspect of sudden infant death is as old as the organised society. In ancient time overlaying was accepted as the cause of most of infant deaths (1. Book of Kings in The Old Testament), and Saran from Ephesus in his gynaecology published under emperor Adrian a few years before Christ, warned against overlaying and recommend to have the crib placed upon the mother's bed.
During the Middle Ages the concept of overlaying meant that the death of an infant was considered an accident and not an infanticide. After the reformation however, if an infant was considered unintentionally overlaid, the mother or both parents could be put into the pillory at the entrance of the church. In King Christian V's Norwegian law of 1687 punishment for overlaying of infants is introduced: women should "loose her neck" and her head be mounted on a pole. From 1750 the king usually commuted sentences to life imprisonment or workhouse servitude for a given number of years. The Criminal law of 1842 removed the death penalty for infanticide from Norwegian law. According to the new law for health personnel of 2000 sudden infant death is considered unnatural and has to be reported to the police. Several unhappy episodes occurred during the SIDS epidemic in the 1980'ies ordinary police often performed crime scene investigation, interrogated parents and subsequently sent a letter informing them about "decision in criminal case: case is dismissed". As a result of an initiative taken by the Norwegian SIDS Society, the police was in 1991 withdrawn from the scene of death and were instructed to await the result of the forensic autopsy. However, the SIDS rate dropped dramatically from 1990, now comprising only half of all sudden infant deaths, the lack of death scene investigation has become a great challenge in Norway. A research project in which police experts together with the forensic pathologist who had performed the autopsy did the death scene investigation immediately after the autopsy, has been very promising. A qualitative study performed by a crisis psychologist concluded that this way of death scene investigation was of great help for the families hit. The Norwegian SIDS Society and the ombudsman for children have been engaged in changing the law permitting an expert team to investigate the death scene.

17 (S)

DILEMMAS IN THE DIAGNOSIS OF ENVIRONMENTAL HYPERTHERMIA IN SUDDEN INFANT DEATH

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A 2-day-old male, the product of a 40 week gestation delivered spontaneously and vaginally of a gravida 2, para 2, 19 year old Oaxacan woman, had Apgar scores of 7 and 8 at 1 and 5 minutes, respectively. While in the hospital, he sucked poorly, but did not have respiratory distress. He was discharged home in good condition and with stable vital signs. His clinical course at home was unremarkable. His mother found him blue and apneic, after being asleep for approximately 2 hours. The Police Department (PD) found him bundled, hot to touch, cyanotic and unresponsive. Cardiopulmonary resuscitation (CPR) by the PD and emergency medical technicians for 27 minutes was unsuccessful. The ambient temperature was in the 90s. At autopsy, the body weighed 2110 gms [5th percentile; birth weight 2888 gms (10th percentile)]. The infant was abundantly wrapped and had a thick blanket. Evidence of CPR was present. The thymus weighed 7 gms (expected 6.1 gms).Scattered pleural petechiae were present. The kidneys revealed yellow streaks in the medulla. The bladder was empty. The brain weighed 394 gms (exp weight 335 gms) and was "unremarkable." Results of metabolic and toxicology screening were negative. The vitreous sodium and chloride levels were 94 mmol/L and 85 mmol/L, respectively; the volume was insufficient to measure the potassium and glucose levels. A postmortem blood culture was positive for a Staphylococcal species, not Staphylococcus aureus. Microscopic examination of the lungs revealed gastric contents nearly occluding a few bronchi, and pulmonary hemorrhage. The laryngeal vocalis muscle showed fiber hypertrophy and possible mild group fiber atrophy. The medulla and midbrain were severely congested and revealed scattered ring hemorrhages, and reactive astrocytes were identified in the pons and cerebral white matter. The liver was altered by severe sinusoidal erythropoiesis and panlobular congestion. The differential diagnosis regarding the cause of this infant's death includes environmental hyperthermia as well as numerous other disorders, confirmation of which is dependent upon careful review of the medical history and circumstances of death as well as performance of a thorough postmortem examination supplemented by ancillary studies. The dilemma in establishing a diagnosis of environmental hyperthermia and relevant literature will be discussed.

18 (S)

SUDDEN INFANT DEATH SYNDROME (SIDS) OR ASPHYXIA ? CAN PETECHIAL HEMORRHAGE DISTINGUISH THEM ?

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There have been active discussions as to categorization of SIDS as an asphyxial death or death due to a certain illness, which has not resulted in any clear-cut explanation. For this reason, we investigated whether so-called findings of asphyxia; the fluidity of blood, congestion of organs and petechial hemorrhage can distinguish them or not. We examined these findings especially intensity of petechial hemorrhage and sleeping position in sudden unexpected infant deaths (SUID) autopsied at Osaka Medical Examiner's Office. From 1992 to 2001, there were 157 SUID cases under 2 years old including SIDS (57), pneumonia (58) and asphyxia (42). Asphyxia cases were diagnosed mainly as obstruction of the mouth and nasal passages under prone position. Moreover, we examined relationship between sleeping position and petechial hemorrage. Numbers of petechiae were devided 4 categories (nothing, a little, scattered, many). Results are as follows:
1) severity of livor mortis-N.S. 2) fluidity of blood-N.S. 3) congestions of lung, liver and kidney-N.S. 4) petechial hemorrhage of palpebra-Asp>others 5) petechial hemorrage of hearts-N.S. 6)petechial hemorrhage of lung-Asp>others 7) petechial hemorrhage of pelvis-Asp>others 8) petechial hemorrhage of thymus-N.S. 9) petechial hemorrhage of summing 5 organs Asp>others 10)Petechial hemorrhage of summing 5 organs revealed significantly larger in asphyxia than others in both prone and supine positions.
Those results may indicate that careful examination of petechial hemorrhage is useful to distinguish asphyxia from SIDS.

19 (S)

SIBLINGS OF ABUSED CHILDREN WHO DIED AS SUDDEN INFANT DEATH CASES

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180 suspected abused cases among three years from 2003 to 2005 were experienced as Medical Advisors for Child Abuse and Neglect cases, among Osaka, Hyogo, Ibaragi and Kanagawa Prefectures. 173 cases are still survived healthy but 2 cases have been died and 5 cases leave significant lesions among them, now. The family history of all cases were investigated and siblings of 23 babies among them had been died as sudden infant death cases. 2 cases of them had been autopsied by Medical Examiners but the other 21 cases had not been autopsied. 10 cases were diagnosed as SIDS, 5 cases were acute heart failure, 4 cases were acute pneumoniae, 2 cases were asphyxia, 1 case was accidental head trauma and 1 case was not determined in their death certifications. 3 babies in Hyogo Prefecture and 2 babies in Ibaragi Prefecture had been died in the same families and all of them had been diagnosed as SIDS without autopsy at the moment of their deaths. A baby of accidental head trauma and another baby of undetermined cause of death were also siblings in the same family in Osaka prefecture and each cases were autopsied by different Medical Examiners. But, both of the cases were already brain dead condition at the admission to the hospital and autopsy findings of them were changed and obscured by long term medical treatments after then. Child Abuse and Neglect have been suspected as one of the significant causes of sudden infant death cases. Most of the sudden infant death cases don't have typical finding of bodily injury though the diagnosis of them without typical injury is very difficult. Many doctors have a tendency to diagnose them as SIDS or suspected SIDS cases without minute autopsy and minute death scene investigation. But, the data indicate that many siblings of abused cases had been died as sudden infant death cases and most of them should be abused or neglected cases. It is very important to take into consideration of child abuse and neglect at the moment of death scene investigation and diagnosis of sudden infant death cases.

20 (ST)

TOWARDS AN INTERNATIONAL CLASSIFICATION OF STILLBIRTH

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Clinical audit is becoming an established and essential component of modern care. International agencies including WHO, UNICEF and FIGO are helping to spread good practice and recognise perinatal audit as an important driver for ensuring that maternal and perinatal services receive appropriate local recognition and resources.
Stillbirth is the most common cause of perinatal loss, and a source of intense grief for the mother and family. Yet it is under-reported in many countries, and there has been little advance in understanding the causes. Reasons for this may include a lack of training, resources for data collection, and availability of pathological services. But even in countries such as the United Kingdom with its strong history of audit including confidential enquiries, progress has been slow; in fact national stillbirth rates have seen a sustained rise over the last three years. It has finally being recognised that the current classification system, which results in the majority of cases being reported as 'unexplained', is not helpful in any attempts to develop a strategy for prevention.
A good classification system for stillbirth is important at several levels - for the parents, clinicians, and the health service in general. A number of new methods have sprung up around the world, which each seek to improve the understanding of what has gone wrong, and the processes which have led to the loss. The challenge now is to synthesise what can be learnt from these efforts, and to standardise the definitions as well as the classification systems so that comparisons can be made between different centres and countries. This will help to benchmark clinical performance, to prioritise services, and to foster international collaboration and research.

21 (ST)

CURRENT CLASSIFICATIONS SYSTEMS FOR STILLBIRTH

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Background
Stillbirths first became notifiable in Scotland in 1940, and perhaps the earliest classification aimed at audit and surveillance was that of Sir Dugald Baird and his colleagues in Aberdeen1. Since then, classification systems for perinatal deaths have flourished. But what do they tell us? What makes a “good” classification system?
Aims
To undertake a systematic review of current classifications of stillbirth and to evaluate the classifications in terms of: usefulness; conservation of available relevant clinical and pathological information; ability to expand into sub-classifications; clarity of instructions and definitions for use; and reproducibility.
Methods
All publications which described the causes of stillbirth after 1994 were eligible for inclusion. A comprehensive literature search was undertaken which included electronic databases (Medline, Cochrane Library 1995-2005) and websites of key professional organisations. The search was confined to the English language. Identified reports were cross referenced and experts in the field were contacted. In the case of duplicate publication (the same classification system), the most recent and comprehensive publication was chosen for inclusion. Classifications were rated and compared.
Results
The results will be presented.
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22 (ST)

INTEGRATING THE PURPOSES OF STILLBIRTH CLASSIFICATIONS

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A variety of classifications of stillbirths exist, and new ones continue to be proposed, as none cover all the needs experienced by the users. Classifications are often created specifically for an observed need in epidemiology, clinical care, pathology, or basic science -; but unfortunately never useful for all. Some crave simplicity, others detail. These different points of view entail differences in e.g. whether a classification classify causes of death, or causes and associated conditions alike, whether there is a hierarchy in what category is of the highest importance, or all categories being of equal significance, and whether antepartum deaths are distinguished from intrapartum or not.
Ideally, a classification must accurately categorize stillbirths in a way that is equally useful for three purposes:
1) Provide epidemiology of what preventable and non-preventable pathologies and conditions constitute the major threats to healthy pregnancies in any given population -; in developed as well as in developing regions.

2) Provide information for the clinician in counselling the affected couple on future risks and options available for her health and reproduction.
3) Provide defined and detailed entities of pathologies to enable research to improve understanding, prevention and treatment of lethal pathologies in pregnancy.
These three goals may seem to compete, representing different levels of detail needed and wanted. However, these three “levels” of information reflect the various practical situations in developing versus developed communities, their access to specialized perinatal care and pathology services, and their commitment to and resources for research. The first basic level should reflect the needs for international comparisons and be useful in any community. The second specific level should reflect the clinical needs in communities with specialized perinatal care available. The third complete level should fulfil the needs of research and communities aiming at optimal care. For an “all-purpose” classification, it must be expandable in both depth and detail, and easily retrievable in different forms. It must accommodate as much information on both cause of death as well as events and associated conditions of clinical relevance, and should also enable the identification of lacking information as opposed to pathologies and deaths caused by mechanisms that remain unidentifiable by current knowledge.
We propose a classification of fetal causes of death & associated conditions (CODAC), consisting of main categories of lethal events and conditions, supplemented by up to two clinically relevant associated conditions. We report its performance and ability of cross-coding to existing classifications.

23 (ST)

REGISTRATION AND REPORTING BIRTHS AND STILLBIRTHS AT BORDERLINE VIABILITY - EFFECT ON PERINATAL AND INFANT MORTALITY RATES

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Purpose
To determine the variability in interpretation of definitions of live birth and stillbirth for babies born at the edge of viability and the potential impact on perinatal and infant mortality rates.
Method
Provincial vital statistics registrars, physicians attending a national conference, and selected physicians from three provinces were asked to indicate if a birth event described in several case scenarios would be registered with vital statistics as a live birth or stillbirth based on their interpretation of vital statistics definitions.
Results
There was great variability in the interpretation of definitions of birth and stillbirth for certain birth events and confusion between requirements for registration and the reporting of these birth events for comparative purposes. This is likely due to the discrepancy amongst WHO definitions, requirements of Vital Statistics Acts, ICD-10 coding standards and physician recording practices. The inclusion or exclusion of births at borderline viability could have important effects for national or international comparisons of data.
Discussion
There is significant variability in interpretation of definitions of livebirth and stillbirth that could adversely effect reported mortality rates.
Implications
The Canadian Perinatal Surveillence System has established a group to work towards developing national standards and guidelines to promote consistency in recording of livebirths and stillbirths at borderline viability. The opportunity to present and discuss this issue at an international conference will be an important component to the consultation process.

24 (ST)

UNEXPLAINED CAUSE OF INTRAUTERINE FETAL DEATH USING DIFFERENT CLASSIFICATION SYSTEMS

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Aim. A consistent system for the classification of intrauterine fetal death (IUFD) is essential for evaluating quality of care, proper statistics and development of preventive strategies. Different classification systems exist. Unfortunately in 20-50% of cases the cause of IUFD remains unknown Our objective was to investigate whether the group with unknown cause of death varies across classification systems.
Methods. Our panel of 2 obstetricians, a perinatal pathologist, a registrar and a data manager classified singleton pregnancies > 20 weeks of gestation for which the diagnosis of IUFD was determined before labour. These IUFD's occurred in 54 centres participating in our national multicenter cohort study during a 3 year period (2002-2005). Classification systems used were the widely used Extended Wigglesworth and the Modified Aberdeen classification systems and the new Tulip classification.
Results. Inventarisation of 325 cases resulted in 288 cases (89%) classified as unexplained ante partum fetal death or unclassifiable in the extended Wigglesworth classification. In the Modified Aberdeen 197 cases (61%) were classified as unexplained or unclassifiable and in the Tulip classification 82 cases (25%) were classified as unknown; despite thorough investigation or unknown; important information missing. 208 (72%) of the 288 cases with unknown cause in the Wigglesworth classification received a known cause of death in the Tulip classification. Placental bed-pathology was allocated in 119 cases, placental pathology; development in 33 cases, placental pathology parenchyme in 11 cases, umbilical cord complication in 20 cases, placenta not otherwise specified in 18 cases, Fetal hydrops of unknown origin in 2 cases, Maternal disease; diabetes mellitus in 1 case and Maternal disease; other in 4 cases.
Conclusion. From one cohort the percentage of IUFD's with unknown cause of death varies across classification systems. The Tulip classification gives more insight into the cause of IUFD than the Wigglesworth and the Aberdeen classification. This is partly due to the fact that the Wigglesworth and the Aberdeen were not specially designed for IUFD.

25 (ST)

CLASSIFICATION OF THE CAUSES OF FETAL DEATH IN MULTIPLE AND SINGLETON PREGNANCIES

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Aim: To identify the main causes of fetal death in multiple pregnancies and to compare these with singleton causes using the PSANZ Perinatal Death Classification (PSANZ-PDC) system.
Methods: Three states (Queensland, Victoria, and Western Australia) contributed to this analysis.
Two states contributed data on all fetal deaths over the four-year period 2000-2003 and one state contributed data from the two-year period 2002-2003. Fetal deaths of 20 weeks or more gestation registered within each stateš perinatal data collection were included. All deaths were classified through the respective Health Departments using the PSANZ-PDC. Each state electronically submitted non-identifiable aggregate data to the coordinating centre for analysis. The main causes of fetal death in multiple pregnancies were compared with singleton pregnancies. Subgroup analyses were performed according to gestational age.
Results: A total of 499 389 births were included. The overall fetal death rate (FDR) was 7.1/1000 births. A total of 350 fetal deaths of multiple pregnancies and 3180 singletons were included in the analysis. The FDR for singletons was 6.6/1000 and 21.2 for multiples. The four leading categories of fetal death for multiples (contributing 84% to the total) were: Specific prenatal conditions (mainly twin-twin transfusion) (35.4%); Spontaneous preterm (23.7%); Unexplained antepartum death (14.6%); and Congenital abnormality (10.9%). The main categories for singletons (contributing 72%) were: Unexplained antepartum death (28.2%); Congenital abnormality (20.4%); Maternal conditions (12.8%); Spontaneous preterm (10.2%). The categories with the highest relative risk for multiples when compared with singletons were: Specific perinatal conditions; Spontaneous preterm; No obstetric antecedent; and Hypertension.
Conclusions: This analysis which included data from three Australian states highlights differences in causes of fetal death for multiple pregnancies. The contribution to fetal death in multiple pregnancies from spontaneous preterm birth and twin-twin transfusion overwhelmed all other categories, whereas for singleton pregnancies, longer gestation allowed unexplained fetal death to be the dominant category. Nevertheless, it should be noted that the rates of fetal death are higher for multiple pregnancies in virtually every category. More systematic reporting of chorionicity in central perinatal databases will enable more meaningful analyses of the causes of fetal death in multiple pregnancies.

26 (ST)

UNEXPLAINED FETAL DEATH CONTRIBUTION: SINGLETON VS MULTIPLE

Vicki Flenady[1,2,3], James King[1,4,6], Glenn Gardener[1,2,3], Adrian Charles[1,8], David Tudehope[1,2,3], Michael Coory[1,3,5], Rosemary Warren[1,6], Vivien Gee[1,7], Catherine Buccilli-Douglas[1,7]
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Aims: To quantify the contribution of unexplained fetal death to the overall fetal death rate according to gestation at birth in singleton and multiple pregnancies.
Methods: Three states (Queensland, Victoria, and Western Australia) contributed to this analysis.
Two states contributed data on all fetal deaths over the four-year period 2000-2003 and one state contributed data from the two-year period 2002-2003. Fetal deaths of 20 weeks or more gestation registered within each state š perinatal data collection were included. All deaths were classified through the respective Health Departments using the PSANZ-PDC. Each state electronically submitted non-identifiable aggregate data to the coordinating centre for analysis. The contribution of unexplained fetal death (UAFD) rate was calculated as a percentage of the total fetal death rate per 1000 births by gestational age groupings for singleton and for multiple births.
Results: The total of number of births in the participating states over the study period was 499 389 births. The overall fetal death rate (FDR) was 7.1/1000births (singletons 6.6/1000, multiples 21.2).
The rate of UAFD was 1.9/1000 for singletons and 3.1 for multiples. UAFD contributed 28.8% to the overall singleton FDR and 15% to the FDR for multiples. The contribution of UAFD increased after 23 weeks gestation for both singleton and multiple births and reached a maximum of 60% at term (37-41 weeks) for singletons and 48.8% at 35-36 weeks for multiples. Between 32 and 36 weeks the contribution of UAFD was similar for both singleton and multiple pregnancies.
Conclusions: While the overall contribution of UAFD in singleton pregnancies is almost double that of multiples; unexplained fetal death makes a substantial contribution to the fetal death rates in all gestational age groups after 27 weeks for both singleton and multiple pregnancies.

27 (HP)

CHARACTERISTICS OF INFANTS' NIGHT SLEEP IN THE FIRST MONTH UNDER CO-SLEEP CONDITIONS

Hiromi Eto
St.Luke's College of Nursing, Japan

In the first month after birth, infants sleep about two third of a day. It is reported that infants' sleep situation was related to sudden infant death syndrome in a way of sleep position, feeding way and so on. At this time, I will present Japanese infants' sleep characteristics such as sleep-wake patterns and behaviors, and caregivers' behavior in the night under co-sleeping conditions, following my observational study.
The subjects were thirty-six healthy first-born infants (20 males; mean 30.8 days). The mother-infant pairs slept side by side on the same futon (Japanese mattress) or within arms' reach on separate futons; they were not extremely close but close enough to hear, feel and smell each other. Videosomnographic recordings were made for two consecutive nights. Subjects had been recruited at an obstetrics and gynecological clinic in Tokyo, and mothers gave verbal and signed informed consent in advance of data collection procedures.
Time-lapse video-equipment was transported to the home, set in place, and activated by each mother. Videosomnograms were scored according to Anders' protocol (Anders et al. Psychophysiology 1976;13:155-8). In video recordings, Active Sleep was characterized by rapid eye movements, frequent body movements, twitches, smiles, grimaces, and brief cries. Sleep Period was defined as a sleep length having more than 5 minutes Active Sleep, and sleep parameters were examined.
The mean of Total Recording Time (TRT) was 636.9 minutes and Total Sleep Time (TST) was 444.1 minutes. Longest Sleep Period was 196.2 minutes, and the mean sleep period was 124.0 minutes. The ratio of the duration of Active Sleep to Quiet Sleep in TST was 7:3. The percentage of Active Sleep (%AS) spent in TST was 72.3%. The mean number of minutes spent awake following a nighttime awakening was 52.2 minutes; the mean sleep latency was 16.7 minutes. The average number of night awakenings was 8.1, and, of those an average of 3.2 were followed by mother's soothing.
While infants transferred from sleep to wake, their behavioral cues were startling and jerky movements at the beginning, and then they started to fuss, cry, and scream. It was observed that wake state's level of Infants was gradually elevated. The mean of mothers' response latency took 174.5 seconds after infants woke up.
Compared to a study of solitary sleeping that also used video recordings, %AS of the infants' sleep and number of their mothers' soothing under co-sleeping conditions were greater.

28 (HP)

MOTHERS' POSTNATAL EXPERIENCES OF BREASTFEEDING IN HOSPITALS

Ritsuko Toda
Japan Association for Childbirth Education, Japan

Postnatal ward practices have an impact on successful breastfeeding. To examine: (1) women's experiences on breastfeeding, and (2) women's needs during their postnatal stay in Japanese hospitals, clinics and midwifery homes, a cohort prospective study where 3311 women were selected by staratified random sampling from all 47 prefectures in Japan was conducted from Dec. 2001 to Jan., 2002. Women were asked to complete and return questionnares twice each pre and postnatally by post.
In another study, 15 experienced leaders of women's groups on pregnancy, birth and breastfeeding were invited to voice their needs towards facilities and environments for a satisfying birth and breastfeeding experience. They participated in one of two focus group sessions held in June and July, 2004.
The findings of the two studies were almost identical. They suggested that women needed to discuss about hospital policies and practices of birth and breastfeeding prenatally to have realistic expectations. Women valued continuous and empathic midwifery care throughout pregnancy, birth and the postpartum period where women's physical, social, and emotional needs had been discussed and respected. In particular, postnatal women wanted their postnatal ward staff to listen to their concerns and feelings and to adapt their practices according to the women's wishes. Conflicting advices from different staff members confused the women. Women wanted consistent professional advice, practical information including community resources, and peer support which contunued after returning back to their homes.

29 (HP)

SIDS: BREASTFEEDING AND CO-SLEEPING

Masumi Imura
University of Tokyo, Japan

Human milk is uniquely superior for infant feeding.
Breastfeeding is recommended worldwide for its benefits for mothers, infants, and society, and also as a preventive measure against SIDS.
WHO/UNICEF, governmental and non-governmental agencies, and health professional associations recommend exclusive breastfeeding for the first six months of life, with continued breastfeeding for two years and beyond, as the normal way to feed infants.
There is growing evidence that breastfeeding decreases the incidence and/or severity of a wide range of conditions and diseases. In addition, postnatal infant mortality rates are reduced in breastfed infants.
Research demonstrates evidence that breastfeeding reduces the risk of SIDS. Some studies do not show a protective effect on SIDS but the results are inconsistent.
Breastfeeding in a side lying position while co-sleeping is a very natural and popular feeding-sleeping style for breastfeeding mothers and babies. However, some studies show co-sleeping and/or bed-sharing might increase the risk of SIDS.
I will review breastfeeding and safe co-sleeping from a breastfeeding advocacy point of view, as “an integrated adaptive system” of the breastfeeding mother and child.

30 (HP)

BREASTFEEDING AND SIDS - SWEDISH AND INTERNATIONAL EXPERIENCES

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The history of SIDS is very long, as is the question whether breastfeeding is preventive or not.
During the past century, several epidemiological studies on SIDS have been performed, and the conclusions have differed. The majority of the studies speak in favour of a protective effect of breastfeeding, which is supported by a meta-analysis in 2000, where the pooled OR was 2.11 (95% CI (1.66, 2.68)). However, confounding could not be taken into account in this analysis.
During the 90s, several large population-based case-control studies were initiated. Multivariate statistical procedures could be used, and a greater control of confounding factors could be achieved. However, this did not fully clarify the question, as 2/4 studies support an absence of effect.
The percentage of Swedish women breastfeeding exclusively at four months increased from 35% in 1980, to 67.5% in 2003. During the period of increasing SIDS incidence, 1975-1991, we can see a small increase in breastfeeding from 35% in 1980 to about 50% in

1991. After the introduction of the campaign to reduce the risk of SIDS, which in Sweden included the promotion of breastfeeding, there is a further increase that levels out after 1995.
There is no parallel decrease in breastfeeding during the years 1975 to 1991, when we could observe the rise in the incidence of SIDS. At the same time, there is only a marginal increase in breastfeeding following the campaign to reduce the risks in 1992.
The campaign to reduce the risks was introduced in 1990 in Norway, 1991 in Denmark and in spring 1992 in Sweden. Promotion of breastfeeding was included in the Swedish campaign only, but we can still see the same effect both on post neonatal and SIDS mortality after the campaign.
The Nordic Epidemiological SIDS Study was initiated in 1992, and comprised 244 SIDS cases and 869 matched controls. In an early analysis, we could see that although prone sleeping and smoking during pregnancy were significant risk factors throughout the study, bottle-feeding was not significant in the beginning of the study, but became significant during the later years, 1994-1995. Further analyses showed a tendency to a dose response and a significantly increased risk with very short breastfeeding on the risk of SIDS when controlling for smoking during pregnancy, paternal employment, sleeping position and age of infant.
CONCLUSION: The Nordic study supports a weak relation between breastfeeding and SIDS reduction.

31 (HP)

INTERNATIONAL CHILD CARE PRACTICES STUDY: BREASTFEEDING AND PACIFIERS

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Both breastfeeding and pacifier use may protect against SIDS. Yet numerous observational studies and at least one randomised control trial have shown that pacifier use is detrimental to exclusive and overall breastfeeding. Although it remains controversial whether this association is causal, breastfeeding promotion campaigns, such as the Baby Friendly Hospital Initiative, advise that no artificial teats or pacifiers be given to breastfeeding infants. The International Child Care Practice Study (ICCPS) collected descriptive child care data related to the risk of SIDS from 21 centres in 17 countries during 1996 and 1997. We use these data to report on breastfeeding and pacifier use in these diverse populations.
Methods Centres aimed to recruit at least 250 infants at birth and when infants were approximately 3 months old a questionnaire seeking data on child care practices was posted. Initial descriptive analysis of breastfeeding practices and pacifier use by centre was undertaken. Multinomial logistic regression examined associations between exclusivity of breastfeeding, use of a pacifier and other potential confounders.
Results Rates of feeding with only breast milk at the time of completion of the home questionnaire varied from 4%-80%: 4% (Hong Kong), 12.5% (Dublin, Ireland), 26% (3 cities, Scotland) to 58% (Graz, Austria), 58% (Copenhagen, Denmark), 80% (Stockholm, Sweden).
Pacifier use also varied widely from 12.5%-71%: 12.5% (2 cities, Japan), 14% (Dunedin, New Zealand), 16% (Chongqing, China) to 69% (2 cities, Italy), 71% (Odessa). Pacifier use was negatively associated with breastfeeding and a dose response effect was noted in relation to reduced exclusivity of breastfeeding and increased frequency of pacifier use. Other negative (multiple birth, smoking by mother) and positive (intention to breastfeed, bedsharing, mothers' education) associations with breastfeeding only were identified.
Conclusions The analysis supports the negative association of pacifiers on breastfeeding and provides evidence of a dose-response effect. Breastfeeding was positively associated with bedsharing and
negatively associated with smoking. Although it was not possible to determine causality from any of these associations, they are consistent with a number of previous studies. Although bedsharing has been promoted to enhance breastfeeding, its potential relationship with SIDS needs to be considered, particularly when the mother smokes. Likewise when providing advice on pacifiers, parents should be informed that there are potential benefits as well as risks.

32 (P)

INCENSE CEREMONY & CALLIGRAPHY

Eriyo Watanabe
Center for Arts and Wellness, Japan

This wokrshop is a great opportunity for people to experience the traditional Japanese arts.
First, Eriyo will give a lecture on the history of the incense ceremony and aromatic woods. The lecture will be followed by an actual demonstration of the incense ceremony, known as the Kodo in Japanese culture. It is a traditional, deeply rooted Japanese art, ritual that is meditative in nature. In the ceremony Eriyo will perform, you will experience the magical powers of three different aromatic woods. The second part of this unique cultural experience will be a demonstration of Japanese calligraphy followed by your own experience to practice calligraphy. Using the sense of smell in symphony with the other senses will stimulate an other worldly sensory experience.

Eriyo Watanabe holds a Master's Degree from Lesley University in art therapy, dance therapy and music therapy. She facilitates the healing process and sense of creative release using various modalities of expressive arts. She teaches incense ceremony and calligraphy for self-awareness and relaxation as well as stress reduction.

33 (P)

Withdrawn

34 (P)

THE ISLAMIC WAY OF DEATH AND DYING: A PSYCHO-SPIRITUAL PERSPECTIVE

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Abstract. Existence in human form in this world is transient and illusory. The Hereafter is the Greater Reality...one's true home. The Holy Quran categorically assures humankind of the reality of life in the hereafter. Death is but re-birth:"How disbelieve ye in Allah when ye were dead and He gave live to you. Then He will give you death,then life again. And then unto Him ye will return (Surah,2. Verse 28).
We are here for an appointed term- a term fixed by God. Life is a precious gift granted by God and no person should seek to end his or her life or take another's life safe in exceptional permitted ('lawful') circumstances. Suicide and euthanasia is unlawful and therefore forbidden. How can we reconcile this with a God of Compassion and Mercy ?
We are spiritual beings living a human experience, not human beings living a spiritual experience. At the end of the day the existential questions that concern us all are:Why am I here? What am I doing? Where am I going? When disaster or death strikes someone close to us, the questions become:why this? why now? why me?
Using insights from Sufi psychology, it is hoped to illuminate these concerns. Finally, comparisons and contrasts of Islamic attitudes to death and Buddhist mindfulness and Christian views are touched upon.

35 (P)

JAPANESE RITES OF BEREAVEMENT PROMOTING HEALTHY GRIEVING

Stephanie Lynn Fukui
SIDS Family Association Japan

This paper will examine the psychological benefits of the Japanese Buddhist Rites of Bereavement using examples from personal experience.
Western society has distanced itself from death. Since the 18th century Westerners have moved towards putting all faith into science. Death has come to be seen as a medical problem, not a spiritual process. We have distanced ourselves from death further by emphasizing the value of youth, physical and mental prowess, and by making death a taboo subject in our every day lives. For this reason, Westerners may not be prepared for death. The shock may be much more than for traditional societies, such as Japanese society, where formalized strong bonds with the deceased make death part of every day life.
The “medicalization” of death has put pressure on health professionals. Medical solutions, doctors, hospital staff, and mental health professionals have taken a place that used to be reserved for the priest and the family's faith, forcing health professionals to become ritual specialists. The recent trend in hospice care is an attempt to re-introduce the spiritual dimension into death and dying. However, even if health care systems start to include an awareness of the importance of spirituality, these systems are not sufficient as a support system because they are only peripherally involved after death. Traditional Buddhist practices provide comforts that medical systems cannot. These practices help the bereaved transition towards recovery and acceptance after the death. For example the Japanese practices give hope that the “life' of the baby will continue (reincarnation) and allows ways to care for and honor the baby after death such as writing messages to baby on tablets, offering food and toys to the baby at the shrine at home, buying a votive statue at the temple and taking care of it by dressing it and washing it. Buddhist rituals also help by providing many opportunities to grieve such as the wake at home, the cremation and funeral, the 49-day ceremony (to determine the destiny of the soul), and the 100-day ceremony. Further rituals acknowledge the true length of the grieving period: the one-year as well as the three, seven, thirteen and thirty-three years optional ceremonies. These ceremonies along with the Festival of the Dead, held throughout Japan every year in August, help to satisfy many of the needs of the bereaved family and create a consciousness and acceptance of death that is lacking in Western societies.

36 (S)

SLEEP ENVIRONMENTS IN JAPAN

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Recently the sleep environment has received much attention as a factor in: 1.) risk for sudden death infant syndrome (SIDS); 2.) sleep consolidation development in the first year. The Japanese traditional sleeping arrangement is still cosleeping with mother on the floor with the infant irrespective of house and room style (westernized or Japanese traditional). In this cross-sectional study, parents of 170 infants (3-6 months), 174 toddlers (18-21 months) and 137 preschoolers (36-41 months) were examined for differences in sleeping environments during infancy. Ninety-seven % of infants shared the bedroom with their mothers with comparable rates in toddlers and preschoolers. Infants' sleeping locations were as follows: on the floor (FL): 47%; adult bed (AB): 6%; dedicated child bed (CB): 38%; mixed: 9%. Cosleeping rate was 73%. In toddlers, location was significantly different (p=0.000) compared to infants (FL: 81%; AB: 15%; CB: 3%; mixed: 1%). Cosleeping rate by toddlerhood was > 95%. Whether mothers cosleep correlated with nutrition methods (r=.25, p=0.001); exclusive breastfeeders coslept significantly more than formula-fed infants (p=0.003). Duration of cosleeping was also correlated with dependence on breastfeeding (r=.28, p=0.000). In mothers of toddlers and preschoolers, 53% used breast-milk over 6 months of age. Of mothers who coslept in infancy, 55% coslept all night. Further, 13% of all-night cosleeping mothers coslept even during naptime. Cosleeping rate by location was as follows: FL: 80%; AB and mixed: 100 %; CB: 52%. Regarding infants' main sleeping position: 87% were supine; 5% used side; 3% were prone; 5% other. The rate of maternal smoking was 14% and 42% of smoking mothers smoked in the infants' room. Breastfeeding mothers smoked significantly less than formula-using mothers (p=0.000). To summarize, Japanese cosleeping correlates with breastfeeding, but use of Western-style, CB condition is relatively common, while bedsharing through use of AB is not common. Sleeping location is standardized to the FL by toddlerhood, although bedroom sharing is stable from infancy. The low rate of SIDS in Japan may be related to the high rate of continuous breastfeeding (e.g. > 6 months) in nonsmoking mothers, and the protective effect of the unique infancy cosleeping arrangements that provide flat, hard and uniform surface in the social sleeping environment.

37 (S)

THE BENEFITS AND HARMS ASSOCIATED WITH THE PRACTICE OF BED SHARING: A SYSTEMATIC REVIEW

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Context Bed sharing, the practice of adults sleeping on the same surface as a child, appears to be an increasingly common practice. It is a controversial routine about which health care professionals are often asked to advise parents. However, the benefits and harms of bed sharing have been debated extensively without a resolution.
Objective To identify and synthesize evidence for child-related: 1. benefits and harms associated with bed sharing, 2. factors related to bed sharing associated with benefits (e.g. breastfeeding) and harms (e.g. smoking), and 3. effective strategies for reducing harms associated with bed sharing .
Data Sources Electronic databases were searched (MEDLINE, CINAHL, Healthstar, PsycINFO, The Cochrane Library, Turning Research Into Practice (TRIP), and Allied and Alternative Medicine (AMED) for records published in any language (between 1993 - January 2005). Any published studies beyond these dates were collected and cited within the discussion section.
Data Extraction Study design, population and study characteristics, risk factors, and exposure (e.g. description of bed sharing environment) were extracted by one reviewer and verified by another for all relevant reports. Data were summarized qualitatively and in tables. Methodological quality of studies was also assessed using the Newcastle-Ottawa Scale.
Data Synthesis Forty-two observational studies met our inclusion criteria. Data were summarized qualitatively. Evidence consistently suggests that there may be an association between bed sharing and SIDS among smokers (however defined) but the evidence is not as consistent among non-smokers. This does not mean that no relationship between bed sharing and SIDS exists among non-smokers, but that existing data does not convincingly establish such a relationship. Data also suggests that bed sharing may be more strongly associated with SIDS for younger infants. A positive relationship between bed sharing and breastfeeding was identified. Current data cannot establish causality as it is possible that women who are most likely to practice prolonged breast feeding also prefer to bed share.
Conclusions Our review highlights three general difficulties with some of the studies: 1) almost none of the studies were hypothesis driven; 2) definitions used for bed sharing especially in the harm studies were too heterogeneous to compare across studies; and 3) incomplete reporting of interactions hampered synthesis. Well designed, hypothesis-driven prospective cohort studies are warranted to improve our understanding of the mechanisms underlying the relationship between bed sharing, its benefits and its harms.

38 (S)

HOW CAN SIDS BE ELIMINATED

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Findings of the European multicentre case/control study of SIDS have recently been published. This is one of the largest such data set ever assembled. Data come from all across Europe and odds ratios for the major risk factors are remarkably homogeneous.
The data suggest that bed sharing as practiced by white Europeans is associated with increased risk of SIDS even if the parents are non-smokers. This risk is significant up to 12 weeks. Three recent studies have confirmed an increased risk of SIDS associated with bed sharing when the mother does not smoke. However, bed sharing is associated with increased duration of breast feeding, which is protective against SIDS. A number of studies have also found that reduced risk is also associated with the use of a pacifier, but in the European data set use of a pacifier is associated with a reduced duration of breast feeding.
The results of multivariate analysis of the European data set suggest that over 90% of SIDS deaths might be eliminated if every infant is always put to sleep on its back, with no possibility of getting bedding over its head, with a pacifier, in the same room as the parents but not in their bed.
However, analysis also suggests that additional health messages needs to be supplemented by targeted intervention if SIDS mortality is to be substantially further reduced.

39 (S)

CO-SLEEPING & SIDS EPIDEMIOLOGY. OBSERVATIONS FROM CONTROLLED DEATH-SCENE INVESTIGATIONS

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Background
Longitudinal data from Avon between 1984 and 2003 suggest the epidemiological characteristics of SIDS has changed [1]. These trends need to be confirmed and if we are to try and understand the significance of the contributory factors involved within different infant sleeping environments we need to compare infants from a similar background.
Methods
The South West Infant Sleep Scene (SWISS) study is a prospective, population based case-control study of all sudden unexpected infant deaths between birth and 2 years of age within the South West Region of England.
The study began in 2003 and is now in its final year. Two control groups have been utilised, one random group weighted to represent the socio-economic distribution of mothers with dependent children from the local Census data, the other a high-risk group based on significant factors associated with the cases (socio-economic deprivation, young maternal age, high (and low) parity and maternal smoking). Video recordings of the death scene investigation and sleep-scene investigation of the two groups of controls are available from the first 2 years of the study.
Preliminary Results
The Avon study (population < 1 million) suggests that SIDS deaths now occur in the more deprived families, SIDS infants are younger, fewer are now breastfed whilst first-born and premature infants are more common and nearly 50% are discovered in a co-sleeping environment. Preliminary data from the SWISS study (Population > 5 million) should confirm whether these changes are manifest in this larger area of the population. Observations from the video recordings will be used to look at the variation of what we describe as infant-parent co-sleeping and potential differences in this environment between the cases and controls. In particular we will report on how we can improve on the way the video recordings are conducted and observed to standardise data collection.
1. Blair PS, Ward Platt MP, Smith I, Fleming PJ. Major changes in the epidemiology of Sudden Infant Death Syndrome: a 20 year population based study of all unexpected deaths in infancy. Lancet 2006;367:314-319.

40 (ST)

STILLBIRTH INVESTIGATION PROTOCOLS: A SYSTEMATIC REVIEW

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Objectives
This systematic review was conducted to support the Alberta Medical Association Committee on Reproductive Care in its effort to

update their stillbirth investigation protocol against the evidence for best practice. The Alberta Perinatal database reports a stillbirth rate of 6.5 per 1000 with a autopsy rate of 54%. This review aims to identify the most appropriate components of a protocol for determining the cause(s) of stillbirth and to identify protocols recommended by professionals worldwide.
Methodology
A systematic search of the medical literature published between 1985 and June 2005 was conducted to identify primary research studies and publicly available formal protocols. The search included Cochrane Library, PubMed, EMBASE, CINAHL, HealthSTAR, Science Citation Index, BIOSIS. The methodological quality of the included research studies was assessed according to specific criteria.
Results
Currently there is no generally accepted reference protocol for stillbirth investigation. Five publicly available formal protocols, which were selected for this review, recommend extensive and comprehensive stillbirth investigation, outlining similar steps. Although these protocols differ in many of their recommendations, they agree on including several elements for routine investigation. For example, they all recommend a complete autopsy, performed in a skilled and timely manner (even if the cause of death appears evident), and detailed cord and placenta examinations. Evidence on the value of specific components of stillbirth investigation was poor with limited reporting of data. Only general conclusions could be drawn from the 7 research studies that met the inclusion criteria. They showed that there is value in routinely performing fetal autopsy and placental examinations as integral components of a stillbirth investigation. It is not clear which other components should be included in a stillbirth investigation protocol.
Conclusions
No firm scientific judgment could be made on which is the most appropriate stillbirth investigation protocol. There is no generally accepted reference protocol for stillbirth investigation. It is yet to be determined which components should be considered the most relevant and efficient for stillbirth investigation. Findings from this review highlight the value of fetal autopsy and placental examination, which remain important in the confirmation and further delineation of the cause of fetal death, assuming a high quality of the postmortem examination. This information may be helpful in counselling patients who are considering whether or not to consent to a postmortem examination following a stillbirth.

41 (ST)

PATHOLOGICAL ASSESSMENT OF FETAL DEATH

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Background: When a stillbirth occurs, every effort should be made to determine the cause of the fetal death because of correct diagnosis and future pregnancy as well as mental health of the family. The postmortem examination is essential to detect the causes of the fetal death. The aim of this study is to estimate the value and quality of the postmortem examination.
Method: We examined 234 autopsy files of stillbirths at Osaka Medical Center and Research Institute for Maternal and Child Health during five years between 1996 and 2000, retrospectively. We performed autopsy, placental examination, total body X ray examination and chromosome analysis if possible as the postmortem examination.
Results: We could determine the true causes of fetal death in 203 cases (87%) pathologically. There were various causes of fetal death including 39 placental abnormalities (amniotic band syndrome; 10), 36 multiple births (TTTS; 21), 22 chromosome aberrations (18 trisomy; 5), 20 central nerve system abnormalities (anencephaly; 6), 18 renal diseases (Potter sequence); 6), 13 cystic hygromas without chromosome aberrations, 12 bone dysplasia (osteogenesis imperfecta; 5), 12 body wall abnormalities (prune belly syndrome; 3) and 7 congenital heart diseases. 149 cases were in agreement with clinical diagnoses and we could have more information in detail on 67 cases after placental, chromosomal and total body X ray examinations. 15 cases were inconsistent diagnoses in which the cases of amniotic band syndrome were the most frequent. 45 (64%) of 70 cases could be clarified pathologically which were diagnosed as intrauterine death due to unknown etiology clinically.
Conclusion: 87% cases of stillbirths and 64% cases of intrauterine death due to unknown etiology revealed the true causes of fetal death. The postmorterm examination should be performed in terms of correct diagnosis and future pregnancy. It is important to examine not only fetuses but also placental, chromosomal and total body X ray examinations to determine the cause of fetal death perfectly.

42 (ST)

MEDICAL MANAGEMENT OF LETHAL MALFORMED FETUSES DIAGNOSED IN UTERO

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The cases which are prenatally diagnosed fetal malformations are increasing along with the prevalence of antenatal ultrasonography in Japan. Some of them are complicated with lethal/incurable malformations. The perinatal death after 22 weeks gestation occurs in 6-9 % in our institute which is a tertiary perinatal care referral center. The most of the cases with malformed fetuses referred to our institute are already over 22 weeks gestation which is the limit for termination permitted by Japanese law. When the malformed fetuses are diagnosed as lethal/incurable, it is necessary to do careful maternal medical care with the respects of fetal life. Sometimes it is hard to make accurate diagnosis of the fetus, but it is important to inform the couple about the fetal status with sensible consideration. The discussion of the timing and the mode of delivery to avoid maternal complications should be followed after the information of the fetal status. Although delivery by cesarean section is ultimately the parents' decision, our recommendation is to avoid invasive procedures involving both the mother and infant based on fetal indication alone. Obstetricians, neonatologists, medical geneticists, nurses, midwives and medical social workers are involved in this discussion. If a decision has been made by the couple to avoid invasive procedures, the infant is delivered and we provide care for the infant making him/her as comfortable as possible. After the diagnosis made, the grief care should be start in the cooperation with medical team. It should be avoided to let the couple to feel like the fetus/infant is ignored because of the lethal/incurable condition. We should not forget the respectful attitude for the fetus/infant. Also, it is an important work to clarify the cause of malformations including physical examination, genetic examination, and autopsy of the fetus/infant, and it is necessary to evaluate the risk of recurrence in the future pregnancy. They would play great roles in grief work of the couple.

43 (ST)

POSTMORTEM AND PLACENTAL LESIONS IN TERM STILLBIRTH

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Brown Medical School, USA

Learning Objectives
1. Review the techniques of standardized postmortem and placental examination
2. Review the postmortem and placental lesions associated with term stillbirth
Abstract/Summary
Between 1994-2005, we examined 737 stillbirth and their placentas at Women and Infants Hospital, Brown Medical School. There were 158 (21%) term cases. 97 (61%) cases showed findings consistent with established cause/strong association with stillbirth such as amniotic fluid infection syndrome, placental abruption, fetal vascular compromise, twin-twin transfusion syndrome, maternal fetal hemorrhage, multiple congenital malformations with/without aneuploidy. In 61 cases (38%), no established cause or association to explain demise could be identified.
Placental findings in this group mostly comprised of cord lesions, abruptio placenta and changes consistent with maternal diabetes and thrombophilic states.

44 (ST)

CAUSE OF INTRAUTERINE FETAL DEATH, VALUE OF AUTOPSY AND PLACENTAL EXAMINATION TO DETERMINE A PLACENTAL CAUSE

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Aim. More insight into cause of intra uterine fetal death (IUFD) is needed as this remains unknown in 20-50% of cases. Minimal information about value of diagnostic tests after IUFD in order to find the cause of death is available. No international evidence-based guidelines for use of diagnostics after IUFD exist. Value of autopsy and placental examination seems promising. Our objective was to investigate cause of IUFD and determine the value of autopsy and placental examination in our largest death group.
Methods. Our panel of 2 obstetricians, a perinatal pathologist, a registrar and a data manager classified singleton pregnancies > 20 weeks of gestation for which diagnosis of IUFD was determined before labour. These IUFD's occurred in 54 centres participating in our national multicenter cohort study during 2002 to 2005. The Tulip classification was used. Cause of death was defined as that pathophysiological entity which was responsible for the irreversible path to death. Diagnostics were valued as not contributing, confirming, excluding or missing.
Results. A total of 325 cases of IUFD were evaluated. 20 cases (6.2%) were classified in the group Congenital Anomaly, 204 (62.7%) in Placenta, 5 cases (1.5%) in Fetal Infection, 8 cases (2.5%) in Fetal hydrops unknown origin, 6 cases (1.8%) in Maternal disease and 82 cases (25.2%) in Unknown. Value of autopsy and placenta in the different placenta cause of death groups was not contributing, confirming, excluding or missing. For the placental bed pathology group for autopsy this was respectively: 44, 3, 55 and 18, for placenta this was: 7, 111, 1 and 1. For the subgroup placental pathology development for autopsy: 11, 3, 15 and 5 and for placenta: none, 34, none and none. For the placental pathology group parenchyme for autopsy: 5, 1, 6 and none and for placenta: 1, 10, 1 and none. For the umbilical cord complication group for autopsy: 10, 4, 3 and 3 and for placenta: 1, 14, 5 and none. For the group placenta not oth-

erwise specified for autopsy: 7, none, 6 and 5 and for placenta none, 18, none and none. In 96 cases (47.1%) autopsy and in 194 (95%) cases placental examination was either confirming or excluding.
Conclusion. Largest death group in our IUFD cohort was Placenta. In almost all cases placental examination was valuable; autopsy in half of cases. Placental examination as diagnostic test after IUFD should always be done. Autopsy can give useful information.

45 (ST)

THE NEW NATIONAL ITALIAN LAW FOR THE REDUCTION OF THE SUDDEN INFANT DEATH SYNDROME (SIDS) AND SUDDEN INTRAUTERINE UNEXPECTED DEATH (SIUD): OBJECTIVES AND GUIDELINES IN PATHOLOGIC AND FORENSIC MEDICAL DIAGNOSTICS

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On December15th, 2005 the Italian Parliament has approved the national law n. 4248, “Regulations for Diagnostic Post Mortem Investigation in Victims of the Sudden Infant Death Syndrome (SIDS) and of Unexpected Fetal Death”. This designates the Institute of Pathology of Milan University as the National Reference Center for the study on SIDS and late unexplained fetal death (SIUD) and for the collection of material in the data bank already available in the same Institute. The objectives of this law include the reduction of the mortality for SIDS and SIUD through the anatomo-clinical research, widespread informative and preventive campaigns and programs of continuous formation for medical personnel. It is composed as follows:
ARTICLE 1
1. The victims of SIDS and fetuses dead without any apparent cause after the 25th week of gestation must be submitted to autopsy in designated centers.
2. The information regarding pregnancy, fetal development and delivery, and familial environmental situation, must be accurately recorded and verified, for the diagnostic and research purpose, by the obstetrician gynecologist, the neonatologist, the pediatrician and by the pathologist involved in the case and according to international protocols.

ARTICLE 2
The autopsy is performed according to the protocol devised by the Institute of Pathology of the University of Milan.

ARTICLE 3
The clinico-pathological findings are collected in the data bank available at the Institute of Pathology of the University of Milan and forwarded to the Health Authority that will send the information to the doctors in charge and make them available, to the close relatives of the victims.

ARTICLE 4
1. The health authorities will:
A. promote inherent prevention and sensitization campaigns in order to guarantee correct information on the problem of SIDS and unexpected fetuses death.
B. setting up appropriate multidisciplinary research programs.
2. The Health Ministry prepares guidelines for the prevention of SIDS.
3. For the realization of the programs of continuous information in medicine, the National commission for Continuing Medical Education, provides that each obstetrician, gynecologist, pediatrician, neonatologist, pathologist, histologist, general physician, and nursing staff obtain educational credits in the field of SIDS and unexpected fetus death.
4. In order to guarantee better assistance to the families struck by SIDS or sudden intrauterine death without apparent cause, the health authorities can prepare plans of psychological support to the families, facilitating contacts with the associations for families that have suffered similar experiences.

46 (HP)

SUPPORTING BEREAVED FAMILIES WHEN A CHILD DIES SUDDENLY AND UNEXPECTEDLY

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The Queen Silvia children's hospital has one of the largest paediatric emergency units in Scandinavia with 45.000 visits per year. A special care program for families with SIDS children was started in 1989, which has been gradually developed and is today offered to all families with children that die suddenly and unexpectedly. Following promotion of the non-prone sleeping position, non-smoking and non-overheating, SIDS in Sweden has decreased to 0.28 per 1000 live births in 2004.
We have a specially trained nurse, partaking in a team including the SOS Alarm service, ambulance service, police, hospital and forensic department, who becomes responsible for the family together with the paediatrician on call. Continuous contact between the family and the nurse forms the basis of the program, and participation not only of the parents but also of the whole family -; siblings, grandparents, other family members and friends.
The aim is to provide personal support to the involved person from the arrival to the hospital through the mourning and guide them through their grief.
The first step is to help the parents to take farewell of their dead child. We have access to two rooms close to the emergency unit. One is used mainly as a meeting room and the other for the dead child.
We encourage the family to come to see the child several times and to prepare the child for the funeral themselves. Most of the families arrange for the funeral in their own personal way and afterwards express satisfaction that they could do so.
The contact is continued after the funeral if the family so wishes. They are offered appointments with the doctor who was on call when they first arrived, with a paediatrician with special knowledge about SIDS, and with the crew of the ambulance that took the child to the hospital.
They also are informed about the organisation for families with children that have died suddenly and unexpectedly and contact is arranged if they want so.

47 (HP)

IMPLEMENTING BEREAVEMENT SUPPORT SERVICES FOR A BROAD RANGE OF FAMILIES IN NEW SOUTH WALES, AUSTRALIA: THE JOURNEY AND EXPERIENCE OF SEVERAL FAMILIES

Rosemary M Richardson
SIDS and Kids NSW, Australia

An informal review was conducted to access how the model and range of bereavement support services offered within SIDS and Kids NSW meets the needs of a diverse range of bereaved families and to identify gaps in the service.
SIDS and Kids NSW provides support for families who experience the death of their baby or child during pregnancy, birth and infancy. This includes the experiences of miscarriage and early pregnancy loss, stillbirth, neonatal and infant death, Sudden Unexpected Death in Infancy (SUDI) and the death of a child up to 6 years of age.
New South Wales is Australia's highest populated state, with approximately 88,000 births per year. More than 1000 families experience the death of their baby or young child within our support brief each year.
The SIDS and Kids NSW model of bereavement support services, holds the bereaved family uppermost. SIDS and Kids NSW, hospital and community health professionals and community agencies, the community of family and friends and emergency service personnel work collaboratively for and with the bereaved family, for the benefit of the bereaved family.
Bereaved families benefit from the collaborative efforts of SIDS and Kids NSW in educating those who care for them at the time of their baby or child's death. The service has at its core, notions of self-determination for bereaved families, enabling them to choose from a range of bereavement support services including individual and family counselling, parent support and support groups.
Six families with different family structures and bereavement experiences completed questionnaires and were interviewed about their experiences of our Bereavement Support services. Their experiences were of recurrent miscarriage, termination of pregnancy, stillbirth of one of twins, neonatal death, sudden unexpected death in infancy (SIDS Category II) and accidental death of a 2 year old.
The review considered outcomes in several areas,:
• How families became aware of SIDS and Kids NSW services.(knowledge of and access to services).
• Which services were accessed in the first 12 months and why they were chosen.
• Family perception of how the services did or did not meet their needs
• Recommendations for improved or new services.
This paper will provide outcomes of the review.

48 (HP)

COLLABORATIVE RESEARCH WITH MAORI ON SENSITIVE ISSUES: THE APPLICATION OF TIKANGA AND KAUPAPA IN RESEARCH AROUND MAORI SIDS

Tim McCreanor, Riripeti Haretuku
The National Coordination of Maori SIDS, New Zealand

This paper describes research practices and experiences employed by Maori field researchers within the context of a current research project that investigates the knowledge and insights of Maori families that have lost a child to Sudden Infant Death Syndrome (SIDS).

The research process devised by the Maori research team made innovative use of Maori community and care-worker networks in order to investigate a deeply sensitive issue and to enhance our understanding of Maori SIDS. We contextualise our commentary within tikanga and kaupapa Maori research frames. We hope the use of diary annotations will illuminate points made in the discussion and will be of use and inspiration to researchers working with Maori on issues that would ordinarily be difficult to approach and which would therefore require measures of sensitivity and caution.

49 (HP)

WORKING THE MAORI WAY- A BEST PRACTICE MODEL

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Maori SIDS is a Maori health organisation.In the last 10 to 15 years New Zealand has seen the rapid increase in the number of Maori health organisations operating and servicing the Maori community. Being Maori and working in a Maori way is endemic to way Maori SIDS is run, at both the operational and management levels. What does it mean exactly to be a Maori organisation? What is it that makes these services different from so called mainstream services? This presentation looks at the work and best practice model of a Maori SIDS Regional Coordinator - in an attempt to answer the previous questions raised. The presentation will rely on interviews held with Maori SIDS Regional Coordinators, other health professionals they interact with, Maori whanau and SIDS whanau. The research highlights the tensions of a Regional Coordinator striving to live and work, true to Maori tenets and maintaining credibility in Maori and non-Maori communities. This presentation will give an insight to working in a Maori way.

50 (HP)

TAMARIKI MAORI COORDINATION

Tania Pompallier[1,2]
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The health of tamariki Maori has special significance because of the Crown's obligations under the Treaty of Waitangi, the identified inequalities in health status between tamariki Maori and non-Maori children and the Government's commitment to improve Maori health status so that in the future Maori will have the opportunity to enjoy the same level of health as non-Maori.
Fragmented service delivery is a major weakness in the current system. A lack of integration and coordination is a barrier to effective service delivery. Culturally effective service provision requires improved coordination between 'by Maori for Maori' providers and between those providers and mainstream services.
Poor intersectoral cooperation is also compounding this problem. Providers regard the competitive contracting environment as a factor reducing cooperation and contributing to fragmented services. Competition between providers or professional groups has inhibited the development of services oriented to the needs of individuals and communities.
The coordination role is not to deliver another service provider into the equation, but to create a bottom up solution to the fragmentation and confusion of communication. Maori SIDS has evolved from focusing only on Maori SIDS to now actively impacting on the broader needs of Maori as Tamariki Maori Coordinators.

51 (HP)

THE RESPONSE TO SUDDEN UNEXPECTED DEATHS: THE POLICY-PRACTICE INTERFACE

Trish Malins
Commission for Children and Young People, Australia

The presentation examines the research findings on the policies, guidelines, and current worker practice relevant to sudden unexpected deaths in infancy in New South Wales, Australia in 2004. This research was undertaken for the New South Wales Child Death Review Team by the Commission for Children and Young People. The implications of these findings for service response, organisation of the response system and prevention of sudden unexpected death in infancy are the focus of the presentation.
Shortcomings in policies and guidelines are described, including policy gaps and duplication. The practice issues confronted be a range of professionals are presented within the stages of initial response; post-mortem examination; attribution of cause of death; and research, monitoring and continuous improvement.

The factors influencing workers ability to respond within the policy and guidelines set by their agency are examined. This includes discussion of worker knowledge and experience; support systems; ambiguity of roles; access to critical information and how the information is conveyed to others; and geographic location.
The presentation concludes with a discussion of the recommendations made by the Child Death Review Team for improvement across all stages of the service response.

52 (HP)

SUDDEN UNEXPLAINED INFANT DEATHS ARE PREVENTABLE. SO WHY ARE BABIES STILL DYING?

Janet Marie Carey
National SIDS Council of Australia Ltd, Australia

Since the early 1990s SIDS and Kids has delivered its evidence based health promotion campaign to reduce the risk of SIDS and infant sleeping accidents. The campaign, which is now called SIDS and Kids Safe Sleeping, is reputed to be responsible for saving the lives of over 4,000 Australian babies and reducing the rate of SIDS deaths by 84%.
But how successful has this campaign really been? Is it time to abandon the term Sudden Infant Death Syndrome (SIDS) that comes without responsibility in favour of sudden unexplained infant death (SUDI) which is preventable?
In spite of the reduction in incidence of SIDS, sudden unexplained infant death (SUDI) is still the major cause of death in infants aged between one month and one year . Published reports and data have highlighted that safe sleeping information is not reaching the most at risk sections of the community, risk factors are often present at the time of death, 90% of sudden unexpected infant deaths could have been avoided if parents had received the SIDS risk reduction information and health providers lack knowledge and implementation of SUDI prevention.
There are a number of factors that are contributing to the gap between safe sleeping evidence and the delivery of health promotion. SIDS and Kids is working towards bridging this gap by developing partnerships with government that will effect changes in policy and the collection of national statistics as well as a thorough review of the current evidence.
In addition, without national standards in the diagnosis and investigation of infant death a true picture of why babies are dying cannot be fully understood. This is essential to ensure targeted and effective health promotion programs are developed. SIDS and Kids has taken a leading role in developing a national definition of SIDS and standards in autopsy protocol and is now facilitating the development of national standards in the investigation of infant death.

53 (HP)

FACING THE FUTURE: EXPANSION OF MISSION, SERVICES AND PROGRAMS IN THE NORWEGIAN SIDS SOCIETY

Trond Mathiesen
Norwegian SIDS Society, Norway

During its twenty years as a nationwide SIDS organisation, the Norwegian SIDS Society has achieved many of its goals. The annual SIDS rate is reduced to approximately 0.3 deaths per 1000 live births. The dramatic reduction from 2.5 deaths per 1000 live births has been achieved through successful campaigns and research programs, often initiated, organised and facilitated by the Norwegian SIDS Society. Being an organisation recruiting members and volunteers among SIDS families, the Norwegian SIDS Society has increasingly faced certain challenges that in large part can be explained by the reduced SIDS prevalence. Mainly, we have experienced increasing difficulties upholding a vital nationwide network of volunteers, which is especially important in our peer bereavement support services. Parallel to the drop in SIDS prevalence, the Norwegian SIDS Society in many ways has paradoxically become a more fragile organisation. We therefore had to consider different options and strategic choices necessary to strengthen the organisation and its future capability to organise and provide bereavement support services, and programs and initiatives in prevention and research. It was important to explore what steps to take in order to maintain the organisation's valuable and varied knowledge and expertise held by its volunteers and professionals for future utilisation, whatever the challenges the organisation might face.
The Norwegian SIDS Society decided to expand its mission to include sudden unexpected deaths from 22 weeks gestation up to age 4. In consequence, the Norwegian SIDS Society will provide care and support for families who experience the sudden and unexpected loss of a child in pregnancy, in the neonatal period, in infancy and early childhood. Our research strategy is also expanded from the former priority to SIDS research, to now facilitating and funding research on unexplained deaths before and after birth. Our campaigns and efforts to prevent SIDS deaths are still a major priority. In addition, we will give priority to the prevention of stillbirths. To exemplify, we have become a partner in the international “Kicks Count project”.
This presentation will provide detailed information about the process and rationale that led the Norwegian SIDS Society to expand its mission, and the consequences this decision have on programs, initiatives and activities within bereavement support, prevention and research.

54 (P)

DEATH OF A LOVED ONE

Kunio Yanagida
Author, Japan

The following topics will be covered:

1. Based on the personal experience of my second son's suicide (25 years old), I will discuss the resulting change in perspective which I experienced during the intense eleven days of hospitalization until his death. The standpoint of medical death vs. spiritual death will be discussed.
2. From a French study on how people approach their own death, I realized the similarities and differences of approaching one's own death and approaching the death of someone you love.
3. The differences between approaching one's own death, a loved one's death, or the death of someone farther from you will be discussed.
4. My own grief work, and the way in which isolation, support, and literature from India, Norway and the United States played a role.
5. Case studies will be discussed, including an example from research of the bereaved after the Great Kobe Earthquake.
6. In this day and age, many Japanese families are no longer living with extended family and there is a greater need to receive support from society. This is a big change, and a problem that families are facing today.
7. The change and new life that death brings.

55 (P)

HINDU BELIEFS AND ATTITUDES TO DYING, DEATH, AND REBIRTH

Pittu Laungani
Manchester University, UK

Hindus distinguish between a “good death” and a “bad death”. Hindus often express a strong wish to die a “good death”. The paper discusses what constitutes a “good death” and how it can be achieved. For a Hindu to die in one of the many holy cities, of India, by the banks of the river Ganges is seen as dying a good death. So strong is the wish to die in a holy city that several aged and infirm parents insist upon being taken to Banaras or Hardwar, where they might spend the last days of their lives, awaiting death. Through death in a holy city, one hopes to attain “moksha” or nirvana. The attainment of moksha results in the conquest of death. One's soul merges with the cosmic Brahman, and one ceases to be - forever. One escapes permanently from the Laws of Karma, which form an integral part of the Hindu psyche. The doctrine of karma offers explanations for pain, suffering, and misfortune, and also for pleasure, happiness, and good fortune. Each of us receives the results of our own actions and not another's, if not in one's present life, than in one's future lives.
The paper examines the complex set of religious rites and rituals that are performed by the family members (and by the extended family network) just before death occurs, as soon as death occurs and the funeral rites that follow death. The meticulous and sincere performance of the elaborate funeral rites ensures the repose of the deceased's soul. Not to perform the ancient rites and rituals is to incur 'divine wrath' upon the deceased's family and their progeny.

56 (P)

GRIEF THEATRE PRODUCTION TAKOTO, TAKOTO, TAKOTO

Pauline Ruth Hopa, Aaron Job Hopa, Te Aranga o Otene Kane Hopa, Marcia Hinemoa Hopa, Rowena Maud Reweti, Koea Kaka
Maori SIDS- University of Auckland, New Zealand

Maori view death as the beginning of a journey, the return trip to Hawaiiki our ancestral homeland.
Haere atu ra
Go there
Takahia Te ara whanui a Tane
Tramp the path of Tane
Haere ki te tini ki te mano
Go to the many thousands
E moe e moe e moe mai ra
Sleep there
Takoto mai
Lie there
These are but a few of the most common laments heard at the time of a death among Maori. Our process for dealing with grief is called Te Tangihanga literally translated means the crying.
The Tangihanga as a process is made up of many parts. These various parts are very ritualistic but serve to progress us through our grief utilising our language and traditions
The tangihanga is a group dynamic designed so that grief is never borne alone. The rituals and traditions see the necessary involvement of the elders, and as such is a time for family issues and talk. It is a time to reinforce relationships and perhaps make new ones. This takes time and so hospitality is always a necessary component, this is often the domain of the younger generations and thus all levels of the family are represented and indeed pivotal to its overall success. This grieving process is also a mechanism by which our language and protocols are enacted and therefore remain current.
Marae theatre is a media for looking at ourselves through drama and traditional performing arts. This form of performance is designed to be intimate and challenging.
We seek in this performance to look at grief through our Maori eyes and believe that we all no matter who we are and where we come from can understand across our cultural divides this thing called grief. It asks us all to look at other cultures ways of grief resolution and in doing so seek to enhance our own process of dealing with grief.
Takoto takes us on a journey of grief and discovery.
Takoto means to lie down and is often used in formal speeches at the time of death. Takoto, takoto, takoto meaning lie or rest. This is in the same vein as Rest in peace. It bears the aire of finality and completion.
Unfortunately the dead ultimately have reached their rest but it is we, those left behind who find peace and rest a harder goal.

57 (S)

ANALYSIS OF PHOX2B, KVLQT1, HERG AND SCN5A GENES IN JAPANESE VICTIMS OF SIDS

Kiyoshi Hayasaka
Department of Pediatrics, Yamagata University School of Medicine, Japan

Sudden infant death syndrome (SIDS) is a major cause of infant
death.There are several independent risk factors for SIDS, and prone sleeping is a major risk factor.However, the underlying cause or mechanism of death remains unknown.SIDS is likely based on a compromise in arousal response to breathing or blood pressure during sleep.SIDS infants may have congenital defects of cardiorespiratory control.
At first, we focused on a compromise in respiratory control. Congenital central hypoventilation syndrome (CCHS) is a disorder characterized by an idiopathic failure of the autonomic control of breathing and had been regarded as one of the compromised conditions in SIDS. In 2003, the PHOX2B gene was identified as major disease causing gene of CCHS patients. We analyzed the PHOX2B gene in 23 cases of SIDS and did not find any mutations other than the olymorphic substitutions. Our study revealed that the mutation of PHOX2B is not likely associated with SIDS.
Then we studied the compromised conditions of cardiac control. The congenital long-QT syndrome (LQTS) is a hereditary disorder that is characterized by a onged QT interval on an EEG, syncope and sudden death. The KCNQ1, HERG and SCN5A genes are major causes of LQTS. Brugada syndrome is another hereditary disorder that also causes sudden death and is prevalent in southeast Asia including Japan. The mutations of the SCN5A gene cause some cases of the Brugada syndrome. An Italian study reported that a prolonged QT interval on an EEG during the first week of life might be a risk factor for SIDS. We analyzed the KCNQ1, HERG and SCN5A genes in 23 cases of SIDS and found the compound heterozygous Thr895Met mutation of the HERG gene and the Gly1084Ser mutation of the SCN5A gene in only one case.
We could not identify the prevalent compromised condition in Japanese victims. The genes involved in the formation of the respiratory center and additional genes associated with LQTS should be studied as genetic risk factors for SIDS. We could decrease the victims of SIDS if we could delineate genetic risk factors. For the analysis of genetic backgrounds of SIDS, it is very important to accumulate the data and specimens with the informed consent.

58 (S)

SEROTONIN TRANSPORTER GENE POLYMORPHYSM AS A RISK FACTOR FOR SIDS

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Sudden infant death syndrome (SIDS) is defined as the sudden death of infant which is unexpected by history, and in which a full

postmortem examination fails to demonstrate an adequate cause of death. Dysfunction of neurotransmitter serotonin (5-hydroxytryptamine) has long been proposed for the pathogenesis of SIDS. Genetic involvement has not long been known in SIDS.

We first identified genetic risk factor for SIDS (ref.1, below) by analyzing the association between serotonin transporter gene polymorphism (5-HTTLPR) and SIDS.

5-HTTLPR was first reported by Lesch et al., (Science, 274, 1527, 1996), and are composed of 14 (S allele for short), 16 (L allele for long), or rarer frequent 20 (XL allele for extra long) repetitive elements. Significant differences in genotype distribution and allele frequency of the 5-HTT promoter gene were observed, namely, the L and XL were statistically more frequently found (22.2 % and 5.6 %, respectively) in SIDS victims than in control participants (13.5 % and 0.4 %, respectively). These findings were further confirmed by the study of US group (Weese-Mayer, et al., Am J Med Gen, 2003).

Since the activity of serotonin (i.e. extracellular serotonin) is regulated by 5-HTT, of which transcriptional activity is influenced by 5-HTTLPR, these results indicate that

(1) genetic factors are, at least in part, involved in SIDS

(2) serotonergic abnormalities might exist in SIDS.

We thus propose that the longer alleles (L and XL alleles) are genetic risk factor for SIDS. These results might lead to the neonatal genetic screening for the prevention of SIDS.

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59 (S)

SUDDEN INFANT DEATH AND INBORN ERRORS OF METABOLISM

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It is often claimed that many of patients with inborn errors of metabolism (IEM) have developmental impairments, skeletal abnormality, or peculiar appearance. There is a group of IEM, with which children normally develop but potentially get into unexpected sudden infant death (SID) or acute life-threatening events (ALTE). It includes fatty acid oxidation defects (FAODs), or organic acidemias (OAs), and has been attracted recently. The most common presentation of such disorders is an acute attack of life-threatening coma, Reye syndrome-like encephalopathy, and hypoglycemia induced by a period fasting or metabolic stress such as infection. Some of them may often be misdiagnosed with SIDS or ALTE. There is a report that FAODs were identified in approximately 5% of 418 cases of unexpected SID at autopsy retrospectively. Most common disorder was medium-chain acyl-CoA dehydrogenase (MCAD) deficiency, followed by very-long chain acyl-CoA dehydrogenase (VLCAD) deficiency, and so on. According to our survey of Japanese patients with FAODs, initial attack of acute encephalopathy occurred most commonly during the period of 1 month to 2 years of age. This finding may be similar with that of SIDS. Recently, newborn screening for FAODs and OAs, using tandem mass spectrometry (tandem MS) and blood filter paper, was developed, and is becoming popular worldwide. According to pilot tandem MS screening studies, the incidence of FAODs, OAs, or amino acidemias was 1 in 5,000 to 8,000 babies. It was reported from Germany that victims of unexpected sudden death due to MCAD deficiency disappeared in areas where the tandem MS screening was introduced. Presymptomatic detection of such disorders will prevent affected children with such disorders from SID in many cases, and the newborn screening may contribute the prevention of unexpected SID to some extent as well as of mental retardation.

60 (S)

SUDDEN INFANT DEATH SYNDROME: CASE-CONTROL DIFFERENCES IN GENES OF THE AUTONOMIC NERVOUS SYSTEM

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We have previously reported an association between functional polymorphisms in the serotonin transporter gene (5HTT) and sudden infant death syndrome (SIDS). In an ethnically-matched case-control sample we found an association between the long allele of the 5HTT promoter polymorphism and SIDS in both Caucasian and African American subgroups. An association was also identified between the 12 allele of a polymorphic variable number tandem repeat in intron 2 of 5HTT in African Americans but not Caucasians. To further elucidate the genetic profile that might increase an infant's vulnerability to SIDS, we focused on the recognized relationship between autonomic nervous system (ANS) dysregulation and SIDS. We therefore sequenced genes pertinent to early embryologic development of the ANS including MASH1, BMP2, PHOX2A, RET, ECE1, EDN1, TLX3, and EN1 in 92 probands with SIDS and 92 gender- and ethnicity-matched controls. We also analyzed the PHOX2B gene for the polyalanine expansion mutation associated with Congenital Central Hypoventilation Syndrome (CCHS). Eleven protein-changing rare mutations were identified in 14/92 SIDS cases among the PHOX2A, RET, ECE1, TLX3, and EN1 genes. Only 1 of these mutations (TLX3) was identified in 2/92 controls. African American infants accounted for 10 of these mutations in SIDS cases and 2 controls. Four protein-changing common polymorphisms were identified in BMP2, RET, ECE1, and EDN1 but the allele frequency did not differ between SIDS cases and controls. However, among SIDS cases the allele frequency for the BMP2 common polymorphism demonstrated ethnic differences; among controls the allele frequency for the BMP2 and the ECE1 common polymorphisms also demonstrated ethnic differences. The CCHS-related PHOX2B expansion mutation was not identified in any SIDS cases or controls. These data represent further refinement of the genetic profile that might place an infant at increased risk for SIDS.

61 (S)

GENETIC AND ENVIRONMENTAL INTERACTIONS AND RISK FOR SUDDEN UNEXPECTED DEATH IN INFANCY (SUDI): AN OVERVIEW

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Genetic studies have identified multiple ways in which SIDS victims differ from healthy infants and non-SIDS deaths. Long QT syndrome is associated with potassium and sodium channel gene defects, with 4-5% of SIDS cases having a distinct cardiac ion channel defect. These findings suggest that mutations in cardiac ion channels may provide a lethal arrhythmogenic substrate in some infants. Polymorphisms in the serotonin (5-HT) transporter (T) gene are illustrative of the way in which alterations in individual genes influence risk for SIDS. 5-HT is a widespread neurotransmitter affecting breathing, cardiovascular control, temperature, and mood, and regulation of non-REM (quiet) sleep. Several polymorphisms have been identified in the promoter region of the 5-HTT gene which appear to have a role in membrane uptake and regulation. SIDS victims are more likely to have the “L” allele, and to have reduced 5-HT concentrations at nerve endings. Molecular genetic studies in SIDS victims have also identified mutations pertinent to early embryologic development of the autonomic nervous system. The relevant genes include MASH 1, BMP 2, PHOX2a and 2b, RET, ECE 1, EDN 1, TLX 3, and EN 1. Genetic differences among SIDS infants have also been reported for the complement (C4) gene, and SIDS victims with mild upper respiratory infection prior to death are more likely to have deletion of either the C4A or the C4B gene compared to SIDS victims without infection or living controls. SIDS victims also have polymorphisms in the gene promoter region for IL-10, an anti-inflammatory cytokine. Sudden infant death is strongly associated with IL-10 genotype, both with the ATA haplotype and with presence of the -592*A and -592*C alleles. These genetic risk factors for SIDS interact in complex ways with environmental risk factors an interaction between prone sleep position and impaired ventilatory and arousal responsiveness being one example. Transient airway obstruction can occur in prone-sleeping infants, but healthy infants will arouse before such episodes become life-threatening whereas infants with insufficient arousal responsiveness to asphyxia are at risk for SIDS. There may also be links between risk factors related to unsafe sleep environments and genetic risk factors affecting ventilatory and arousal abnormalities, temperature or metabolic regulation deficits, or immune status. The increased SIDS risk associated with fetal exposure to cigarette smoke may also depend in part on genetic factors affecting brainstem autonomic control, with decreased ventilatory and arousal responsiveness to hypoxia following fetal nicotine exposure.

62 (S)

WHY MUST THE DEFINITION EVOLVE?

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The definition of sudden infant death syndrome (SIDS), as with every disease process, must continue to evolve. Since the original definition of SIDS was proposed in 1969, nearly 6000 citations have appeared in PubMed. It stated SIDS is “the sudden death of any infant or young child which is unexpected by history, and in which a thorough post-mortem examination fails to demonstrate an adequate cause of death.” With recognition of the importance of the site where an infant was discovered, in 1989 a NICHD panel modified SIDS to be: “the sudden death of an infant under one year of age, which remains unexplained after a thorough case investigation, including performance of a complete autopsy, *examination of the death scene*, and review of the clinical history.” During the subsequent years, increased recognition of the critical importance of risk factors for SIDS has been validated by dramatic declines in rates as a result of public educational programs designed to alter infant care practices. Paramount among these is prone sleep, although cigarette smoke exposure, soft sleep surfaces, and bed sharing contribute importantly as well. Whether these and other yet to be rec-

ognized risk factors should be considered causes of death is an ongoing debate that will not be easily resolved until mechanisms of death in SIDS are more clearly delineated. Nevertheless, it became apparent that modification of the SIDS definition must address this new information. Therefore, in January 2004 an expert panel put forth a general definition for purposes of death certification, vital statistics, and grief counseling: SIDS is "the sudden and unexpected death of an infant under 1 year of age, *with onset of the lethal episode apparently occurring during sleep*, that remains unexplained after a thorough investigation including performance of a complete autopsy, and review of the circumstances of death and the clinical history." This general definition was subsequently stratified for purposes of providing a framework reflecting the certainty of a diagnosis of SIDS with incorporation of risk factors and to enhance research by enhancing comparison of findings of different investigative groups. A new category, Unclassified Sudden Infant Death (USID), created for cases not fulfilling the criteria for SIDS, was proposed. Even though the 2004 SIDS definition continues to receive wider international acceptance, it is imperfect; as understanding of the role of risk factors increases and underlying mechanisms of death improve, the definition must evolve.

63 (S)

DIAGNOSTIC APPROACH TO SIDS FROM THE PATHOLOGY OF MEDULLA OBLONGATA

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Infection and other acute process including encephalopathy should be excluded for the proper diagnosis of SIDS. We examined the medulla oblongata pathologically for the cases of SIDS, encephalopathy and non-SIDS acute death.
Objects & methods Sixteen cases of SIDS, 5 cases of encephalopathy, 6 cases of non-SIDS acute death were examined for the brain, especially the medulla oblongata, which was fixed in the formalin. After paraffin embedding, tissue was sectioned for immunohistochemistry after heating in microwave oven. Antibody for p53, MAP-2, Bax, HIF-1, VEGF, Caspase3 and Caspase8 were utilized. TUNEL method was done for apoptosis. For the examination of glial fibers, GFAP-astrocyte-, olig-2-oligodendrocyte- and CD68-microglia- stains were done.
Result P53, MAP2, HIF-1, and VEGF are stained in the medullar neurons of the cases with SIDS, compared to the non-SIDS acute death. These findings suggest the hypoxia related to the SIDS process. Bax , Caspase3, Caspase8 and TUNEL show also positive findings in the cases of SIDS, suggesting the presence of apoptosis. As for the glial findings, though the microglia and oligodendroglia show no specific findings, astroglia is markedly destroyed and fragmented--clasmatodendrosis--in the cases of encephalopathy. On the contrary, clasmatodendrosis is not detected in the SIDS.
Conclusion: Hypoxic markers, apoptotic markers and GFAP stainings are useful for the differential diagnosis of SIDS in the autopsy cases.

64 (S)

JAPANESE NEW DEFINITION FOR SIDS

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Sudden Infant Death Syndrome (SIDS) is the third leading cause of death among Japanese infants under 1 year of age. In 2003, the rate for SIDS was 0.194 per 1000 live births. The rate for accidents including suffocation was, however, still 0.130 per 1000 live births.
Once the diagnosis of accidental suffocation was made, the family has an inclination to start lawsuits if the baby died at the hospital or day care center. At present, over 25 civil actions are at issue in Japan. One criminal action was delivered guilty at the court last year. In this criminal action, the baby was found pale with prone position at the hospital and saved by nurses and doctors with CPR. The baby was cared under the mechanical ventilation but developed brain damage and died 7 months later at the same hospital. The diagnosis of accidental obstruction of nose and mouth with prone position for the initial event was made by the forensic doctor. The nurse who saved the baby was unfortunately convicted at the district court. It is important to extend the world definition of SIDS not only to Japanese forensic doctors but also to the general public.
Recently, we, as Japanese Ministry Research Group, put forward the new guideline for the diagnosis of SIDS with the clear statement that the baby does not suffocate easily on prone position even with straight face down.

65 (ST)

MATERNAL STRESS AND PRETERM BIRTH: THE INTRAUTERINE PARADIGM

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There is a growing body of empirically sound research that suggests pregnant women of different racial, ethnic, socioeconomic, and national backgrounds who experience high levels of psychosocial stress during pregnancy are at significant risk for shorter gestation and earlier onset of spontaneous labour and preterm delivery. Another considerable literature supports the notion that inflammation is associated with preterm birth and that stress and inflammation are linked together in the etiology of preterm birth. Stress and inflammation are mutually synergistic, i.e. inflammation produces cytokines (interleukin (IL)-1 & ß, IL-6, IL-8, tumor necrosis factor (TNF)-&Éø), some of which amplify stress, and stress produces hormonal (corticotrophin releasing hormone (CRH), cortisol, prolactin) changes that regulate cytokine production. These systemic hormonal/cytokine mediators of stress activate the intrauterine tissues, decidua, placenta and myometrium, invoking physiological changes that cause preterm birth. Uterine activation refers to increased expression of the genes and their proteins (uterine activation proteins, UAPs) that promote the ability of the uterine tissues to carry out the processes of parturition, often as intermediates in feed-forward mechanisms as we will illustrate. These UAPs include the oxytocin receptor (OTR), prostaglandin (PG) endoperoxide H synthase (PGHS-2), the $PGF_{2\acute{E}\varnothing}$ receptor, FP, connexin-43 (CX-43), the matrix metalloproteinases (MMPs), or decreased tissue inhibitor of metalloproteinases (TIMP-1) and inducible nitric oxide synthase (iNOS). We will discuss a unifying hypothesis that ties together stress mediators and UAPs in a model of maternal tissues that attempts to explain how maternal stress causes preterm birth. Recent work will be described that suggests two proteins induced by cytokines, the enzyme 11&ß-hydroyxsteroid dehydrogenase type 2 (11&ßHSD2) and FP, may be key linking steps between stress mediators and uterine activation. This construct will incorporate elevated levels of stress mediators (hormones and cytokines) which alter enzymatic systems (e.g. placental and decidual 11&ß-HSD2, PGHS-2, MMPs, TIMP-1, or iNOS) and receptors (FP, OTR) that further amplify both the stress mediator levels and the UAPs in maternal intrauterine tissues, consequently leading to preterm birth. Supported by the Canadian Institutes of Health Research.

66 (ST)

FIRST TRIMESTER DETERMINATION OF ADVERSE PREGNANCY OUTCOME

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The timing of factors which lead to disorders of fetal growth have been studied for many years. Previous studies have focused on disorders of the "second wave" of trophoblast invasion of myometrial arterioles and on fetal weight gain in the third trimester. Over the last five to ten years, clinical studies have demonstrated associations between first trimester ultrasound and biochemical parameters and the risk of later adverse perinatal outcome. First trimester growth restriction is associated with an increased risk of low birth weight, low birth weight percentile for gestational age and extremely preterm birth. This may reflect a defect in early pregnancy placentation and later adverse outcome. Consistent with this hypothesis, low first trimester circulating maternal concentrations of pregnancy associated plasma protein A (PAPP-A), a trophoblast-derived regulator of the insulin-like growth factor system, are associated with an increased risk of later stillbirth, growth restriction, pre-term birth and pre-eclampsia. Even among healthy women having normal pregnancies, first trimester circulating concentrations of PAPP-A correlate with the timing of spontaneous labor and the eventual birth weight. In the case of stillbirth related to placentally-related complications (abruption and growth restriction), women with low maternal serum levels of PAPP-A in the first 10 weeks post-conception have a relative risk of stillbirth in late pregnancy in the region of 40-50. Two caveats apply to this observation. First, the high relative risk reflects an extremely low risk of such events in women with normal or high values of PAPP-A. Second, the study was relatively small scale and larger scale studies are required to characterise fully this association. Nevertheless, these analyses suggest that in some women complications of late pregnancy have their origins in the very earliest weeks of gestation and precede first attendance for prenatal care. These findings have implications for strategies aimed at detecting women at increased risk of stillbirth.

67 (ST)

STILLBIRTH IN MULTIPLE PREGNANCY

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Stillbirth in multiple pregnancy

68 (HP)

HOW TO SUPPORT BEREAVED PARENTS

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The Child Bereavement Trust, UK

There is little anyone can do or say to ease the pain of losing a child. It is a time no parent ever forgets, a time of unbearable anguish and sorrow and yet experience has shown that what happens in the hospital when a child has died can have lifelong repercussions. The following suggestions have been compiled by parents whose baby died.

Respect - the bond between the parents and child will not be diminished because the baby has died. The baby should be shown the same degree of respect when dead as when living. Parents' wishes should be respected.

Time - spending time with parents will assist in developing a relationship and establishing trust. This will be the foundation for all future discussions. Lack of information may result in subsequent regrets. If time is short let parents know what the limitations are.

Communication as a vehicle to understanding requires:

Listening - families in distress may find it difficult to listen. Do not assume that because information has been given that it has been understood as intended. Establish the family's understanding by listening to them and reflecting back what they have said.

Information - should be timely. Use simple explanations a little at a time. Consider the environment in which information is been given and who provides it. If there are options, discuss them. Do not make assumptions about what parents might know or want to do. Be prepared for families to require very detailed information about what will happen to their baby and to return to issues covered previously. If possible support information given verbally with the written word.

Questions - some questions will be extremely difficult for parents to ask. Questions are important not only to inform and empower parents but allay their fears. Lines of communication should remain open as questions do not always occur immediately.

Access - knowing the name of someone to contact is as important after the child has died as before. It is easy to feel abandoned. Easy access to written information is important.

Grief is isolating and even in close relationships, grief is solitary - when parents grieve the death of their baby, they feel alone and normal patterns in relationships are disrupted. A mother's response to the loss of a child is frequently different to that of a father's.

69 (HP)

BEREAVED FAMILIES - WHO DO THEY NEED

Ann Deri-Bowen
Foundation for the Study of Infant Deaths (FSID), UK

Since 1971 FSID has provided support for bereaved families. In 2004 there were 329 sudden and unexpected deaths in the UK.

The bereaved family is faced with many different professionals. Each professional will have their own involvement but no one person will have overall responsibility to ensure the family knows the procedures following the death, what choices they can make and what support might be helpful.

For many parents the death of their baby will be their first encounter with death within the family. They will have no prior understanding of the formalities or choices they may have to make.

The presentation will highlight some of the ways in which families can be supported after their baby's death and the benefits from professionals working to a multi agency protocol.

Immediately

* Parents need to understand what the legal procedure involves. The need for a Coroner to make a full investigation which will include the police, paediatrician, and members of the primary care team and the need for a post mortem examination. The need to register the death and attend an inquest are both distressing and require explanation.
* How parents are given time and the way in which they are able to say their last goodbyes to their baby will remain with them for the rest of their lives. The momentoes parents may choose to have and how they will keep them will affect them and other members of their family in the future.
* Arranging a funeral, probably for the first time, raises many questions for parents. At such a distressing time parents are making important decisions and need to know what choices they have.
* The wide variety of emotions each individual member of the family will have and the different ways they may express them, are important for the family, and for all those closely involved with the family, to understand.

Later

* The final post mortem examination results will be available and parents should have the opportunity to discuss the report with a paediatrician.
* Sometimes support from close family and friends becomes less intense and parents value the opportunity to use Befriender and helpline support.
* There will be a number of anniversaries during the first year after the baby's death, and these need to be recognised.
* Understanding the contintued change of emotions, especailly with a new pregnancy.

70 (HP)

HOW CAN WE CARE FOR BEREAVED FAMILIES ?

Yoko Hashimoto
Sanno institute of Psychology, Japan

Being attentative to thoughts of the family and continuously devote to their pace are what I have valued most as a clinical psychologist positioned at a perinatal center engaged in the mental care of the babies and their families. Even as a professional, we cannot ease the sorrows that bereaved families hold. However, being aware of an overwhelming sense of powerlessness, “There is no way to ease their sorrow, even if we wish to do so”, we can still continue to stay with the bereaved families.

Grief of the parents who lost their child is unfathomable. When parents loose their child, they suffer with the guilt of not being able to protect their baby from dying, no matter how inevitable the event was. The thoughts of regretting the past, things that they wished to have done and have not done, are endless and the parents experience despair as if the future that they were to spend with the child is lost completely and everything has been collapsed away. However, sorrow is not the only emotion that they hold. The sorrow of separation exists because they experienced marvelous joy of meeting their own child, even if the loss happened during perinatal or neonatal period. As swinging from one feeling to the other like a pendulum, they start to realize the existence of these extreme feelings and begin to express them. This process of realizing and expressing help the family with their grief work.

Death of a baby is not rare in the field of perinatal and neonatal medicine. When a baby is dying,I try to be with the baby and the family, if possible, like a Doula who is an emotional supporter who stays by the side of a woman at the delivery. Accompanying the families who lost their child through their grief work was another work that I feel important. Also, there were many families who had lost their infant came for counseling after being referred by a meeting of SIDS families. At the symposium, I would like to give a talk from my view explored with many things taught by these families.

71 (P&HP)

THE OOZORA-NO-KAI FORMULA OF CARING FOR BEREAVED PARENTS

Ayako Seno
Oozora-no-kai (Big Sky Association), Japan

Miscarriage, stillbirth, neonatal death, or any kind of child loss brings terrible shock and remorse for the parents. At “Oozora-no-kai” we think it is necessary for a self-support group to have both a minus side for releasing inner emotions, and a plus side for learning something and preventing the child's death from being in vain.

For the minus side at “Oozora-no-kai”, each of us begins by venting our emotions and sharing in free conversation. Then for the plus side, we enter a themed phase based on a planned monthly project connected to learning or healing. The themes we've covered until now include exploring 'what is death' through the gathering and printing of quotes from literature, attempting to mend the mind and body through tea and Kikou (Chinese healing practice), as well as introducing our members' hobbies and publications. As a result, our members have gradually become more cheerful and positive.

I hope that bereaved parents are able to better their lives, even if only a little. Surely, that is also the wish of the children in heaven.

72 (P&HP)

HOW DO WE RECEIVE A MOURNING COLLEAGUE WHO HAS LOST A CHILD WHEN SHE RETURNS TO WORK

Anna-Karin Larsson
Photo Dept. The Queen Silvia Childrens Hospital, Sweden

Anna-Karin Larsson, foreman, Eva Nordenskiöld, parent
This happened on a small department in a big company in 1989
A colleague had lost a child in SIDS. We, foreman and workmates were also chocked and mourning. Then the day came when our companion returned to the department and us. And most things went wrong.
Reality, days with stress and demands and at the same time the trying to understand and making it easier for the mourning parent. We were unprepared regarding how deep mourning was expressed, how long time it took to recover and how fragile the parent was.
We had no professional help to handle a vulnerable colleague. We had no idea of how much or how little work she could bear with.
This happened seventeen years ago. If the same thing happens today - and it will; what will the situation be? We want to find out if there has been any progress to prepare and help foremen and workmates in similar situations in our company. Is there any professional help for the staff to prepare for such a situation in the department?
Yes, we have made progress. There is an instructor on every department to task crises and it is the responsibility of the department manager to make an agreement with a psychologist at the company health service to handle situations like this.
The awareness of the benefit to both staff and workmate-parent to be prepared for the return to work has been given a lot more attention in 2006 than in 1989.

73 (P&HP)

CREATING MEMORIES FOLLOWING THE DEATH OF A BABY OR YOUNG CHILD

Sue-Ellen Robertson, Karen A Barrett
SIDS and Kids Hunter Region, Australia

The memories parents have of their baby plays a vital part in helping them throughout their grief journey. They are the link to their baby that will always remain precious to them. As time passes, parents find these memories are often their greatest comfort.
This presentation will explore the different ways in which SIDS and Kids Hunter Region assists bereaved parents in creating precious memories of their children who have died.
Creating scrapbooks, taking locks of hair, photographs, clay hand and footprints and journaling are just of few ways of assisting parents in their grief journey creatively.
In the traditions of “Continuing Bonds” the creation of special items assist parents in validating their loss and continuing a relationship with a child who is no longer physically present.

74 (P&HP)

AN EXAMINATION OF EFFECTS OF WRITING IN COPING WITH PERINATAL LOSS

Hiroko Yasuda
TENSHI-NO-KAI, USA

Motivated by my own miscarriage, I set up a mailing list for bereaved parents eight years ago. Many members on the list seemed to be relieved to know that they deserved to cry and openly discuss about their feelings. Those who have written stories on their loss for our private anthology reported that they achieved of a sense of accomplishment even though the writing process was severely distressful. Writing helps the bereaved make sense of the experience; some give the loss a significant meaning while others accept it as a matter of nature. Based on this experience, I would ask helping professionals to suggest their patients to write on their loss.
Why does writing promote effective coping with bereavement? Exposure theorists hold that trauma victims avoid recalling the trauma but initial emotional upheaval caused by exposure to those memories will gradually extinct. The bereaved can learn that recalling the memories of their beloved baby does not accompany physical pain any more. According to inhibition-confrontation theory, disclosure by writing on one's loss discharges the bereaved from the stress of suppressing emotions. On top of the loss itself, the bereaved face many other stressors such as socializing with people even when she is not ready. She must temporarily hide her emotions so that her behaviors match the occasions. Accumulation of suppression of emotions may complicate her grief. Cognitive processing theorists propose that using words may change the way the bereaved thinks or organizes her memories. One of the authors of an anthology on perinatal loss, TANJOSHI (Stillborn), reported that writing enabled her to gain a new understanding on her husband's feelings about which she had no idea at the time of loss. As we have seen, writing process promotes effective coping, but the result of writing is also meaningful. Since the perinatally deceased hardly leave mementos, the fruit will make a precious reminder of the love to the deceased.
It is important, however, to note the limitations of written disclosure. Firstly, individuals who are bereaved with complicated loss, such as receiving artificial abortion for medical reason, need special attention. Another group of individuals who require care are ruminators. Ruminators disclose their trauma-related thoughts but focus only on their negative emotions and cannot move forward, which is believed to be indicative of depression. Finally, there are individuals who already have insights regarding death. Those who do not grieve do not need any interventions.

75 (P&HP)

GRIEF, TRAUMA, JUSTICE: A MODEL FOR VIEWING THE IMPACT OF THE SUDDEN AND UNEXPECTED DEATH OF A BABY OR CHILD

Karen M Looi
SIDS and Kids South Australia

The tragedy that is the sudden death of a child leads to great emotional, mental and physical distress. Added to this is the impact of discovering the baby and of witnessing the events that closely follow. Most families find themselves frozen or struggling with overwhelming feelings. The next steps may be defined by cultural and religious ritual, for instance by planning a funeral, but then what? In South Australia a Coronial process superimposes over the tragedy introducing a legal element. Parents can be faced with decisions about tissue retention and delayed release of their child to the funeral director.
Grief (the sheer pain of the loss) will be experienced after a loss of this magnitude, but so may trauma (the physical, emotional and intellectual responses that can occur as a result of the circumstances of the loss). For some families there are also significant justice issues perhaps in relation to the Coronial process, guilt, or negligence. Naming these elements can assist the family in understanding thoughts, feelings and physical responses. The grief process will be supported if families are less frightened of their reactions to the loss. This paper will further describe the Narrative ideas that inform naming these three elements and will provide case examples of its application.

76 (P&HP)

SUDDEN INFANT DEATH: THE ROLE OF CONTINUING BONDS IN A MOTHER'S GRIEF

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SIDS and Kids Hunter Region, Australia

To what extent, if at all, do mothers continue bonds with their child after the child's death? Is this continuation of bonds assisted and supported by their families, communities and health professionals with whom they come into contact? How can health professionals assist mothers to continue their relationship with their child who has died if this is what they wish to do?
This paper explores the above questions in the context of the grief process of mothers who have experienced the sudden death of a baby or young child. Whilst this paper focuses on the grief of mothers it is not denying that fathers do not also continue bonds and relationships with their child who has died.
There appears to be many ways in which a mother does continue the bonds and maintain a relationship with her child who has died, examples of this from the author's own practice as a bereavement counsellor and the current literature in this area will be discussed throughout the paper. There are still many barriers to this continuation of relationships and mothers can often be harshly judged for expressing their attempts to remain connected to their child who has died.
Health professionals have a role in not only providing individual support and facilitation of the continuing bonds process with mothers but also in educating the community and other professionals about the role that continuing bonds can play in the grief process of mothers.

77 (P&HP)

NEW WAYS OF PROVIDING PARENTAL BEREAVEMENT SUPPORT

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Background: The parental bereavement support of the Norwegian SIDS Society is based on a peer-to-peer principle: volunteers having lost their child due to SIDS provide bereavement support to other bereaved SIDS families.
In Norway we experience the lowest SIDS rate ever the last years. This challenges the Norwegian SIDS Society's ability to provide local peer support to new SIDS families. Fewer SIDS deaths make it more difficult to recruit new volunteers. As a result we experience an increasing number of situations where peer support by phone is the only alternative for providing peer support. Obviously, the need of meeting each other face to face occurred.
Initiative: A seminar was arranged for the newly bereaved parents (less than two years since the child's death) and their volunteers. The goal of the seminar was to create a meeting place:
- for the newly bereaved parents and their volunteers,
- where the newly bereaved could meet each other and
- where the volunteers could receive counselling

This seminar was also important in terms of meeting the organisation's demand on ensuring quality in our volunteer bereavement support work. As part of the quality assurance programme, we have also established a counsellor service available to the volunteers: The volunteers in the Norwegian SIDS Society are free to call the counsellor (experienced volunteer who have professional counselling skills) whenever the local peer support turns problematic. In order to inspire the volunteers to make use of this service, we need to make the counsellors more visible in the organisation and create arenas where the volunteers get the chance to experience the benefits of talking with a counsellor. Secondly, because there were many parents in grief with traumatic reactions, it was also necessary to have the professional counsellors chairing the seminar both in plenary and as group moderators.
During the seminar we had plenary sessions where grief and grief reactions were addressed by a professional who herself had experienced the loss of a child. We also split the participants into groups; in the first group session the bereaved parents spend time together with their volunteer. In the second group session the volunteers and the newly bereaved parents attended separate groups.
The presentation will describe the results from such a seminar in terms of personal experiences, peer support and counselling, and organisational identity and belonging.

78 (P&HP)

FOREVER REMEMBERED IN CYBERSPACE: AN ANALYSIS OF ONLINE MEMORIAL SITES FOR SUDDEN INFANT DEATHS

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Mourning death is a behaviour as old as mankind. Activities, rituals, the coming together of family and friends, some activities undertaken in a shared manner, others done alone - all these form part of a complex system that can ease the burden of the pain of loss. While feelings and motivations for mourning have stayed constant over time and across space, the methods and practices associated with the mourning process vary considerably. As Internet usage becomes ubiquitous in Western society, amateur and professionally constructed memorial websites are proliferating. In this paper we explore how memorial websites are employed by web-users to enact traditional practices associated with mourning. We argue that the introduction of 'digital mourning spaces' does not challenge practices associated with mourning loved ones, such as the telling of stories, the posting of pictures and mementos, the opportunity to “leave” something behind in remembrance in a “space” lovingly constructed by bereaved parents, but that that these traditional practices are reinforced by modern technology. We will analyze how and for what apparent reasons these memorials are constructed, the purposes they serve, and the trajectories they assume. It is important for health care professionals and those assisting parents bereaved by SIDS to understand the complex emotions expressed in the content of these sites in order to better understand and help those who are suffering through the phases of grief. We will analyze these sites not only through their written content, but also via their designs, formats, structures, and messages, both overt and covert. We will address issues such as whether or not these creations are satisfying and comforting to both those who maintain the sites and those who visit them, whether virtual memorial sites offer a true alternative to a cemetery gravesite that can be visited with flowers in hand, and also how the act of transforming very personal feelings into a very public site can actually accomplish healing. While we do not presume to offer simple answers to these multifaceted questions, we propose to explore more fully the aspects of computer mediated communication as they pertain to parents and family members affected by the loss of an infant to SIDS or to still birth. Using examples culled from a thorough content analysis and drawing on the rapidly expanding relevant literature, we propose outlining the strengths and weaknesses of these approaches and also discuss gender and age implications.

79 (P&HP)

FACILITATING OPPORTUNITIES FOR BEREAVED FAMILIES

Gregory C Taylor
SIDS and Kids ACT Inc, Australia

As counselling practitioners who provide or manage support to people affected by sudden infant and young child death, we learn not to go into rescue mode, not to impose models of support onto bereaved family members, nor be rigid with traditional interventions. We understand that people need time to absorb their loss, to make some sense out of their newly acquired chaos, to have ownership of their grief, to be allowed to experience sadness. We also realise that bereaved people experience individual grief journeys and have different needs, at varying times and may or may not accept support options.
So what is an effective model of support for those who have experienced the sudden death of an infant or young child, often termed the cruelest loss of all?
At SIDS and Kids in Australia, our experience has shown that the most effective bereavement care programs are those that are responsive to the wide variety of needs of bereaved family members. Feedback from these members is fundamental so that we know we are on track with our support.
This paper will focus on support options provided by the SIDS and Kids ACT member organisation. It will include information and visual references about professional programs including counselling, facilitated support groups and workshops; peer supporter programs including training and supervision and maintenance of peer support workers; and social programs and events. It will demonstrate how bereaved family members can be assisted by a choice of activities and approaches. It will also reveal that support can be provided in an indirect way by using activities that will bring a group together which otherwise may be difficult to engage for bereavement support.
Effective bereavement support therefore means taking a more holistic approach. The provision of professional bereavement counselling still has its place, but there is an increasing need to incorporate creative approaches in bereavement care to complement the more traditional interventions.

80 (HP)

REMEMBERING THE LIGHT

Marcy Rein
Parents Reaching Out, Inc, USA

Alaska is unique for many reasons. Alaska is home to many extremes: terrain, weather, light, and cultures. Alaska has places where the sun never sets in the summer. In the winter, the sun may not rise for more than 80 days in the north. With a population of slightly more than half a million people, more than 55 languages are spoken in Alaskan homes. Twenty-two of those languages are original to Alaska's Native people.
Although Alaska is proud of its diversity, it is profoundly affected by disparity. Alaska's SIDS rate is nearly twice the national rate. Alaska Natives are more than twice as likely to die from SIDS as white Alaskan infants are. Alaskans must celebrate diversity, and learn what it can offer us to help eliminate disparity among its people's health and offer comfort to those in need.
Parents Reaching Out, Inc is a small non-profit organizatin based in Anchorage that provides support to families experiencing pregnancy or infant death. We provide education to those who care for the bereaved, and to the community, in hopes of reducing our SIDS rate. In an effort to reduce disparity, Parents Reaching Out, Inc is concentrating efforts on reaching out to the diverse cultures in the community.
In 2004, we partnered with Hospice of Anchorage to provide Remembering the Light, a culturally sensitive and diverse gathering for the expression of grief that also increased awareness of community support resources available. Remembering the Light was held in October to commemorate National Pregnancy and Infant Loss Awareness Day and National SIDS Awareness Month. The event also acknowledged the waning daylight hours Alaska experiences during winter months, and offered hope by reminding participants that light does return to a life touched by grief.
More than 200 participants of all ages, cultures, and beliefs made lanterns in the Japanese obon tradition. Alaska Native dancers performed moving tributes to those who have died. Speakers of many faiths discussed expressions of grief and sources of light in lives touched by death. Alaska Native drummers accompanied the procession outdoors, where the lanterns were released into the lake at Alaska Native Heritage Center as families called out the names of those they had lost.
Grief is individual, yet universal. Our diversity can be a tool to provide support to all cultures and traditions while working to reduce Alaska's health disparities.

81 (HP)

DEVELOPMENT OF THE ANGEL KIT: IMPROVING THE QUALITY OF CARE FOR PERINATAL LOSS

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St. Luke's College of Nursing Research Center for Development of Nursing Practice, Japan

Background:
A family's grief over perinatal loss is immeasurable. Quite often, however, people do not understand the family's bereavement because the loss is so sudden and there has been no time for family and baby to bond and create memories.
Since September 2004 we have been conducting a self-help group once a month for mothers, fathers, and other family members called Luke's Group for Parents of Angels. Discussions with mothers at group meetings revealed that the care they received in the hospital after stillbirth was inadequate. Faced with the sudden tragedy of stillbirth, bonding with baby was difficult and there was little time to consider how to commemorate the birth before they had to part with baby. Discussions also disclosed that nursing professionals are hesitant to even approach the mothers because they are unsure of what to say.
Objective:
The purpose of this study is to improve the quality of grief care by creating and assessing the 'Angel Kit', which helps families who experience perinatal loss to bond with baby and bid farewell with a sense of satisfaction.
Method:
The Angel Kit was developed based on discussions with families who have dealt with perinatal loss and the experiences of nursing staff. During the development stage, memory boxes and booklets already created in the West were used for reference, and the aid of Japan Handicraft Instructors' Association was enlisted with the hope that their work would help soothe the families' sorrow.
Results:
A sample kit has been created and assessment is now being conducted at a model hospital.
Aims of developing the Angel Kit include:
1) Creating a warm environment supportive of bonding and saying goodbye to baby.
2) Leaving behind memorabilia of baby.
3) Using the Angel Kit as a tool to deepen the relationship among nurse, baby, and family.
4) Designing a place where family can communicate with baby after going home.
5) Offering an opportunity for families to confront their grief after going home and to find support resources when needed.
The Angel Kit contains:
1) A memory box containing a certificate with a place for baby's handprint and footprint, a sympathy card, a picture frame, and an envelope to hold a lock of hair.
2) Baby clothes and hat, and a heart.
3) The booklet, Living with Grief.
4) An assessment card.

82 (HP)

DEVELOPMENT OF INTER-CULTURAL AND CULTURAL STRATEGIES OF FAMILY CARE FOR PERINATAL LOSS BY MIDWIFE FROM A COMPARISON OF JAPAN AND WESTERN AUSTRALIA

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The aim of the study was to improve perinatal care, family care by midwife for perinatal loss in Japan and Western Australia was compared and differences were analysed. Japanese and Australian versions of the Perinatal Loss Midwives Components of Care and Competence Scale (PNL: MCCCS) were developed in order to evaluate midwives perception of family's satisfaction over family care for perinatal loss. Results in Japan and Western Australia were compared. In this study focused on family care during a perinatal loss event by open questions: such as Most satisfied care asks the most satisfied care perceived by patients by and on Least satisfied care asks the least satisfied care perceived by patients. Constant comparative analysis of the qualitative data and content analysis was employed with the open-ended questions to develop themes related to the topic under consideration. The surveys were approval by ethics committees on each institution. Types of satisfied cares were in common both Japan and WA. Satisfied cares were individualized cares and tailored care defined as care complying parents grief feeling such as midwife's sympathetic attitude to share the memory of the lost baby with parents, provision of situation where parents can express their grief feelings. Unsatisfied cares were observed when time to commit in care was segmented, period to develop personal relationship was too short and could not find appropriate expressions, and ongoing commitment with parent was not maintained. There were responses distinctive of Japanese culture. Being interfered by feedbacks from grand parents, parents were not able to sear the picture of the baby into memory, nor able to have sufficient time with just the couple and baby. Midwives needed to make coordination among family members to respect mother's feelings. The surveys revealed that midwives both in Japan and in WA were keeping in mind about Family Centered Care. However, the midwives were holding uncertainty if their approaches were appropriate or not due to limited time to involve in the family care. Needs for Professional Development Program on Bereavement care were suggested. This survey was funded by Research Fellowship Award 2005 Nurses Board of Western Australia 2005.

83 (HP)

Withdrawn

84 (HP)

INFANT/TODDLER SAFE SLEEP AND SIDS RISK REDUCTION IN CHILD CARE (ITS-SIDS) PROJECT: NORTH CAROLINA'S STATEWIDE INITIATIVE

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North Carolina Healthy Start Foundation, USA

The southern state of North Carolina in the United States had a Sudden Infant Death Syndrome (SIDS) rate of .8 per 1,000 live births in 2004 that consistently exceeds the U.S. national average of .6 per 1,000 live births. Approximately 100 infants die of SIDS each year in N.C. Tragically, SIDS is the leading cause of death in North Carolina's child care facilities. From 1997 to 2004, 54 SIDS deaths occurred in child care and accounted for two-thirds of all child care deaths in the state.
In 2002, the North Carolina Healthy Start Foundation partnered with the N.C. Division of Child Development, the state government child care regulatory agency, to introduce a voluntary SIDS risk reduction training program. The goals of the train-the-trainer Infant/Toddler Safe Sleep and SIDS Risk Reduction in Child Care (ITS-SIDS) Project were to: (l) introduce a safe sleep standard of care, (2) train a cadre of certified ITS-SIDS trainers, (3) train 8,500 child care providers and (4) provide contact hour credits for child care providers.
Since 2002, the ITS-SIDS Project was expanded and is completing its fourth year. During the first three years of the project, 250 certified trainers trained more than 30,500 child care providers.
Outcome data indicate that fewer SIDS risks are present in the immediate sleep environment. Child care providers have adopted infant safe sleep recommendations that are consistent with best practices. More infants are positioned on their backs to sleep. More infant safe sleep policies are in place. Because parents are required to sign that the Safe Sleep Policy has been communicated to them, there has been an increase in SIDS risk reduction statewide. Child care provider evaluations document a high degree of satisfaction with the ITS-SIDS training.
In 2005-06 the ITS-SIDS training emphasis has shifted to training on In-Depth Technical Assistance on Safe Sleep Policy development. The goal is to assist providers in matching their practices with the Safe Sleep Policy and licensing requirements.
The institutionalization of the ITS-SIDS training was propelled by the adoption of the N.C. SIDS Law that went into effect December 1, 2003 and by the corresponding child care licensing requirements adopted May 1, 2004. Consequently, ITS-SIDS training is mandatory for child care providers licensed to care for infants and recertification is required every three years.
The ITS-SIDS training has served as a model for the American Academy of Pediatrics SIDS training for child care providers.

85 (HP)

AWARENESS OF SIDS PREVENTION: SLEEPING ARRANGEMENT, BED SHARING, AND BREAST FEEDING USING THE SIDE-LYING POSITION IN THE FIRST MONTH AFTER BIRTH

Noriko Kobayashi, Shigeko Horiuchi
St. Lukes Collage of Nursing, Japan

Objective: To ascertain whether SIDS prevention is being out in the home.
Design: A cross-disciplinary, descriptive research conducted 1-month after birth.
Participants: Research took place from July to October 2005 in a Baby Friendly Hospital (BFH).There were 233 respondents drawn from mothers who brought their baby to their 1-month check-up.
Results: Three results were obtained. First, neary all participants were aware of measures to prevent SIDS and implemented them in their home. A high percentage carried out countermeasures such as avoing overheating, alchol use, and putting babies to sleep in the prone position, preventing falls, and using lightweight blankets and a firm sleeping surface. When they were conscious short on sleep,

however, over half were unconcerned about bedsharing. In addition, the majority of respondants answered “not appliciable” to the whether they were aware of 2 issues that are uncomfortable to answer, “taking medicine” and “smoking”.
Although detailed information is unavailable, responses indicate that preventive measures are being taken against SIDS in the home, either through actions not directly related to SIDS prevention such as breastfeeding, or because families normally incorporate these actions into their daily routine.
Second, the majority (49 families) stated that parents share one sleeping area and the infant sleeps in a separate area of the same bedroom. Of those, 39.1% of the mothers and 56.5% of infants sleep in a bed, and remaining sleep futon.75.7% of the infants sleep in the supine position, 22.7% on their sides, and 1.7% in the prone position.
Third, 80.5% of the respondents breastfeed their infants, and 39.9% co-sleep and 22.3% breastfeed using side-lying position as part of their normal routine.

86 (HP)

SLEEPING WITH THE ENEMY

Riripeti P Haretuku, Raeleen de Joux
The National Coordination of Maori Sudden Infant Death Syndrome, New Zealand

Mokopuna Ora offers a broader concept of health and the challenge to find innovative and effective ways to support Maori communities. These challenges are to consider and apply as resources permit a broader definition of healthcare delivery to capture the essence of Mokopuna Ora, to grow a responsible organisation in a productive environment to achieve well health in Maori and improve the health of whanau.
A perceived limitation of past and current health services, with respect to improving the health of indigenous populations, has been the mono cultural delivery style of health services and an inability by these services to respond effectively to Maori in a cultural context. By Maori for Maori services offer this context and enhance these services by contracting the necessary medical and technical services. In the past mainstream services have employed a Maori to deal with cultural protocols.
A form of devolution has occurred over the last twenty years in health service delivery for Maori in four distinct basic models;
By Mainstream for Maori: This service delivery delivers health services to Maori as part of the general population, By Maori for Maori: health care delivery is specifically targeted healthcare developed for Maori. These providers provide healthcare for general population
By Maori for Maori and mainstream: A holistic health model responsive to physical, spiritual, emotional and cultural needs of people. This one stop shop healthcare delivery appeals to many people not just Maori.
By Maori and Mainstream health service delivery: This model of care represents the maturing of some healthcare services and the genuine desire by providers to harness and pool their experience and resources. This joint venture delivery is based on mutual respect for the knowledge and experience of both teams. For Maori it is an empowering model that has the flexibility to respond to the needs of Maori but the technical and scientific capacity to ensure rigorousness in delivery. One partner does not own resource and decision-making.
All Maori health models are currently operating somewhere within these frameworks or at various points between these frameworks. This change appears to occur as part of a maturing process. This maturation occurs at different levels and times, philosophically, constitutionally and structurally. Its only when all these levels appear to converge in a balanced way that a joint venture is likely to occur. This is about safety, working smarter, effective health care, and ultimately improved health for Maori.

87 (HP)

GRIEF SUPPORT FOR MEN

Maarit Kivikko
SIDS Finland

This poster introduces a model which has been succesfully used in finnish griefgroups for men bereaving their lost child. The model is based on two weekend meetings in half year's periods, art therapy process and conversations in internet.

88 (S)

BIAS IN REPORTED NEURODEVELOPMENTAL OUTCOMES AMONG EXTREMELY LOW BIRTH WEIGHT SURVIVORS

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Child Concern International the Gambia

Objectives. The purpose of this study was to investigate possible bias in the evaluation of neurodevelopment and somatic growth at 18 to 22 months' postmenstrual age among extremely low birth weight (ELBW) survivors (401-1000 g at birth). Methods. Data from a cohort of 1483 ELBW infant survivors who were born Jan-1990 through Dec-1991 and cared for at centers in the Neonatal Research Network of Royal Victoria Teaching Hospital Gambia were examined retrospectively. Children who were compliant with an 18- to 22-month follow-up visit, who visited but were not measured, or who made no visit were compared regarding 4 outcomes: 1) Bayley Scales of Infant Development, 2nd edition, Mental Developmental Index (MDI) <70 and 2) Psychomotor Developmental Index (PDI) <70, 3) presence or absence of cerebral palsy, and 4) weight <10th percentile for age. Logistic regression models were used to predict likelihood of these outcomes for children with no follow-up evaluation, and predicted probability distributions were compared across the groups. Results. Compared with children who were lost to follow-up, those who were compliant with follow-up were more likely to have been 1 of a multiple birth, to have received postnatal glucocorticoids, and to have had chronic lung disease. These factors were significantly associated with MDI and PDI <70 in the compliant group. Chronic lung disease was associated with increased risk of cerebral palsy (CP). MDI and PDI scores <70 were found in 37% and 29% of children who were evaluated at follow-up, respectively. Prediction models revealed that 34% and 26% of infants in the no-visit group would have had MDI and PDI scores <70. Compliant children tended to have greater incidence of MDI <70 compared with those predicted in the no-visit group but not PDI <70. CP was identified in 17% of the compliant group and predicted for 18% of the no-visit group. Predicted probabilities of having CP were marginally higher among the no-visit infants compared with those who were compliant with follow-up. There were no statistically significant somatic growth differences among the compliant, visit but not measured, and no-visit groups. Conclusion. ELBW infant survivors who weighed 401 to 1000 g at birth and who are compliant with follow-up evaluations may have worse Bayley Scales of Infant Development, 2nd edition, MDI scores than infants with no visit. Thus, follow-up studies based on infants who are compliant with follow-up care may lead to an overestimation of adverse outcomes in ELBW survivors.

89 (S)

Withdrawn

90 (S)

INFANT BEHAVIOUR RELATED TO RISK OF SIDS

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Three major components have been repeatedly implicated for the origin(s) of SIDS: system, minor sickness and surroundings. All these factors also frame infant temperament, and therefore it seems logical to suppose that the babies who either succumb to or are at risk of SIDS may present with certain behavioural features.
To address the issue, a series of studies have been undertaken in St. Petersburg during last decade to find possible associations between SIDS, its major known modifying risk factors and infant behavioural features during daytime and at night.
The findings were that the infants who died of SIDS have moved less when lying awake in crib, during feeding, and during the nail cutting; less often they turned head away and looked for mother when held by new person; more frequently these babies were reported to show extreme response (either almost never protested or almost always objected) when approached by someone other than main care giver; as well, extreme behavioural patterns were noticed looking at infant's vocalising on waking up. The infants who died of SIDS had lower activity scores. Unfavourable microenvironment can increase the risk of SIDS, and the babies facing less developmental stimulation had more negative mood and were less distractible; less organised infants presented with more negative mood, less distractible behaviour, lower rhythmicity, lower persistence, and lower adaptability. The infants born to smoking mothers who are at risk of SIDS had more intensive reactions. The low birth weight infants who are at high risk of SIDS were more withdrawing and less adaptable, presented with longer average total sleep duration, more frequently needed to be put into parental bed to fall asleep. Infant-parent(s) bed sharing may increase the risk of SIDS, and solitary sleeping infants had more positive mood and were more persistent. Use of a pacifier may be protective against SIDS, and pacifier users presented with higher rhythmicity. Prone sleep is known to increase the risk of SIDS, and the lowest persistence was a feature of those babies who were usually put to sleep supine and found prone. Infants who

snored and/or had noisy breathing in sleep were characterised by more negative mood. Infants with signs of repetitive regurgitation were less distractible.
Certain infant behavioural features should be closely looked at when assessing the risk of SIDS.

91 (S)

EFFECTS OF SLEEP STATE ON THE INITIAL VENTILATORY RESPONSE TO HYPOXIA IN SLEEPING PRETERM INFANTS

Rosemary Horne[1], Marjan Verbeek[2], Heidi L Richardson[1], Peter M Parslow[1], Sarah Scott[1], Richard Harding[3]
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Background A failure to respond appropriately to hypoxia during sleep may be important in the etiology of Sudden Infant Death Syndrome (SIDS). The majority of previous studies of the hypoxic ventilatory response (HVR) have been conducted during quiet sleep (QS) only. Since active sleep (AS) is the dominant sleep state throughout the first six months of life, our aim was to examine the initial HVR in preterm infants in both AS and QS.
Methods Eight healthy preterm infants, born at 29-34 wks gestational age, were studied longitudinally using daytime polysomnography at 2-4 wk, 2-3 mo and 5-6 mo corrected postnatal age. Nasal airflow was measured using a miniaturised pneumotachograph and silicone rubber nose-mask. Each infant was challenged with hypoxia (15% O_2) in both AS and QS. Tests were terminated if the infant aroused, after 5 minutes with no arousal, or if SpO_2 fell below 85%. Mean oxygen saturation (SpO_2) and inspired minute ventilation per kg of body weight (V_I/kg) were calculated for the initial 15s and each subsequent 30s epoch of the hypoxic test period and expressed as percentage changes from baseline values. Data were averaged for each sleep state, taking into account whether or not an arousal occurred and compared with ANOVA.
Results All hypoxic tests in AS initiated arousal, whereas in QS infants both aroused and failed to arouse. The probability of arousal was lower at 2-4 wks ($p<0.05$) and arousal latency was longer at 2-4 wks and 2-3 mo in QS compared with AS. The probability of arousal and time to arouse were not different to data previously published in term infants. In both sleep states, regardless of arousal responses hypoxia induced a significant decrease in SpO_2 ($p<0.05$) at each age studied. Furthermore, at 2-4 wks this decrease was more severe ($p<0.05$) and V_I/kg was less at 5-6 mo in AS compared with QS.
Conclusions This is the first study to examine the initial ventilatory response to hypoxia during both AS and QS in preterm infants, taking arousal responses into account. The finding that the fall in both SpO_2 and V_I/kg was more marked in AS than in QS requires further investigation and suggests that the arousal response always observed in AS is likely to be protective against severe hypoxia in this state.
This project was supported by the Australian National Health and Medical Research Council and the Sudden Infant Death Research Foundation of South Australia

92 (S)

POSTNATAL DEVELOPMENT OF THE INITIAL VENTILATORY RESPONSE TO HYPOXIA IN SLEEPING PRETERM INFANTS

Rosemary Horne[1], Marjan Verbeek[2], Heidi L Richardson[1], Peter M Parslow[1], Sarah Scott[1], Richard Harding[3]
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Background Previous studies have shown that the hypoxic ventilatory response (HVR) is immature in infants, though the age at which maturation occurs remains controversial. Our aim was to quantify the maturation of the HVR of preterm infants over the first six months of life, during both active sleep (AS) and quiet sleep (QS), taking hypoxia-induced arousal into account.
Methods Eight healthy preterm infants, born at 29-34 wks gestational age, were studied longitudinally using daytime polysomnography at 2-4 wk, 2-3 mo and 5-6 mo corrected postnatal age. Nasal airflow was measured using a miniaturised pneumotachograph attached to a silicone rubber nose-mask. Each infant was challenged with hypoxia (15% O_2, balance N_2) in both AS and QS. Tests were terminated if the infant aroused, after 5 minutes if no arousal occurred, or if SpO_2 fell below 85%. Mean O_2 saturation (SpO_2) and inspired minute ventilation per kg of body weight (V_I/kg) were calculated for the initial 15s and each subsequent 30s epoch of the hypoxic test period and expressed as percentage changes relative to baseline values. Data were averaged for each sleep state, taking into account whether or not an arousal occurred and compared using ANOVA.
Results In AS all tests resulted in arousal, whilst in QS infants both aroused and failed to arouse to hypoxic tests. The probability of arousal was lower in QS compared with AS at 2-4 wks ($p<0.05$). The probability of arousal and time to arouse were not different to data previously published in term infants. During tests that caused arousal AS and QS, the fall in SpO_2 was less at 5-6 mo compared with both 2-4 wks and 2-3 mo. The fall in respiratory frequency (f) was greater at 2-4 wks than at both 2-3 mo and 5-6 mo in arousing tests during QS. V_I/kg was not different between the ages.
Conclusions This is the first longitudinal study to examine hypoxic ventilatory responses in the same preterm infants over the first 6 months of life. In both AS and QS the fall in SpO_2 was greater at the first study indicating a significant maturation of the HVR in preterm infants after term equivalent age.
This project was supported by the Australian National Health and Medical Research Council and the Sudden Infant Death Research Foundation of South Australia

93 (S)

ANALYSIS OF SUCKING PRESSURE OF TONGUE-TIE IN BREAST-FEEDING INFANTS

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INTRODUCTION
Tongue-tie sometimes cause failure to thrive in breast-feeding infants and the mothers' sore nipple.
Some doctors argued that tongue-tie relates to Sudden Infant Death Syndrome (SIDS), and a frenulotomy is performed in many countries.
However, there is no evidence for the effectiveness of the frenulotomy yet, and the Japan Pediatric Society recommend not to perform frenulotomy without further evaluation.
We report our measurements and analysis of the sucking pressure of infants with tongue-tie longitudinaly.
METHODS
We measured the sucking pressure of two infants with tongue-tie, whose mothers had complained sore nipple.
The sucking pressure was measured with the catheter attached to the mother's nipple, using a analyzer Power Lab TM.
When pain was described, we asked the mother to grade her pain.
We scored their lingual frenulum function using the Hazelbacker Assessment Tool.
We compared our values with the normal sucking pressure reported by Ramsay et al.
RESULTS
Case1: 2-month-old girl, her body weight is -2SD, and her Hazelbacker score was 14.
Her baseline vacuum pressure reached -33 to -37mmHg and peak vacuum pressure was -130 to -230mmHg, which was higher than normal pressure (-147.63mmHg).
When her sucking pressure was over -200mmHg, her mother complained strong pain.
Case2: 5-month-old boy, his body weight is -1SD, and his Hazelbacker score was 11 at 4-month-old,and 20 at 5-month-old .
His baseline vacuum pressure was -13 to -40mmHg and peak vacuum pressure was-27 to -110mmHg.
His mother had no nipple pain at the time of evaluation.
DISCUSSION
We assume that the lower Hazelbacker score, it means significant tongue-tie or ankyloglossia, the higher the peak vacuum pressure, and the high pressure causes mother's nipple pain.
During the study, the infants' lingual frenulum function and sucking pressure were improved without any intervention. Now their tongue show almost normal appearance and function, and their mothers have no nipple pain.
Although recent tongue-tie's treatment has been decided by the evaluation of lingual appearance and function, we believe that the measurement of sucking pressure is of value in deciding the treatment.
CONCLUSION
We expect from our study that most of tongue-tie may improve without surgical treatment, and there is no evidence tongue-tie relates to SIDS. For these reasons, it is important to decide carefully whether to perform the frenulotomy, and we hope that our study may help for the determination.

94 (S)

HEMODYNAMICS OF THE VERTEBRAL ARTERIES IN THE PREMATURE INFANTS COMPLICATED WITH FREQUENT APNEA

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Purpose: Brain stem has respiratory center and the function of this area seems to be influenced by the blood flow of vertebral artery. We find sometimes refractory apnea of premature infants. This study investigated the correlation between changes of the blood flow volume in the vertebral artery that supply brain stem with blood and central apnea during the neonatal period.
Materials and methods: The cerebral blood flow volume in the bilateral vertebral arteries were measured by Doppler ultrasonography at postnatal weeks 0, 1, 2, 3, 4, 5, 6 in four low birth weight infants. The blood flow volume was calculated from mean cerebral blood flow and the diameter of the vessels at the sampling point. In three of these infants apnea was few but another infant was complicated with frequent apnea for a few weeks.
Results: The mean cerebral blood flow volume increased postnatally in bilateral vertebral arteries in infants with a few episode of apnea, whereas it remained almost unchanged from week 1 to week 6 in infant complicated with frequent apnea. The mean cerebral blood flow volume in bilateral vertebral arteries in infants complicated with frequent apnea was lower than those of the cases not complicated with apnea from 1 to 6 weeks.
Conclusions: In infant with frequent apnea showed the low blood flow volume in right and left vertebral arteries. It was suggested that dysfunction of vertebral arteries might be relative to the central apnea, dysfunction of brain stem, especially medulla oblongata that controls the respiratory system of the premature infants.

95 (S)

EVALUATION OF HEART RATE BEFORE AND DURING SPONTANEOUS AROUSALS

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Study objective:
Compared to control infants, victims of Sudden Infant Death Syndrome (SIDS) have a decreased arousability during sleep with fewer cortical arousals and more frequent subcortical activations suggesting an incomplete arousal process. Activation of brainstem arousal reflexes could be a recovery mechanism from hypercapnic or hypoxic episodes. As future SIDS victims suggested to have abnormal regulation of autonomic nervous control, the present study was undertaken to evaluate the heart rate values before and during spontaneous arousals in future SIDS victims.
Methods:
Sixteen infants were monitored in sleep laboratories some days or weeks before they died of SIDS. Their polygraphic sleep recordings were compared with those of matched control infants. Control and SIDS infants were matched for gender, gestational age, weight at birth, age at recording and sleep position. The polysomnographic recordings were analyzed visually. Arousals were differentiated into subcortical activation or cortical arousals, according to the presence of autonomic and/or EEG changes. Mean values of heart rate were calculated for 10 sec. periods before each spontaneous arousal in REM and NREM sleep. The mean values before arousals and changes of heart rates during arousals were compared between SIDS victims and control infants.
Results:
Heart rates before all arousals were higher in SIDS victims during REM sleep ($p < .001$) and NREM sleep ($p < .001$) Heart rates before cortical arousals were higher in SIDS victims in REM sleep ($p < .001$) and NREM sleep ($p < .001$). No differences were found in heart rates preceding subcortical activations during REM and NREM sleep.
Changes in heart rates during all arousals were lower in SIDS victims in REM sleep ($p < .001$). No significant difference was seen in NREM sleep. Heart rate changes during cortical arousals were lower in SIDS victims during REM sleep ($p < .001$). There was no significant difference during NREM sleep. During subcortical activations, SIDS victims showed larger heart rate changes during NREM sleep. No significant difference was seen during REM sleep.
Conclusions:
Heart rates preceding cortical arousals were higher in the SIDS than in the control infants during REM and NREM sleep. These results suggested that SIDS victims have abnormal regulation of autonomic controls. The results that autonomic responses during subcortical activations are similar in REM sleep or even more important during NREM sleep in SIDS victims than in control infants suggested that there are some structural lesions to prevent the progression of arousal sequence in SIDS victims.

96 (S)

IS THE MATTRESS IMPORTANT IN HELPING BABIES KEEP WARM? PARADOXICAL EFFECTS OF A SLEEP SURFACE WITH VERY LOW THERMAL RESISTANCE

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Objectives. Heavy wrapping and head covering are major risk factors for SIDS, especially for infants over 3 months of age. A new mattress construction [PurFlo], which consists of a meshwork surface stretched over a frame, has extremely low thermal resistance, and when used with an infant sleeping bag minimises the risk of head covering. The very low thermal insulation from the mattress reduces the potential risk of over wrapping, though requires careful evaluation of thermal balance particularly in younger infants, who may be at risk of cold stress. We report a study of thermal balance and metabolic rate in healthy infants, under conditions of thermal neutrality and mild cold stress, whilst sleeping in infant sleeping bags, on the PurFlo mattress and a conventional mattress.
Study Design. Each baby was studied twice at each age (once on each mattress, usually on the same day), at 3 weeks, 3 months and 5 months of age. Polysomnograms (PSG) were recorded and infant temperatures (core and peripheral) and environmental temperatures and humidity were digitally recorded every 60 seconds. Infants were clothed and in infant sleeping bags (total thermal insulation 3.5 tog), in thermoneutral environmental temperatures (19-22 C). Oxygen consumption and Carbon dioxide production were recorded every 60 seconds. After one sleep cycle the room temperature was lowered to 15-16C, and the recording continued until the infant awoke. Sections of recording in Rapid Eye Movement (REM) sleep and in Quiet Sleep (QS) were identified from the PSG, in thermoneutral and cool conditions, and mean values obtained for each measured temperature, and for oxygen consumption and CO2 production. Paired comparisons were made using the Wilcoxon test.
Results. In thermoneutral conditions, in REM sleep, core and peripheral temperatures were no different between mattress types, but in QS, core temperature on the PurFlo mattress was higher at all three ages (all $p < 0.05$). In cool conditions, infant core temperature was lower on the conventional mattress than on the PurFlo, in both sleep states, at all three ages ($p<0.05$).
Conclusions. In thermoneutral conditions the PurFlo mattress did not significantly affect thermal balance. Under cool conditions the unexpectedly higher core and peripheral temperature on the PurFlo mattress may be a consequence of its more deformable surface leading to more effective application of the sleeping bag around the infants, together with greater effectiveness of peripheral vasoconstriction in conserving heat under conditions of uniform heat loss from upper and lower surfaces.

97 (S)

AUTONOMIC NEURAL MECHANISMS OF NONNUTRITIVE-SUCKING-RELATED-TACHYCARDIA

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Introduction
The use of pacifier is suggested to reduce a risk of Sudden Infant Death Syndrome (SIDS). Nonnutritive sucking (NNS) with pacifier is a common infantile behavior observed as repetitive bursts of continual sucks. Several studies of human newborn reported that heart rates increases during sucking. In the present study, we investigated the underlying neural mechanism and physiological significance of the coordination between the NNS and heart rates.
Methods
In twelve healthy full-term infants, electrocardiogram, respiration, and sucking pressure signals were monitored continuously with a polygraph system. The time dependent changes between the frequency of NNS rate and respiration, and between the amplitude of respiratory sinus arrhythmia (RSA) and respiration were assessed by the methods of power spectral analyses and complex demodulation.
Results
The NNS bursts lasted for 9.6+/-5.0 sec. and repeated with pauses of 9.8+/-4.0 sec. between the bursts. The frequency of sucking during the bursts was 1.8+/-0.2 Hz. Cardiac cycle length measured as R-R intervals gradually decreased during the first 4 sec. of each burst (443+/-37 ms. at the beginning and 416+/-37 ms. after 4 sec.) and reached a plateau. The amplitude of respiratory sinus arrhythmia (RSA) of R-R interval, an index of cardiac vagal tone, decreased from 4.0+/-3.2 ms. to 2.1+/-2.1 ms. During the first 4 sec. and also reached a plateau. The RSA amplitude during NNS burst showed significant decrease even after adjusting for the effects of respiratory frequency and tidal volume ($p<0.01$).
Discussion
The NNS occurred as repetitive bursts of continual sucks and each NNS burst was accompanied by a concomitant and transient increase of heart rate. The amplitude of RSA showed concomitant decrease with the NNS burst, which was not attributable to the changes in respiratory parameters with the NNS burst. These results suggested that cardiac vagal withdrawal is involved in NNS-related tachycardia. This vagal withdrawal during sucking may contribute to reduce a risk of SIDS.

98 (S)

CARDIOVASCULAR CONTROL DYSFUNCTION IN PRETERM INFANTS WITH BRONCHOPULMONARY DYSPLASIA

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Background
Vestibulo-mediated cardiovascular control is known to be important in hazardous situations such as hypovolemic or endotoxin shock. Our hypothesis is that hypoxia of any reason may have impaired the vestibulo-mediated cardiovascular control in SIDS victims, making them more vulnerable to a lethal event during a life-threatening situation. We have shown that infants with univentricular heart who suffer from chronic hypoxia have severe dysfunction of the vestibulo-mediated cardiovascular control. Our aim was to examine the effect of repetitive hypoxia on cardiovascular control. For this purpose, we studied side motion and tilt tests in preterm infants with bronchopulmonary dysplasia (BPD) who had had intermittent hypoxia during early neonatal period.
Methods
10 BPD and 19 full-term healthy control infants were studied. BPD infants were born at 27 ± 2.4 (23-30) weeks of gestation. The tests were done during a standard polysomnographic recording at the corrected age of 11 ± 4.0 (7-19) and 12 ± 3.3 (8-19) weeks. Blood pressure (BP) was measured using a Finapres or a Finometer with the measuring cuff around the infant's wrist. Two to 18 side motion and tilt tests were made in slow-wave sleep until successful tests without any evidence of arousal were achieved.
Results
In the side motion tests the control infants showed systematically a biphasic heart rate (HR) and BP responses with an increase which was followed by a decrease and a return to the baseline. In the tilt tests, the response variability was large but on average control infants presented with initial increase in HR and BP followed by a mild sustained decrease in both. On average, the responses of BPD infants did not differ from controls, but BPD infants presented with markedly greater inter-subject variability in both tests ($p < 0.005$). In side motion tests, half of BPD infants presented a monophasic marked blood pressure decrease which was clearly different to the responses observed in controls ($p < 0.005$). None of the studied BPD infants had similar reactions to controls in both side motion and tilt tests.
Conclusions
This study indicates that some BPD infants with previous exposure to intermittent hypoxia have altered vestibulo-mediated cardiovascular control. This control defect is likely to have little significance during normal daily living but it may become important in life-threatening situations. We suggest that intermittent hypoxia may cause impairment of vestibulo-mediated cardiovascular control, although the study did not prove any unequivocal reason for the observed dysfunction.

99 (S)

SIDS: CHANGES 1987-2004 AND SUGGESTIONS FOR THE FUTURE

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The investigation of infant deaths notified to the Medical Examiner in Alberta, Canada has followed a consistent protocol since 1977 with an autopsy, an investigation of the scene, and a review of background history. These are mainly sudden deaths, and files of 1264 infant deaths in two time periods:1) 1987-1991 (immediately before the campaign on sleep position); 2) 1996- 2004 (after the campaign had been established) were reviewed. The years 1992-1995 were excluded as there were rapid changes in parental care-giving practices in this time. 744 of the 1264 deaths met the researchers' predetermined criteria for SIDS and were included in the study, even if the Medical Examiner had assigned another cause of death.
In the first period -1987 to 1991 - there were 338 SIDS deaths (84.5/year) and in the second period - 1996 to 2004 - there were 277 SIDS deaths (34.6/year). This fall in numbers occurred in the face of an increase in population. The fall was seen in all race groups, but was particularly marked in aboriginals. The reduction in numbers of SIDS occurred mainly in the age group 5-21 weeks of age. As expected there were higher numbers found in the prone or side position in the first period compared to the later period (66% vs 45.8%). Co-sleeping was more commonly noted in the first period rather than the later period (79% vs 50%). Smoking was noted in a lower percentage of those in the earlier period than in the later period (17 vs 32%). Despite a standard protocol, patterns of use of the diagnostic phrases for cause of death such as *SIDS, positional asphyxia and undetermined* varied between individual Medical Examiners.
These reviews over time indicate that public education is still needed particularly in the areas of parental smoking and sleep position. Further study is required to see if there are unique risk factors specific to infants dying of SIDS under one month and over six months of age. There remains a lack of consistency in use of diagnostic terminology, an important consideration in studies comparing rates of SIDS between different legal jurisdictions or when combining data from different jurisdictions

100 (S)

PARENTS' RECOGNITION: EFFECTS OF PASSIVE SMOKING TO HEALTH PROBLEMS IN CHILDREN

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<Introduction> The harmful effects of passive smoking for children's health have been important issues, especially relationship to SIDS is a serious problem. The aim of the present study was to estimate parents'understanding and recognition of health problem of their children suffered from passive smoking, using a questionnaire. The understanding and recognition among nurses in our hospital was also estimated.
<Subjects and Methods> This study included 225 parents of outpatient children and 123 nurses in our hospital. The questionnaire asked the subjects to knowledge of health problem of passive smoking in children (Q1. SIDS; Q2. Respiratory diseases or Asthma; Q3. Otitis media; Q4. The frequency of hospitalization by illness; Q5. Retardation), and also asked the information source of each question from Q1 to Q5. We allotted the original score to the response of each question to estimate the total level of knowledge. “Yes, I know”, “I have just heard”. and “Never heard”, respectively 2 point, 1 point, and 0 point.
<Results> The response rate of positive knowledge, i.e. total of “Yes, I know” and “I have just heard”, were 69.3% for Q1, 91.6% for Q2, 6.2% for Q3, 40.9% for Q4, and 58.7% for Q5 among parents. Correspondingly, the rate was 70.7%, 95.1%, 9.8%, 44.7%, and 43.1% among nurses. The average score of total knowledge (maximum point was 10) was 3.8 among parents and 4.0 among nurses. Information source among parents were newspapers or magazine (39.9%), books (5.6%), television (34.4%), in hospital (17.4%), and others (2.7%),
<Discussion> There is no difference between parents of outpatient children and hospital nurses about knowledge of passive smoking and the risk of health problem in children. Although mass media is a common source of information for parents, it is important to promote the recognition among co-medical staffs for further extension of information service from hospital.

101 (S)

THE STUDY OF EFFECTIVE COUNSELING FOR SMOKING CESSATION AND PREVENTION OF PASSIVE SMOKING IN PEDIATRIC OUTPATIENT DEPARTMENT

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<Introduction>The harmful effects of passive smoking for children's health have been important issues, especially relationship to SIDS is a serious problem. To avoid children from passive smoking, we examined what information was most useful for their smoking parents.
<Methods>Firstly, we provided some information to smoking parents, who attended to pediatric outpatient department, on the harmful effects of smoking and passive smoking to health. The contents of information were as follows: 1. Smoking will cause cancer or heart disease, and also promote physical aging; 2. Life expectancy will be short in smoker; 3. Passive smoking will cause serious health problems in children; 4. Warning sentences on package of domestic cigarette manufactured for export; 5. Nicotine patch will make you quit smoking easily; 6. List of neighboring hospitals offering medical treatment to quit smoking. After informed these, some questions were asked.
<Results>The data were collected from 68 smoking parents who have children visiting to hospital as patient. We asked the parents “Do you want to quit smoking?” In result, the response rate were 14.7% to “Yes, soon”, and correspondingly “Yes, but in the future” were 33.9%, “Yes, but if easy to quit” were 23.5%, and “No, I don't want to quit” were 10.3%. As for the question of “Which information is most effective to promote your smoking cessation?”, they replied that information of nicotine patch (38.2%) or information of cause of health problem for children (33.8%) was more effective.
<Discussion>In our study, almost 70 % of smoking parents replied “want to quit smoking”. Information of nicotine patch was most useful method. Therefore, we suggest that effective intervention to quit smoking was firstly to let them know about the harm of passive smoking for children's health. Next step is to provide information of nicotine patch as an easy method for smoking cessation.

102 (S)

REGARDING THE ESTABLISHMENT AND ACTIVITIES OF THE JAPANESE RESEARCH SOCIETY FOR PREVENTION OF CHILDHOOD TOBACCO EXPOSURE

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<Content>
Tobacco is the largest risk factor for SIDS. The number of children smoking is increasing in Japan. In order to rescue children who are unable to quit smoking, prevent them from starting in the first place, as well as protect them from daily second-hand smoke, collaboration and cooperation among the field of medical, education, and government is necessary.
With pediatricians who are daily caring children and guardians taking the initiative, together with other professionals throughout Japan, each area will consider what can be done together to protect children from Tobacco.
<Activities>
1. Meetings
First meeting was held on the occasion of the 51st conference of the Japanese Society of Child Health (JSCH). This was organized by participant who have interested in childhood smoke protection, to promote the exchange of information on theirs activities.
The main theme was partnerships in the field of medical, education and government. We explored our responsibility and direction of further activities. The meeting was supported by Japan Pediatric Society (JPS), JSCH, Japan Pediatric Association, and The Japanese Association of School Health (JASH).
The second meeting was held on the 108th conference of JPS, and the third was on the 52nd conference of JASH. It is being held biannually.
Since then, sponsors for pediatric related congresses have increased to include The Ministry of Education, Culture, Sports, Science and Technology, The Ministry of Health, Labor and Welfare, and Japan Medical Association.
2. Adoption of declaration
(a) The specialists of three fields for children, in all make efforts to be a nonsmoker on themselves, and to give support to not smoking.
(b) Encourage all living spaces for children to be non-smoking.
(c) Establish networks for “Outpatient clinics for children's smoking cessation”
3. Continue forth with the investigation and research of smoking prevention by the committee covering the pediatric related congress, and also with “Investigative Commission of Tobacco- Free” in the Society of Ambulatory and General Pediatrics of Japan.
4. Goals within next few years.
(a) Ban smoking on the site of educational institutions (b) and pediatric facilities throughout Japan.
(c) Establish at least one outpatient clinic for children suffering from Tobacco exposure in each prefecture, and create a network to share and utilize information.
Henceforth, together with the cooperation of various professionals connected to children throughout Japan, we hope to broaden our activities of preventing childhood Tobacco exposure, and report the history of this group and its activities.

103 (S)

PREVENTION OF SIDS AND OTHER PERINATAL COMPLICATIONS BY TABACCO CESSATION IN FEMALE JAPANESE UNIVERSITY AND COLLEGE STUDENTS- PROJECTIONS FROM A PILOT TRIAL IN NWUC

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The incidence of smoking in pregnant women is increasing. Currently, over 10% of pregnant women smoke in Japan (Ministry of Health, Labor and Welfare (MHLW), 2000). Perinatal death and other complications are increased by smoking during pregnancy and Tobacco is one of the strongest risk factors of SIDS.
We report a trial program for eradicating smoking in women students that has been successful at NWUC since 2004.
Using data from this program, projections were calculated for reductions of various smoking related perinatal complications that would be expected if all Japanese female university and college students did not smoke.
Methods
The Smoking Cessation Program at NWUC (3,400 students) requires all students to sign a contract in which they promise not to smoke and further that they will leave the university if they smoke. This contract was sent with the application for admission to the university, which also stated the university's anti-Tobacco policy of 2003. Only non-smoking students have entered in since 2004
Calculations
a. Relative risk of perinatal death due to smoking was assumed to be 1.5, according to data in 'Smoking and Health' (published by Ministry of Health and Welfare).
b. Smoking rate in female students was assumed to be 20% according to The Investigation of Smoking Rates in Japan (JT International) and 'the National Nutritional Survey'. (MHLW).
c. Total fertility rate of 1.33 and perinatal death rate of 5.5 (in 2001) were used.
d. Total number of female college students in Japan: 1,307,521 (Ministry of Education, Culture, Sports, Science and Technology, 2003).
Results
1. A projected decrease of 2.0 - 2.26 perinatal deaths was calculated at NWUC as a result of complete smoking cessation.
2. If similar cessation of smoking could be achieved in female students throughout Japan, a decrease of 800 - 869.5 perinatal deaths would be expected.
3. A decrease in other perinatal complications will also be reported.
4. Preventive effect of smoking cessation on SIDS will also be reported.
Conclusions
1. Significant numbers of perinatal, neonatal and infant death and complications could be prevented if all the universities and colleges which have women students in Japan used methods similar to those of NWUC.
2. Agressive support and attention to young women, especially smokers, should be a goal of this society.
Acknowledgement
We are grateful to the staff at NWUC for their support and efforts to make quitting Tobacco possible for every student and worker.

104 (S)

JUNIOR'S QUIT SMOKING MARATHON

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Anti-smoking education which is important to prevent SIDS have to initiate from childhood. We conducted a survey on emotional attitude against smoking between children and their parents.
[Subjects and Method]: Questionnaires on smoking were sent to 104 children and 89 their parents from one public primary school and one junior high school who had agreed to participate to the survey. [Result and Conclusion] Reply rates were 86% from parents and 100% from students. As important issues, parents have listed “regulation on tobacco sale” and “education on anti-smoking at school”, while students have listed “quit smoking of adulthood” and “regulation on tobacco sale” These result illustrate the important influence of adulthood smoking to the childhood smoking.

105 (S)

PSYCHOLOGICAL RESPONSE AGAINST SMOKING AMONG JAPANESE STUDENTS

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It is well documented that Tobacco smoking is the risk factor of SIDS. In spite of campaign to discourage smoking, there still exists the social acceptance of smoking. We investigated psychological responce against smoking among University students. [Subjects and Method] 2966 students (874 male, 2092 female) from 6 universities were asked by questioners related to tobacco smoking. {Result and Conclusion} 90% of students had negative image against smoking during child caring. But 33 % of male students and 28% of female students accepted smoking of young women at age around 20 years old. More over 55% of male students and 38% of female students accepted smoking of young male at around 20 years old. Actual smokers among studied groups were 20% in male and 4% in female students. Therefore it is apparent that universities students are tend to accept smoking of their colleges, though they do not smoke by themselves. It is concluded that we have to strength anti-smoking campaign more than before to create negative image against smoking among young population.

106 (S)

IMPORTANCE OF ANTI-SMOKING CAMPAIGN AMONG JUNIOR-HIGH AND HIGH SCHOOL STUDENTS: SUPPORT SYSTEM TO PROMOTE QUIT-SMOKING BY MOBILE PHONE

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It is important to promote anti-smoking campaign among young generation to prevent SIDS. Support system to promote anti-smoking by mobile phone to junior-high and high school students named as anti-smoking junior marathon was initiated in 2004 with the assistance of similar program for the adult which was initiated NPO group in 1997. [Subjects and Method] Information and advices on ill-effects of smoking and how to quite smoking were released on bulletin board and male by internet mode of mobile phone to junior-high and high school students who were enrolled into the program. After 6 month of enrolling, effect of the program was investigated by analyzing the data of quitting tobacco smoke and its duration. [Result and Comment] 47(32 boys, 15 girls) were enrolled. Ages were from 12 to 18 years old (mean 15). 38 were followed for 6 month and 34 had quitted smoking within one month and 20 had continued to quite smoking over one month. Since mobile phone is popular among youngsters, this method will be useful to promote anti-smoke campaign.

107 (S)

SIDS RISK FACTORS IN LOW BIRTHWEIGHT INFANTS - IS TARGETED INTERVENTION SUCCESSFUL?

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Objective: SIDS risk factors and low birth weight in combination generate a high SIDS risk. Therefore a detailed personal information on SIDS risk factors was given to parents of all low birthweight infants before hospital discharge. This intervention was performed on top of the usual SIDS risk reduction campaign in the survey area (brochures). The current study investigates the frequency of SIDS risk factors in infants of low birthweigth.
Methods: A prospective cohort study carried out in Tyrol, Austria, enrolled all live-born infants. Data on pregnancy, delivery, sociodemographic characteristics, child care practices and infant's behaviour were collected with a standardised questionnaire (n= 25.600; participation rate 71.6%; study period 2000-2004). Frequency of SIDS risk factors in infants of low (less than 2500 g) and adequate (more than 2500g) birth weight were compared using a chi-squared test.
Results: The most common sleeping position was supine both for low and adequate birthweight infants. Only 1.4% of low birthweight infants were placed prone as opposed to 2.7% of adequate birthweight infants ($p<0.01$). In both groups one third of all infants preferentially sleep in the side position. There are significant differences between low and normal birthweight infants with regards to lack of initial breastfeeding (16.6% vrs. 10.9%; $p<0.001$) and smoking in pregnancy (23.2 vrs. 16.9%; $p<0.001$). The overall SIDS rate during the study period was low at 0.3/1000 live births, one out of thirteen babies dying from SIDS was of low birthweight.
Conclusions. This very low frequency of prone sleeping position in low birthweight infants indicates success of the intervention campaign. On the other hand, low birth weight showed an expected association with smoking in pregnancy and lack of breastfeeding.

108 (S)

SURVEY OF SUDDEN INFANT DEATH SYNDROME (SIDS) AWARENESS OF YOUNG PEOPLE IN 8 COUNRTIES

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Introduction For prevention of sudden infant death syndrome (SIDS), it is necessary that parents have right knowledge about it. Many investigations of SIDS had already reported on parents having children, but not enough on young people who will become parents in the near future. Therefore, we utilized a questionnaire to conduct a survey of SIDS awareness on young people in 8 countries: Japan, Czech Republic, UK, Germany, USA, France, Australia, and China.
Methods From December 2003 to November 2005, a questionnaire about SIDS information was administered to 7,000 young people in 8 countries who have not own their children. The contents of the survey were gender, age, and various items on the degree of the awareness of SIDS, and did not ask for the participants' names. Before the survey, no information on SIDS was given to the subjects. Chi-square (χ^2) test was used to the study.
Results and Conclusion Five thousand three hundred and fifty people returned the questionnaires at 76.4% of the response rate. The results point out that young people, especially male, have less information about SIDS in some countries, and most of the young people get SIDS information through mass media including internet. We emphasize the importance of the enlightenment about SIDS and development of its information transmission methods in various ways with consideration for the contents of information and the attributes of person who receive them.

109 (S)

SUDDEN INFANT DEATH FROM ANTIQUITY TO PRESENT TIMES: AN EPIDEMIOLOGICAL REVIEW

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In order to study the different theories behind sudden infant death through the ages,a review of the literature on sudden infant death was performed.
Crib death has existed through all times. The oldest mention of overlaying of infants dates back to 500 BC. Soran from Ephesos in 50 AD advised on sleeping position and warned against overlaying by negligent wetnurses. Until the 19th century overlaying was the only explanation of sudden and unexpected death in infancy, and mentioned both in Roman records and in medical and legal literature of the 12th and 13th centuries. The laws of the church influenced secular legislation during the middle ages with defined measures of punishment. During the 17th century publications appeared warning against smothering of infants. Case reports similar to modern reports were also given. Two textbooks discussing the existing knowledge of prevention of overlaying and smothering of sucklings were published towards the end of the 18th century. The theory of status thymo-lymphaticus originated during the first half of the 19th century and persisted for a century. During the last 50 years countless hypotheses have been put forth, none of them being able to fully explain the phenomenon. Among the most known are the apnea and hypoxemia theories from the seventies. Hyperthermia, pyrogenic bacterial toxins, rebreathing during sleep in prone position, prolonged Q-T interval, abnormalities of the brainstem and decreased levels of serotonin are more recent theories. In some cases mechanisms trigger a vicious circle that ultimately leads to death. Some of the older infants and toddlers that die suddenly and unexpectedly seem to have a more complex etiology than the younger infants.
The lowering of the SIDS rate during the last 15 years has been attributed to the identification of risk factors like smoking and sleeping position. The fatal triangle/triple risk theory of a vulnerable infant, critical time in development and environmental stress has gained wide acceptance. A continuos search for an explanation of sudden and unexpected infant death is still warranted.

110 (S)

VERY-LONG-CHAIN-ACYL-COA DEHYDROGENASE DEFICIENCY: REPORT OF A CASE

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Introduction
Many studies indicate that fatty acid oxidation disorders are a possible cause of sudden unexpected deaths in infancy (SUDI). Very long-chain acyl-CoA dehydrogenase (VLCAD) catalyses the first step in the b-oxidation spiral of long-chain fatty acids.
We describe a case of a newborn girl that after 26 hours of life presented with hypoglicaemia (6 mg/dl), hypothermia and moderate metabolic acidosis. Improvment of the clinical parameters was observed after the administration of glucose 10%, bicarbonate and antibiotics but hypotonia was persitent and haematic tests dimostrated an increase of creatinkinase (CK). After 51 hours of life the glicaemia decreased and after cardio-respiratory arrest the patient died. The autopsy examination revealed degeneration of tubul renal cells, lung congestion and moderate desquamative pneumonia, vacuolated myocytes with lace-like appearance, and most important, a diffuse haepatic degeneration with macro and medium vescicolar steatosis. These findings together with the clinical history were consistent with the possible metabolic origin of the disease. A tandem mass spectrometry (MS/MS), in coltured fibroblasts was done which showed a VLCAD deficency (VLCADD). Discussion
VLCADD is an heterogeneous disease which particularly involves highly oxidative organs. Three phenotypes are known: a severe, early-onset presentation with cardiomyopathy and hepatopathy; an hepatic phenotype, that usually becomes manifest in infancy with recurrent hypoketotic hypoglycemia; and a milder, later-onset, myopathic form, with episodic muscle weakness, myalgia, and myoglobinuria. There is strong scientific support for MS/MS-based newborn screening for fatty acid oxidation (FAO) disorders. Recent data from the New England Screening Program and German Newborn Screening revealed a VLCADD incidence of 1 in 42,500 to 1 in 125,000 births. These values indicate a much higher incidence of VLCADD than that previously reported.
In conclusion this case highlights the importance of a tight collaboration between clinicians, pathologists, paediatricians and laboratory physicians in order to achieve a correct diagnosis of rare diseases thus reducing the impact of cases erroneously classified as of genuine SIDS.

111 (S)

FORENSIC INVESTIGATION OF SUDDEN INFANT DEATHS IN THE STATE OF MARYLAND

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The Office of the Chief Medical Examiner (OCME) has witnessed a significant decline in the deaths of Sudden Infant Death Syndrome (SIDS) in the State of Maryland since 1994. As the SIDS rate in Maryland dropped sharply from 1.19 per 1000 live births in 1990 to only 0.27 per 1000 live births in 2003, the occurrence of related diagnosis, such as “undetermined” cases has increased considerably. We present an investigation of 104 infant victims who died suddenly and unexpectedly in the state of Maryland in 2003. Of the 104 infants, only 20 cases were determined to be SIDS, 30 deaths were due to natural diseases, 14 were accidents, and 5 were homicides. The manner of death could not be determined after a thorough scene investigation, review of history and a complete postmortem examination in 34 cases, in which the cause of death was listed as Sudden Unexplained Death in Infancy (SUDI).The percentage of “undetermined” cases ranged increased from 2.1% in 1990 to 32% in 2003.The most common “undetermined” cases in 2003 were co-sleeping infants because the possibility of asphyxia due to overlay could not be ruled out.
The study showed that only 24 (23%) infants were sleeping alone in a crib or bassinet and 46 (44%) were sleeping in bed with another person or persons (co-sleeping) at the time when they were found unresponsive. Co-sleeping contributed to 10 infants dying of asphyxia due to overlay by an adult or older sibling. Asphyxia due to overlay could not be completely excluded in an additional 28 infants while co-sleeping. Majority of co-sleeping infants were less than 4-month-old and more than 50% co-sleeping infants shared a bed with 2-3 people. The crib availability was also documented in all of the co-sleeping cases. Twenty-eight (60.9%) co-sleeping infants had a crib at home and 9 out the 10 asphyxia victims had an available crib at the time of the incident.

112 (S)

ACTIVE CASPASE-3 AND TUNEL IN THE SIDS BRAINSTEM MEDULLA

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Increased neuronal cell death labelled with TUNEL has been reported in the brainstem medulla of SIDS infants when compared to non-SIDS infants (1). However, the precise nature of this cell death has not yet been determined, i.e., whether it is apoptotic, necrotic or other, Aims: 1- To replicate and refine the finding of increased TUNEL in a larger infant dataset, and 2- to evaluate the contribution of apoptotic cell death using a second marker (active caspase-3). Methods: A total of 135 infant cases were studied [96 SIDS vs 39 non-SIDS]. Human infant brainstem tissue was subjected to immunohistochemical staining for TUNEL & active caspase-3. The tissue had been collected and fixed at the time of post-mortem and our study was undertaken on tissue remaining after the completion of an autopsy by the Department of Forensic Medicine, Glebe, NSW. Staining was quantified in neurons of the brainstem medullary gracile and cuneate nuclei, because these two nuclei had the greatest amount of cell death in previous studies (1). Results: As differences in the staining pattern were attributable to differences in the brain fixation protocol (fixed in 10% neutral buffered formalin alone (NBF), or in NBF plus acetic acid (FAA)), infant cases were separated by fixation: 1) NBF= 68 SIDS vs 26 non-SIDS, & 2) FAA = 28 SIDS vs 13 non-SIDS. Comparing SIDS to non-SIDS within these groups, SIDS infants had increased TUNEL ($p=0.02$) and increased caspase-3 ($p=0.04$) but only in the FAA dataset. Conclusion: Differences in TUNEL and caspase-3 staining suggest that a proportion of cell death in the brainstem of SIDS infants is attributable to apoptosis. The increase in TUNEL staining was greater than for caspase-3 suggesting that other forms of cell death are also present. Tissue fixation methods were also found to influence study outcomes.
(1) Waters et al., 1999. Pediatric Res 45:166-72.

113 (S)

SEROTONIN RECEPTOR 1A PROTEIN CHANGES IN THE SIDS BRAINSTEM AND IN PIGLET MODELS

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Changes in the serotonin receptor system have been identified in the SIDS brainstem and include decreased receptor binding (1), decreased immunoreactivity (2) and significant associations between SIDS & 5-HT genotype distribution (3). However, at the protein level, no associations with clinical risk factors have been made.
Aims: 1- Compare 5-HT1A receptor protein expression in the brainstem medulla of SIDS and non-SIDS infants and to determine whether these changes are associated with the sleep position or cigarette smoke exposure. 2- Determine the effects of postnatal exposures to intermittent hypercapnic-hypoxia (IHH) and nicotine on 5-HT1A receptor protein expression in piglets.
Methods: 95 infant cases (SIDS=68, non-SIDS=27) were studied. Paraffin-embedded brainstem tissue remaining after the initial post-mortem were collected from both the open and closed medulla levels, and were stained using immunohistochemistry for 5HT1AR protein. Brainstem tissue was collected from the closed medulla of piglets: Saline controls (n=14), nicotine (n=14), IHH (n=10) and nicotine+IHH (n=14). Eight nuclei were examined and quantified in the infant dataset and 4 nuclei in the piglets.
Results: SIDS infants had reduced 5-HT1AR expression in the ION ($p=0.04$) compared to non-SIDS at the closed medulla level and reduced levels in 5 of 7 nuclei at the open medulla level ($p<0.05$ for all). Amongst SIDS infants, the prone sleeping position was associated with decreased expression in the closed medulla in the ION ($p<0.01$) & AN ($p<0.001$). No association was found for infants with a history of cigarette smoke exposure. However, only a small number of infant cases (n=9) were not smoke exposed compared to those that were (n=40). For the piglets, 5-HT1AR expression was significantly reduced in all exposure groups compared to controls, affecting 3 of the 4 brainstem nuclei studied, with equivalent reductions in all 3 exposure groups.
Conclusion: We have confirmed that SIDS infants have decreased 5-HT1AR expression in the brainstem medulla, and that for certain nuclei of the medulla (ION & AN), this decrease was associated with prone sleeping. This finding was mimicked in our piglet model of IHH suggesting that hypercapnic-hypoxia, induced by prone sleeping, may cause the decreased 5-HT1AR expression. In our piglet model, nicotine exposure was associated with decreased 5-HT1AR expression, but in this dataset of SIDS infants, cigarette smoke exposure was not associated with the changes.
References:
1)Panigraphy et al.,J Neuropath Exp Neurol 2000 59(5), 377-384
2)Ozawa and Okado, Neuropediatrics 2002 33(3): 142-9
3)Weese-Mayer et al,Am J Med Genetics 2003 117A(3): 268-74

114 (S)

A MULTIAGENCY PROTOCOL FOR MANAGEMENT AND INVESTIGATIONS OF SUDDEN INFANT DEATH IN INFANCY: YIELD IN A REFERENCE REGIONAL CENTRE

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Background: In 1993, the Royal Colleges of Pathologists and of Paediatrics in the United-Kingdom, recommended introducing a multi-agency protocol for the management and investigation of sudden and unexpected death in infancy.
In France, a lot of paediatric pathology centres for SUDI follow these guidelines, but they are not enforced the same way everywhere.
Aims: To evaluate the quality of investigations which are performed following the sudden unexpected death of an infant in a regional paediatric pathology centre.
To assess also if the support for these guidelines result in a better diagnosis of cause of death (SIDS or not, child abuse ...)
Methods: Post-mortem investigations from 2002-2004 in a regional paediatric pathology centre in the South of France (Montpellier) were evaluated.
An interview to get information about the enforcement of the protocol from the professionals in the 6 relevant disciplines was used.
Results: 44 cases were registered during this period.
Adequate records for analysis were available on all.
The baby was transported to the paediatric centre in 38 cases (86%), 4 babies (9%) were buried without investigations.
Home visits were done in only 8 cases (18%).
Pathology samples were taken in 40 cases (90%), skeletal survey and microbiology were done in 40 cases also; frozen sections of organs were kept in 34 cases (77%).
A post-mortem examination was performed by a paediatric pathologist in all but 2 cases, when the baby was transported.
Interagency strategy discussion was done in all cases.
Diagnosis of SIDS or SUDI was made in 20 cases (45%); another diagnosis was attributed to a specific natural cause in 15 cases (34%), 4 cases to child abuse (9%) and 6 (14%) to neglect or unintentional or unascertained death.
Conclusion: The implementation of a multiagency protocol for managing SUDI in a paediatric regional centre was good.
Some aims are achieved (post-mortem examination by paediatric pathologists, supplementary standardized medical examination, interagency discussion)
However, some babies were not referred to a paediatric centre and their data were lost.
There was, also, a lack in home visits, because this practice is not recommended in current French guidelines.
In its findings, this study shows that diagnosis of SIDS can be made if the guidelines are followed accurately, allowing other causes to be ruled out.
It is absolutely necessary to follow the guidelines for death scene investigation to determine the cause and the risk factors for SUDI in the baby's environment.

115 (S)

PATHOLOGICAL INVESTIGATION IN THE TOKEN STUDY

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The objectives of the TOKEN study are to identify unknown risk factors (e.g. certain lifestyle factors, problems during pregnancy or birth, medical conditions, or medical or drug treatment including vaccinations).
24 out of 30 institutes of legal medicine in Germany are participating in the study. A standard protocol (SAP) to examine the cases was agreed upon. The SAP and the additional investigations will be presented. Theses investigations aim to exclude any natural death and to detect possible unknown patho-mechanism. The additional investigations include neuropathology, immune-histopathology, bacteriology, virology and predisposing genetic factors.
Once all the information is gathered interdisciplinary case conferences will determine the cause of death.

116 (S)

LATE-PRESENTING CONGENITAL DIAPHRAGMATIC HERNIA: REPORT OF ONE CASE OF UNEXPECTED SUDDEN DEATH

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An unexpected sudden death due to a late-presenting congenital diaphragmatic hernia (DH) is reported in a 3-month-old female child. The antenatal ultrasound scans detected no malformation. The full-term normal delivery child had a recent history of vomiting associated with a slight weight loss.
Methods. Complete post-mortem studies including skeletal x-rays, brain ultrasonography and extensive pathological examination were conducted 24 hours post-mortem.
Results. The chest radiograph indicated a right displacement of the mediastinum and showed the presence of an air-filled bowel in the left hemithorax. External examination revealed a normal-looking child with neither cranio-facial dysmorphy nor limbs anomaly. Internal examination found 80 cm of dark red volvuled small bowel, herniated in the left hemithorax. The stomach and the intestine proximal to the hernia were markedly dilated. A posterolateral defect of Bochdalek type was discovered following the removal of the herniated bowel. The lungs were 80% of their expected weight and the lung weight to body weight ratio was of 0,01. No other visceral associated malformation was found. Microscopically, extensive ischemic changes were predominantly observed in the mucosa of the herniated bowel, focally involving the entire wall. Pulmonary tissue samples were showing some foci of broncho-alveolar distension possibly due to the resuscitation attempt.
Conclusion. DH is an unfrequent congenital malformation which is generally detected in the early pregnancy on ultrasound scans. Late-presenting forms of DH in the late pregnancy or in the neonatal period are less common and may not be diagnosed until clinical complications occur.

117 (ST)

PLACENTAL INFLAMMATION IN PERINATAL MORTALITY

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Objective: To describe the main clusters of causes of perinatal death with inflammatory responses in the placenta and to assess the association of placental inflammation with or without infection in cases of stillbirth or perinatal death.
Methods: A retrospective study was conducted in 367 cases of perinatal death. All cases had been classified according to the TULIP classification. Histological examination according to Redline(1) of the placenta was performed to identify an inflammatory response. Fetal autopsy or bacterial cultures were performed to identify fetal inflammatory responses or invasive micro organisms.
Results: Inflammatory parameters in the placenta were seen in 40.6% of all cases (n=149). In the category -prematurity- (n=89), 74.2% (n=66) showed signs of inflammation. In the category -infection- every placenta showed signs of inflammation. However, in the other causes, 77 out of 272 (28%) showed placental inflammation. A fetal inflammatory response was observed in 40.9% of all cases. Bacterial cultures had been performed in only 9.3% of all cases (n=34), of which eight were positive and two of these cases showed no inflammation in the placenta. Of the mothers who had two or more clinical signs of infection 95.2% showed positive placental inflammatory parameters. Inflammation was found in 39.5% of the cases of intra uterine death, who died more than 48 hours before delivery, in comparison to 56.8% of the cases who died within one day after birth.
Conclusion: Clusters of causes of death with inflammatory responses were found. Placental inflammation was present in 40.6% of all cases. As expected, placental inflammatory responses most often occurred in the categories -infection- and -prematurity-. However, placental inflammation was present in 28% of non-infectious related causes, thereby reducing the sensitivity of this finding. Finally, the relation between inflammation and infection remains difficult to define due to the missing bacterial cultures.
1. Pediatr Dev Pathol 2003;6:435.

118 (ST)

VALUABLE TESTS AFTER INTRA UTERINE FETAL DEATH

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Background. Intra uterine fetal death numbers have not declined during the last decade in contrast to other perinatal mortality groups. In 20-50% of cases the cause of death remains unknown. No national or international evidence-based guidelines for use of diagnostic tests after IUFD in order to find the cause of death exist. Therefore we initiated a nationwide study.
Aim. Primary aim of our study is to define relevant diagnostic tests in order to determine the cause of intra uterine fetal death and the implementation of these relevant tests in a national guideline. Secondary aims are to increase the IUFD cases with a known cause of death, decline in the amount of tests performed after IUFD by using structural diagnostic flowcharts; assessing the value of thrombophilic tests after IUFD and to form the basis for development of new preventive strategies to decrease the risk of IUFD
Inclusion. Singleton pregnancies > 20 weeks of gestation for which the diagnosis of IUFD is determined before labour
Methods. We initiated an observational multicenter cohort study. During a four year period data will prospectively be collected from 54 participating centres in the Netherlands. For each included case, information will be collected about medical history and current pregnancy and a diagnostic protocol consisting of maternal and fetal blood examination, maternal and paternal thrombophilic tests, microbiological, chromosomal and pathological investigation will be performed. Each included IUFD will be revised and classified by a multi disciplinary panel for cause of death, mechanism of death and origin of mechanism using the Tulip classification. The relevance of tests performed will be determined.
Results. We have included 710 cases of IUFD during the last three years, our aim is to include 1000 cases.

119 (ST)

POSTMORTEM FIBROBLAST CULTURE AFTER PERINATAL DEATH

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Aim. Perinatal death because of chromosomal abnormalities is estimated in about 10% of cases. In order to karyotype the fetus, postmortem fibroblast culture after perinatal death is needed. The aim of this study was to determine which factors influence successful growth of a culture.
Methods. During a 5 year retrospective study we obtained 389 different tissue samples for fibroblast culture after perinatal death. In 91 cases we also sampled amniotic fluid prenatally. We analyzed the different types of tissue, time between birth of the fetus and start of growth of the culture and degree of maceration. After sampling, all tissues were transported in sterile saline/physiological fluid or culture medium. A second prospective experiment was done with umbilical cord derived from healthy newborn babies. These cords were stored at room temperature or in the refrigerator and in the next 20 days, samples of these fetal cords were put in culture daily.
Results. Culture of amniotic fluid was successful in 88 cases (97%), wheras fibroblast cultures in 145 (37%) cases. Success rate for pericardium cultures was 44% (71/161), cartilage 42% (54/129) and umbilical cord 33% (65/201). Few skin, fascia lata and placenta cultures were available, success rates were 26% (10/17), 19% (6/32) and 56% (10/17) respectively. Culture was more successful for tissues that arrived at the laboratory within 2 days after birth, than for tissue that arrived later.
In the prospective experiment, tissue stored in the refrigerator was more likely to be cultured successfully than tissue stored at room temperature. We observed that tissue stored in the refrigerator could be cultured up to 14 days storage time and at room temperature up to 2 days storage time.
Conclusions. In cases of intrauterine death, amniotic fluid should be obtained in order to increase the possibility of karyotyping. Pericardium, cartilage and umbilical cord are the tissues of preference for fibroblast culture postnatal. Tissue should be stored below room temperature in a refrigerator and sent to the laboratory as soon as possible in order to obtain a successful culture.

120 (ST)

CLINICAL MANIFESTATIONS OF PLACENTAL BED PATHOLOGY

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Aim. Placental-bed pathology is inadequate spiral artery remodelling and/or spiral artery pathology which can lead to uteroplacental vascular insufficiency such as placental infarction. In order to prevent IUFD due to placental-bed pathology it is necessary to identify the extent of clinical manifestations of this entity. Our objective was to investigate how often placental-bed pathology occurs with certain clinical manifestations.
Methods. Our panel of 2 obstetricians, a perinatal pathologist, a registrar and a datamanager investigated and classified singleton pregnancies > 20 weeks of gestation for which the diagnosis of IUFD was determined before labour. These IUFD's occurred in 54 centres participating in our national multicenter cohort study during a 3 year period (2002-2005). The Tulip classification was used. The cause of death was defined as that pathophysiological entity which was responsible for the irreversible path to death. We studied the cause of death group placental-bed pathology and examined four clinical manifestations of placental-bed pathology: pregnancy-induced hypertension (PIH), (pre)eclampsia (PE), intra uterine growth restriction (IUGR) and small for gestational age (SGA).
Results. A total of 325 cases of IUFD were evaluated. We allocated 120 cases to the placental-bed pathology cause of death group. In 24 cases (20%) PE was recorded as a clinical manifestation, in 16 cases (13%) PIH, in 23 cases (19%) IUGR and in 42 cases (35%) SGA. In 25 cases (21%) more than one clinical manifestation was observed. In more than half of cases placental-bed pathology occurs without clinical manifestations.
Conclusion. As in most cases placental-bed pathology occurs without clinical manifestations it is in our opinion essential to examine the placenta in all cases of IUFD. The finding of placenta-bed pathology is essential for allocation of cause of death, risk counselling and management of future pregnancies.

121 (ST)

CLINICAL AND ECHOCARDIOGRAPHIC ASSESSMENT OF PREGNANTS WITH AORTIC VALVE DISEASE - MATERNAL AND FETAL OUTCOME

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Background: Diverse physiological changes occurring in pregnancy have a profound impact on pregnants suffering from valvular heart disease, so their understanding is essential for effective management of those patients in the course of pregnancy, labor, and childbirth.
Material: 84 pregnant women with aortic valve disease: 36 with aortic stenosis (AS) - 20 with moderate to severe AS, 16 with mild AS; 25 with aortic valve regurgitation (AR), 23 after valve replacement (12 mechanical; 11 homograft valves); aged 18-40, were observed. Medical history and physical examination, NYHA class assessment, ECG and echocardiography were performed during consecutive trimesters (TR) of pregnancy and after delivery. Results: During pregnancy all patients with mild AS remained in NYHA I class. All patients delivered spontaneously healthy babies, with mean birth weight 3.758 g +/- 420g.
Moderate to severe AS: In the 1st TR of pregnancy all of them remained in NYHA I - II class. A clinical deterioration was observed in 5 patients within the 3rd TR. The maximum pressure gradient ranged from 60 to 162 mmHg, throughout pregnancy and was greater by 20 to 35 mmHg in comparison to post delivery values ($p < 0.001$).
Twelve patients with severe AS delivered by cesarean section, the remaining vaginally. All patients delivered healthy babies with normal birth-weight 3.520 +/- 330 g.
In pregnants with AR good tolerance of volume overload was observed in 22 patients. A deterioration occured only in 3 patients with enlarged left ventricle.
22 patients with AR delivered spontaneously, 3 patients had cesarean section. The mean birth weight of newborns was 3.460 +/- 425 g.
Complications caused by right and left ventricular failure occured in 2 pregnants with mechanical valves during cesarean section. In 2 patients were spontaneous abortions, 10 delivered by cesarean section. There were 2 stillbirths, 2 preterms, 2 intrauterine growth retardation. Pregnants with homografts showed good tolerance of pregnancy and remained in NYHA I class. Eleven patients delivered vaginally fullterm newborns, mean birthweight was 3.460 +/- 510g.
Conclusions:
1. In women with severe AS pregnancy could lead to sudden clinical status deterioration.
2. A deterioration of clinical status in the course of pregnancy may well be expected in patients with AR, diagnosed with an enlargement and depressed function of the left ventricle.
3. The main factors influencing the successful course of pregnancy and labor in patients with prosthetic valves are: unimpaired left ventricular function, properly functioning valves and effective anticoagulation.

122 (ST)

FACTOR V GENE POLYMORPHISMS AND SUSCEPTIBILITY TO TUNISIAN WOMEN WITH RECURRENT IDIOPATHIC PREGNANCY LOSS

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Background: Inherited thrombophilia has been shown to be linked with fetal loss. We investigated the association between thrombosis-related polymorphisms in the factor V (FV) gene (Leiden, Cambridge, Hong Kong; HR2 haplotype) and idiopathic recurrent pregnancy loss (RPL) in Tunisian women.

Patients and Methods: A total of 350 women with RPL, and 200 control women was studied, corresponding to 1332 pregnancy losses and 1400 successful pregnancies. FV gene polymorphisms were analyzed by RFLP-PCR using Mnl I for FV Leiden (8), Rsa I for FV HR2 haplotype (11), Bst NI for FV Cambridge (15), and Hpa II for FV Hong Kong (14).

Results: FV Leiden was seen in 19.4% of patients (4.3% in the homozygous state) and in 5.5% of controls. The prevalence of the FV HR2 haplotype was similar in patients and controls, but with 7 homozygous patients for 1 control. FV Cambridge and Hong Kong were absent from both patients and controls. The frequency of factor V Leiden positive pregnancies ending in pregnancy loss was null before 7 weeks of gestation, then sharply increased till to a plateau. After categorization of pregnancy losses (before 8 weeks of gestation; weeks 8 and 9; weeks 10 to 12; from the 13th week), heterozygous and homozygous factor V Leiden polymorphisms, and homozygous FV HR2 halotype, were associated with significant and independent risks of pregnancy loss during weeks 8 and 9, which increased during weeks 10 to 12, then culminated from the 13th week.

Conclusions: In Tunisian women with idiopathic RPL, factor V Leiden polymorphism and homozygous FV HR2 haplotype are not a risk factor for very early pregnancy loss, before 8 weeks of gestation, but are thereafter associated with significant clinical risks, which gradually increase from the 8th week.

123 (ST)

ANTI-BETA2-GLYCOPROTEIN I AND ANTI-ANNEXIN V AUTOANTIBODIES AND IDIOPATHIC RECURRENT ABORTION

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Background: Whereas anti-phospholipid antibodies (aPL) were associated with thrombotic events and recurrent spontaneous abortion (RSA), the contribution of anti-Beta2glycoprotein 1 (aB2GP1) and anti-annexin V antibodies as risk factors for RSA remain poorly understood.

Patients and Methods: We investigated anti-aB2GPI and anti-annexin V IgM and IgG antibodies as potential risk factors for RSA in 200 women with >3 consecutive idiopathic RSA, and 200 age-matched healthy parous women.

Results: While anti-aB2GPI IgG ($p = 0.416$) and IgM ($p = 0.72$) were comparable between patients and controls, elevated anti-annexin V IgG ($p = 0.006$), but not IgM ($p = 0.084$), was more pronounced in patients. Higher frequencies of elevated IgG-only ($p = 0.005$), but not IgM-only ($p = 1.000$; OR = 6.66) anti-annexin V antibodies were noted among patients. Multinomial regression analysis showed that body-mass index (over-weight and obesity; $p = 0.008$), education status ($p < 0.001$), and anti-aB2GPI IgM ($p = 0.033$) but not IgG ($p = 0.723$) were associated with early abortion, while anti-aB2GPI IgG ($p = 0.030$) and anti-annexin V IgG ($p = 0.004$) were associated with late RSA. For combined early-late RSA, the only variable selected was education status ($p < 0.001$), and neither anti-annexin V nor anti-aB2GPI IgM and IgG were associated with early-late RSA.

Conclusions: Accordingly, anti-annexin V and anti-aB2GPI should be regarded as independent risk markers of RSA.

124 (ST)

CESARIAN DELIVERIES AND THE RISKS OF SUBSEQUENT STILLBIRTH: BLACK-WHITE DISPARITIES

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In this paper we examine the association between prior cesarean delivery and risk of stillbirth in a subsequent pregnancy. The Missouri maternally-linked cohort dataset containing births from 1978 through 1997 was used. We identified a cohort of women that delivered a live birth by cesarean delivery and a comparison cohort of women that delivered a live birth vaginally in their first pregnancy. We then compared the risks of stillbirth in the second pregnancy between the two groups.

We analyzed 396,441 women with information on first and second pregnancies comprising 71,950 (18.1%) in the cesarean arm, and 324,491 (81.9%) in the vaginal birth arm. Rates of stillbirth among women with and without history of cesarean delivery were 4.4 and 4.1 per 1,000 births, respectively (P=0.2). The adjusted estimates also showed no difference in risk for stillbirth between the two groups (OR 1.1, 95% CI 1.0, 1.3). Among whites, the stillbirth rates in women with and without history of cesarean delivery were 3.7 and 3.6 per 1,000 births, respectively (OR 1.0, 95% CI 0.9, 1.2). Among blacks, both the absolute and the adjusted relative risks for stillbirth were elevated in mothers with history of cesarean delivery (stillbirth rate 9.3 versus 6.8 per 1,000 births; OR 1.4, 95% CI 1.1, 1.7).

Overall, our analysis did not detect an association between previous cesarean history and subsequent stillbirth. However, cesarean delivery may increase the risk for subsequent stillbirth among black mothers, a group with the highest cesarean delivery rate in the country.

125 (ST)

VIOLENT FETAL MOVEMENTS IN ANTEPARTUM STILLBIRTHS BY ACUTE ASPHYIA - 31 CASE REPORTS FROM MOMSTUDY

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Reduced fetal movements (FM) preceding stillbirth is a well known phenomenon. In forums for parents affected by stillbirth, anecdotes of excessive FM before death occasionally surface, which might suggest that pregnant women should be warned against this as well. This may take focus away from awareness towards reduced FM. We have found no published case reports.

Between February 8, 2004 and June 18, 2005, 37 associations recruited women who had experienced a stillbirth to an internet-based questionnaire at www.momstudy.com. A substudy of MOMStudy was performed among 1621 reports of antepartum singleton third trimester stillbirths. Participants were asked “What was your first reason to believe that something was wrong or that the baby was dying/had died?” Response options were related to reduced or absent FM and other symptoms or situations, but except free text for “Other”, none related to increased FM.

In the subset, 1582 (97.6%) responded to the question, and among these, 31 (2.0%) spontaneously described excessive FM. All described this phenomenon with terms as “violent”, “frantic”, “extremely strong” FM, or equivalent indicators of a limited period of very unusual activity. Only two indicated significant time with (reduced) FM after the event, while the rest described absence of FM following the event. In 62.5% the event happened during nighttime (8 p.m.-8 a.m.), while 25.0% recalled a daytime event. Only in one case (3.3%) the stillborn was significantly IUGR, compared to 24.9% among other deaths in the subset. All causes of death were consistent with an acute death: 51.6% cord accidents, torsions, thrombosis, etc., 45.2% unexplained (60% despite autopsy and placental examination), 3.2% placental abruption. 56.7% were term stillbirths.

These reports may describe a defensive reflex to sudden asphyxia, with the developmental purpose of untangling any restricted blood flow, as is seen in animal models. At least 2% of antepartum stillbirths may present this way, the underreporting being unknown. The causes of death, the lack of IUGR, the general brevity of the event, and the following absence of FM does support that this almost exclusively occurs in acute asphyxia rapidly followed by death.

Given the probability of an extremely short window of opportunity of rescue from the onset of symptoms to death, possibly only minutes from onset to severe brain injury, specifically warning against excessive FM may be counterproductive. There is no information on how often this occurs in normal pregnancies. The main awareness should continue to be on reduced FM.

126 (ST)

REVIEW OF LATE FETAL LOSS IN THE HUNTER REGION OF NEW SOUTH WALES AUSTRALIA

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Hunter Genetics and the Maternal-Fetal Medicine Unit at John Hunter Hospital work in close association to provide a comprehensive service for the diagnosis and management of the causes of fetal anomalies, fetal death in utero and stillbirth. Although a causative

diagnosis is possible in a proportion of cases where fetal anomalies are identified on prenatal ultrasound or after fetal death in utero is diagnosed, a significant proportion remains unexplained. This makes assessment of recurrence risks and management plans for future pregnancies difficult. One hundred and seventeen cases of late fetal loss, or termination of pregnancy in the Hunter area in the years 2003-2004 have been reviewed to date, in order to evaluate our performance against the published literature and to devise strategies to improve the diagnostic rate in a cost-effective way. Thirty six pregnancies were terminated because of the identification of significant congenital anomalies on prenatal ultrasound, early rupture of membranes or chromosomal abnormalities on prenatal diagnostic testing. A specific diagnosis was possible in 89%. Of the 87 cases of fetal death in utero, 34 (30%) remain undiagnosed, compared to between 9 and 50% in the published literature. Of the remainder, a definite diagnosis could only be made in 25 cases (29%). A variety of possible, probable and definite causes were identified, with overlap between maternal, placental and fetal factors in many cases. These included uteroplacental thrombosis +/- maternal evidence of thrombophilia, placental insufficiency, infection, haemorrhage, complications of multiple pregnancy and chromosomal anomalies. One hydropic fetus was identified as having a congenital disorder of glycosylation. This data will be presented in detail, the limitations of current diagnostic strategies explored and possible new approaches to diagnosis discussed.

127 (ST)

STILLBIRTH/ LIVEBIRTH RATIO BY RACE AND GESTATIONAL INTERVAL

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This analysis examined the stillbirth to live birth ratio by race and gestational interval. NCHS perinatal mortality and natality files from 2001 and 2002 from 36 states with >80% complete reporting for baseline characteristics were analyzed. Data from 5,529,148 singleton gestations were analyzed. Stillbirth was defined as fetal death occurring at > 20 weeks. The rate of delivery and the stillbirth to live birth (SB/LB) ratio were calculated for non-hispanic whites and non-hispanic blacks throughout pregnancy. The delivery rate (number of SB + number of LB per 1,000 ongoing pregnancies) was significantly higher for black compared to white women from 20-36 weeks. The relative risk of delivery for black women compared to white women was: 20-27 weeks, RR=3.40 (3.33, 3.47); 28-33 weeks, RR= 2.40 (2.37, 2.43) and 34-36 weeks 1.57 (1.56-1.58). When examining delivery outcome at each specific gestational interval, the SB/LB ratio was significantly lower for black women vs. white women at the earliest gestational intervals: 20-23 weeks, SB/LB ratio for black women vs. white (0.80 vs. 1.31); 24 weeks (0.29 vs. 0.43), 25 weeks (0.18 vs 0.30), 26 weeks (0.15 vs. 0.25) and 27 weeks (0.14 vs 0.17). Between 28-36 weeks the SB/LB ratio was the same for black and white women. Between 37-41 weeks, the SB/LB ratio reversed with black women having 1.6 fold increased odds of SB (1.50-1.71) compared to white women. Analyses controlling for parity did not affect these trends. The racial differences in rates of preterm delivery are well known. We analyzed national data to demonstrate differences in outcome given delivery at a particular gestational age. Compared to white women, black women had decreased odds of stillbirth at extreme preterm deliveries (20-27 weeks), similar odds of stillbirth at later preterm deliveries (28-36 weeks) and increased odds of stillbirth at term deliveries (37-41 weeks). This racial trend is similar to that seen with neonatal mortality.

128 (ST)

CASE STUDY: HOW A FAMILY SPENDS TIME FROM IUFD NOTIFICATION TO STILLBIRTH

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In this case study, we selected two families as subjects for IUFD,intrauterine fetal demise, and analyzed how they had spent time between IUFD notification and the following two to three days on that weekend, and planned childbirth of their stillborn babies. The purpose was to examine what the families could do and how it had helped them. We visited the subject families, interviewed them for approximately two to three hours on tape and compiled a verbatim transcription. We then conducted an inductive analysis of the qualitative data. The interviews were conducted at least one year after the loss of the child.
This is the secondary analysis from part of the study. Human subject approval was obtained from the committee on human research at the University of Tokyo (Approval number 982).
Family A experienced IUFD at the 15th week of gestation when the mother was pregnant with male twin fetuses, their first children. After the notification, at the recommendation of their parents, Why don't you take a trip together with the babies for the last time? Family A did so and made hand-made beddings that would be in the casket for the would-be stillborn fetuses.
Family B experienced IUFD with their second son at the 23rd week of gestation. They gathered data on the Internet about stillbirths and the baby's funeral service; they also contacted a medical personnel friend of theirs. Families A and B both successfully had a child after IUFD.

In the field of obstetrics, it is better if the family does something for the fetus when faced with IUFD. Even for a brief period of time, such as in an emergency, they can ask questions and make requests in a less passive manner to the medical personnel. This can also help ease their grief and help them grow as a family from the time of the IUFD notification to the next childbirth.

129 (ST)

CASE STUDY: FEELINGS THAT PARENTS WHO EXPERIENCE STILLBIRTH CANNOT SHARE

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The purpose of the study was to explore the feelings they could not share immediately after that experience. In this case study, we interviewed five married couples who had experienced perinatal or neonatal loss of their children. We visited the subject couples, interviewed them for approximately two to three hours on tape and compiled a verbatim transcription.We then conducted an inductive analysis of the qualitative data. The interviews were conducted at least one year after the loss of the child. This is the secondary analysis from part of the study. Human subject approval was obtained from the committee on human research at the University of Tokyo (Approval number 982).
The father had to suddenly face the death of his baby despite the fact that the idea of becoming a father had never sunk in during the gestation period. Also, while quite concerned over the physical and mental state of the mother before and after the stillbirth, the father went back to work.
In contrast, the mother was still thinking about the baby right after the death and felt like talking about the baby as much as possible. For a while right after the experience, the couple had feelings they could not share. Even in the case of parents who had begun to share the experience from relatively early stages, the couple expressed, There is a wall that men do not understand. In some cases, the parents could not broach that subject for a certain period of time.
There is no denying that there are individual differences depending on the couple. Yet, if only they had been informed, even if you're married, there are times when you cannot share everything, that would have been of some help in going through the difficult period following the experience of stillbirth.

130 (ST)

CHINESE LIFE EXPECTANCY AND POLICY IMPLICATIONS

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Using the census data of 1982, 1990 and 2000, we analyze the trends of life expectancy and regional diversity in China. The different levels of life expectancy are strongly associated with the state policies and regulations. The differences of life expectancy reflect the vary stages of social-economic development. The paper suggests in rural area, in particular in western region, improving life expectancy is greatly depend on reducing the poverty and decreasing the mortality of infectious diseases. In eastern region, much attention should be paid to the impacts of mortality on aging in order to improve healthy life expectancy. In short, the study on the effects of social and economic factors on average life expectancy should be put under a comprehensive framework.
In conclusion, though China has achieved much in life expectancy at national level, it conceals the great diversity of different regions great differences in life expectancy exist among different regions. In past 20 years, mortality rates decrease greatly in each province and life expectancies increase accordingly, but great differences in life expectancy exist among different regions. The different levels of life expectancy are strongly associated with the state policies and regulations. The differences of life expectancy reflect the vary stages of social-economic development. The paper suggests in rural area, in particular in western region, improving life expectancy greatly depend on reducing the poverty and decreasing the mortality of infectious diseases. In eastern region, much attention should be paid to the impacts of mortality on aging in order to improve healthy life expectancy. In short, the study on the effects of social and economic factors on average life expectancy should be put under a comprehensive framework.

131 (S)

AMERICAN ACADEMY OF PEDIATRICS 2005 GUIDELINES FOR SIDS RISK REDUCTION: BACKGROUND LITERATURE AND DISCUSSION

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The American Academy of Pediatrics released new guidelines to reduce the risk of SIDS in October 2005. The updated guidelines include recommendations to place infants supine (not side) for every sleep, to place infants in a separate but proximate sleep environment (crib or bassinet in same room as parents), and to consider offering a pacifier at naptime and bedtime. They also reaffirm the importance of tummy time while awake and observed, a firm sleep surface, absence of soft or loose bedding, avoidance of smoke exposure, avoidance of overheating, and non-reliance on commercial devices or home monitors as strategies to reduce the risk of SIDS. The new recommendations and evidence supporting them will be discussed by members of the AAP Task Force on SIDS.

132 (S)

EXAMINATION OF INFANT-PARENT BED-SHARING DURING THE LAST SLEEP PERIOD AS A RISK FACTOR FOR SIDS IN IRISH INFANTS DURING THE 10 YEAR PERIOD FROM 1994-2003

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Background: Data from case control studies indicating that bed-sharing infants were at increased risk of SIDS led to a revision of Irish 'reduce the risk guidelines' to include recommendations that some forms of bed-sharing be avoided.
Objective: To examine trends in bed-sharing in Irish infants over a ten year period (1994-2003) and evaluate factors associated with bed-sharing during the last sleep.
Methods: A ten year (1994-2003), population based study of 430 SUDI(401 SIDS, 29 undetermined) and 1308 controls matched for date and place of birth and reference sleep. Odds ratios and 95%CIs were calculated by conditional logistic regression. Effect modifiers of bed-sharing were identified by examining the interaction between 'bed-sharing' and other risk factors. Due to the possibility of diagnostic overlap odds ratios were estimated for both SIDS and all SUDI combined.
Results: Forty five percent of SIDS cases were found bed-sharing in comparison with 12.6% of controls. Another 5.5% of cases were co-sleeping on sofas or armchairs. Examination of the bed-sharing trend over the 10 years from 1994-2003 revealed a significant change in the associated risk during this time period (P value for interaction <0.01). However, data for 2004 indicate that 84% of cases occurred while sharing a sleep surface. The proportion of case found co-sleeping on sofas has increased from 4.3% in 1994-2000 to 8.6% in 2001-2003.
The risk associated with bed-sharing was modified by maternal smoking status, high tog value(>=10) of bedding, use of duvets, young infant age (<=10weeks), low birth weight for gestation, and being found in prone position. Of those cases who were found bed-sharing, 84% has mothers who smoked during pregnancy in comparison with only 18% of controls. The unadjusted OR (UOR) for bed-sharing among non smokers was 1.89 (1.02 - 3.52) for all SUDI and 1.85 (0.99 - 3.52) for SIDS. The associated risk was increased threefold by use of duvets; UOR 7.17 (5.93 - 8.67) vs 2.45 (1.43 - 11.58) and infant age<=10 weeks; UOR 9.58 (6.35 - 14.44) vs UOR 3.59 (2.26 - 5.75) for infants >10weeks of age. The UOR for infants bed-sharing and found prone was 1.99 (1.25 - 3.15) vs 8.41 (5.64 - 12.67) for infants bed-sharing and not prone.
Conclusion: Bed-sharing interacts with other risk factors to increase the associated risks even further. Although infants who bed-share are less likely to be found prone, they are still at greater risk of SIDS than non bed-sharers.

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ANALYSIS OF DATA RELATING TO THE DEATH SCENE OF INFANTS DYING SUDDENLY AND UNEXPECTEDLY, IN THE REPUBLIC OF IRELAND BETWEEN 1994 AND 2003

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Background: Variations in criteria used to diagnose sudden deaths in infancy has contributed to variations in SIDS rates internationally. Accurate diagnosis of SIDS is only made when information relating to the death scene is available along with a full autopsy and review of the clinical history.
Objective: To examine factors related to the death scene in cases of sudden infant death occurring in Ireland.
Methods: A population based study of all cases certified as SIDS and undetermined between 1994 and 2003, and controls matched for date and place of birth and reference sleep. Information was obtained from parental interviews on the position, location and appearance of the infant on discovery, prior to attempts at resuscitation. Odds ratios and 95%CIs were calculated using conditional logistic regression and adjusted for the age difference between cases and controls.
Results: During 1994-2003, 430 SUDI were reported to the register; 401 certified as SIDS and 29 as undetermined. The proportion of cases diagnosed as undetermined increased from 2.5% in 1994-1998 to 12% in 1999-2003 (P=0.001). Average age of cases was 17.1 wks (SIDS) and 25.1 wks (undetermined).
Significantly less cases than controls were discovered with disturbed bedding (13.5% vs 68%; P<0.001). The associated odds ratio remained highly significant in the multivariate model (UOR 0.13, 95% CI 0.06-0.32, P<0.001; AOR 0.03 95% CI 0.01 - 0.14, P<0.001). Only one control infant, but 12% of cases had their head covered with bedding.
Oronasal secretions were apparent in 53% of SIDS and 33.4% of unascertained cases, of which 57% were sharing a sleep surface with at least one adult. A blue/grey discolouration was reported for 38% of SIDS and 53% of unascertained cases.
Significantly less cases had changed from the position in which they were placed to sleep (26% vs 34% P<0.05) and of those, 51% had changed from non prone to prone. In comparison most controls infants (60%) changed to the supine position with only 15% turning prone. Seventeen percent of SIDS infants were found pressed against the side of the cot/bed/couch on which they slept and 4% pressed against another person. Eighteen percent were in a different environment than usual at the time of death (UOR 7.40; 95%CI 4.37 - 12.54, P<0.001, AOR 7.32, 95% CI 1.18 - 45.31, P<0.05).
Conclusion: Data relating to the death scene can provide information which may assist in the identification of risk factors for SIDS and in the diagnosis of SUDI.

134 (S)

COT DEATH AND SLEEPING SACKS

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Introduction
In the Netherlands the widespread usage of sleeping-sacks might in part explain why the cot death incidence is low (1). It leads to placing the infants in the supine position, since the zipper is on the front. This could be an advantage if parents are not informed about the 'back to sleep' message. As is well-known, turning prone carries an additional risk of ending up under the bedclothes. It has often been demonstrated that total covering by the bedding is an important risk factor and more so with duvets rather than blankets (2-4). Furthermore, infants in the prone position have a higher downwards mobility i.e. to the foot of the bed, which also increases the risk of getting trapped (4). Thirdly, a sleeping sack might prevent infants from turning prone at too early an age, before they have acquired airway protective behaviours (5).
We demonstrated that a sleeping-sack is preventive 0.30 (CI 95% 0.13-0.67). In another study, including 130 cases and a population based control-group existing of 2530 infants aged 1-9 months also showed that a sleeping-sack was a preventive measure against cot death (6). The odds ratio was 0.45 (CI 95% 0.24-0.82).
Secondary prone sleeping is a very important risk factor for cot death (7). In the Netherlands in the years 1995 to 2001 about 45% of the Dutch cot death cases had turned to the prone position and most of them did so for the first time. Of the children first turning prone 63% was found with their face straight down (6). When selecting only secondary prone sleepers the groups in these both studies however were too small to draw definitive conclusions about the possible preventive effect of a sleeping sack on secondary prone sleeping.
We hypothesised that turning prone is postponed when a sleeping sack was used, and even more so if the baby was tucked in with a

blanket as well. In a recent population based study including 2783 infants aged 0-6 months turning during the previous night was registered, as well as the bedding used (sleeping sack, blanket, duvet).
Furthermore, data was obtained about turning for the first time in a play-pen, on the floor and in a bed, from 400 children that participated in a study on plagiocephaly.
Both data sets were analysed as to which factors facilitate and hinder turning at which age and will be presented.

135 (S)

IS SIDS AN X-LINKED PHENOMENON?

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SIDS is characterized by a 50% male excess rate (0.61 male fraction) in all developed countries with high standards for mandatory autopsy of unattended infant death,such as Germany, Japan, U.K. and U.S. We demonstrate that SIDS may be a recessive X-linked condition that is unmasked when a dominant allele is missing from the X-chromosome and a combination of known gender-independent risk factors lead to a cerebral anoxia that requires its presence for survival.
In Stavanger (1994) we proposed that SIDS is an X-linked phenomenon with the 50% male excess related to the presence of an unspecified X-linked dominant allele that is protective against transient cerebral anoxia, which occurs with probability p = 1/3. We hypothesized that SIDS only occurs when an infant becomes hypoxic, from a 'perfect storm' of SIDS risk factors due to their number and intensity. These known risk factors include apnea, rebreathing of exhaled breath in the prone position, physiological anemia of infancy, parental tobacco smoking, low-grade respiratory infection and prematurity-deficit in neurological development. When oxygen supply can no longer meet cellular oxygen demand in the respiratory control centers of the brainstem, the posited X-linked dominant allele is required to shift to anaerobic oxidation in the brainstem's oxygen-sensing neurons. In its absence these neurons may be catabolized from anoxia, making autoresuscitation or mechanical resuscitation impossible, resulting in the death we call SIDS.
To validate the mathematical mechanism for the model statistically we show the same pre-1994 50% male excess of SIDS still occurs after the recommended change of infant sleep position from prone to supine. To validate the physiological mechanism for the model, we show the same 50% male excess death rate occurs for other causes of infant death resulting in frank respiratory failure, such as bronchitis and bronchiolitis (9ICD 466) and suffocation from inhalation of food or other foreign object (9ICD 911-912).
We suggest that the familiar 'triple-risk' model requires this fourth factor of a necessary X-linked genetic risk to be able to explain the observed male excess because the three factors it contains, such as an autosomal mutation, are all independent of gender. We present a diagram based upon John Emery's 1982 Baltimore presentation (with permission) that shows how the known SIDS risk factors may lead to a potentially fatal hypoxia and how absence of a protective X-linked allele is necessary to allow it to go to completion.

136 (S)

PREVENTION OF SUDDEN INFANT DEATH SYNDROME (SIDS) DUE TO AN ACTIVE HEALTH MONITORING SYSTEM 20 YEARS PRIOR TO THE PUBLIC BACK-TO-SLEEP CAMPAIGNS

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Before reunification, the post neonatal mortality rate was lower in East Germany than in West Germany. Moreover, the incidence of SIDS (Sudden Infant Death Syndrome) was much lower in the East.
By exploring the archives and talking to witnesses from the former East Germany who were involved at the time, we found that as early as in 1972, active monitoring of infant and child mortality rates had shown that the prone sleeping position was dangerous for infants. In contrast, in the west, the risk factor of prone sleeping was only discovered in the early 1990s.

137 (S)

SUDDEN INFANT DEATH SYNDROME AND UNASCERTAINABLE DEATHS- TRENDS AND DISPARITIES AMONG ABORIGINAL AND NON-ABORIGINAL INFANTS BORN IN WESTERN AUSTRALIA FROM 1980 TO 2001 INCLUSIVE

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Aim: To analyse patterns and trends in mortality from unknown causes (Sudden Infant Death Syndrome and unascertainable deaths) for all Aboriginal and non-Aboriginal infants born in Western Australia, 1980-2001.
Background: In contrast to the dramatic decrease in deaths attributed to SIDS among the general population, deaths attributed to SIDS continue to be the main cause of death among Aboriginal infants in Western Australia. Clearly, health messages regarding safe sleeping practices and reducing the risks of SIDS are not reaching Aboriginal families. Data from this research formed the basis for the development and implementation of an exciting research project aimed at reducing these excess deaths.
Methods: Using total population linked data we reviewed all post-mortem reports, including death scene investigations and final causes of death as ascertained by the Coroner. Neonatal, postneonatal and infant mortality rates attributed to unknown causes were calculated and the latter were analysed according to maternal age, geographical location, gestational age, sex, month of death, maternal smoking during pregnancy and birthweight. Relative risks (95%CI) for Aboriginal infants (compared to non-Aboriginal) were calculated.
Results: The proportion of deaths considered to be of unascertainable cause has significantly increased in recent years. Deaths attributed to SIDS and unascertainable deaths did not decrease significantly in the Aboriginal population. In contrast, there has been a significant decrease in deaths in the non-Aboriginal population and the overall relative risk for Aboriginal infants (compared with non-Aboriginal) for the most recent years studied was 7.9 (95% CI 5.1, 12.2). The relative risk of death for Aboriginal infants (compared to non-Aboriginal) was significantly increased for most categories analysed.
Conclusion: Reviewing post-mortem reports enabled identification of changes in the classification of deaths due to unknown causes. This provided a more accurate picture of the patterns and long term trends of such deaths. It is also important to analyse data separately for Aboriginal and non-Aboriginal infants using total population linked data. This allows any disparities in outcome to be highlighted and addressed so that programs can be developed to specifically target those groups most at risk. Responses are urgently required that include adequately funded and evaluated education campaigns aimed at reducing the risk of SIDS among Aboriginal infants as well as sustaining the current efforts that have been so successful for non-Aboriginal infants.

138 (S)

PASSIVE SMOKING IN NEWBORNS

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BACKGROUND: Smoking is a major risk factor for cot death. Many infants smoke passively as a result of parental smoking. We report on infants exposed to a smoking environment and how they accumulate metabolites of cigarette smoke, which may be physiologically harmful.
AIM: To demonstrate the degree to which infants are exposed to passive smoking.
METHOD: 104 infants, of whom 71 were of smoking parents and 33 non-smoking, were assessed for cotinine excretion in urine. All cotinine levels were measured at approximately 12 weeks of age. The subjects were randomly selected from a database of infants in developmental physiological studies, which assessed the impact of various factors on early postnatal development.
RESULTS: The babies with at least one parent who was a current cigarette smoker excreted 5.5 (95%CI: 3.4 to 9.5) times as much cotinine in the urine as did the babies of non-smoking parents (P<0.001). Maternal smoking was the largest contributing component to baby levels (P=0.008) while dads' contribution was smaller (P=0.03); the method of feeding had no significant effect on cotinine levels. The babies of smokers were significantly smaller at birth for a similar gestation (mean birth weights 3.2kg and 3.6 kg respectively; P=0.02) and had a higher birth order. They were more likely to be bottle fed (P<0.001). Mothers of this group were on average younger, had more children, and had hotter homes (p=0.01). Three babies slept prone, two from smoking and one from non- smoking household.
DISCUSSION: Small babies, young mothers, bottle feeding, and hotter homes were more likely in smoking households. It may be this accumulation of risk factors that contribute to cot deaths.
CONCLUSION: Infants from smoking households, accumulate cotinine, a metabolite of nicotine, which may have a detrimental effect on the cardio respiratory system.

139 (S)

A STUDY OF INFANTS CARE PRACTICES IN ISRAEL

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Objective: To ascertain the prevalence of infant care practices in various ethnic groups in Israel, with specific attention to modifiable risk factors associated with sudden infant death (specifically, prone sleeping position, passive smoking, bed sharing and overheating)
Methods: A survey of women who visited 32 community health-centers in June 2004 and whose infants were born healthy. The women completed the survey at 4 to 6 months postpartum and answered questions pertaining to infant's care practices with respect to the preceding night's sleep environment.
Results: A total of 284 women of diverse ethnic backgrounds participated in the survey. 55% of the infants were male, 45% female. 47.2% of the women were breast-feeding and 4.2% had given birth to more than 1 infant (twins, triplets, etc). 11.4% of the infants shared the same bed with an adult during the preceding night for various periods of time. Only 33% of parents reported placing their infants to sleep on their backs, 44.9% reported placing their infants in the prone position, and 22.1% on their side. Mothers of Asian and Middle Eastern origin were more likely to place their infants to sleep on their backs (60%). Placement of the infants in the prone position was not associated with prematurity or birth weight. Most mothers used a regular infant bed (80.3.%), chose a firm mattress (60%), and seldom placed their infants (either the head or the entire body) on a pillow (6.9%). The survey showed that 6.2% of the parents regularly smoked in the infant's surroundings and 12.5% did so frequently. The survey also correlated other variables (e.g., type of infant care guidance received, education levels, sleeping habits, type of bedding, mothers vs. fathers). No infants succumbed to sudden infant death syndrome during or since the survey.
Conclusions: Bed sharing, prone placement and smoking in the vicinity of infants are still prevalent among Israeli parents despite efforts to increase public awareness of the risks. This study offers a unique perspective on the actual effect of the campaign to reduce the risk of SIDS in Israel and suggests areas and population groups that should be focused on in the future.

140 (S)

ARE AUTOPSIES HELPFUL FOR THE PARENTS OF SIDS VICTIMS?

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Little is known about what bereaved parents feel about the autopsy.
A case control study was carried out in Germany between 1998 and 2001, in which all cases were autopsied. We did a follow up 4-7 years after the parents had lost their child.
141 families filled in our questionnaire. 71% had had another child after the SIDS/SUDI death. The majority (83%) of the parents found the autopsy helped them to cope better with the death. A high percentage (46%) did not want any professional help after the death and 54.6% did not wish to have contact with a self-help group.
We conclude that the autopsy is helpful for the majority of bereaved parents. Professional help and self-help groups should be offered to the parents even if the majority in our study did not want to use either.

141 (S)

AUTOPSY FINDINGS IN SUDDEN UNEXPLAINED DEATHS IN CHILDHOOD

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Background: Sudden unexplained deaths in childhood (SUDC) are rare compared to deaths in infancy. It is however recognized that such deaths, very similar to sudden infant death syndrome (SIDS), occur. We have previously reported on epidemiological variables related to SUDC. As for SIDS, a large number of SUDC cases were found prone (~70%). However, compared to SIDS cases, there was a higher frequency of fever prior to death in the age group 12-36 months (p=0.02). For SUDC, as for SIDS, there is no definite cause of death revealed at autopsy. Typical findings at autopsy in classical SIDS are pulmonary edema and intrathoracic petechial hemorrhages. The purpose of the present study was to compare findings in SIDS and SUDC cases.
Material and method: Twenty-three cases of sudden unexplained deaths in children 12-36 months were studied at the Institute of Forensic Medicine in Oslo, Norway between 1984-2002. Data were collected from autopsy protocols as well as neuropathology reports.
Results: Fourteen (61%) of the SUDC cases had petechial hemorrhages on the thymus, lungs or heart and 13 had pulmonary edema. Almost all had patchy atelectasis of the lungs, and in five cases minimal acute bronchiolitis was seen. One third of the cases had an empty urine bladder. Neuropathological examination revealed that 3/4 of the cases had cerebral edema. Four cases also had some cerebral abnormalities previously reported to be associated with epileptic seizures (periventricular leukomalacia, cortical dysplasia and hippocampus malformation). All four cases had fever prior to death; in fact nine of the SUDC cases studied had fever prior to death and five were known to have febrile seizures.
Discussion: Autopsy findings in SUDC are similar to what is reported for classical SIDS cases. However, intrathoracic petechiae and empty urine bladder occure less frequently than in SIDS cases. The cerebral abnormalities associated with fever and febrile seizures might be the cause of death in some cases.

142 (S)

THE TOKEN STUDY: AN INVESTIGATION INTO SUDDEN UNEXPLAINED DEATHS IN THE 2ND TO 24TH MONTH OF LIFE

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Background
Sudden unexplained deaths (SUD) not only occur in the first, but also in the second year of life. Whilst the first year of life has been extensively studied, mainly with a focus on Sudden Infant Death Syndrome (SIDS), the second year of life has been investigated with less intensity. Therefore a study has been launched in Germany to identify risk factors in close temporal relationship to SUDs, taking into account potential confounders like lifestyle factors, problems during pregnancy or birth, or chronic conditions.
Methods
After institutional approval, the TOKEN study started in July 2005 and is intended to run for 3 years, study area is Germany. All cases of death in the 2nd to 24th month of life are identified by monthly queries sent to all local health authorities (LHAs), where death certificates are collected and checked. The LHAs answer these queries, indicating how many such cases they have identified among the death certificates of the past month. A photocopy of each case's death certificate (name and address blackened) is also sent to the study centre. With parental informed consent, standardised questionnaires are sent to parents and doctors, obtaining information on long-term and short-term factors. E.g., doctors are asked for detailed information on medical conditions, treatment, and drug prescriptions; parents are asked to send the vaccination card (or a photocopy) along with their questionnaire. In the light of all available information including potential autopsy results, cases are classified into SUD (ICD10: R95 - R99) or other causes of death, by a standardised procedure applied by specially trained doctors. Temporal associations between exposure and sudden death will be statistically analysed using the self-controlled done periodically as an early warning system.
In a second branch of this study, all forensic institutes were asked to co-operate and to use the German SIDS autopsy protocol in all cases aged 10 to 24 months. These extensive data will provide more insight into death mechanisms of SUD cases.
First Results
By the end of January 2006, 378 cases were identified by LHAs (313 cases aged 2-12 months and 65 cases aged 13-24 months). Of all cases, 124 were labelled as SUD (116 in the first and 8 in the second year of life). Sequential data analyses provided no indication of any short-term risk factor so far.

143 (S)

SIDS AND ß-AMYLOID PRECURSOR PROTEIN STAINING OF THE BRAIN

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In South Australia it is standard practice for all cases of unexpected infant death to undergo formal neuropathological examination that includes routine staining of brain sections for ß-APP. It has been our experience that the majority of infants who fulfil the requirements for standard definitions of SIDS have either very scanty, or no, staining for ß-APP. A small number of cases have been identified where diffuse ß-APP staining has been found in the absence of features that might explain such a finding. Case Report: A 5-month-old male infant who died suddenly was found to have diffuse ß-APP staining in the brain with no unusual features in his history, death scene

examination, routine autopsy dissection and ancillary tests to suggest any definite cause of death. Due to the ß-APP staining the possibility of previous episodes of occult trauma, apparent life threatening events (ALTEs), and accidental or inflicted suffocation were raised in the autopsy report and his death was classified as 'undetermined'. As detailed analyses and investigations provided no supportive evidence for trauma or inflicted injury, hypoxia was considered the most likely cause. Because of these concerns, sleeping oxygen saturation levels were monitored following the birth of a subsequent sibling who had normal APGAR scores and no evidence of any health problems. Oxygen desaturation to 70% occurred in association with a colour change while on the postnatal ward, and a subsequent polysomnogram showed multiple episodic significant desaturations to around 80% in association with central apnea. Other testing was unremarkable. This report highlights the importance of undertaking immunohistochemical staining of the brains of infants who die unexpectedly, as it may not only assist with the evaluation of possible mechanisms of death in an individual infant, but may also help with the clinical management of subsequent siblings.

144 (S)

ß-APP IMMUNOREACTIVITY IN SUDDEN UNEXPECTED DEATH IN INFANCY

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Sudden Infant Death Syndrome (SIDS) affects infants under the age of 1 year and has an incidence of approximately 1 per 1000 live births. By definition the cause of death remains unexplained after a thorough investigation including post-mortem with examination of the brain. While the underlying cause remains uncertain neuropathological examination has revealed a number of subtle abnormalities including brainstem scarring, cerebral white matter gliosis, and focal hypomyelination. While the lesions described are non-specific many are thought to be secondary to hypoxia-ischaemia. ß-Amyloid Precursor Protein (ß-APP) immunoreactivity is an early marker of neuronal stress and a marker of axonal damage, secondary to a number of insults including ischaemia.
This study looked at early neuronal injury in a group of SIDS cases (n=50) using ß-APP immunohistochemistry and found only a small subset of cases to exhibit significant ß-APP immunohistochemistry. Within this group no specific patterns of neuronal injury were seen. These cases were compared to a group of infant death cases in which a pathological cause for death was found (n=40).
The neuropathological distinction between SIDS and non-accidental injury (NAI) can, in some cases, be very difficult and there is a realisation that occasionally, despite extensive investigations, cases of NAI are missed and diagnosed as SIDS. ß-APP immunoreactivity can be useful in assessing cases of possible non-accidental injury (NAI), as diffuse traumatic axonal injury is a marker of significant traumatic brain injury. However, axonal damage can be seen in cases of hypoxia-ischaemia, particularly in cases of cerebral swelling, leading to diagnostic confusion. Cases of NAI (N=3) were studied with ß-APP immunohistochemistry in conjunction with SIDS cases. One SIDS case showed a pattern of white matter injury which could not be distinguished from NAI pathological. Although uncommon a pattern of ß-APP immunohistochemistry which mimics NAI may be seen in the setting of SIDS and needs to be interpreted with caution.

145 (S)

SIDS AS A RESULT OF MUTATIONS IN LONG QT SYNDROME GENES

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Background: Long QT Syndrome (LQTS) is a genetic disorder caused by mutations in ion channel genes. LQTS can cause cardiac arrhythmia and sudden death in the absence of structural heart disease. Based on a study of neonatal ECGs in over 33.000 infants where 12/24 later SIDS victims were found to have prolonged QT interval, as well as molecular studies of a small number of SIDS victims, LQTS has been suggested to cause a proportion of SIDS cases. We performed a molecular study of a large number of SIDS cases in order to determine the actual role of LQTS in SIDS.
Material and method: Cases of sudden unexpected deaths 0-3 years old from the south-eastern region of Norway, investigated at the institute of Forensic Medicine between 1988-2004 were included: 201 SIDS and 45 non-SIDS deaths. Non-SIDS deaths were treated as controls. As additional ethnically matched controls we used 137 adult cases dead from non-cardiac causes. The samples were screened for mutations in the LQTS genes KCNQ1, KCNH2, SCN5A, KCNE1 and KCNE2. DNA was prepared from blood and tissue samples, and PCR performed to amplify DNA products. DHPLC was used as a screening technique. Mutations, rare variants and common polymorphisms were confirmed by sequencing. Possible functional effects of mutations or rare variants (not found in Norwegian controls and reported in < 0.7% of white populations) were confirmed by electrophysiological studies.
Results: We found 11 mutations and 8 rare genetic variants in 24/201 SIDS cases (11.9%), while there were non in the 45 infant or 137 adult controls. Based on their functional effect we considered the genetic variants found in 17/201 SIDS cases (8.4%) as likely contributors to SIDS. Thirteen (76%) of the mutations were found in SCN5A.
Discussion: The present study, based on the largest data set of DNA samples from SIDS victims so far, provides evidence that a relatively high proportion of SIDS cases can be caused by cardiac arrhythmia due to mutations in LQTS genes. Taking into account that in 35-40% of patients affected by LQTS the responsible mutation is still not found, the present findings suggest that the number of SIDS cases accounted for by LQTS may be even higher.

146 (S)

SEROTONIN TRANSPORTER GENE VARIATION IN SIDS

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Serotonin influences a broad range of physiological systems, including regulation of breathing, the cardiovascular system, and the immune system. Several studies indicate that serotonin might play a regulatory role in sudden infant death syndrome (SIDS). The system is under bottleneck control of a single protein, the serotonin transporter (5-HTT), which regulates the re-uptake of serotonin from extracellular space. Expression of the 5-HTT gene is regulated by two polymorphic regions, both of which have been investigated in different SIDS populations. These studies indicate an association between the long alleles of the gene and SIDS.
In the presert study, the 5-HTT gene polymorphisms in the promotor and intron 2 have been investigated in 219 SIDS cases, 33 cases of infectious death, and 93 controls. The promoter genotypes are denoted SS, SL and LL. In the SIDS cases 15% were SS, 49% SL and 36% LL. In the cases of infectious death, 12% were SS, 39% SL and 49% LL. In the controls, 18% were SS, 52% SL and 30% LL. There were no differences in genotype distribution between the groups (p=0.4), even though there was a tendency that the cases of infectious death were more likely to have the LL genotype and the L allele (p=0.05 and p=0.08 respectively) compared to the controls.
In the intron 2 polymorphism the different alleles are denoted 9,10 and 12, the genotypes detected were 9/10, 9/12, 10/10, 10/12 and 12/12. In the SIDS cases 3% were 9/10, 2% 9/12, 11% 10/10, 44% 10/12 and 40% 12/12. In the cases of infectious death 3% were 9/10, 9% 9/12, 18% 10/10, 37% 10/12 and 33% 12/12. In the controls 13% were 10/10, 56% 10/12 and 31% 12/12. There was a significant difference between the groups in both genotype and allele distribution (p=0.04 and p=0.03, respectively), with the SIDS cases more likely to have the 12 allele and the 12,12 genotype than the controls.
The results from this study confirms the previous reported association between the long alleles of the 5-HTT gene and sudden infant death. The fact that, in addition to beeing a neurotransmitter, serotonin is an important inflammatory mediator is of special interest since several studies reports an activated immune system in SIDS victims. It may be speculated that the combination of an abberant immune response and a dysregulation of the serotonergic network is a part of the death mechanism in these cases.

147 (S)

STILLBIRTH VERSUS SIDS. PATHOLOGY OF THE AUTONOMIC NERVOUS SYSTEM AND DNA POLYMORPHISMS IN SIUD AND SIDS

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Pathogenesis of sudden intrauterine unexpected death (SIUD) and sudden infant death syndrome (SIDS) seems to privilege, in most cases, autonomic nervous dysfunction. Neurogenic factors are interplaying in all the driving pathogenic hypotheses (the cardiac, the respiratory, and the visceral dyskinetic), as well as in the cardiac-arrhythmogenic one, in which the conduction system is subject to strict autonomic control. Therefore, histological substrates for SIDS should be looked for in a wild field of neuropathology, which include the autonomic nervous system, central and peripheral, and the cardiac conduction system. The studies we have conducted on a large series of victims of SIDS, of unexpected neonatal and late fetal deaths, revealed analogous and frequent lesions of the autonomic structures that control the respiratory activity, as well as the cardiovascular, upper digestive and arousal functions. The research upheld a new approach to SIDS by analogical link with late fetal stillbirth which has a six-fold greater incidence than SIDS. The common denominator of all these deaths was the absence of neurological symptoms, generally associated with the presence of congenital anomalies and in some cases of acquired lesions. Particularly frequent is the hypoplasia and/or agenesis of the arcuate nucleus involved in the central chemoreceptors, observed with the incidence of about 50% both in stillbirth and in SIDS victims. In stillbirth this anomaly is frequently associated with hypoplasia of the reticular formation, lung hypoplasia and chronic hypoxia. Hypoplasia of the parabrachial K?lliker-Fuse complex was detected in about 50% of our term fetuses and neonates dying suddenly and unexpectedly. Congenital anomalies are detected also in other nuclei (solitary tract, hypoglossus, vagus nuclei) as well as astrogliosis and functional alterations of the neurotransmitters, such as catecholamines in the locus coeruleus.

Regarding the cardiac conduction system, accessory atrio-ventricular pathways (mainly Mahaim fibers) were seen in 30% of SIDS cases. Under particular conditions and autonomic neuronal stimulation, these accessory pathways can trigger potentially lethal arrhythmias, generally due to junctional reentry.
The chronic prenatal exposure to cigarette smoke was significantly associated with brainstem and cardiac conduction abnormalities, as well as early coronary lesions.
The research was extended to the detection of DNA mutations and polymorphisms potentially involved in SIDS etio-pathogenesis. Analysis of SCN5A and MCAD genes allowed exclusion of LQTS and deficiency of fatty acids b-oxidation in our samples, while detection of the promoter long (L) allele of 5-HTT gene resulted more frequent in SIDS infants (75%) than in controls (30%).

148 (S)

LIPOCALIN-TYPE PROSTAGLANDIN D SYNTHASE LOCALIZES SPECIFICALLY TO NEURONS IN BRAINSTEM OF SUDDEN INFANT DEATH SYNDROME VICTIMS

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Prostaglandin (PG) D_2 is the most abundant PG in the brain. It is invoved in induction of sleep in the CNS and mediates inflammatory reaction in peripheral tissues. Lipocalin-type PGD synthase (L-PGDS) is responsible for biosynthesis of PGD_2 in the brain and is a unique bifunctional protein which catalyzes biosynthesis of PGD_2 and also functions as lipocalin. We have previously reported that expression of L-PGDS was progressively increased in perineuronal oligodendroglia(OL)s in mouse models for genetic neurological disorders and in OLs and astrocytes which were positive for aß-crystalline, a stress protein, in demyelinating plaques of human brains with multiple sclerosis. These lines of evidence suggest that L-PGDS is induced as a stress reaction.
In this study, we investigated whether upregulation of L-PGDS also occurred in brains from sudden infant death syndrome (SIDS) victims. Six infants diagnosed with SIDS in Osaka prefecture during 1981 to 1996 were eligible for the study. The age of SIDS victims ranges from 2 to 11 month-old and 4 non-SIDS age-matched autopsied brains were used as control. Immunostaining of L-PGDS was performed in all samples and examined its expression in relation to activation of astroglia and microglia as detected with glial fibrillary acidic protein (GFAP) and CD68 respectively as well as TdT-mediated dUTP nick-end labeling (TUNEL) positive apoptotic cells.
In the SIDS brains, immunoreactivity for L-PGDS was observed in OLs and neurons. In the brainstem, however, L-PGDS was confined to neurons and its immunoreactivity was by far intense when compared with those in the cerebral cortex and brainstem of control brains. These L-PGDS-positive neurons compose inferior olivary nuclei, hypoglossal nuclei, and cuneiform nuclei in the medulla. L-PGDS immunointensity was intense in SIDS brainstem irrespective of activation of astroglia and microglia as well as the number of apoptotic cells.
Together with our pervious works, these findings suggest that induction of L-PGDS occurs as a result of recurrent hypoxia-ischemia and its timing is much earlier than activation of astrocytes or cell death. Moreover, up-regulated L-PGDS may produce extra amount of PGD_2, which exerts inflammatory reactions in brainstem or otherwise, reduces arousabiliy in SIDS victims. This study implies that PGD_2, produced by L-PGDS, may play a crucial role in the pathogenesis of SIDS.

149 (S)

PULMONARY HEMORRHAGE IN SUDDEN AND UNEXPECTED DEATH IN CHILDREN: NATURAL DEATH OR HOMICIDE?

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Introduction: The presence of siderophages within lung alveoli means that a bleeding occurred at least 3 days prior to death. We reviewed a series of pediatric autopsies to know in which amount and frequency siderophages are found.
Methods: A Perls staining was performed on at least one (right inferior lobe) of the 8 systematically made lungs' slides in 173 consecutive autopsies: 147 sudden unexpected natural deaths (13 neonates < 28 days; 17 children > 12 months; 117 infants) and 26 non natural deaths (2 neonates < 28 days; 3 children > 12 months; 21 infants). The number of siderophages was counted on 80 fields (x40) for each case. The classification was made in 4 grades according to their number: G0 = no siderophage; G1 = 1 to 30; G2 = 31 to 400; G4 > 400.
Results: The majority of cases had no (G0) or only a few (G1) siderophages. There were 35 children in grades G2 and G3: 7 out of the 26 non natural deaths (27%) and 28 out of the 147 natural deaths (19%) (not significant). The death causes found in each group were compatible with repeated pulmonary bleedings: the non natural deaths were 5 child abuses (2 Shaken Baby Syndromes, 2 upper airway obstructions and 1 repeated thoracic traumas) and 2 accidents (1 overlaying co-sleeping and 1 bedding accident related to a retrognathism). The natural deaths with siderophages were of cardiac (n = 6) and pulmonary causes (2 pulmonary hypertension), 15 infections with a pulmonary localization, 1 Di Georges syndrome with hypocalcemia (laryngospasm) and 1 neurological disease with numerous loss of consciousness and apneas.
Conclusion: If the presence of numerous pulmonary siderophages cannot be explained by a medical cause, child abuse or negligence such as repeated upper airway obstructions, Shaken Baby Syndrome or thoracic traumas must be considered.

150 (S)

UNDERSTANDING ONE OF THE THREE RISK FACTORS OF SIDS: A CRITICAL PERIOD OF DEVELOPMENT IN BRAIN STEM NUCLEI INVOLVED IN THE CONTROL OF RESPIRATION

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In 1994, Filiano and Kinney proposed the Triple Risk Model for Sudden Infant Death Syndrome, which states that SIDS occurs, and only occurs, when (a) a vulnerable infant encounters (b) an external stressor or stressors during (c) a critical period of postnatal development. All three factors have to be present simultaneously for death to occur. The first factor can result from diverse causes, such as prenatal exposure to nicotine and other drugs, organic airway defect, and non-lethal genetic defect. The second factor precipitated the Back to Sleep Campaign and has significantly reduced, though not eliminated, the incidence of SIDS. The third factor, though suspected, has not been well studied and characterized. Using the rodent as a model, we performed in-depth analysis of neurochemical and metabolic development of several brain stem respiratory nuclei from postnatal day (P) 0 to 21. We found that the developmental trends did not follow a predicted progression, but rather, exhibited a dramatic change at P12. Specifically, the level of cytochrome oxidase activity, a marker of neuronal energy metabolism and functional activity, exhibited a prominent reduction at P12. This was accompanied by a distinct drop in the expression of excitatory neurotransmitters and receptors (glutamate and NMDA receptors) and a sharp rise in the expression of inhibitory neurotransmitters and receptors (GABA, GABAB receptors, and glycine receptors). Moreover, GABAA receptors in the rat pre-Botzinger complex and the ventrolateral subnucleus of the solitary tract nucleus exhibited a switch in subunit dominance from alpha 3 to alpha 1 around P12, suggesting that the same neurotransmitter, GABA, may have different physiological effects before and after the switch. The implication from these studies is that the brain stem respiratory nuclei under study experience a transient inhibitory dominance within a narrow postnatal window. If such a critical window exists in the human, and if a vulnerable infant is exposed to exogenous stressors during this sensitive period, then it is conceivable that the infant is unable to overcome the challenge, and catastrophic events, such as SIDS, may result. (Supported by Children's Hospital and Health System Foundation, Wisconsin, USA).

151 (ST)

PLACENTAL ETIOLOGIES OF FETAL GROWTH RESTRICTION AND STILLBIRTH

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Learning Objectives
1.Review of current knowledge in placental growth
2.Review placental conditions that are associated with growth restriction and stillbirth
Abstract/Summary
The placenta is a unique organ which forms during gestation and looses its utility after parturition. Although hosted by the mother and supports the fetus, it originates from the embryo thus of fetal origin. The interface of maternal tissues and the developing placenta is complex. Recent developments describing some of the basic molecular pathways have contributed significantly to our understanding of normal placental growth.
Between 1994-2005, we examined 737 stillbirth and their placentas at Women and Infants Hospital, Brown Medical School. There were 471 cases that showed findings consistent with established cause/strong association with stillbirth such as amniotic fluid infection syndrome, placental abruption, fetal vascular compromise, twin-twin transfusion syndrome, maternal fetal hemorrhage, multiple congenital malformations with/without aneuploidy. 266 cases did not show an established cause or association with stillbirth.
When growth restriction was analyzed as an independent variable, 28% (131) of the 471 cases had impaired fetal and/or placental growth. In contrast, 58% (158) of the cases in the undetermined group were growth restricted.
Placental findings in this group included abnormalities of placental shape, lesions that might compromise fetal circulation such as abnormal umbilical cord insertions, villous remodeling abnormalities, abnormal vasculogenesis and impaired trophoblast turnover.

152 (ST)

SUBOPTIMAL GROWTH AND THE RISK OF STILLBIRTH

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Stillbirth is one end of a spectrum of conditions associated with fetal growth restriction, which also include increased risk of spontaneous and iatrogenic preterm birth, perinatal morbidity, neonatal mortality, sudden infant death, cerebral palsy and delayed effects into adult life. Fetal growth restriction should trigger referral for further investigation but is in most instances not recognised as such antenatally. Retrospective definition of growth restriction requires an adjustment or 'customisation' of the birthweight standard for physiological variables such as maternal height, weight in early pregnancy, parity, ethnic origin, and the sex of the baby. This results in a sharper distinction between constitutional and pathological smallness.
Using this method, we studied a database of 2625 stillbirths (24+ weeks gestation) which occurred in the West Midlands between 1997-2003, representing an average rate of 5.8/1000 [1]. A total of 1371 (52%) of all stillbirths were below the 10th customised percentile, but 242 of these could be assigned other conditions such as congenital anomaly and infection, leaving a total of 43% with a primary diagnosis of fetal growth restriction. Such findings are supported by other studies looking at the factors associated with stillbirth in the general population. In a Swedish database of over 300,000 births, babies with a weight <10th customised percentile had a 6 fold increased risk of being stillborn [2].
The close link between fetal growth restriction and stillbirth places increased emphasis on improved antenatal surveillance. This can be achieved by longitudinal assessment of fundal height supported by ultrasound biometry and assessment by Doppler to determine which fetus is at risk and in need of delivery from an unfavourable intrauterine environment.

1.Classification of stillbirth by relevant condition at death (ReCoDe): population based cohort study. Br Med J 2005;331:1113-1117.
2.Perinatal outcome in SGA births defined by customised versus population based birthweight standards. Br J Obstet Gynaecol 2001;108:830-4.

153 (ST)

MEDICAL CONDITIONS AND THE RISK OF STILLBIRTH

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Approximately 10% of stillbirths are associated with maternal conditions. Late fetal deaths are associated with maternal medical conditions that are potentially preventable. Hypertensive disorders, diabetes, lupus, antiphospholipid syndrome, inherited thromobophilia, renal disease, thyroid disease, and obesity have all been associated with an increased risk of stillbirth. Through optimal management the rates of stillbirth have decreased significantly for some of these conditions. There is an increased risk of stillbirth associated with the development of intrauterine growth restriction (IUGR) in pregnancies complicated by hypertension, preeclampsia, antiphopholipid syndrome, and inherited thrombophilia. The pathophysiology of IUGR involves elevations of placental blood flow resistance, changes in regional blood flows, and alterations in fetal cardiac functioning. Doppler studies correlate with the severity of IUGR. Identification and optimal management of fetal growth restriction via ultrasound, Doppler studies and antepartum fetal surveillance will be reviewed in this presentation. These clinical studies have reduced the risk of stillbirth in pregnancies complicated by IUGR.

154 (ST)

THE AUTOPSY AND FETAL GROWTH RESTRICTION

Adrian Charles
Deptartment of Health Western Australia Perth WA, Australia

The autopsy forms a valuable tool to examine growth restriction in the stillborn fetus. This is for two principle reasons. One is the detailed assessment of the measurements of the body and organs, and the second is to identify an underlying aetiology of the growth restriction.
The routine autopsy will note the following:

1. The examination will include assessment of not only the body weight (although beware the change due to loss of fluid from the time of delivery particularly with maceration).
2. General morphological appearances (ie a thin skinny or a fat well nourished appearing baby).
3. More detailed measurements including length for measuring ponderal indices.
4. Internal assessments including subcutaneous fat, and organ weights (particularly the brain liver ratio).

The assessment can be altered by maceration. The benefit of an autopsy is it can assess the length of time the fetus has been dead by the macroscopic and histological changes of maceration, which may allow some further refinement when identifying the date of death to correlate with the growth charts. The longer there is maceration and the longer the delay from death to post mortem interval, more fluid is likely to have been lost and therefore more uncertainty will exist over the assessment.
Other important features of the post mortem examination include the radiology which can show evidence of abnormal bony growth due to stress. The other particularly important examination is the placenta. A small or diseased placenta is likely to lead one to re-evaluate carefully the features of the baby. There is also the well known association of a thin umbilical cord with growth restriction.
Changes often seen in growth restricted fetuses include neurological injuries, stress changes in the endocrine organs (adrenals and pancreas in particular) and effects on renal development may be frequently seen.
The other main purpose of the examination is to identify any underlying causes of growth restriction. This will include placental changes, including maternal decidual changes such as unreconstructed maternal vessels, ischaemic changes involving the placenta, chronic villitis and extensive perivillous fibrin. An abnormally small or abnormally shaped placenta or abnormal cord insertion may also be factors to take into account.
Many syndromes and other abnormalities, including unsuspected genetic conditions, e.g. chromosomal abnormalities, are also often associated with growth restriction which may be identified by the autopsy examination.
Viral and other infections are another well recognised cause of growth restriction. Of increasing interest is the role of confined placental mosaicism in growth restriction. Samples taken at autopsy are often crucial for the investigation of these conditions.
Of growing interest is the role that growth restriction during development may have a long effect on that individual. Careful examination of the stillborn fetus, which in many cases may represent the tip of the DoHAD/BArker iceberg, may provide insights into long term health in surviving infants with impaired fetal growth.

155 (HP)

POST-HOSPITAL SUPPORT FOR PARENTS WHO HAVE SUFFERED PERINATAL LOSS

Naoko Ota
St. Luke's College of Nursing, Graduate School Doctoral Course, Japan

As there is no care system and little societal understanding regarding perinatal loss in Japan, as of now there is largely no post-hospital support for parents who have lost children due to perinatal loss.
I have examined the care needs of mothers in Japan who have lost children to stillbirth, and I have learned that many mothers who have lost children due not receive support information, and spend their days alone without continuing support. Also, it is clear that mothers who have suffered child loss also find things very difficult after leaving the hospital due to Japanese society traditionally avoiding the topic, or Japanese bereavement practices such as mizuko-kuyo memorial services or Buddhism.
Currently, the totality of post-hospital support for parents consists of a self-help meeting with midwives and perinatal loss sufferers once or twice a month. From October 2004 to January 2006 there were 16 meetings with 68 participants. The results of an analysis of participant surveys could be divided into 10 categories: “I'd feel better if I could talk about my sadness”; “I'd feel happy if someone truly listened to me and let me cry”; “I'd feel better if I cried”; “I want someone to share my sadness and pain, and help me not to feel alone”; “I want to meet more people who have had the same experience”; “I want to learn more about myself through various experiences”; “I want to feel more love for my child and to feel like a mother”; “I want to feel stronger and look to the future”; “I want to heal in a loving environment”; and “I don't want to feel responsible or hate myself anymore. I want to feel better”. By talking confidentially about their thoughts and feelings towards their children, the parents learned skills to overcome their grief, as well as the will to live and other self-empowerment skills.
Last year, we held an “Angel Quilting Circle”, where parents made a quilt filled with love for their children. By making something for their children they felt better, and it made them feel like mothers. It is clear that this helps reaffirm the bonds between mother and child.

156 (HP)

TEACHING PHYSICIANS ABOUT CARING FOR BEREAVED PARENTS

Jillian Romm
Oregon Health and Science University, USA

Caring for bereaved parents and the need to give “bad news” to patients are responsibilities of health care providers in the perinatal setting (1). There is a paucity of teaching strategies in medical education that adress training in bereavement care and in how to deliver poor prognoses. For several years, we have offered a novel educational experience, utilizing bereaved parents as instructors to teach physician and medical students about how to care for bereaved parents.
Content of this presentation will include recommendations about how to give bad news in the obstetrical setting, how to care for bereaved families, as well as feedback from learners and bereaved parent-instructors as to the value of this educational opportunity. In

addition, the parent-generated “Pearls of Wisdom” recommendations for giving bad news, will be offered.
(1) Romm (2002) Breaking bad news in obstetrics and gynecology: educational conference for resident physicians. Archives Women's Ment. Health 5:177-179.

157 (HP)

ANCESTRAL SONGS AND PROMISES, A PHYSICIAN’S PERSPECTIVE ON THE CARE OF THE FAMILY WITH AN INTRAUTERINE DEATH

Michael R Berman
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There is Art as well as Science to caring for the parents of a child who has died before birth. Countless mothers and fathers and those close to them silently grieve with little resolution over the loss of their pregnancies. Seeking reprieve from their sorrow, they cry and yearn for solace and hope, many times for years following their loss; cries that are but a muted weeping of despair as a child so longed for is not born, or is not born alive. Pained by these losses, their lives seem devoid of hope. The joys expected from normal childbirth and child rearing turns to sorrow. When our patient's child has died, the balance between caring for the well being of a viable baby, a healthy infant and the healthy mother shifts to caring for the tolling physical well being of the mother, the agony of her emotional well being and that of her immediate family. It is a time when family and friends might alienate themselves and leave the bereaved parents without close support and comfort. The shadow of their grief will be indelibly imprinted in their minds and souls. Death has threatened to tear apart the bonds of their relationships with friends, family and themselves. The physician / healthcare professional must recognize the impact of these losses and be the first responder in this time of need.
This presentation will discuss these challenges, present personal / professional experiences with such losses and make recommendations for interventions and healing pathways during these most tragic and difficult of experiences.

158 (HP)

GIVING COMPASSIONATE CARE

Sherokee Ilse[1,2]
[1]Author, Int'l speaker, President of Wintergreen Press, [2]International Stillbirth Alliance, Board Member, USA

How to Care for Bereaved Families Session
The loss of a treasure means families must be encouraged and taught how to grieve in a healthy manner. They need to understand why the death of a baby is so devastating. In addition, the role, rights and responsibilities of caregivers will be explored - to protect or prepare, to help or to rescue, to bring in dynamite or a candle into the tunnel of pain. The importance of creating memories and the inclusion of the family will be addressed.

159 (S)

AROUSABILITY AND THE TRIPLE RISK MODEL FOR SIDS

Patricia Franco
Debrousse Hospital, University Lyon and Children's University Hospital, ULB, France

Objective: The mechanisms responsible for SIDS are still largely unknown. To explain what factors contribute to the deaths, Kinney and Filiano suggested a triple-risk model that includes 3 combined factors: an underlying prenatal vulnerability, a critical developmental period and an exogenous postnatal stressor. The infant's vulnerability lies latent until he/she enters the critical developmental period from 2 to 6 months and is exposed to an exogenous stressor. Arousal from sleep could be an important defense mechanism against potentially dangerous situations during sleep. Sleep-wake controls were studied on healthy infants according to postnatal (2-3 months, 5-6 months and 8-9 months), when exposed to prenatal risk factors (maternal smoking during gestation, small for gestational age) and to postnatal risk factors (administration of sedative drugs, sleeping prone, with the face covered, in high ambient temperature, or in sleep deprivation). Some factors known to be protective for SIDS such as pacifier use, breastfeeding and swaddling in supine position have also been studied.
Method: Sleep states and apneas were scored according to recommended criteria. Spontaneous arousals were differentiated into subcortical activations and cortical arousals according to the presence of autonomic and/or EEG changes. For induced arousals, the infants were exposed during sleep to white noises of increasing intensities from 50 to 100 dB (A), to determine their arousal thresholds. Arousal thresholds were defined by the lowest auditory stimuli needed to induce cortical arousal.

Results: Prenatal vulnerability such as to be born from smoking mother or small for gestational age and postnatal stress factors, such as prone sleep position, prenatal smoking, high environmental temperature, sleeping with the head covered by a bedclothes and sleep deprivation decreased arousability, especially during REM sleep. In addition, prenatal smoking, sleep deprivation favour the development of obstructive sleep apneas. In opposite, protective environmental factors against SIDS such as the use of pacifier, breastfeeding and swaddling in supine position showed the opposite effects and increased arousability from sleep. In REM sleep, the frequency of cortical arousals increased between 2-3 months to 8-9 months of age, especially from 2-3 months to 5-6 months.
Conclusion: These findings could contribute to understand some mechanisms favouring the unexpected death of an infant during sleep. The accident has a greater probability of occurring when a vulnerable infant is exposed to an unfavourable environmental stress factor during this critical development period. All these factors decrease the propensity to arouse from sleep and to auto-resuscitate.

160 (S)

CHARACTERISTICS OF AROUSALS IN SIDS VICTIMS

Ineko Kato[1], Patricia Franco[2,3], Sonia Scaillet[2], Jose Groswasser[2], Hajime Togari[1], Andre Kahn[2]
[1]Department of Pediatrics, Neonatology and Congenital Disorders, Nagoya City University, Graduate School of Medical Sciences, Japan, [2]Pediatric Sleep Unit, Free University of Brussels, [3]Belgium

Study objective:
Failure to arouse from sleep has been suggested to contribute to sudden infants death syndrome (SIDS). An insufficient propensity to arouse could lower the chance of infants to survive when exposed to noxious conditions during sleep. The studies were undertaken to determine the characteristics of arousals from sleep in infants who eventually died of SIDS.
Methods:
Sixteen infants died of SIDS some days or weeks after their night-time sleep was recorded polysomnographically in a sleep laboratory. Their sleep recordings were compared with those of control infants matched for gender, gestational age and age at recording. Sleep states and apneas were scored according to recommended criteria. Arousals were differentiated into subcortical activation or cortical arousal, according to the presence of autonomic and/or EEG changes. Oxygen saturation was recorded continuously by a transcutaneous sensor (Nellcor, USA). Median values of blood oxygen saturation were calculated for 10 sec. periods before each spontaneous arousal in REM and NREM sleep.
Results:
During REM sleep, SIDS infants were characterized by significantly less frequent total arousals (p=.029) than the control infants. Analyzing the types of arousal responses, SIDS victims had fewer cortical arousals (p= .039), but more frequent subcortical activations (p= .018), than the control infants. The ratio of cortical arousal to subcortical activation was significantly smaller in the SIDS than in the control infants (p= .001). A similar trend was seen during NREM sleep, but the difference was not significant. The duration of the subcortical activation was significantly greater in the SIDS than in the control infants, during both REM and NREM sleep. Oxygen blood saturation preceding cortical arousals and subcortical activations was lower in the SIDS victims than in control infants in REM sleep (p=<.001 for cortical arousals, p=.013 for subcortical activations). No differences were found in NREM sleep.
Conclusion:
Future SIDS victims had more subcortical activations and fewer cortical arousals, and showed lower oxygen saturation before arousals than the control infants, suggesting an incomplete arousal process in infants who eventually died of SIDS. These results suggest specific pathways for impairment of arousal process in SIDS victims.

161 (S)

AROUSAL MECHANISMS SEEN ON POLYSOMNOGRAPHY - EXPERIENCE FROM A SUSPECTED SIDS PATIENT AND ALTE PATIENTS

Jun Kohyama
Tokyo Kita Shakai Hoken Hospital, Japan

Paradoxical inward rib cage movement (PIRCM) is a respiratory pattern seen during rapid-eye-movement sleep (REMS) in healthy children aged 3 or less. On the occurrence of PIRCM, Gaultier et al proposed the role of high chest wall compliance (1987), while Kohyama et al emphasized the role of atonia during REMS (2001).
In 1986, I experienced a boy patient who died of suspected SIDS. On polysomnography that was taken 5 weeks prior his death, no PIRCM was observed during REMS. Since then on, I recorded polysomnography in eight patients with apparent life-threatening event (ALTE), and found that the rate of PIRCM was low in three of these eight records.
According to Fukumizu et al, the frequency of both sighs and body movements that appeared after central apneas was higher during REMS than during non-REMS (2004). They stated that few behaviors restart respiration after central apneas during non-REMS. Contrarily, REMS is rich in behaviors that restart respiration after apneas. Many irregular respirations are observed during REMS.

Irregular respiration must be one of behaviors which restart respiration. These behaviors contributing to restarting respiration could be included in arousal responses. PIRCM is one of these behaviors, and might act as one of arousal responses. Lack of PIRCM might reflect impairment of arousal responses. Lack of PIRCM could be an early sign of ALTE/SIDS.
Since muscle atonia is needed to produce PIRCM, impairment of atonia during REMS could reduce PIRCM. In a suspected SIDS patient and four out of eight ALTE patients I performed polysomnography, tonic inhibition index (TII) shows abnormally low values. TII reflects shortening of phasic chin muscle activity during REMS, and is considered to be an index quantifying atonia during REMS (Kohyama et al; 1997). Low TII values mean a relative decrease of inhibitory drives against excitatory ones to the trigeminal motoneurons. During normal REMS, inhibitory drives originated in the brainstem reticular formation (BRF) are acting on motoneurons. Low TII might reflect functional disturbance of the BRF that produce atonia during REMS.
I hypothesize that functional impairment of the BRF causes disturbance in atonia during REMS in SIDS/ALTE patients. On polysomnography of SIDS/ALTE patients, this disturbance could be observed as a lack of PIRCM during REMS and/or a decrease of TII value. Lack of PIRCM results in an impairment of arousal response. This impairment may cause unexpected death with or without involvement of functional disturbance of the BRF.

162 (S)

NEURAL MECHANISMS IN AUTONOMIC AROUSAL

Ronald M Harper
Department of Neurobiology, University of California at Los Angeles, USA

Dr. Kahn and his colleagues demonstrated that future victims of the Sudden Infant Death Syndrome (SIDS) show patterns of autonomic arousal that differed substantially from normal values. The patterns include excessive appearances of cardiovascular responses without cortical arousal and diminished numbers of complete arousals in later SIDS victims. The findings suggest deficiencies in neural structures which regulate autonomic outflow, with undampened control of local brainstem reflexes, and an apparent enhanced suppression of influences from rostral brain areas. The responses are consistent with injury to cerebellar structures which modulate autonomic outflow, and which can be damaged by prior hypoxic, neurotoxic, or inflammatory injury. Other limbic structures which also show injury following intermittent hypoxic exposure in animals and which modulate baroreceptor reflexes of the type affected in future SIDS victims likely are involved. Structural and functional imaging of cerebellar and limbic areas in conditions of sleep-disordered breathing reveals both anatomical injury and functional deficits to blood pressure and breathing challenges in these conditions. Cerebellar cortex and deep nuclei, as well as insular cortex, are especially affected; comparable injury by early hypoxic or other injury in later SIDS victims may mediate the aberrant autonomic characteristics found prior to the fatal event.
Supported by HD-22695

163 (S)

DEVELOPMENT OF INFANT VENTILATORY AND AROUSAL RESPONSES TO HYPOXIA

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Ritchie Centre for Baby Health Research, Monash Institute of Medical Research, Monash University, Australia

During the first year of life there is significant maturation of the hypoxic ventilatory response (HVR) in human infants. Compared with adults, healthy term infants have an immature HVR until at least 6 months of age. There are few studies in infants on the effects of sleep state on the HVR but these suggest that at early postnatal ages there is initially no sleep-state related difference; this is followed by a developmental trend towards the adult situation in which the response is depressed in rapid eye movement (REM) sleep compared with non rapid eye movement (NREM) sleep.
Arousal responses to hypoxia are of vital importance and a failure to arouse has been implicated in Sudden Infant Death Syndrome (SIDS). Sleeping infants frequently fail to arouse in response to hypoxia in quiet sleep (QS), whereas in active sleep (AS) they invariably arouse; furthermore arousal latency is longer in QS compared with AS. The oxygen saturation at which infants arouse is not different between sleep states, suggesting that desaturation is more rapid in AS. In QS younger infants arouse more readily than at older ages and arousal is depressed by maternal smoking.
These findings suggest that depression of the arousal response to hypoxia in AS may have life-threatening consequences. Infants at increased risk for SIDS have been shown to have both depressed ventilatory and arousal responses to hypoxia, thus they may be at even greater risk.

164 (ST)

BEREAVEMENT COUNSELING ON THE CUTTING EDGE: USING RESEARCH TO GUIDE THE WAY

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[1]Women's Health Nurse Practitioner Program, School of Nursing, [2]Delphi Center for Teaching and Learning, University of Louisville, USA

In the late 1970's through the 1990's, perinatal bereavement intervention literature was focused on helping families grieve in the immediate aftermath of the death of a baby. Much of the intervention literature of that time focused on hospital-based interventions that caregivers should use to reduce the trauma experienced by couples who have experienced a miscarriage, stillbirth, or newborn death. The perinatal loss research literature of that time examined grief behaviors of parents, differences between mothers and fathers, and differences in grief behavior according to type of perinatal loss experienced. More recently, research has begun focusing on identifying the long-term consequences of perinatal loss, and assisting families to cope with these consequences. Long-term consequences may include symptoms of increased depression and anxiety after the loss and increased symptoms of depression and anxiety and decreased attachment with the subsequent baby in the pregnancy following a perinatal loss. The purpose of this session is to review the research literature from Medicine, Nursing, Psychology, Family Therapy, Social Work and other counseling disciplines related to perinatal loss. The current perinatal loss research will be examined for counseling and supportive strategies that have been found to reduce the trauma of pregnancy loss and neonatal death for families. Particularly, research related to strategies for reducing symptoms of grief, depression, and anxiety after loss and supporting healthy attachment in the subsequent pregnancy after the loss will be explored. Reviewed research will include information on hospital-based intervention strategies as well as community-based strategies, such as support group interventions and their efficacy. Using this research base, clinical implications and suggestions for further research will be identified for use in providing care for bereaved families. A summary handout of the reviewed literature will be created for participants.

165 (HP)

PERINATALLY BEREAVED PARENTS SPEAK-WHAT PARENTS WANT HOSPITAL PROFESSIONAALS TO KNOW—FEEDBACK FROM PARENTS REGARDING THE SUPPORT THEY RECEIVED FROM HEALTH PROFESSIONALS AND HOSPITAL STAFF

Petra N den Hartog
Sids and Kids, Victoria, Australia

Sids and Kids Victoria (S&K) extended its bereavement support to perinatally bereaved parents in 1998 when 14 families were supported. In both 2004 and 2005 we supported nearly 200 families. Primarily these are parents who have had a medical termination, stillbirth or whose baby died before, at or soon after birth, because of genetic abnormalities. We provide outreach to families referred by health professionals or parents can self-refer. Outreach is extremely important as many parents find it too difficult to organize support for themselves and their family.
The support offered by S&K includes the Treasured Baby Program (TBP), one on one counselling, monthly bereavement groups, men's activities and support group, a grandparent support group, as well as subsequent pregnancy and parenting groups, sibling workshops, and family activities.
The TBP provides support at the time of death itself, via the hospital staff in a number of hospitals. Information on decisions to be made, suitably sized handmade clothing, naming certificates, memory boxes are given to the parents.
All of our support groups are co-facilitated by bereaved parents. Counsellors can also link parents with a trained parent supporter. Three groups are specifically for perinatally bereaved families, so parents can attend more than one group per month if needed. Some of our families do not opt for counselling, preferring group support.
It is our experience that perinatally bereaved parents tend to use support groups more extensively than parents who have had an older baby or young child die and they come to support groups earlier on in their grief. We believe this is linked to the fact that these parents are more likely to have less support, acknowledgement and validation of their grief from family, friends, the community and even health professionals and hospital staff.
During support groups there is much discussion about the parents' hospital experiences and what was helpful and unhelpful in terms of their grief, what added to their trauma, grief, guilt or anger, and what type of support they were provided with after they left the hospital.
This presentation summarises feedback from perinatally bereaved parents (36 key points) which hospital staff and health professionals need to take on board to ensure best practice. It includes parents' views on the advantages and disadvantages of attending support groups. A poster outlining the 36 points is also available.

166 (HP)

ATTITUDES OF NURSES TOWARD PERINATAL BEREAVEMENT: FINDINGS FROM A STUDY IN HONG KONG

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Hong Kong Polytechnic University, School of Nursing, Hong Kong SAR

Aim: Nurses attitudes towards perinatal bereavement care are explored by identifying profiles of nurses working in two obstetrics and gynecology units in Hong Kong. Relationships between nurses attitudes towards bereavement supports, need for bereavement education and hospital policy are explored.
Research method: A descriptive, correlational survey design was used, and 169 nurses recruited from an ob-gyn unit at two local public hospitals in Hong Kong completed a structured questionnaire.
Outcome measures: Attitudes towards perinatal bereavement support; required support and education needs for nurses on bereavement care.
Findings: Two-step cluster analysis yielded two clusters. Cluster 1 consisted of 55.6% (n = 94) and cluster 2 consisted of 44.3% (n = 75) of nurses. Cluster 2 nurses were younger, had less ob-gyn experience, more junior ranking and less education than cluster 1 nurses. Cluster 1 nurses had additional midwifery and bereavement care education, personal grieving experiences and experience handling grieving clients. The majority held positive bereavement care attitudes, but only 29.6% (n = 50) had bereavement related education. Attitudes towards bereavement care were positively correlated with educational needs (r = 0.52) and hospital policy support (r = 0.56).
Conclusions: Hong Kong nurses emphasized the need for increased bereavement care knowledge and experience, improved communication skills, and greater hospital and team members support. Findings may be used to improve support of nurses, to ensure sensitive bereavement care in perinatal settings, and to enhance nursing curricula.

167 (HP)

AN EVALUATION OF MIDWIFERY CARE PROVIDED TO WOMEN EXPERIENCING PERINATAL DEATH - A QUALITATIVE PERSPECTIVE

Belinda G Jennings[1], Jill Downie[2], Janice Butt[1,2]
[1]Women's and Childrens Health Servcie, King Edward Memorial Hospital for Women, [2]Curtin University of Technology, Australia

Aim
The aim of this study is to explore womens perceptions of midwifery care when they experience a perinatal death. The study will explore whether midwifery care practices have an influence on maternal response following the death of their baby. The qualitative component will examine the womens own perceptions, the meanings they associated with the experience of perinatal death and their interactionsa dn relationships with midwives during this process.
Methods
This study was conducted using a qualitative framework. A purposive sub group from a cohort of women who had consented to a larger study were interviewed in depth.
The narrative data was analysed thematically using inductive data reduction methods.
Findings
The analysis revealed two major themes. The first labelled 'Just Being..' describes the womens emotional responses and reactions to the experience of having a dead baby. In particular the womens impressions of surrealism and overwhelming sadness and melancholy is described.
The second them 'My Midwife - My Friend' captures the womens descriptions of midwifery care and the relationships formed with the caregivers. A number of subthemes were identified including 'Knowing your Midwife' and 'Continuity'.
The women were appreciative of the efforts by the midwives to make a 'bad time better'.
Conclusion
This study suggests that the relationship women shared with the midwives was a powerful mediator of their experience, enabling a mien of positivism. The interactions between the bereaved woman and the midwife needs to be further explored to determine if the relationship is the important aspect for both women and midwives.

168 (HP)

INTERAGENCY REFERRALS FOR PERINATAL BEREAVEMENT SUPPORT - A BENEFIT FOR FAMILIES

Maxine Joy Weber
SIDS and Kids South Australia

Late term pregnancy loss and stillbirth bring a range of emotions for families and often a sense of helplessness for professional staff. In an area where there are 150 such deaths each year, it is important that families receive immediate and relevant help in uderstanding the loss and longer term support to resolve isues regarding grief and decisions about future pregnancies. Initial support is provided mostly in the hospital setting but it is the care of families once dischaged that is vital for their long term mental health and future pregananacy outcomes. A system of referral between hospitals and support agencies needs to be established to ensure the best possible care and choices are provided for each family. The process commences on admission to hospital for delivery, through making decisions for their deceased baby and then providing counseling and support at the hospital and into the future.The services provided should not be time limited as families need to feel comfortable in making choices to access support in their own time. There should also be an opportunity in the structure for provision of services to other family members affected by the loss. The presentation looks at a new program being established to achieve the above benefits and outcomes.

169 (P)

HEALTH RHYTHMS

Nozomi Nagasaka[1], Haruki Niekawa[2], John Yost[3]
[1]Rhythm in Life & Yamaha, Japan, [2]Inner Silence & Yamaha, Japan, [3]Rhythm Revolution, U.S.A.

HealthRHYTHMS is a research-based group drumming protocol that demonstrates health benefits. It includes rhythm-based games and drumming for self-expression, group support, nurturing, exercise, stress reduction, and of course music making. With and without musical experiences, everyone can make music together to promote and maintain health and well-being in this program.

170 (ST)

UNEXPLAINED STILLBIRTH

Ruth Fretts
Department Chief Harvard Vanguard Medical Associates, Harvard Medical School, USA

The proportion of fetal deaths that have no known cause after complete pathological evaluation increases as gestational age advances, for example between 24 and 27 weeks of gestation, the most common causes of stillbirth were related to infection, abruption, or significant lethal anomalies, while approximately 20% were “unexplained” (1,2). After 28 weeks of gestation the most common category of a stillbirth is that of “unexplained” (between 25% and 60% of all fetal deaths), followed by deaths related to fetal growth restriction, and abruption. Unexplained fetal demise is, by definition, a diagnosis of exclusion and depends on the rigorousness of the stillbirth assessment.
Risk factors for unexplained stillbirth include late gestation with rates of demise increasing after 37-39 weeks of gestation. Growth restricted infants are over represented in stillbirths with growth restriction rarely appreciated prior to diagnosis of a demise. Other risk factors included advanced maternal age (i.e., 35 years of age or older, OR 3.3-5.1) low educational attainment (OR 2.5-2.8), alterations in fetal growth (i.e. between the 2.4-10.0 percentile OR 2.8), babies larger than the 87 percentile (OR 2.4), parity ≤ 3 (OR 2.2-2.4), and obesity body mass index (BMI) of greater than 25 (OR 2.2-2.4) (1,2).
Strategies for the prevention of late otherwise unexplained stillbirth include vigilance to fetal growth. The use of customized growth charts which include maternal height, weight and ethnicity will reduce the false alarms of being constitutionally small and correctly identify the risk associated in the relatively growth restricted fetus in the obese patient (3). A risk assessment includes the appreciation that obesity, advanced maternal age, low educational attainment and black race are all associated with increased risk. A strategy of antepartum testing late in pregnancy and induction may avert a late stillbirth; it is however associated with in increased risk of interventions, with the benefits being directly related to the underlying risk of stillbirth (4).
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171 (ST)

STRANGE RELATIONSHIP BETWEEN SIDS & STILLBIRTH ONLY IN JAPAN

Toshiko Sawaguchi
Department of Legal Medicine,Tokyo Women's Medical University, Japan

We have reported the significant positive correlation between the incidence of SIDS & stillbirth using the data from “All-Wales Perinatal Survey & Confidenial Enquiry into Still Births and Deaths in Infancy”,which was carried out on all deaths from 20 weeks gestation to 1 year of age including all therapeutic and spontaneous abortions and stillbirths for the two years between January 1993 and December 1994, grouped into the nine hospital administrative regions of Wales in UK. From the same survey, it was reported that the clinical characteristics of SIDS and explained SUDI were similar in 2006. According to the report from Scotland in 2002,the early spontaneous labor at term and SIDS may be linked because of a common association with suboptimal intrauterine environment.In addition, a high frequency of medullary arcuate nucleus in unexpected late fetal death(still born infants were in a similar manner to that observed in SIDS.On the other word, the Norwegian group has reported the differences in risk factors did not support the hypothesis that SIDS and SIUD have similar determinants in maternal or fetal characteristics detectable by basic antenatal care.
During past 21years, the relationships between the incidence of SIDS and stillbirths(particularly early stillbirths) were investigated in Denmark,Germany, Hungary, Holland, Switzerland(Zurich), Northern Ireland(Belfast), Scotland, England(Wales), Canada(British Columbia) and Japan.There was no common tendency through all regions but the correlation relationship between the incidence ofSIDS and stillbirths(particularly early stillbirths) during past 21years in Japan have changed from significant negative to significant positive before and after 1995. From Japanese side, the possible interpretation and significance of this dramatic change only in Japan and the risk & benefit of statistical score should be asked to other researchers in this presentation.

172 (ST)

UNEXPLAINED STILLBIRTH AND SIDS: THE RELEVANCE OF INTRAUTERINE GROWTH RESTRICTION

Jason Gardosi, Ann Tonks
West Midlands Perinatal Institute, Birmingham, UK

While the link between fetal growth failure and intrauterine death is well established, there have been few investigations into the association between fetal growth status at birth and subsequent sudden death in infancy.
We studied the West Midlands register of infant deaths for cases designated as Sudden Infant Death between birth and age 12 months. The recorded birthweight was assessed by customised percentiles, which are based on an individually adjustable standard reflecting the in-utero growth potential, after adjusting for gestational age and sex of each baby, as well as maternal height and weight, parity and ethnic origin.
There were a total of 299 cases of SIDS in the ten year period between 1995 and 2004, constituting 6.9% all of infant deaths over this period. The median age of these infants at the time of death was 74 (inter-quartile range, IQR= 42-;129 days). The median gestational age at birth of all SIDS cases was 38 weeks (IQR 36-40) and the median birthweight was 2895g (IQR 2370-3330) After adjusting for constitutional variables, there were overall 37.2% of SIDS cases who were born with fetal growth restriction (birthweight below the tenth customised percentile). This compared to 12.8% of IUGR in the general maternity population (OR 4.0, CI 3.0-5.5).
Fetal growth restriction is strongly linked with intrauterine fetal demise as well as with the risk of SIDS. A birthweight below the 10th customised percentile is a significant risk factor for subsequent sudden death in infancy.

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IS THERMAL STRESS A RISK FACTOR FOR INFANT ILLNESS OR DEATH?

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Thermal balance in infancy is achieved by a mixture of developing intrinsic thermoregulatory homeostatic mechanisms in the baby, and complex behavioural interactions between mother and baby.
Over 50 years ago the adverse effects of cold stress on the health, growth and survival of newborn infants was recognised. Twenty years later the possibility was raised that heat stress might be a contributory factor in some unexpected infant deaths, and several epidemiological studies in the 1980's confirmed this possibility - particularly in the presence of acute infection.

Human infants (like adults) have a relatively narrow range of environmental temperatures (the thermoregulatory range) over which they can maintain normal body temperature without clothing, and an even narrower range (the thermoneutral range) over which this can be achieved without increased energy expenditure. The survival of human infants depends critically on the ability of the mother to maintain the infant's microenvironmental conditions within the thermoregulatory range at all times, and within the thermoneutral range most of the time. In community-based studies of normal infants in the UK and in Mongolia, we have shown a remarkable ability of mothers to assess and to respond to their infants' thermal needs, over a wide range of outdoor environmental conditions (1,2).
Over the first few months after birth, increasing body mass, increasing subcutaneous adipose tissue and increasing resting metabolic rate makes infants progressively better able to cope with cold stress, but - particularly in the presence of infection, or of heavy wrapping or head covering - they may be more vulnerable to adverse effects of heat stress. This is complicated by the development of cytokine responses in infants to infection over this age range, with direct effects upon metabolic rate, thermal set-point, and peripheral vasomotor control.
In this talk I will review current knowledge of thermoregulation in infants, and the ways in which environmental conditions during sleep, infection, or interference with normal mother-infant interactions may affect infant growth, health, and survival.
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PROPOSAL TO ESTABLISH THE CASE BANK OF SIDS IN JAPAN

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Sudden infant death syndrome is one of major cause of infant death under one year old. Though the abnormality of arousal response in suspected as a cause of sudden death, the mechanism of sudden death is still unknown. Since treatments of most pediatric disease have been established, to reveal the mechanism of sudden death is one of the main themes in pediatric field at this moment. There are various difficulties to retrieve this situation in spite of this problem is an important matter. The first is, the materials for the study include various cases, because SIDS victims show no clinical symptoms and no specific pathological findings that made diagnosis of SIDS difficult. The second, the pathogenesis of sudden death may not solely exist. These factors conceive risk that causes the misunderstanding SIDS. In order to overcome such difficulties it is necessary to analyze an amount of case based on the clinical information, autopsy findings and death scene investigation. There is no way to enable to perform such an investigation except establishing case bank.
The attempt of case banking in Japan has not gone well. The major cause of the failure is a low autopsy rate. High autopsy rate can be expected by establishing medical examiner's system, but it may face into problem by current financial situation at each provinces. It is also problem not to be able to put trust on accurate diagnosis of SIDS, since most of examiners did not have enough experience of SIDS. They tend to be misled by trivial findings or normal developmental features as to be significant pathological findings of SIDS. The case bank has been excellently managed in Germany where had been faced to the similar situation in Japan. Since I had chance to investigate German system, I will propose new case bank system in Japan.
This project should be supported by government within limited period and all sudden death case under one year old have to be registered and performed complete autopsy. After excluding special case like homicide, cases that are given agreement of parents will be registered into case bank.The final diagnosis will be made by special committee. All specimens and information of cases will be managed by project center and supplied for research.
This system will not only clarify the mechanisms of sudden death of infants but also be expected to clarify current social confusion on causes of sudden death.

175 (S)

THE REFERENCE CENTRE OF THE GERMAN SIDS STUDY - HOW TO RUN A TISSUE BANK?

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The German SIDS study (GeSID) had been carried out between 1998 and 2001 in 18 centres in Germany representing about 50% of the population. 455 cases of sudden and unexpected infant death were investigated using a standardised protocol, and in addition 28 unnatural deaths were investigated. An interview with the parents could be achieved with 82%.
One main project of the study was the establishment of a reference centre (RC) for SIDS in Germany. This RC should be an instrument to promote diagnostic and scientific approaches in SID, act as a mechanism of quality control and assurance, and should administer tissue specimens and other material.
During the study tissue specimens were collected from all cases according to a standardised protocol and were registered and stored at the RC. Furthermore a complete set of information on the previous history including pregnancy, birth, infant development and circumstances of death is available as well as all results of the autopsy and additional investigations. These specimens and the information can be used for further scientific investigations to clarify the cause of death in single cases and the causes of SIDS.
The legal base is a complex system of bilateral contracts which were concluded by the study centres and the parents, by the study centres and the project management, and by the management of the RC and groups of scientists who would like to perform special investigations using the material of the RC.
Following the rules of the RC scientists have to get the permission of the local ethic committees for their projects and than sent their proposals to the RC. The management of the RC has to check whether the project is an accordance with the aims of the RC and whether the material and information which should be used or investigated is available.
From 1999 to 2005 more than 25 scientific projects were performed using tissue specimens and or information of the RC. Therefore the RC can be judged to be the most successful project of the German SIDS study.

176 (S)

BIOBANK-NETWORK - LIMITATIONS BY NEW LEGISLATION

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The SIDS enigma cannot be solved without scientific studies on samples from the victims. This implies a common understanding of the nature of the syndrome. Thus SIDS research based on tissue- and fluid samples from SIDS victims and controls has to be based on international agreement as to definition and diagnostic criteria.
During the SIDS epidemic in the 1980'ties several University centres of forensic medicine became engaged in SIDS research. With the SIDS rates in the 1980'ties (0.24 per 1000 live births in Norway) such centres very quickly gathered a relative large number of samples from the SIDS victims. The problem was lack of suitable controls because most sudden unexpected deaths in babies were due to SIDS. Therefore the Global Strategy Task Force initiated a working group on tissue banking to facilitate exchange of suitable control samples. A few projects were initiated, but there were obstacles with regard to different diagnostic practises, but even more due to the upcoming legislative regulation of biobanking and of international exchange of biological material.
Patient autonomy is a strong trend in several western countries, and informed consent is necessary for the use of tissue samples obtained during autopsies for research. Furthermore, export of biological material has to be approved by governmental authorities in each case. The new legislative trend has made exchange of biological research material more time consuming and expensive. It is therefore tempting to concentrate on epidemiological studies and on animal experiments.
However, to solve the SIDS enigma biochemical-, immunological- and DNA-studies in the victims are crucial. Some centres, being engaged in SIDS research since the 1980'ties, have sufficient biobank material to perform such studies. Furthermore, the fact that the proportion of SIDS cases out of the total population of sudden unexpected infant deaths has been reduced from 80 % to 50% has made the supply of control cases easier.

177 (S&ST)

CLUES POINTING TO THE POSSIBILITY OF BACTERIAL INVOLVEMENT IN SIDS

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In recent years a significant proportion of the former SIDS cases has been reclassified as metabolic disorders or long QT syndrome. For the remaining SIDS cases the “fatal triangle hypothesis” might be a fruitful model:
1. Vulnerable developmental period
2. A predisposition
3. A trigger event
Infection and inflammation may play a role as a trigger. In spite of only slight symptoms of infections prior to death in SIDS victims, about half the cases have cerebrospinal fluid interleukin-6 levels in the same range as what is found in infants or children dying from severe infections like sepsis or meningitis. According to the “fatal triangle hypothesis” the reason for the production of such high levels of cytokines as response to slight infection, is that the victims are in a vulnerable stage due to rapid development of the mucosal immune system. A bacterial challenge at this stage may in these infants lead to an uncontrollable cytokine production. Although the cytokines are an important part of the body's natural defence against infection, disturbed homeostasis of the cytokine system may have deleterious effects on the body. Recent studies on different genotypes of interleukins in infectious deaths and SIDS add to the understanding of genetic predisposition for disturbed cytokine homeostasis and the development of a toxic shock like situation.
In addition to a disturbed response from the body on bacterial challenge, there may be factors linked to the bacteria themselves that provoke an abnormal reaction. In an eight year period we have had twelve deaths in infancy and childhood where Streptococcus pneumoniae was found in pure culture from various body fluids and tissues. Some of the infants/children had symptoms before death, but none were suspected to be seriously ill. We have therefore studied the cytokine response in these children in order to examine whether their reaction differs from ordinary SIDS cases and infectious deaths. Furthermore, the bacterial strains are examined for capsule production and typed to investigate whether they would have been covered by the 7-valent vaccine. The results could probably be of importance for the ongoing debate in Norway considering introduction of the 7-valent vaccine.

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IMMUNOLOGICAL CHARACTERISTICS OF INFANTS WITH CPAOA (CARDIO PULMONARY ARREST ON ARRIVAL) WHO WERE POSITIVE FOR VIRUS STUDIES

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Various hypotheses to explain CPA in infants have been postulated, maternal smoking, absence of breast-feeding, winter peak, prone sleeping position and poor socio-economic situation of families etc. While no cause has been clearly identified, there are several evidences suggesting that respiratory viral infections are related in some cases - influenza virus, RS virus, Rhinovirus, Adenovirus, CMV, Rota virus, Enterovirus (EV). Blackwell et al. suggested uncontrolled cytokine responses might lead to unexplained deaths. In this study children with cardio pulmonary arrest (CPAOA) were investigated virologically and immunologically. We experienced eight patients with CPAOA in our department from November 2001 to December 2002. In the same time two other infants with neuromuscular diseases (Werdnig-Hoffmann disease and nemaline myopahty) are not involved. All eight patients were boys and their ages were from one month to eight years of age. The laboratory findings at arrival showed high levels of transaminase (AST predominance), LDH, CPK, glucose in all cases. Three infants and one teenager were accompanied with fatal virus-associated haemophagocytic syndrome (VAHS). One infant was infected with parainfluenza virus type 2 and other four patients were infected with enterovirus. Their laboratory data revealed elevated levels of ferritin and IL-6, which suggested haemophagocytic syndrome. The histological findings revealed many hemophagocytic cells. The autopsy of case (enterovirus was positive) revealed many hemophagocytic cells in bone marrow, liver, and intestinal mucosa. An autopsy of the case whose PIV2 was positive showed that severe brain edema was found and histological findings revealed many hemophagocytic cells in tonsils, spleen and bone marrow. There was no case that showed an infiltration of lymphocytes in the central nervous system. The liver of biopsy revealed an infiltration of lymphocytes and hemophagocytic cells. The histological findings revealed many hemophagocytic cells. The results revealed that mRNA levels of inflammatory cytokines in brain, kidney, liver and spleen were also elevated.
Since all cases were seen in boys in this study, X-linked or autosomal recessive genomic diseases were suspected. We investigated the gene of SAP (Signaling lymphocytic activation molecule (SLAM) associated protein) which can correlate with a lethal syndrome by using direct sequencing. However there was no mutation in the subjected three cases. These findings virus-related CPA is caused by other immunological roles except for the mutation of SAP gene.

179 (S&ST)

A POTENTIAL MODEL FOR INFLAMMATION AND INFECTION IN SIDS

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Model: We have developed a model in which to examine the role of infection on sudden unexplained death in neonatal rats. In our model we use a benign form of Influenza A virus and a sub-lethal dose of e. coli endotoxin. We have 70% mortality in animals given influenza on post natal day 10 and endotoxin on post natal day 12. Younger animals and older animals do not die. This is an age specific response to two non-lethal challenges.
Similarities to SIDS: These animals die rapidly, in 7 to 9 hours, and have few symptoms prior to death. They continue to eat and act normally until they quietly succumb. Gross pathologic findings such as respiratory petechiae and liquid blood around the heart on necropsy were consistent with those seen in infants dying of SIDS. Histopathologic lesions including sub-endocardial hemorrhage and mild cortical thymocyte necrosis were found with greater severity and frequency in these animals. Signs of increased inflammation, organ shock and lowered blood pressure were believed to be causal of death.
Nicotine: We have also begun to study the affects of prenatal nicotine exposure in these animals. We find that nicotine increases the number of animals that die with the dual infectious challenge. We have also found that peri-natal nicotine exposure induces death in animals that are given endotoxin alone. We are currently working on examining the added role of nicotine exposure. Does nicotine exposure increase the inflammation and resulting shock or does nicotine exposure change areas of the brain that are important for a protective response to shock?

180 (S&ST)

GENETIC VARIATION AND RESPONSE TO INFECTION IN SUDDEN INFANT DEATH: BOTH DELETERIOUS AND NEUTRAL MUTATIONS ARE INVOLVED

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Deleterious mutations interact synergistically in complex genetic networks thereby impairing performance and increasing the risk of disease. Let X be the mean number of new deleterious mutations entering the genome per generation and Y be the mean number of deleterious mutations in the germ line of adults. Functions specifying the frequency of homozygous deleterious mutations in the offspring of cousin and sibling unions have been derived in terms of X and Y. The best estimates are that Y is between 6 and 10 and X is between 0.5 and 1.3. Mathematical models indicate that there will be a Poisson distribution of deleterious mutations in zygotes with mean X+Y. Selection based on synergistic interaction then operates and the zygotes that survive have a skewed distribution of deleterious mutations with mean Y and the population is in equilibrium. The response to infection involves extensive networks of genes; intravenous injection of endotoxin changes the expression of 3000 genes in neutrophils alone. The optimum response will be impaired by deleterious mutations rendering infants susceptible to sudden death at 2 to 3 months when serum IgG is low.
Base changes occurring in the non-coding and non-regulatory component of the genome are neutral. Between 20 and 100 neutral changes will arise per generation but the vast majority disappear purely by chance over succeeding generations. A few survive, also by chance, and increase in number in the population. Single nucleotide polymorphisms (SNPs) are found approximately every 300 bp. The majority are neutral changes that arose around 10,000 generations ago (250,000 years). SNPs in coding or regulatory parts are also neutral or nearly neutral and have been present in the genome for thousands of generations . In terms of the response to infection neutral mutations can confer advantage in fighting one organism but disadvantage in fighting another i.e. neutral overall. There is also the phenomenon of heterozygous advantage; different cell surface receptors will reduce the density of colonisation by any one organism, different regulatory elements mean two strategies rather than one in fighting infection. Common SNPs within the human genome have been mapped (HapMap) and this will allow the identification of neutral changes linked to sudden infant death . Heterozygous advantage also provides a possible answer to the question “why is sudden infant death more common in boys?” Only girls have heterozygous advantage on the X chromosome which is 5% of the genome.

181 (S&ST)

ETHNICITY, SMOKING, INFLAMMATION AND SUDDEN DEATH IN INFANCY

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The incidence of sudden infant death syndrome (SIDS) varies dramatically among different ethnic groups. The lowest reported prior to the campaigns to reduce the risk factors for SIDS was among families in Britain of South Asian origin - Pakistani, Indian or Bangladeshi. The highest incidences were found among Black Americans and indigenous peoples (Aboriginal Australians, Maori of New Zealand and Native Americans). Deaths due to infections are also higher in these groups. Risk factors for SIDS and those for many infections are strikingly similar, particularly exposure to cigarette smoke. We suggested that some SIDS deaths are due to uncontrolled inflammatory responses to infectious agents or their toxins. Our studies investigated interactions between genetic and environmental factors that might lead to increased susceptibility to infectious agents and subsequent lethal inflammatory responses.
There is substantial evidence that inflammatory responses were induced in many SIDS infants. In Scandinavia, some SIDS infants had levels of interleukin (IL)-6 (IL-6) similar to those found in infectious deaths. Cytokine gene polymorphisms (CGP) were assessed by our group and others. Among three ethnic groups at increased risk of SIDS (Aboriginal Australians, Native Americans, Black Americans), there are similar proportions of individuals with CGP associated with high IL-6, IL-1 and tumour necrosis factor responses. In addition, these groups have high proportions of individuals with CGP associated with low responses of the anti-inflammatory cytokine IL-10; however, South Asians who have low incidences of SIDS and deaths due to respiratory infections have patterns of CGP similar to the high risk groups.
Cigarette smoke is a major risk factor for SIDS. In vitro studies with leukocytes from smokers and non-smokers found the highest responses were observed with cells from smokers with particular CGP. IL-10 responses of smokers were lower than those of non-smokers; those with the genotype associated with low IL-10 responses were affected most significantly. Combinations of CGP that could result in high levels of pro-inflammatory responses are those most prevalent among the Black Americans, indigenous groups and South Asians. The differences in the proportions of mothers in these groups who smoke (high among Indigenous groups, low among South Asians) are likely to be major factors affecting susceptibility to SIDS. Quantitative assessment of cotinine levels in relation to CPG, evidence for infection and inflammatory responses could provide additional information to refute or support the hypothesis that these interactions play a role in sudden death in infancy.

182 (S&ST)

EXPLORING THE MECHANISMS OF INFECTION-MEDIATED FETAL DEATH

Sean C Blackwell
Wayne State University, USA

Both systemic and intrauterine infection has been linked to fetal loss and stillbirth. The purpose of this presentation will be to review the most common bacterial and viral pathogens associated with stillbirth, the diagnostic methods for detection, and the potential causative mechanisms that lead to fetal death. The potential role of pathogenic maternal and/or fetal inflammatory response in stillbirth will also be offered. Discussion will include the clinical implications of preventive and therapeutic interventions. Clinical case presentations will be used to illustrate scientific concepts.

183 (HP)

MEANINGS OF AUTOPSY FOR BEREAVED FAMILIES -WHAT IS THE ROLE OF AUTOPSY?

Munehiro Sugiyama
SIDS Family Association Japan

It is very important to remember that the families of babies who died of sudden infant death syndrome (SIDS) have profound feelings of guilt and grief, and they are sometimes facing the ultimate crisis within their family. When the medical investigators/doctors explain the results of postmortem antopsy, they should pay attention not to blame anyone, who looked after the baby, for the baby's death. On the other hand, it is very difficult for bereaved families to understand and accept the diagnosis of SIDS, which is defined as “the sudden death of an infant under 1 year of age which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history”. “Unexplained death” can not answer the questions of a bereaved family. I think that the role of medical investigators/doctors who examine the babies is not only to determine how the baby died, but also to give the information on both scientific aspects of SIDS and family support groups such as SIDS family association.

184 (HP)

HOW TO EXPLAIN AUTOPSY - A POLICE APPROACH

Lisbeth Sveum
Norwegian Criminal Case Review Commission, Norway

The police are often the first involved when an infant has died, and have the job of informing the parents that an autopsy will be required. Giving information and being able to communicate what an autopsy entails is the basis for a good dialog between the bereaved parents and the police. This can include which investigations will be performed, how the infant is handled at autopsy and which, if any organs are removed. Our experience from Norway tells us that parents feel a strong need for information, and it is up to the professionals at the scene, most often police to give this information in the best way possible. Cooperation with the forensic pathologist is crucial, and the special training in interviewing and communicating which is part of the training at the police academy that is useful in such situations.
A basic interview model used by Norwegian police, usually implemented in cases of abuse and homicide, can be used when approaching parents after their babies have died. Such a model includes communication, legal protection, ethics and empathy, consciousness raising, trust through frankness and information. The model is rooted in scientific studies of the psychology of communication. The model is based on six stages that guide you through preparing, performing and evaluating the interview. When meeting with bereaved parents empathy is important.
The experience from the Norwegian Death Scene Investigation Project has been that meeting parents with structured information, empathy and frankness has made it easier for the parents to understand and accept the need for an autopsy, to get as many answers as possible to the question why their baby died.

185 (HP)

HOW THE JAPANESE POLICE DEAL WITH SIDS INCIDENTS

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When information has come in that a body of a person has died an unnatural death, judicial police officials will conduct an inspection and examination on the body. It is stipulated in the Code of Criminal Procedure that distinct prosecutors can assign such examinations to local criminal investigation specialists so that they can find out, first of all, “whether the cause of the death has attributed to crimes.”
Identifying the cause of death is what should be done by medical professionals. On the other hand, the police try to determine a particular criminality involved, and, at the same time, provide the doctors with the collected evidence or police opinions that might help them to identify the cause of the death.
The same is true of the investigations into SIDS elements. Whether the case can be called as a SIDS or not is the business not of the police but of doctors.
The sudden death of infants is a heart-wrenching moment for the parents. In that situation, these investigators ask an every possible variety of questions and, if allowed, step inside and see where the death has taken place.
It is apparent that these infants have passed away, saying nothing on what's wrong with them.
This is why the investigators need to know what has caused infants to die.
Of all the cases, SIDS incidents are that they have often seen in the past used as a cover-up for crimes.
Only by disclosing the truth and determining whether those infants has died of illness or has been lost in an accident,the investigators believe that they might be able to rest those departed and holy souls in peace.
When hearing from the parents what they know about the case, these investigators make every effort and try to convince the parents of the necessity of the examination.
What is more important is, they are very considerate that the parents and the family are in deep agony. Bearing it in mind, they faithfully deal with SIDS incidents and pray to see no more babies or infants fall victim to any crimes or accidents.

186 (HP)

HOW TO EXPLAIN THE NEED FOR AN AUTOPSY IN A CASE OF SIDS: THE PERSPECTIVES OF A FORENSIC PATHOLOGIST UNDER THE HONG KONG CORONIAL SYSTEM

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Each year, about 35000 deaths occur in Hong Kong. Of these approximately 24 percent are reportable deaths. Reportable deaths are deaths under a list of twenty circumstances defined by the Coroners Ordinance, Laws of Hong Kong. Although SIDS is not listed as a specific entity, it is in practice reported as a sudden unexpected death where the cause of death is unknown.
A reportable death will necessitate the family lodging a police report, a preliminary police investigation, an interview with a pathologist or forensic pathologist. Not all reportable deaths are autopsied in Hong Kong. Family members may make an application to the Coroner for a waiver of the autopsy requirement. Such waivers are often only granted where the cause of death is established and clear. In practice, it would be extremely unusual for the Coroner to waive the need for an autopsy in a case of SIDS. The interview with the family is a good process to help the pathologist understand the medical condition of the child. It is also an excellent opportunity to explain the legal requirements to the family, the purpose and process of an autopsy and the potential benefits that the autopsy may have for the family. It also allows an opportunity to provide bereavement counselling to family members of cases of SIDS.

187 (HP)

HOW TO EXPLAIN THE AUTOPSY? - THE PERSPECTIVE OF A FORENSIC PATHOLOGIST IN SCANDINAVIA

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Legal background
In the Nordic countries, the police should be notified in all cases of sudden unexpected death. In Norway, the director general of public prosecutions has, through a circular to the police districts, pointed out that an autopsy should be performed in all cases of sudden unexpected death in infancy and early childhood.
When the police have decided that a forensic autopsy should be performed, the relatives should be informed and have the possibility to give their opinion. However, the police make the decision.
Why autopsy?
For the police, the important issue is to know the cause of death and to obtain enough information to decide whether the death can be due to a criminal act. The parents and the health personnel dealing with these tragic deaths have other needs, which also have to be met.
Information to the parents
According to Norwegian regulations, health personnel are responsible for the information and follow-up of bereaved families. Through this information the families should bee able to understand why an autopsy is necessary, as well as how it is performed. This information should be given considering each family's special needs and desire for knowledge. In many cases the families also express a wish to talk with the forensic pathologist who has performed the autopsy.
In 2004 the Norwegian Medical Association issued a “Guideline to autopsy of fetuses and children”. This booklet deals with the issue of performing the autopsy in as good ethically and professionally manner as possible. Special chapters on dealing with an autopsy and how to explain this to the bereaved families are included.
What happens to the babies?
This is a question of much concern to many families. If the families are well informed in advance, it is far easier to accept the procedures. It is therefore important that the families understand what is happening, and that they can feel safe that their child is handled in a proper manner. During the autopsy the child should be handled with such care that the parents themselves, if they wish so, can prepare and dress the child for the funeral.

188 (HP)

THE PERSPECTIVE OF A FORENSIC PATHOLOLGIST UNDER THE JAPANESE SYSTEM

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Department of Legal Medicine,Tokyo Women's Medical University, Japan

In Japanese medio-legal system, criminal autopsy is conducted in the department of legal medicine of medical university only by forensic pathologists. At that time, forensic pathologists could not accessed with the families before and after autopsies. Criminal autopsies are forced to be carried out without agreements of families. Before the administrative autopsy (non-criminal unnatural autopsy only in Tokyo, Osaka and Kobe), the inspection for external body findings is carried out by medical examiners. After the inspection and administrative autopsy, medical examiners can access with the families if necessary. In Tokyo Medical Examiner's Office, medical examiners are trained that they should put their eyes in the same level as the families eyes and explain the cause & mode of death using daily words not by medical expert terms to families. In addition, they are trained that they should say the victims did not suffered at the death scene even if they might suffered to the families. They are educated that they should never laugh near the postmortem body and family. In other rural area, the police surgeon who is usually general physicians carried out the inspection for external body findings but most of them were not trained how to access with the families.In other rural area, forensic pathologists carry out criminal autopsies and a part of non-criminal unnatural autopsies and in most cases they do not access with the families.
Only in the medical examiners office, the training how to access with families and how to explain autopsy to the families are carried out in Japan. However, the medical examiners offices are located only in Tokyo, Osaka and Nagoya.

189 (HP)

HOW TO EXPLAIN THE AUTOPSY - REFLECTIONS FROM AUSTRALIA

Roger Byard[1,2]
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Australian coronial jurisdictions are divided on a state by state basis, with each state having slightly different legislation. In South Australia there is a single State Coroner who authorises autopsies on infants found unexpectedly dead. The autopsy rate over the past decades in such cases has been 100%. While there is a coronial counselling service, most SIDS parents receive support and counselling from the South Australian SIDS and Kids organisation, whose medical representative is a paediatric forensic pathologist. This link means that families have ready access to a pathologist who may have performed the autopsy on their infant and who has a background and an interest in SIDS. Contact with the pathologist most often occurs some time after the infant's death, usually when the final autopsy report has been formulated. At this time parents are able to meet with the pathologist and SIDS counsellor to ask questions and to receive explanations about what had happened to their child. Importantly, this meeting also gives parents the opportunity to meet with the doctor who was caring for their baby after he or she had been removed from their home. Such meetings help complete the circle of events that occurred after their baby's death and sometimes help to allay feelings of guilt that are always present after such an event.

190 (P&HP)

SOME PARENTAL SOURCES OF SUPPORT

Graham Harris[1,2]
[1]The Compassionate Friends, [2]Tokyo English Life Line, Japan

A bereaved parent will usually look for one or more safe environments where they can express their desperate feelings of heartbreak, loneliness and isolation, and can obtain emotional support. A key need is to be able to tell their story over and over in a non judgmental atmosphere.
Such places include, but are not limited to, friends; support groups; telephone counseling services and professional face to face counselors. During the grief process a bereaved parent will seek access to some or all of these kinds of support. Much depends on the individual grief journey as to if and when the bereaved parent turns to a specific source of help.
This presentation concentrates on two of the non professional options - support groups and telephone counseling services. It will discuss the pros and cons of each from a parent's point of view.
The Compassionate Friends ia a support group for parents who have lost a child. It was founded in UK in 1969 and is now an international organisation of bereaved parents, providing no “cure” but comfort, support and also encouragement that life will come back to having meaning once more.
Mr Harris has been a member of The Compassionate Friends since the death of his son in 1988. He is also connected with Tokyo English Life Line where he has been a trainer and supervisor of volunteer telephone counselors.

191 (P&HP)

PEER COUNSELLING AND PROFESSIONAL COUNSELLING - THE DIFFERENCES

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To experience the death of a child is to most parents a psychological, social and existential trauma. At the same time it is documented that different kinds of psychosocial support can ease the pain and reduce the risk for long-term psychosocial problems. According to a nationwide study in Norway, most parents need professional help to recover from the death of their child. Studies also show that non-professional bereavement support can make a difference; parents who receive more of the different kinds of help experience better psychosocial health (Dyregrov, Nordanger and Dyregrov 2000).
Professional help and peer counselling meet different sets of needs with the bereaved families due to the fundamental different character of the two kinds of help and support. As a In professional counsellor you are not supposed to make use of your own personal experiences in the counselling or therapy work. The goal of the therapy is to help the parents to recover and be able to handle the new situation. In contrast, being a volunteer in the Norwegian SIDS Society presupposes personal experience of loss. In the volunteer bereavement support work the crucial issue is to learn how to make use of personal experiences of loss in a helpful and meaningful way to the newly bereaved parents. Therefore all the volunteers have to attend a preparation course. The sharing of experiences and recognition of grief reactions after the death of a child is of essential value in the peer-to-peer contact; only those who have lost their own child are capable of knowing what such a loss means in the deepest sense.
The nationwide study referred to above, describes professional help and peer counselling as equally important sources of help. In the study parents described needs of help they felt only could be given to them by professionals. These were needs for counselling and information on specific issues. In contrast, peer contact and counselling was experienced as of great value by being the most important sources for confirmation of feelings and identification. In addition, the importance of belonging to a support organisation like the Norwegian SIDS Society should not be undervalued.
The presentation will describe the study in more detail and give insights into the quality assurance programme for the volunteer bereavement support work in the Norwegian SIDS Society.

192 (P&HP)

DIFFERENCES IN HELP FROM PEER SUPPORTERS AND PROFESSIONAL COUNSELLORS FOLLOWING BEREAVEMENT

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The death of a child is one of the most tragic events that a family can experience. In Australia, as in most parts of the world, we find that bereaved parents usually receive help from their family and friends, and this informal support from their natural social networks may be sufficient help for some people even following such a tragic death. However as Dyregrov (1990) suggests, sometimes family and friends are more upsetting than helpful. Bereaved people may seek help from other sources such as from community support organisations. This help may be provided by peer supporters associated with the organisation - people who have themselves experienced a similar bereavement, or from professional bereavement counsellors, or possibly from peer supporters and counsellors working in partnership.
The concepts of 'experiential knowledge' and 'professional knowledge' provide a useful theoretical basis for understanding the differences between peer support and professional counselling. Experiential knowledge is truth learned from personal experience with a phenomenon, whereas professional knowledge is truth acquired by reasoning, observation, or reflection on information provided by others (Borkman 1976). Peer supporters have 'lived experience', whereas it is expected that professional bereavement counsellors will have theoretical knowledge and experience about human behaviour and about recent research and understandings in the field of grief and bereavement.
This paper draws from a study undertaken by SIDS and Kids Victoria, Australia, in 2004. The aim of the study was to review and strengthen the peer support component of the service offered by SIDS and Kids Victoria to bereaved families. Guided interviews were conducted with 22 bereaved parents, 74 trained parent (peer) supporters, and 6 professional bereavement counsellors. These interviews provided different perspectives on the differences between help from parent supporters and from counsellors.
The help provided by peer supporters and professional counsellors is different, but can be complementary. Some people may use both, drawing different things from each. Understanding and respecting differences in approaches and attitudes to the work enables

effective management of these bereavement services.
Each person's experience of loss and grief is individual and unique, there is no right or wrong way to grieve, and people need a variety of sources and styles of help from which to choose the help that is best suited to their unique experiences, resources and needs. Peer support and professional counselling are two of these options.

193 (P&HP)

MUTUAL SUPPORT AMONG BEREAVED FAMILY GROUP MEMBERS AND ITS EFFECT

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The objectives of this study were to uncover the contents of bereavement support that was received support and provided support among bereaved family group members, and to understand the difference between one-way support (i.e., either received or provided support only) and mutual support (i.e., both received and provided support) to compare their effects.
A survey was conducted in January and February 2005 by self-administered questionnaires mailed to 506 families who belonged to SIDS family groups. The questionnaire was consisted of questions regarding age, sex, other background information, received support and provided support they received and the effect of the support. Received support was analyzed by confirmatory factor analysis, and provided support by exploratory factor analysis. Analysis of variance (ANOVA) was used to compare the effect of support.
Valid answers were obtained from 127 members (25.1%; 3 men and 124 women). The mean age of participants was 37.33 ± 5.75 years with a range of 25 - 70. The mean length of time after the death of their family was 6.21 ± 5.41 years (range: 3 months - 40 years). The mean length of membership at the bereaved family group was 4.64 ± 3.56 years (range: 2 months - 13 years).
Results of a confirmatory factor analysis of a hierarchical four-factor model of the received support provided a good fit(χ^2= 69.969, df = 62; p = 0.228). An exploratory factor analysis of the provided support revealed two underlying
factors: “emotional and cognitive support” and “informational and professional support.” In addition, comparison of the effects of one-way support and mutual support revealed that grief following to the loss was more significantly reduced by the mutual support.

194 (P)

BEFRIENDERS TRAINING SESSION

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Australian Centre for Grief and Bereavement (previously Centre for Grief Education), Australia

This half day workshop is designed for experienced Befrienders who have had some initial training in providing support to bereaved families following the sudden and unexpected death of their child. They will have some experience in providing peer support for newly bereaved families.
The workshop will be interactive with discussion and role plays in small groups and in pairs, which will report back to the larger group. It will provide opportunities for Befrienders to share their experiences, their successes and their difficulties in their Befriending work. They will reflect on what helped them at the time of their own bereavement and will learn from each other about different ways of providing effective bereavement support. They will learn about ways of protecting themselves and their own families from stress and compassion fatigue.
Some special issues will be considered, including the issues related to providing bereavement support via email, the differences between being a friend and being a Befriender, finding effective support for yourself, and how to manage the impact of this work on your own family and friends.
The workshop will provide an effective opportunity for peer support for Befrienders and for learning new strategies for Befriending work.

195 (HP)

SUPPORTING PARENTS WHEN A BABY OR CHILD DIES

Jenni A Thomas Obe
The Child Bereavement Trust, UK

The death of a baby or child is one of the most painful experiences that any parent can suffer and one parents never forget.
As professionals we choose, for many reasons, a career that is about taking pain away yet in grief we need to help the bereaved have and express their painful feelings. This is a difficult task. Our own life experiences will affect how we feel and difficulties can arise if we do not recognise our own emotions, which are separate from those of the parents.
Parents rely on the professionals who care for them to provide information on which they can make appropriate choices. Recognising and responding to the parents' very varied feelings, trying to sense what they need and helping them is the role of all professionals involved at this time of crisis. This is particularly important when discussing a coroner's role and post mortem examination.
Parents value the practical and emotional help they receive and acknowledgement of the importance of their baby. Gathering mementoes of a baby who has died can be especially difficult, a lock of hair, a footprint will be precious and can be given to the parents to keep.
Recognise fathers and mothers' experience of grief may be different, however treat parents equally in giving information and breaking bad news. Mothers may need information and fathers need support too.
Young children may not understand what has happened but they will be aware of the sadness and distress around them. Parents need to be encouraged to be open with their children, to explain simply, helping siblings to understand and be involved.
Professional care often needs to extend beyond the death in hospital. For some families having access to a bereavement support or counselling service is important.
To work in this capacity over time all professionals must take into account their own needs and have access to training and support themselves. It helps to provide a regular time to listen to each other and to share experiences, just as families search for meaning so do we as professionals. We can find meaning through our shared humanity.
For details of resources available from CBT or to visit our family and professional forum go to www.childbereavement.org.uk.

196 (HP)

DOCTORS CRY TOO, MODULATING THE EFFECTS OF PERINATAL AND INFANT DEATH ON THE PHYSICIAN

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Among physicians and professionals who care for those who have experienced perinatal, neonatal or childhood loss, and indeed who care for all those at the end-of-life, there exists a remorse and sorrow that can approach that of the grieving mother, father or family. Many times, the grieving and sorrow that is felt is kept silent and goes unnoticed, for attention is most often concentrated about those who have experienced their personal loss. As I have observed my colleagues (physicians, nurses, social workers, office staff) care for patients with fetal and neonatal death, I have seen colleagues who have been pillars of strength to so many others, now full of remorse, grief, dismay and anger when their patient incurs such a loss. How can they best manage this grief? How can they obtain support?
This presentation will discuss personal coping mechanisms and programs which have been implemented to help medical professionals / students care for themselves and their patients during these most difficult of times. These programs have been introduced into the core curriculum of the medical student and house staff training program in the Department of Obstetrics and Gynecology at the Yale University School of Medicine.
Through a series of seminars in perinatal loss and bereavement, a moderated program has evolved involving case presentations and frank discussions of feelings when patient's pregnancies fail or babies die under the care and responsibility of medical students and house staff. Discussions encompass the full scope of losses including but not limited to stillbirths, miscarriages, genetic terminations of pregnancy, selective reduction of higher order pregnancies and neonatal deaths. These seminars are enriched by inviting patients who have experienced perinatal losses to tell their stories and experiences. In depth discussions and analysis regarding the science of biomedical research and advanced medical technologies is also explored with particular attention directed to the ethical implications and effects of such science on the patient and in particular on the physician-patient relationship which such technology fails. The role and inclusion of reflective writing about patient encounters which can be therapeutic, cathartic and beneficial is also explored and examples are read. Finally, these didactic sessions are enhanced by mentoring, counseling and guidance when house staff and students are in the midst of caring for patients enduring their losses during labor and beyond.

197 (HP)

EMPTY ARMS AFTER THE LOSS OF A TREASURE

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Effects of Grieving Session
The loss of a baby in pregnancy, in the hospital, at home or at a daycare is devastating. The hopes and dreams are dashed and the grief can be overwhelming and often misunderstood. This session will validate those feelings - the loss of a treasure and the anguish parents experience. Family dynamics will be discussed, decsion-making explored, and struggles over time reviewed. A discussion of healthy grieving will take place, including how to cherish all the memories and understand personality styles as a means to healing.

198 (S)

DEVELOPMENTAL ABNORMALITIES OF NEUROTRANSMITTERS IN SIDS

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The awareness campaigns of children's sleep position in the supine state have reduced the incidence of sudden infant death syndrome (SIDS), but SIDS is still the main cause of postnatal infant death. The causes and mechanisms in SIDS have never been completely elucidated. SIDS has the characteristics of occurring in infants of less than one year old, with a peak of incidences in the two to four months of age range, and an unexpected event mostly in the sleep state. These suggest that some defensive causes of the mechanism of sudded death are located in the central nervous system, especially the development of sleep and cardiorespiratory regulation centers of brainstem.
Neuropathology of SIDS reveals: 1) subcortical leukomalacia and diffuse astrogliosis in white matter; 2) brainstem gliosis in cardiorespiratory centers; 3) developmental delay of dendritic synapses in medullary cardiorespiratory centers; 4) increase of substance P in the sensory trigeminal nuclei in the pons and medulla oblongata; 5) decrease of catecholaminergic neurons in the vagal dorsal and solitary nuclei and ventrolateral medulla (VLM) of the medulla oblongata; 6) decrease of muscarine receptor binding in the brainstem; 7) decrease in α2A adrenergic receptor immunoreactivity in the solitary nucleus and VLM of the medulla oblongata; 8) decrease of serotonergic neurons in the VLM and tryptophan hydroxylase immunoreactivity in the raphe and periaqueductal gray matter of the midbrain; 9) decrease in 5-hydroxytryptamine 1A (5-HT1A) and 2A receptor immunoreactivities in the vagal dorsal and solitary nuclei and the VLM of the medulla oblongata, increase in them in the periaqueductal gray matter of the midbrain.
These results suggest that: 1) hypoperfusion and hypoxia are repeated before death; 2) catecholaminergic immaturity and abnormalities may cause neuronal cardiorespiratory and arousal dysfunction; 3) serotonergic system abnormalities may indicate a prdisposition for cardiorespiratory arrest, and its immaturity may indicate cardiorespiratory control instabilities.
Recent genetic studies have idendified several ways in which SIDS victims differ genetically from controls. The pathogenesis of SIDS may include several environmental factors in addition to predisposing developmental and genetic factors.

199 (S)

COMPARISONS BETWEEN SIDS & THE OREXIN-KO MOUSE, INCLUDING MOLECULAR FACTORS

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An arousal deficiency theory has been proposed as a basic pathophysiological hypothesis of SIDS. The orexin-KO mouse is a well known animal model of narcolepsy, another condition of impaired arousal, and may provide insights into the arousal deficiency in SIDS. In the orexin-KO mouse, the period of arousal time is unchanged, compared with wild types, but the stability of arousal is affected. In both SIDS and orexin-KO animals, an arousal deficiency exists, but SIDS is fatal, while orexin-KO animals survive. An examination of arousal deficits and conditions underlying these deficits may assist determination of fatal outcomes in SIDS cases.
In SIDS victims, cortical arousal decreases both in REM and nonREM stages, while subcortical activation increases in the REM stage; thus, in the REM stage, arousal transmission from subcortical to cortical areas appears incomplete. Although changes in CSF orexin levels have not been described in SIDS victims, orexin-containing neurons in cortical areas project to subcortical sites, and alterations in -these projections may underlie the arousal transmission deficiencies in SIDS.
We collected behavioral pharmacological, biochemical, and molecular data analysed by cDNA Microarray (Affynmetrix) from orexin-KO mice with a mixed 129/Sv and C57BL/6 genetic background and wild-type (WT) mice. The behavioral pharmacological data showed elevated serotonin reactions in orexin-KO mice over the WT. The levels of 5-hydroxyindoleacetic acid, a major metabolite of 5-HT, were significantly higher in the forebrain of orexin-KO mice over WT mice. These data suggest that reduction of brain orexin increases the release of 5-HT as a compensatory mechanism in orexin-KO mice. However, the brainstem of SIDS victims show decreased serotonergic neuron density. Microarray analysis evidence shows that mRNA of Fcer1a gene refer to serotonin secretion was 23.52 times greater in a 7 day old orexin-KO mouse compared with age-matched WT and mRNA of Fcgr3 gene refer to serotonin secretion was 2.00 times that in adult orexin-KO mice compared with adult WT mice.

200 (S)

GENETICS OF DEVELOPMENTAL RESPIRATORY CONTROL DISORDERS

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Several lines of evidence support a genetic influence on respiratory control: (i) early physiological studies have shown considerable inter-individual variability of components of respiratory control, but similarity in homozygous twins; (ii) rare familial cases of respiratory control disorders have been reported; (iii) differences in respiratory control have been described among mice strains. Early disturbances in human respiratory control include apnea of prematurity, congenital central hypoventilation syndrome (CCHS), and sudden infant death syndrome. Respiratory control abnormalities are also present in complex disorders such as Prader-Willi syndrome. Furthermore, genetic susceptibility to respiratory control abnormalities may contribute to the pathogenesis of sleep-disordered breathing throughout the life span. Recent advances have opened the field of research into the genetic basis of respiratory control disorders. Studies in newborn mice with targeted deletions have shown links between the expression of specific genes and the development of individual components of respiratory control. In addition, studies investigating the respiratory phenotype of these mice have helped to identify candidate genes for respiratory control disorders such as Prader-Willi syndrome and CCHS. Patients with Prader-Willi syndrome carry genetic mutations of the necdin gene. Mutant newborn mice lacking necdin gene may be an interesting model for understanding respiratory control abnormalities in Prader-Willi syndrome, since they exhibit abnormal in vivo and in vitro rhythmic respiratory activity. The main gene causing CCHS is Phox2, which is crucial to the development of most of the relay stations of the autonomic nervous system. Interestingly, heterozygous newborn mutant mice lacking the Phox2b gene exhibit some of the characteristic features of CCHS. The genetic basis remains to be elucidated for other disorders with abnormal respiratory control. For the future, the development of databases that incorporate clinical phenotypes and genetic samples from patients, and international multicenter studies would facilitate further genetic studies. Finally, combining studies in humans and studies in mouse models would provide pathogenic information on the mechanisms underlying genetically determined respiratory control disorders, improvements in genetic counselling, and new tools to design effective treatments.

201 (S)

RESPIRATORY AND CARDIOVASCULAR CONTROL MECHANISMS AFFECTED BY DISTURBED DEVELOPMENT

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Although the principal characteristics associated with congenital central hypoventilation syndrome (CCHS) are associated with breathing control during sleep, much of the evidence from studies in animals suggest alterations in autonomic ganglia targeted by genetic mutations. Children with CCHS show signs, derived from magnetic resonance diffusion and functional scanning, of maldevelopment or injury in brain structures not associated with autonomic ganglia; these areas include portions of the cerebellum and deep cerebellar nuclei, a unilateral region of the basal forebrain/preoptic area, basal ganglia and insula, as well as specific sites with the hippocampus and cerebral cortex, including the anterior cingulate cortex and ventral frontal cortex. The affected structures would account for many of the symptoms associated with CCHS, such as impaired thermal and fluid regulation (preoptic area), diminished CO2 sensitivity (cerebellar deep nuclei, basal forebrain), sleep-related reduction in drive to breathe (basal forebrain and cortical projections), occasional difficulty in initiation of urination (anterior cingulate cortex), and impaired baroreceptor control (ventral frontal, insular, and cingulate cortices). Many of these structures are located in rostral brain regions which develop late, and are dependent on the integrity of the vascular system for adequate maturation. The genetic processes which target autonomic ganglia in CCHS will exert a direct effect on perfusion via control over the cerebral vasculature, and thus have the potential to greatly alter development of other structures, especially in rostral brain areas which serve respiratory or other vital physiological functions.
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202 (ST)

FETAL MOVEMENT MONITORING: PRACTICE IN AUSTRALIA AND NEW ZEALAND

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Background
In clinical practice, while maternal reporting of reduced fetal movements (RFM) is commonly interpreted as a warning sign of fetal compromise, there is little agreement on what constitutes a significant reduction in fetal movements, how to identify this, and what is best practice in the care of women reporting RFM.
Aims
To identify current practices and views of obstetricians on fetal movement monitoring in pregnancy.
Methods
A survey of the Fellows and Members of the Royal Australian and New Zealand College (RANZCOG) of Obstetricians and Gynaecologists was conducted in October 2005. The survey consisted of a mail-out of an anonymous questionnaire with one follow-up mailout undertaken three weeks later.
Main results
A total of 1700 questionnaires were distributed and 1057 (62%) were returned of these 796 (75%) were currently practising obstetrics. Approximately 277 (35%) of practising obstetricians reported always using a KICK chart for women reporting RFM in the third trimester and a further 263 (33%) reported sometimes using a KICK chart. The most frequently reported investigation always performed for RFM was a CTG 642 (81%), while 147 (20%) would always undertake an ultrasound scan (USS) and a further 593 (75%) would sometimes perform an USS. 518 (65%) reported either always or sometimes admitting to hospital a woman who reports RFM in the third trimester. 180 (23%) reported agreeing or strongly agreeing to the statement that FM monitoring reduces stillbirth while 235 (30%) were unsure. 332 (42%) reported being aware of clinical practice guidelines in their institution on the management of women with RFM.
Conclusions
The findings of this survey indicate that, despite the conclusions from the one large trial on the topic in 1989 and recent recommendations from NICE (National Institute of Clinical Excellence) in the UK that formal fetal movement counting is not recommended; many clinicians appear to be unconvinced by the current evidence and continue to use FM counting as a part of routine antenatal care. The identification of RFM results in further tests of fetal wellbeing in the majority of cases, without any evidence to support this. Research is urgently needed to elucidate the role of fetal movement monitoring as a part of routine antenatal care and the appropriate management of women who report RFM.

203 (ST)

COMPARISON OF RISK FACTORS FOR UNEXPLAINED VERSUS EXPLAINED FETAL DEATHS IN NEW ZEALAND

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Aims: To determine whether socio-demographic and previous pregnancy factors differed between explained and unexplained fetal deaths .
Methods: Information was collected on all fetal deaths and all livebirths at National Women's Hospital, Auckland between 1993 and 2000. Deaths were retrospectively classified using the Perinatal Society of Australia and New Zealand (PSANZ) classification system. Deaths due to fetal abnormality were excluded. Analysis was carried out using polytomous logistic regression with the live births as the control group.
Results: There were 437 fetal deaths during this period, 95 (21.7%) were classified as unexplained and 342 (78.3%) were explained. The commonest causes of explained deaths being spontaneous preterm delivery (23.4%), and antepartum haemorrhage (19.0%). We found that in comparison to European women, Pacific Island women were more likely to have an unexplained fetal death. Smokers, and those with unknown smoking status had an increased risk of an explained death. Para 0 and para 2 mothers were found to be at greater risk of an unexplained death than an explained fetal death.
A history of a previous caesarean section was associated with a decreased risk of an unexplained death whilst a previous induced abortion was associated with an increased risk of an explained death in part due to preterm birth. A history of ? 1 miscarriage was associated with an increased risk of explained death, not due to any particular sub-classification of death. There was an increased risk of an explained death amongst those with a current multiple pregnancy, in this case predominately due to twin to twin transfusion syndrome. A previous low birthweight infant was also associated with an increased risk of an explained death.
Conclusion: Pacific Island women appear to be at a greater risk of an unexplained fetal death, whilst smokers appear to be mainly at risk of an explained fetal death. An unusual relationship was found for women of para 0 and 2 in terms of increased risks of unexplained fetal deaths. The association between induced abortion and explained deaths is in part due to increased deaths due to preterm delivery.

204 (ST)

A PICTURE OF STILLBIRTHS IN NSW, AUSTRALIA: 2002 TO 2004

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Background: In Australia from 1992 -; 2003 the stillbirth rate has declined from 6.4 to 5.1 per 1,000 births1 and the perinatal mortality rate from 11 to 8 per 1,000 births1. Stillbirths account for two thirds of all perinatal deaths and around 45% in Australia remain unexplained. In New South Wales, a stillbirth rate of 6.0 per 1,000 births was reported in 2003, based on population surveillance entered into the Midwives Data Collection. Perinatal deaths are reviewed by the Maternal and Perinatal Committee. This committee have been using the PSANZ Perinatal Death Classification (PSANZ-PDC) since 2002. This classification system includes both obstetric and fetal factors as well as autopsy findings and placental pathology.
Objectives: To describe the pattern of stillbirths by cause and gestation in NSW since the introduction of the PSANZ-PDC. To assess the agreement between hospital and committee classification on cause of death, particularly the unexplained group.
Methods: All perinatal deaths in New South Wales are reported to the Midwives Data Collection. There are hospital guidelines for reporting of perinatal deaths described in NSW Dept of Health circular 2002/6. Stillbirths were classified using PSANZ-PDC. Deidentified databases of stillbirths were created and reviewed. Gestation was divided into 4 groups when assessing cause of stillbirth. Differences between proportions were assessed using the Chi Squared test.
Results: During the 3 year period there were 1260 stillbirths classified by the Maternal and Perinatal Committee. A postmortem was performed in 472 cases (37.5%) and histopathological examination of the placenta in 1068 cases (84%). The most common subgroup of cause of death overall was unexplained stillbirths (40%) and from these 40% occurred at 37 weeks or greater. For very preterm stillborn babies at 20 to 24 weeks gestation the most common causes of death were congenital abnormalities and spontaneous preterm birth. A post mortem was less likely to have been performed in the explained stillbirths (270/751, 36%) than the unexplained group (202/509, 40%). Hospital classification and Maternal and Perinatal committee classification agreement on unexplained stillbirths ranged from 15% to 57% depending on subgroup. Those cases where there was no examination of the placenta had the least agreement.
Conclusion: Unexplained stillbirths are the most common classification of stillbirths near term and they are more likely to have had a post mortem. Although reported interobserver agreement is high for PSANZ-PDC it is relatively low between hospitals and the Perinatal Outcomes Working Party for unexplained stillbirths.

205 (ST)

COMPARISON OF RISK FACTORS FOR INTERMEDIATE VERSUS LATE FETAL DEATHS IN NEW ZEALAND

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Aims: To determine whether socio-demographic and previous pregnancy factors differed between intermediate and late fetal deaths .
Methods: Information was collected on all fetal deaths and all livebirths at National Women's Hospital, Auckland between 1993 and 2000. Intermediate fetal deaths (IFD) were defined as those with a gestation between 20 and 28 weeks gestation and late fetal deaths (LFD) those of 28 or more weeks gestation. Deaths due to fetal abnormalities were excluded. Differences in risk for intermediate and late fetal deaths were assessed using polytomous logistic regression with the live births as the control group.
Results: There were 437 fetal deaths in all, 250 of these were classified as intermediate and 187 as late fetal deaths. This equates to rates of 3.63 and 2.69 per 1000 live births respectively. The commonest cause of IFD was preterm delivery (30.4%) followed by unexplained deaths (16.0%) and for LFD was unexplained death (29.4%%) followed by intrauterine growth retardation (19.8%). Compared to European women, Pacific Island women were at a greater risk of a late than intermediate fetal death. Those admitting to smoking were only at an increased risk of an IFD, whilst the risk for those with unreported smoking habits was significantly higher for intermediate than late fetal deaths.

In terms of obstetric variables, mothers with a history of one or more previous miscarriages, and those with a history of one of more previous induced abortions were at increased risk of an intermediate but not a late fetal death. If the pregnancy was a multiple pregnancy or if there was a previous low birthweight infant there was an increased risk for both IFD and LFD.
Conclusion: There are differences in socio-demographic and obstetric risk factors in relation to intermediate and late fetal deaths. Pacific Island women appear to be at greater risk of late fetal deaths, whilst smoking is a greater risk for intermediate fetal deaths. Whilst some obstetric variables are related to all fetal deaths, the risk of poor previous obstetric history in term of miscarriages and induced abortions is limited to intermediate fetal deaths.

206 (ST)

INCREASING UNEXPLAINED FETAL DEATH RATE AT A TERTIARY HOSPITAL

Vicki Flenady[1,2,5], Glenn Gardener[1,2,3,5], David Tudehope[1,2,4,5]
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Aims: To examine trends in cause-specific fetal death rates at a large tertiary maternity hospital using the clinical classification system (Perinatal Society of Australia and New Zealand Perinatal Death Classification Ü PSANZ-PDC) in order to identify areas where improvements might be made in the fetal death rate.
Methods: All singleton fetal deaths of (>20 weeks gestation) at the Mater Mothers' Hospital (MMH) for the period 1994-2004, were included. Over the study period, fetal deaths at the MMH were subject to systematic review and classification using the clinical classification system. Data were extracted from the MMH perinatal mortality database. Cause specific fetal death rates were examined in four epochs: 1994-1996; 1997-1999; and 2001-2004. Subgroup analyses were undertaken by public and private births.
Main results: Over the eleven year study period (1994-2004) there were 77 345 singleton births and 370 fetal deaths giving a fetal death rate (FDR) for singletons of 4.8/1000 births (5.7 public births and 3.4 for private). The autopsy rates for fetal deaths over this period were: 42% overall (46%, 35% and 47% for the three study time periods respectively) and 48% for unexplained fetal deaths (38%, 34% and 58% respectively). The autopsy rates were similar for public and private deaths. The overall FDR increased from 4.5/1000 in 1994-1996 to 5.4/1000 in 2000-2004 due to the FDR for public births which rose from 4.9 to 7.1/1000 births. The increase in the public FDR was largely due to the Unexplained antepartum death rate. While the trend in the Unexplained antepartum death rate was evident for both public and private births, it was more marked for public births where the rate rose from 1.2/1000 in 1994-1996 to 2.9 in 2000-2004. The rates of other classification categories did not appear to change substantially over this time period.
Conclusions: The rate of unexplained fetal death for public births has more than doubled over an eleven-year period at this large tertiary hospital. While small numbers in some subgroups renders meaningful exploration of the reasons for this finding difficult, the increase does not appear to be due to changes in investigation and classification processes. Possible changes in population characteristics (as yet unknown) at this tertiary referral hospital may have been a contributing factor.

207 (ST)

KEMH PERINATAL LOSS CLINIC - FOLLOW UP 2003-2004

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Introduction
The Perinatal loss service at KEMH sees patients with a perinatal loss from KEMH and other hospitals throughout the state. WA has around 170 stillbirths each year. The clinic is multidisciplinary to enable the patients to see various professionals including Fetal medicine specialist, midwife, neonatologist, psychologist, social worker, chaplaincy, and paediatric pathologist. The purpose of the clinic is to ensure complete/adequate investigation of the patients and provide them with feedback around 6 weeks after their loss. We have designed a database of the clinic to monitor the patients and to audit their management. The database records general demographic information, the main obstetric data, details of the clinic visit, investigations and also a cause of death according to the PSANZ classification.
Results
During the period 2003-2004 157 patients were seen with a pregnancy ending in perinatal death. 13 patients had multiple births. 33 cases were neonatal losses. The majority of the losses (108) were 20-27 weeks (81 from 20-23 weeks). 101 cases (66% of all pregnancy losses) had post mortem examination, and all except 9 had placental examinations.
The classification of the cause of death was 44 (28%) Premature labour, 33 (21%) Congenital abnormality, 24 (15%) Unexplained, 12 (7.5%) identified Infection.
Conclusion
The perinatal clinic is now an established part of perinatal loss care and has improved the investigation of patients after their loss. Around 50% of all patients with a perinatal loss in WA (population of 2 million) are seen by the clinic. There is a high post mortem rate compared with many centres at this time, and there is a reasonably low rate of unexplained stillbirths.

208 (ST)

KARYOTYPING OF STILLBIRTHS

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Background
It is estimated that the proportion of stillbirths caused by chromosomal abnormalities is 5-10%. Recent advances in cytogenetic technology have seen improved detection of some chromosomal abnormalities. The selection of stillbirth cases for cytogenetic testing based on the presence or absence of structural abnormalities or degree of maceration, however has demonstrated that as many as half of the cytogenetic diagnoses may be missed. Methods of cytogenetic assessment in stillborns include placental biopsy (antepartum or postpartum), membrane (chorion/amnion) biopsy, amniocentesis and the use of fetal tissues such as skin and cartilage.
Aims
To audit the rates of karyotyping of stillbirths and to assess the different techniques used for the karyotyping of stillbirths over an 8 year period in a tertiary maternity hospital.
Methods
All stillbirths (defined as fetal death occurring ?;20 weeks gestation) at the MMH over the period 1998-2005 which had cytogenetic analysis attempted were included. Stillbirth cases were identified from the MMH perinatal mortality database and data on karyotyping was extracted from the MMH Department of Cytogenetics database. Cases in which karyotyping had been performed prior to the diagnosis of stillbirth were excluded from the analysis. The success rates for karyotyping using different tissues were calculated.
Main results
Over the 8 year period from 1998-2005 there were 291 stillbirths eligible for cytogenetic investigation. Of those 154 (52.9%) underwent cytogenetic analysis. The rate of karyotyping of stillbirths per annum ranged from 20% to 88% with an average annual rate of 56.5%. Chromosomal analysis using placental tissue was the most common technique used accounting for 70.7 % of the total number of cases karyotyped. Skin was the next most common tissue used for karyotyping of stillbirths (33.5%). The success rate of placental karyotyping was 82.4% whilst for skin it was 21.2%. Of the total stillbirths karyotyped there were 13 (4.5%) with abnormal results.
Conclusions
Karyotyping of stillbirths using placental tissue has a greater chance of success than using fetal skin. Other techniques for the karyotyping of stillbirths using amniocentesis or other fetal tissues such as fetal cartilage require further investigation. The selection of cases for stillbirth karyotyping limits cytogenetic investigation of stillbirths and may miss important diagnoses. The findings of this study support the recommendations regarding cytogenetic investigation of stillbirths published by the Perinatal Society of Australia and New Zealand (www..)
Acknowledgment: We thank Maelle Morgan for assistance with data analysis for this study.

209 (HP)

REDUCE THE RISKS OF SIDS

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Though we still do not know the exact cause or mechanism of SIDS, enthusiastic epidemiological surveys have revealed several factors which may relate to the increment of the incidence of SIDS. Some of elucidated possible risk factors of SIDS are prone sleeping position, smoking of pregnant women and of care-giver, non-breast feeding and others. It was historically well documented that in 1990s the incidence of SIDS was significantly reduced by the instruction of risk factors to the public, especially to the family on child care. Same in Japan, one of the lowest SIDS of around 0.5 per 1,000 live births in 1990 was also reduced to 0.19 in 2003 by prevention campaign. I will present our experience and strategy to spread information of risk factors to the care-givers of young infants. I also talk on current controversy of child caring environments which may influence the incidence of SIDS, namely co-sleeping and pacifier from cultural view points. Lastly I will touch on child abuse related with SIDS, since not only both are difficult to differentiate clinically and pathologically but also both are overlapping in some cases, in which maltreatment might lead to the occurrence of SIDS. Ultimate reduction of SIDS should be based on establishment of mother-child bonding and on concept that we are caring most vulnerable living creature around us.

210 (HP)

REDUCE THE RISK OF THE SIDS

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The cause of SIDS remains elusive but over the last 15 years a number of important insights have been described. We now know many critical factors for this disorder including the baby's sleep position, exposure to smoke, and the temperature of the room during sleep.
Infant Sleep Position In the early 1990s, a number of studies including a critical one from Tasmania provided new insight into the role of sleeping position. As a result of these studies, the American Academy of Pediatrics recommended that infants be placed on their backs to sleep in order to reduce the risk of SIDS. As a result of these recommendations, prone sleeping decreased more than 70 percent and the number of SIDS deaths declined by more than 40 percent.
Exposure to Smoke If a mother smokes during or after pregnancy, she is placing her infant at a greater risk for SIDS. Although the increased risk is modest, this risk is readily prevented.
Overheating Some researchers have found an association of the amount of blankets, room temperature, and the time of the year with an increased risk for SIDS. The increased risk associated with overheating is particularly clear when infants are placed in the prone position to sleep.
Infant Bedding Soft bedding may have a role. This risk might be explained by easier occlusion of the airway or rebreathing of carbon dioxide. Thus a hard mattress is recommended.
Maternal Risk Factors Maternal health has been the subject of intense research. These factors are less clear but a healthy mother/child have less risk of SIDS.
Pacifiers Recently pacifiers have provoked a lot of interest. Several studies have all described a protective effect of pacifiers. This is particularly true when they are used just before going to sleep at night.
Cosleeping The practice of infants cosleeping with adults has long been the subject of controversy. This practice increases the risk of suffocation and strangulation

211 (HP)

CHANGING PATTERN OF OBSTETRIC PRACTICE FROM 1994 TO 2004 IN RELATION TO EARLY NEONATAL SUDDEN DEATH SYNDROME

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In a Japanese obstetric institution, it is common that a mother and her baby are hospitalized together for puerperal period of approximately 5-7 days. In the puerperium, some institutes promote rooming-in just after birth, some adopt separation of mother and baby in the different room, and others make them alongside only in the daytime. One of the risk factors of sudden infant death syndrome (SIDS) is not being fed with breast milk. Androoming-in of mother and the baby during the puerperium is an essential step towards the establishment of breast-feeding.
On the other hand, several cases of neonatal SIDS have been reported in the recent literature, and now there is the consensus that SIDS could occur even in the early neonatal period.
We sent questionnaires to ask the occurrence of early neonatal SIDS to the obstetrics of almost all hospitals in Japan and compared the result with that of the same survey conducted ten years ago. Based on the answers of the both questionnaires, we would like to talk about the Japanese present state of early neonatal SIDS and discuss the way of neonatal management and its correlation with early neonatal SIDS in Japan.

211-A (HP)

THE SYNERGISTIC RISK OF SLEEPING IN A PRONE POSITION WITH THE INITIAL STRESS OF BEING KEPT IN A DAYCARE FACILITY

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The cause of SIDS is not entirely clear; but, sleeping in a prone position, smoking, formula milk, and being too warm have been brought up as risk factors, and as you know have contributed to the decrease in SIDS.

Meanwhile according to overseas reports, the frequency of young parents taking their infants on trips or outdoor excursions has increased, and the instances of SIDS deaths outside of the home are on the rise. This is a warning that babies, who are unable to speak, have become fatigued without realizing it, and are at an increased risk of SIDS.
Also from the American Pediatric Society there is indication that many SIDS cases are occurring when babies are sleeping in a prone position when first being kept in a daycare environment. Although there is no data in Japan that proves those statistics, there are existing statistics and experiences that suggest SIDS cases are occurring when first being kept in a daycare environment.
Judging from these:
1. The accompanying stress of environmental changes when beginning daycare, and its relation to SIDS.
2. The influence of overlapping risk factors (sleeping in a prone position when an infant is beginning daycare).
3. For SIDS cases occurring in a daycare environment, with regard to the process of first starting daycare, we must seek large scale data collection and analysis as much as possible in Japan.

212 (HP)

HEALTH PROMOTION WITH HIGH-RISK FAMILIES: RISK REDUCTION FOR SIDS AND FATAL INFANT SLEEPING ACCIDENTS

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Introduction: With the reduced incidence of sudden unexpected death of infants in Australia, high-risk families are now more prevalent among the SIDS population. High-risk groups are hard to reach with universal health promotion such as the SIDS and Kids Safe Sleeping program.
High-risk families include those in situations of socio-economic deprivation, lone parenthood, unemployment, young parental age and less than 12 years education. Aboriginal infants in Australia have a five times increased risk than non-Aboriginal families. In addition to the well promoted risk factors, other risk factors may be present including, low birth weight, prematurity, intrauterine growth retardation, adolescent motherhood, mental or physical disability, chaotic, transient and/or violent family situations, drug abuse, unsafe, makeshift sleeping arrangements and bed sharing with adults affected by sedating medication and/or illicit drugs.
Following a proposal by the Victorian Child Death Review Committee, the Department of Human Services in the state established a Child Death Group Inquiry to explore the promotion of infant safe sleeping with high-risk families under the attention of the Child Protection Service.
Method: The Group Inquiry Panel conducted focus groups and a consultative forum with health and allied professionals from child protection and allied health services including, antenatal, birthing, postnatal domiciliary support, teenage pregnancy, drug and alcohol, mental health and disability services. The Panel also examined in detail the files of eight infants who died of SIDS in 2002.
Results: High-risk parents and their infants are often involved with specialist community agencies. While some of these agencies incorporate and tailor safe sleeping advice and support to their specialist practice context: some did not provide infant safe sleeping education at all. Health and allied professionals may have 'blind spots' which obstruct the promotion of infant safe sleeping with high-risk families, for example, professional assumptions about SIDS and risk reduction practice. Poor attendance of parents at antenatal care and late presentation at the birthing hospital; special factors in discharge planning arrangements and; a lack of frequent and consistent modelling of safe sleeping in maternity services contribute to heightened risk. Increased professional awareness of the special issues associated with the unsafe sleeping circumstances of high-risk infants is an important task.
Conclusion: A systemic model of health promotion with high-risk families is required to take account of special circumstances of high-risk families, the nature of their relationships with helping professionals and the quality of the communication involved.

213 (HP)

SUDDEN AND UNEXPECTED DEATH IN INFANCY: CAN HEALTH PROFESSIONALS BRIDGE THE GAP BETWEEN EVIDENCE AND PRACTICE?

Denise A Thomas
National SIDS Council of Australia

There is strong evidence to show that most sudden and unexpected deaths in infancy can be prevented with simple modifications of an infant's sleeping environment. However, it is clear from the analysis undertaken of parental practices in Australia that a substantial number of infants under one year of age continue to be exposed to risk factors for SIDS and SUDI. 1.2
Several Australian government and non-government reports have highlighted some alarming issues:

- There are serious gaps between the available evidence and current infant sleeping practices. 3
- Almost 90% of SUDI could be prevented if parents avoided the risk factors. 1
- Parents copy sleeping practices modelled by health professionals. 4
- Many health professionals employ suboptimal infant care practices either because they are not aware of, do not fully understand or choose to ignore the safe sleeping recommendations. 5,6

We already know how to prevent most sudden and unexpected infant deaths and we know that the SUDI rates will continue to fall if parents practice the safe sleeping recommendations. Health professionals are the key to bridging the gap between evidence and practice, but in order to do so the lack of knowledge and attitudinal differences must be addressed.

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214 (HP)

ASSESSING THE IMPACT OF A MULTI-MEDIA CAMPAIGN ON CO-SLEEPING ADVICE

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Unlike the simple advice to sleep baby supine, the Reduce the Risk of SIDS message in the UK concerning co-sleeping is complex and potentially confusing: never co-sleep on a sofa; if certain conditions pertain, don't co-sleep on a bed; otherwise it's ok, even preferable according to some agencies, except that it is also agreed by all that the risk of accidents means that the safest place for a baby to sleep is in a cot by the side of the parents' bed. No wonder so many calls to the Helpline of the Foundation for the Study of Infant Deaths (FSID) are from parents and health professionals seeking clarification of bedsharing advice.

The complexity of the message is at present unavoidable - research shows that a number of factors increase the risk of sudden infant death in co-sleeping situations, including if either parent is a smoker, has drunk alcohol, taken drugs that make them sleepy, or the baby was premature or low birthweight, or if the parent sleeps with the baby on a sofa; and accidental death may occur even in the absence of risk factors if the parent rolls onto the baby or the baby falls out of bed or gets caught between the wall and bed. One study found that 50% of sudden unexpected infant deaths involve co-sleeping, ie about 150 deaths in the UK each year.

FSID launched a high-profile information campaign targeted at parents, but also midwives and community nurses as they are so well-placed to pass information on to parents, in order to communicate as clearly as possible the reduce the risk message on co-sleeping. The campaign, including mass media work, mailings to all maternity units, and production of information posters and cards distributed in their hundreds of thousands, was launched in May 2005. A year before the campaign FSID conducted a survey of parents of babies to assess knowledge of the risk factors in co-sleeping, and repeated the survey 6 months after the campaign launch.

The results suggest the campaign had a beneficial impact on improving public knowledge of co-sleeping risk factors, eg among smokers, the proportion who said they usually co-sleep with their babies dropped by a third. Full data will be presented at the conference, plus details on the components of the campaign, providing a case history of an attempt to deal with a complicated but important pulic health message.

215 (P)

COLOR COMMUNICATION

Yoshiko Sugihara
World Children's Crayon Fund, Japan

It is said that “color is the language of our souls.” Your soul can be felt even through the casual use of colors. Working in pairs, we will communicate with each other using only colors. Parent/child, couples, grandparent/grandchild, business colleagues, and any two people can participate. Through colors you will undoubtedly begin to see a change in the communication that takes place between two souls.

216 (P)

TERMINAL CARE IN PERINATAL PERIOD

Toru Takeuchi
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Terminal care has primarily been a phrase used with reference to final stage cancer patients. Recently in this country, paliative care, or in other words hospice-type care, is getting greater notice since there has been a transition from cure to care, as well as greater emphasis on creating balance between these two.

According to the WHO definition,palliative care is the active and total care for patients who show no response to medical aims at cure and places priority on the control of pain and other symptoms,as well as care of psychological/social/spiritual problems. The goal of palliative care is to improve the quality of life of the patients and their families.I it also applies to all processes of cancer treatment.

Meanwhile, with regard to terminal care in perinatal period, there has been no discussion in our Japanese institutions until now, and it has been merely carried out at the discretion of each individual facility. Finally discussion has started and problem areas are coming to light.When thinking about terminal care for newborns, a point worthy of note is that parents are in fact the acting representatives of the child, and doctors and parents must make a decision to treat from the “best interests of the child” standpoint. But the core of terminal care in perinatal period includes babies and their families. Based on the above points, it is a complicated and specific situation, and has a different side to it than the palliative care of cancer patients. In English speaking countries,palliative care or comfort and palliative care for newborns has been recently and at long last actively introduced as an important part of neonatal care.

Within Japan, a blend of conventional NICU 'palliative care' and 'terminal care (deathbed care)' has been proposed by Dr. Funato et al., and the Ministry of Health and Labor Research Group Report 2004.

Using the above perspectives, in this lecture I will discuss 'palliative and terminal care' considering the parents, and particularly concentrate on the corresponding approach before and after the introduction of these cares.In addition, I will take up terminal care and bereavement care, especially in regards to parents following perinatal death and clarify the issues resulting from an analysis of a nation-wide bereavement care survey.

217 (P)

ALLIANCE OF GRANDPARENTS, SUPPORT IN THE DEATH OF A GRANDCHILD

Sandra S Graben
Alliance of Grandparents, A Support in Tragedy (AGAST), USA

The death of a grandchild creates such suffering in a family that the entire family can fall apart emotionally. It is incumbant upon the older, more experienced generation to hold the family together and ensure all understand the death of the child is not a person's fault. Grandparents, as the oldest, are frequently looked at as the “backbone” of the family and expected to remain strong in times of great stress.

Tragically, at this time when the family is looking for direction and support, grandparents are experiencing a double grief, the death of their grandchild and the “loss” of their child. The parent, THEIR child, will never be the same.

It seems because of the mobility of families grandparents are not “next door” when the death of a grandchild occurs. Sometimes, the grandparents have not seen the grandchild, which adds to the emotion of guilt for not being “there” for the child (the parents). There is a need for emotional help for grandparents so that they are able to be the “backbone” for the family.

AGAST was started to support grieving grandparents, helping them to cope emotionally,regardless of their geographical location, enabling them to be a support to the family during this crisis.

This support for the child (the parent) will cycle to their child's children (their grandchildren) so all generations can better cope during this period of mourning.

218 (P)

GRIEF OF THE FAMILY, COUPLE'S GRIEF

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Bereaved parents were reluctant to talk of their interactions with their deceased children in the presence of people. When the experiences are normalized in settings such as self-help group meetings, they eagerly share the experiences as good parts of their lives. The data are drawn from a long-term study of the Gentle Breeze, a self-help group of parents whose child have died.

219 (P)

CHILDREN'S WAY OF EXPRESSING OF GRIEF

Eline Grelland
Ulleval University Hospital, Grief Support Center, Norway

In my work with theorising grief and with working in bereavement support with small children in Norway I try to challenge the understanding from developmental psychology and crisis theory about children and grief, which is very age-related and based on the ability to verbalise feelings and experiences of loss. I do believe we also need to focus on some other aspects to make sure we strive to capture the diversity in how childeren do their expressions of grief in their daily life.
We need to consider the way we understand children and children's own perspective. To take the child's own perspective, is seeing the child as a meaning making subject independent of age.
The grief literature urges us to speak with children about their experience of loss, and to make the child verbalise their feelings. I believe we also need to see silence as a powerful way of expressing grief, and not only as a lack of competence to speak. We need to be open for that silence in children could be seen as a way of communicating feelings that do no translate to speech.
I see my work with bereaved children as a job in the service of the moment. To speak about loss, usually do not mean a long verbal conversation. To speak about loss, may take a glimpse of a moment and can take many formes besides the verbal. To look at a picture, to light a candle, to make a drawing, to visit the grave, is also to speak about loss.
We are bodily subjects of being. We experience everything as a body and not just as a mental self. Children carry their grief within their body at all times and may express this by body language. I believe children use their body language to regulate their capacity to mourn, by mechanisms such as resistance and the right to be opaque.
I see the need to take our understanding of grief futher, and to consider the way children express grief in their daily life, and see grief as something we do and not only as a feeling we have. In the future we need to embrace diversity in descriptions of children and grief, and learn more about cultural diversity such as within minority groups.

220 (P)

MEMORY OF MY YOUNGER BROTHER AND MY MIND

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9 years ago on June 6th,my brother who was 2 years younger than me passed away suddenly when he was 2 years and 6 months old.
I only have fragmented memories of when he was alive.
After his death my mother was crying for him in front of our family Buddhist altar almost everyday. And she was quarrelling with my father, and saying that she wanted to go be with my brother,
He comes to mind and I think of him more now that I am in Junior High School than when I was younger, and it brings me to tears.
I wonder why he had to pass away even though he didn't have any particular disease. Why did he have to die? Was it his destiny? This word always stays in my mind.

221 (S)

GENETIC MAPPING OF AN AUTORESUSCITATION DEFECT IN SWR/J MICE

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Autoresuscitation is a highly conserved response in all mammals that allows survival of transient hypoxic episodes. Defects in autoresuscitation contribute to sudden infant death syndrome (SIDS), but the molecular mechanisms involved in defective autoresuscitation remain unknown. While autoresuscitation occurs normally in most inbred mouse strains such as BALB/cJ, we had previously found that mice of the SWR/J strain fail to autoresuscitate during a critical developmental window of nineteen to twenty-two days of age [J. Appl. Physiol. 71, 1098 (1991)]. As such, this model is one of a very few animal models for SIDS. Mammals will survive a characteristic number of repeated autoresuscitation trials where hypoxia is reintroduced immediately upon successful autoresuscitation. In our study, BALB/CJ mice survived an average of 7.27 +/- 1.55 autoresuscitation trials, while SWR/J mice uniformly failed to autoresuscitate a single time. BALB/cJxSWR F1 and F2 mice exhibited a range of autoresuscitation trials survived that was consistent with partial genetic dominance. To determine whether the SWR/J autoresuscitation defect could be linked to a discrete number of chromosomal loci, we attempted mapping quantitative trait loci (QTL) to the failure to autoresuscitate phenotype using polymorphic microsatellite markers in intercross BALB/cJxSWR/J F2 mice. Loci on chromosomes 10, 11, 12, and X had linkage significant at the five percent confidence level to the number of autoresuscitation trials survived. Furthermore, we determined the autoresuscitation phenotype of strains closely related to SWR/J. Two distinct autoresuscitation phenotypes were observed in the most closely related strains: twenty-five percent of FVB/N mice failed to autoresuscitate once, and the average number of trials survived in NOR/LtJ mice was significantly decreased. In contrast, strains more distant from SWR/J exhibited an identical phenotype to that of the BALB/cJ mice. These results suggest that the failure of autoresuscitation in SWR/J mice is determined by a discrete number of loci, and that these loci can be identified through additional genetic mapping and sequence comparison in the related strains. Identification of these loci will provide the basis for future studies into the molecular mechanisms of autoresuscitation in humans and potential defects that contribute to SIDS.

222 (S)

AROUSAL PATHWAYS AND PRONE SLEEPING IN INFANTS

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Background: Impaired arousal responses from sleep may play an important role in the pathogenesis of Sudden Infant Death Syndrome (SIDS). Two distinct types of arousal have been defined for infants between 1 and 6 months of age: sub-cortical activation which involves heart rate, respiratory and behavioural changes; and full cortical arousal, which also includes electroencephalographic (EEG) changes. A recent study showed that infants who subsequently died of SIDS had fewer cortical arousals and more sub-cortical activations than controls and thus appeared to have had incomplete arousal responses.[1] We hypothesised that prone sleeping, a major risk factor for SIDS, could similarly modify arousal pathways. We aimed to investigate the effects of prone sleeping on the nature of arousal in healthy infants.
Methods: Daytime polysomnography was performed on 13 term infants longitudinally at 2-4 weeks, 2-3 months and 5-6 months postnatal age. In prone and supine sleeping positions, a pulsatile jet of air to the nostrils was used to induce arousal. Sub-cortical activations and cortical arousals were expressed as percentages of the total number of arousal responses. Data were compared with Chi-square analysis to assess the effects of sleep state and position.
Results: At 2-4 weeks and 5-6 months, there was no difference between sleeping positions in the types of arousal observed in either sleep state. At 2-3 months the prone position was associated with more cortical arousals compared to supine, in both AS (33% versus 5%, $p<0.001$) and QS (32% versus 0%, $p<0.001$). Additionally, in the prone position at 2-3 months, the percentage of cortical arousals was elevated during both AS and QS when compared to 2-3 weeks (9% and 5% respectively, $p<0.001$) and 5-6 months (7%, $p<0.01$ and 4%, $p<0.001$ respectively). The proportions of each arousal type did not differ between sleep states at any age. Furthermore, there were no differences in the latency to arousal or duration of cortical arousals between positions or sleep states.
Conclusions: The prone position is associated with altered arousal responses in infants at the age when SIDS risk is greatest. We postulate that in healthy infants this may be a protective mechanism to promote complete arousal in a vulnerable sleeping position and/or period of maturation.

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223 (S)

DECREASED AUDITORY AROUSAL RESPONSES IN SMALL FOR GESTATIONAL AGE INFANTS

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Introduction: Infants born small weight for gestational age (SGA) are at higher risk for Sudden Infant Death Syndrome (SIDS). The relative risk of an infant being born SGA is increased by the influence of maternal smoking, and maternal smoking, after adjustment for SGA, increases the risk of SIDS. Failure in arousal mechanisms is regarded as one of the causes of SIDS.
The purpose of this study is to evaluate the auditory arousal responses of infants born small for gestational age to smoking and non-smoking mothers.
Methods: Sixty-eight healthy infants, born at term, with a median age of 10 weeks (range 4 to 18 weeks) were recorded polygraphically during one night. Thirty-four infants were born to mothers who did not smoke and 34 were born to mothers who smoked (> 5 cigarettes per day). In each group, 16 infants had small for gestational weight for gestational age. The infants slept in their usual supine position. The infants were exposed in REM sleep white noises of increasing intensities from 50 to 100 dB (A) to determine arousal thresholds, defined as the auditory stimuli that induced cortical arousals.
Results: The auditory arousal thresholds tended to be higher in SGA than appropriate weight for gestational age (AGA) infants in both smoking infants and non-smoking infants. When infants form smoking and non-smoking mothers were pooled together, more intense auditory stimuli were needed to induce arousals in SGA infants than AGA infants (p=.05).
Comparing infants from smoking to non-smoking mothers, the auditory arousal thresholds tended to be higher in smoking infants than non-smoking infants in both SGA and AGA groups. But these findings did not reach statistical significance.
Conclusion: The prenatal risk factor to be born small for gestational age appears to be the key factor in enhancing auditory arousal thresholds, irrespective of maternal smoking habit.

224 (S)

SUDDEN DEATH IN INFANCY AND SLEEPING ENVIRONMENT: HOW TO QUANTIFY THE RISK OF O_2 DEPRIVATION

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Objectives: Many infants are found dead in a face-covered position, including prone sleeping. We assessed the change of fractional concentration of inspired CO_2 ($FiCO_2$) and O_2 (FiO_2) using a baby mannequin model, and tried the quantitative assessment of Japanese bedding in fatal cases.
Materials and methods: The mannequin was connected with a respirator set on the tidal volume and respiratory rates matched with the baby's age. Before measuring, CO_2 flow was regulated in 5.0+/-0.1% of end-tidal PCO_2. After the model was placed in the reproductive bedding condition of fatal cases, any increase in $FiCO_2$ was measured. FiO_2 in a potential space around the mannequin's nares was estimated using a formula: FiO_2=0.21-$FiCO_2$/RQ. We used the respiratory quotient (RQ) value of normal human, 0.8.
Results and Conclusions: 10 fatal cases were assessed. In 2 cases (one is supine and the other is prone.), there was a little decrease of FiO_2. In 2 face-covered prone cases, there was moderate decrease of FiO_2. In 6 cases (one is supine and the others are prone.), theoretically FiO_2 was decreased less than 8.5% and it might be mentioned that these cases are correlated with asphyxia. In these 6 cases, a rapid decrease of FiO_2 was shown immediately after starting breath simulation. FiO_2 showed less than 10% within a few minutes. The simulation of the rapid decrease in FiO_2 highlights the potential for environmental suffocation and suggests that one should consider the role not only of CO_2 accumulation but also of O_2 deprivation around the face.

225 (S)

INTERMITTENT HYPOXIA IN SUPINE VERSUS SIDE POSITION IN 0-5 D OLD TERM NEONATES

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Introduction:
Supine sleeping is recommended to prevent sudden infant death syndrome (SIDS). Anecdotal evidence, however, suggests that cyanotic episodes are more common in neonates sleeping supine. We wanted to determine whether intermittent hypoxia is indeed more common in supine vs. side position in term neonates.
Methods:
We enrolled 0-5 day old term neonates in a controlled 2-phase cross-over study design. They were randomised to sleep, for 6 h each, either in supine followed by side position or vice versa. SpO2-values and a signal quality indicator were recorded throughout (VitaGuard VG 300 with Masimo SET, Irvine, CA: 2-4 s averaging). Only recordings lasting at least 3 h in either position were included. Desaturation events to <85% and <80% SpO2 were analysed, excluding events with poor signal quality.
Results:
609 infants were enrolled into the study; 476 neonates had recordings of sufficient duration. Mean duration of analysable signal was 4.9 h for each position. 38% and 75%, respectively, of infants showed no desaturation to <85% or <80%. The average desaturation rate to <85% SpO2 per hour for the entire group was 0.40 in supine and 0.32 in side position, yielding an event ratio of 1.26 (95% confidence interval (95%CI), 1.14-1.39). Corresponding figures for desaturations to <80% SpO2 were 0.11/h vs. 0.05/h (event ratio 2.08; 95%CI: 1.67-2.59).
Conclusion:
There was an increase by 26% in desaturation rate to <85% SpO2 and twice as many desaturations to <80% SpO2 in supine compared to side sleeping position. Most infants (75%), however, had no desaturation to <80% in either position. Whether this effect of sleep position on intermittent hypoxemia in neonates has any long-term effect remains, at present, unknown.

226 (S)

POSITIONAL ASPHYXIA AND SIDS

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Introduction: SIDS is a silent, unexpected, asphyxial death during sleep in healthy infants, most often between 2-4 months of age, recorded since Biblical times.
Infants 'grow out' of the 'at risk' age range. Thus the infant itself - it's anatomy, physiology, and development - will likely hold the key to SIDS vulnerability.
Infants have large heads extending posteriorly behind the spinal line, mobile mandibles with lax tempero- mandibular articulation, large tongues filling the oral space so that breathing is usually entirely nasal unless they are crying or gasping. Posterior movement of jaw and tongue can produce airway obstruction.
Premature infants are known to suffer hypoxia when in car seats. This might be due to falling forwards of the head onto the chest when the seat has its back at 450 to horizontal as is required by law when in cars. In this situation pressure on the chin by the baby's own chest can cause posterior displacement of the tongue into the airway causing positional asphyxia.
Aim: We aimed to demonstrate that head position relative to the body could lead to airway obstruction and thus produce positional asphyxia.
Method: 17 premature infants ready for discharge were studied in conventional car seats and then with a foam plastic insert which raised their torsos forwards and allowed the physiological head position with the chin away from the chest.
Results: 14 infants displaced their mandibles posteriorly and most desaturated when at 450 to horizontal -; synchronous radiographs showed upper airway narrowing or closure. Problems were resolved with the foam plastic car seat insert.
Repetition of the study on full term infants is giving similar results. Some infants have maintained oxygenation with head flexion during Quiet sleep, but desaturated rapidly in Active sleep (REM).
This mechanism of positional obstructive asphyxia could explain many Life Threatening Events and SIDS when infants are in infant seating devices (eg. car seats, strollers), prone sleeping, held by adults, co-sleeping, or pressing up against an object during sleep, or overflexing the neck.
It is important to realise that it is as dangerous to press the infant's chin backwards as to cover the nose.

227 (S)

HEAD COVERING EVENTS AND INFANT SLEEP POSITIONS DURING BEDSHARE SLEEP

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Case-control studies have identified factors associated with bedsharing that increase the risk of SIDS. However, these studies are not able to describe the dynamic nature of sleep positions or adult-infant interactions through the night. The aim of this study was to provide a quantitative analysis of head covering events, describing maternal and infant practices surrounding these events and to document infant and adult sleep arrangements during overnight sleep in the home setting.
Methods: Forty infants who regularly bedshared with at least 1 parent >5hours/night were recruited. Overnight video of the family and physiological monitoring of the infant was carried out in infants' homes. Infant sleep position, head covering and uncovering, breastfeeding and movements, family sleep arrangements, and interactions were logged.
Results: All infants slept with their mother. Fathers were included in 18 studies and siblings in 4. Infants slept beside the mother (median: 71% study time, IQ range 52-86%), with head at mothers' breast level (6.1h, 2.4-8.4). Mean breastfeeding duration was 40.5 min/night (26-103). 110 head covering events were identified from 22 infants. 80% resulted from inadvertent movement of adults - 15% after feeding, The remainder were due to infant movements. Infants cleared their own face (32% events) and prompted clearing by the mother (36% events). Mothers deliberately cleared the infant's face, whether prompted by the infant or not (35% events), and inadvertently did so (23% events). 16% of infant arousals from head-covering led to feeding. On final waking 5/22 infants were head-covered. Head uncovering occurred >30 minutes before final waking for 12 infants. Mothers and infants slept on their side, commonly facing each other, and usually woke in this position. Short periods of prone sleep occurred for 5 infants (range: 1.6-3.0h), all beginning on the mother's chest, 3 after feeding. One infant was placed prone in the bed (3.5h). 1/40 side-sleeping infants rolled to prone (1.6h) when the mother moved.
Conclusion: The mother-baby relationship is of prime importance during bedsharing. Sleep positions appear to facilitate breastfeeding. Head covering on waking does not reflect the frequency of events during sleep. Head uncovering commonly relies on the ability of mothers to arouse with little stimulation. Mothers, perhaps impaired by alcohol, smoking or overtiredness may not be able to respond appropriately. Risks associated with sleeping on the side during bedsharing and prone on the mother's chest are unclear. Future studies targeting these practices may shed light on factors associated with bedsharing and SIDS.

228 (S)

CAN TRADITIONAL CARE INFLUENCE THERMOREGULATION: A PROSPECTIVE CONTROLLED STUDY OF THE EFFECTS OF SWADDLING ON INFANTS THERMAL BALANCE IN A MONGOLIAN WINTER

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Background. The role of thermal stress in Sudden Infant Death Syndrome (SIDS), though increasingly recognised, remains controversial.
Traditional infant care in Mongolia, a culture in which SIDS is uncommon, includes tight swaddling in multiple layers, including partial head covering with hats, during both day and night, throughout the winter when outdoor temperatures commonly fall below -40C. Infants usually sleep under adult bedding, in the same bed as mothers, and swaddling is usually continued until around 7 months of age. Many families live in traditional circular single-room tents called Ger with extended families.
Objective: To investigate thermal balance at home of infants in a Mongolian winter, and to compare the effects of swaddling with use of an infant sleeping bag of equal thermal resistance.
Methods: 1274 healthy term newborns were randomly allocated to swaddled or non-swaddled groups (using sleeping bags of equivalent thermal resistance), within 48 hours of birth. Digital recordings of infants core, peripheral, environmental and micro-environmental temperatures at 30-second intervals, were made from 40 swaddled and 40 non-swaddled infants over 24 hour periods, at ages 1 and 3 months. Mothers recorded logs of infant activity and wrapping.
Results: A very wide range of indoor temperatures was recorded, particularly for infants living in Gers, where night time room temperatures below 0 C, and daytime temperatures above 25 C were seen, but infants temperatures were within the normal range. In apartments, room temperatures remained between 16 C and 22 C, but parents used similar wrapping. Despite the temperature differences between Gers and apartments ($p<0.0001$) preliminary analysis suggests that infant core, peripheral and micoenvironmental temperatures were no different, and no differences were found between swaddled and non-swaddled infants. Diurnal falls in overnight infant core temperatures, with larger falls in older infants, were not affected by the minimum environmental temperatures. Further, more detailed results will be presented.
Discussion. Traditional infant care practices in the harsh environmental conditions of the Gers, or the conditions in the apartments, which were very similar to our previous measurements in homes in the UK, did not compromise thermal balance for healthy infants, despite very heavy wrapping, head covering, and bedsharing under heavy bedding with parents. The significance of these observations for thermal care recommendations for normal infants in other cultures is not clear.

229 (S)

RELATIONSHIP BETWEEN GASTROESOPHAGEAL REFLUX AND CARDIORESPIRATORY EVENTS IN INFANTS WITH PREVIOUS APPARENT LIFE-THREATENING EVENTS

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Objective
The Gastroesophageal Reflux (GER) is considered one of the most relevant trigger of Apparent Life-Threatening Events (ALTE), even if quite often the GER diagnosis is only established on the basis of infants symptoms. The purpose of this study is to evaluate the temporal relationship between Gastroesophageal Reflux and cardiorespiratory events in infants with previous Apparent Life-Threatening Events.
Methods
We evaluated 228 full term infants (121 male) median age 10 weeks (between 2 and 44 weeks) who had presented Apparent Life-Threatening Events. All those infants were simultaneously investigated with oesophageal 24 hour pH monitoring (distal and proximal oesophagus - Ph-day, Memphis-) and polygraphy (ECG, chest wall motion and oxygen saturation -Vitaguard 3000, Flaga).
In order to analyse pH monitoring results, recommendations from North American Society for Pediatric Gastroenterology and Nutrition (2001) have been followed thus identifying infants affected by GER (R+) and not affected ones (R-).
We have considered as Cardiorespiratory Events:
1) oxygen saturation falls below 89%
2) central apnoeas longer than 20 sec.
3) falls in heart rate to < 80 beats/min or to < 70 beats/min in relation to the age (>1 month or <1month of age).
Have been considered as Cardiorespiratory Events related to Reflux (CERR), all events recorded within the 3 minutes preceding or the 3 minutes following pH oesophageal falls to < 4.
Results
Of the 228 infants evaluated 21 resulted as R+ (9,21%) while only 3 infants presented CERR (1,31%).
Two out of 21 R+ infants (9,5%) presented desaturation events in tight temporal relationship with acid reflux.
One infant R- (0.48% of infants R-) presented a short periodic breathing phase followed by oxygen desaturation (SaO2 to 73%, pH to 2,6).
Conclusions
This study confirms the slight relationship between Gastroesophageal Reflux and Cardiorespiratory Events.
A relationship has been found in a limited amount of subjects. We suggest that in absence of accurate instrumentals examinations the diagnosis of Apparent Life-Threatening Events secondary to Gastroesophageal Reflux might be changed into Apparent Life-Threatening Events And contemporary Gastroesophageal Reflux.

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HEART RATE AND BLOOD PRESSURE RESPONSES TO HEAD-UP TILTS IN SLEEPING INFANTS

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Introduction: Prone sleeping is a major risk factor for Sudden Infant Death Syndrome (SIDS). An uncompensated hypotension may play a vital role in SIDS, however to date the definition of blood pressure (BP) and heart rate (HR) control in the prone sleeping position has been limited by the difficulty in measuring BP continuously. We have validated new technology to non-invasively and continuously measure BP in sleeping infants (Finometer ™ FMS, Netherlands) and used it to determine the effect of sleep state and sleeping position on baroreflex control of BP.
Methods: Term infants (n=13; birth weights: 3587 ± 33g, mean ± SEM) were studied with daytime polysomnography at 2-3mo postnatal age. BP was recorded continuously (Finometer™) with a photoplethysmographic cuff placed around the infant's wrist. Head-up tilts were performed and recorded in two min epochs (1 min control / 1 min tilt) during active sleep (AS) and quiet sleep (QS) in both the prone and supine positions.
Data Analysis: Mean arterial pressure (MAP) and HR were obtained on a beat-beat basis by peak detection (Chart5, ADInstruments,

Australia). Data were expressed as % change from baseline values averaged over 30 beats prior to the tilt. Tilt responses were assessed by calculating the initial maximum change from baseline values within 30 beats post-tilt. BP and HR responses were compared between sleep states and positions using paired Student's t-tests.
Results: HR and MAP changed significantly from baseline values post-tilt, verifying the stimulus as an appropriate cardiovascular challenge. The patterns of MAP and HR responses were similar in both sleep states in each of the sleeping positions. During QS (n=12), the MAP response was significantly greater in the supine (+4.4 ± 1.0%) compared to the prone position (-2.6 ± 2.1%, $p<0.05$); there was no effect of position on HR responses. Similarly, during AS (n=7), the MAP response was greater in the supine (+6.2 ± 1.6%) compared to prone position (-0.1 ± 2.9%), though this difference was of marginal significance ($0.1>p>0.05$). In prone sleeping BP failed to recover to baseline within the 1 min test period in both sleep states.
Conclusions: This is the first study tracking beat-beat MAP and HR during a cardiovascular challenge in infants sleeping in the prone position. Prone sleeping significantly diminishes MAP responses induced by a postural change. Decreased autonomic responsiveness to a cardiovascular challenge in the prone position may play an important role in the underlying mechanism for SIDS.

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OXYGEN DESATURATION DURING NASAL OBSTRUCTION IN UPPER AIRWAY INFECTIONS IN INFANTS

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Objective
80-90% of SIDS-victims showed an infection prior to death (Vennemann 2005). During the first months of life infants primarily are nose-breathers. Frequently infections of the upper airways are accompanied by a stuffed nose and cause multiple sleep disruptions. Nasal obstruction may lead to partly or completely obstructed airways. We hypothesized that respiratory infections are accompanied by multiple oxygen desaturations and heart rate accelerations reflecting subcortical arousals.
Methods
We examined oxygen saturation by using a mobile pulse oximeter (Masimo Radical, Getemed Vitagard 3100) by overnight recording. The analysis of the O2-plethysmogram and the heart rate was partly performed by using Download 2001.
Results
We studied 21 infants during the 3rd week and the 12th month of life from October until February 2005 with sleep disturbance by a stuffed nose during an upper airway infection. There was no history of coughing and fever and no clinical sign of pneumonia.
In 12 of the 21 infants we found multiple O2-desaturations during 6 to 12 hours recording time. Mean O2-saturation was 98%+/-0.6 SD, O2-desaturation reached a minimum of 81.8%+/-6.6 SD. The number of O2-desaturation dips >4% per hour correlated with age ($p<0.02$): the younger the infant, the higher the rate of dips. Moreover the more dips the infants showed the more pronounced the O2-decline was ($p<0.01$).
In younger infants we found a higher percentage of sleep time spent with low oxygen levels <90% ($p<0.02$). A high number of O2-dips was observed during lower mean oxygen levels ($p<0.05$). Most of the dips were associated with a sudden heart rate increase. During the first three to four months of life nasal obstructions by a stuffed nose was associated with multiple O2-desaturation.
Discussion
Our results indicate a high incidence of repetitive O2-desaturation during infections of the upper airways accompanied by nasal obstruction particularly during the first three months of life. The frequently observed O2-desaturations usually remained moderate, however, there is evidence that repetitive O2-desaturation is associated with a developmental delay at the age of one year (Hunt 2004). Moreover sleep deprivation, which is associated with nasal obstruction in young infants, is a risk factor for SIDS (Franco 2004) as repetitive hypoxia is (Saugstad 1998).
We speculate that repetitive nasal obstruction during upper airway infections might diminish the quality and intensity of self defence mechanisms (cardio respiratory arousal, sighs and startles (Wulbrand/Thach 1998)). This could increase the risk for SIDS, particularly if caused by positional airway obstruction.

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PROLONGED APNEA AND PROLONGED BRADYCARDIA FOLLOWING DTAP IMMUNIZATION IN PRETERM INFANTS: A RANDOMIZED MULTICENTER STUDY

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Introduction. The American Academy of Pediatrics (AAP) recommends the immunization of preterm infants at two months chronological age with the diphtheria-tetanus-acellular pertussis (DTaP) vaccine, regardless of birth weight and gestational age. However, several investigators, employing historical controls and subjective observations, have reported an increased incidence in prolonged apnea and bradycardia in preterm infants following immunization. Consequently, many primary care providers do not adhere to recommended AAP guidelines.
Objective. The purpose of this study was to examine the relationship between receipt of DTaP and the occurrence of prolonged episodes of apnea and bradycardia in preterm infants.
Methods. Ten participating hospitals enrolled 188 infants < 37 completed weeks gestational age into the study when they were 56-60 days chronological age. Infants were randomly assigned into one of two groups: Group A received DTaP immunization and Group B did not. Physiological event recording monitors were used continuously during the next 2 days to document the incidence of prolonged apnea (respiratory pause of ≥20 sec in duration or >15 sec in duration if associated with bradycardia for ≥5 sec) and prolonged bradycardia (heart rate <80 bpm that lasted ≥10 sec) in all infants. The presence and number of episodes during the 48-hour period were compared between the 2 groups using χ^2 and Mann-Whitney U.
Findings. In Group A, 15.2% of infants experienced prolonged apnea episodes compared to 19.8% of controls (p=.41). Prolonged bradycardia events occurred in 56.5% of Group A infants and 56.3% of the controls (p=.97). The frequency of episodes was also no different between the two groups (p=.65).
Conclusions. Premature infants who received DTaP at two months post birth were no more likely to experience prolonged apnea and bradycardia events than were randomized controls. The findings of this study lend support to the AAP's recommendation regarding DTaP immunization at 2 months of age for even severely premature infants.

233 (S)

PHYSICIAN PRACTICES REGARDING SIDS RISK REDUCTION: A NATIONAL SURVEY OF FAMILY PHYSICIANS AND PEDIATRICIANS IN THE US

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Background: SIDS is the leading cause of death among infants ages one month to one year. Prone sleeping is a major, preventable risk factor. Since recommendations were made in the U.S. for infants to be placed supine for sleep, the rate of SIDS has halved. However, trends in both prone sleeping and SIDS have leveled off, and new factors (infant-parent bedsharing, soft mattresses, and pacifier use) influencing the risk of SIDS have emerged. It is important to know what information physicians caring for infants are providing to parents about safe sleeping environments.
Objective: To determine knowledge, attitudes and practices of family physicians and pediatricians regarding SIDS risk reduction recommendations.
Design: Cross-sectional, mailed survey regarding knowledge, attitudes, and behaviors regarding SIDS and SIDS risk reduction. Two mailings, one month apart, were sent to a national random sample of 3005 practicing family physicians and pediatricians located throughout the U.S in February-March, 2005.
Results: Of 3005 surveys, 783 (26.1%)were returned and eligible for analysis. Of the respondents, 64% were pediatricians, 52% female, 73% white non-Hispanic, and 81% were in private practice. Three-fourths (78%) of physicians recognized supine as the sleep position recommended by the AAP; 69% recommended supine to parents. Physicians were more likely to be knowledgeable about and recommend supine if they were pediatricians, white, and female. Almost all (95%) physicians recommended a firm mattress; 82% recommended a crib or bassinet as the preferred sleeping location, and 42% recommended a separate room for infants. Sixty-three percent had no preference or did not recommend restricting pacifier use. Pediatricians were more likely than family practitioners to discuss infant sleep position (61% vs 46%, $p<0.001$), room sharing (24% vs 18%, p=0.03), bedsharing (27% vs 20%, p=0.04), and pacifier use (21% vs 18%, $p<0.0001$) at every well child visit.
Conclusions: Knowledge about recommended infant sleep position is high overall, but there are gaps in physician knowledge and

practices regarding safe sleep recommendations. Greater dissemination of this information is required, and barriers to implementation need to be identified and addressed. With the publication of new American Academy of Pediatrics guidelines and modifications from earlier statements, even greater educational outreach towards family physicians and pediatricians is required.

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MULTIDISCIPLINARY CASE REVIEW OF SUDDEN UNEXPECTED DEATHS IN INFANCY IN SCOTLAND: AUDIT OF A 3-YEAR NATIONAL PILOT

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Objective
Case review is being promoted as an essential element of the investigation of sudden unexpected infant deaths. In 2001 the Scottish Cot Death Trust launched a three year pilot to identify the potential problems and benefits of multi-disciplinary case review of Sudden Unexpected Deaths in Infancy in Scotland.
Population
All cases of sudden unexpected death in infants under 2 years of age which did not progress to either a criminal prosecution or a Fatal Accident Inquiry.
Setting
15 Health Board Areas in Scotland (population 5.1 million) during a three year period (2001-2004).
Methodology
Prior to commencing the pilot considerable time and energy was spent in securing co-operation from Crown Office which is responsible, through the Procurator Fiscals (the Scottish equivalent of Coroners), for the investigation of all sudden or suspicious deaths in Scotland. In addition a senior paediatrician with a special interest in sudden infant death was identified in each Health Board Area to manage the case review process for the Area and ensure local ownership of the pilot. The Scottish Executive, through its Health Department, supported the project both financially and in practical terms. The Scottish Cot Death Trust co-ordinated the pilot.
Results
Over the three year period 142 cases of sudden unexpected deaths in infancy were notified to the Scottish Cot Death Trust. For Year 1, no review meetings were possible owing to delays on the part of Crown Office. For Years 2 and 3, over 90% of all reported cases were reviewed. Despite careful preparatory work implementation of the pilot protocol has proved extremely difficult. Communication problems within the legal infrastructure, changes in personnel, clinical time pressures and, in some cases, lack of enthusiasm have all contributed to substantial delays and frustrations. On the other hand, much has been learned from the review process and feedback from participating health care professionals has often been enthusiastic.,
Conclusions
The Scottish experience has helped identify the practical problems involved in establishing multidisciplinary case review and has, most importantly, informed the preparation of a new national protocol for the investigation of SUDI in Scotland.

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DEATH SCENE INVESTIGATION OF SUDI- BENEFITS OF A MULTI-AGENCY APPROACH

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DEATH SCENE INVESTIGATION OF SUDI - BENEFITS OF A MULTI-AGENCY APPROACH
CJ Evason-Coombe M Edmond E Heckstall-Smith PS Blair P SidebothamPJ Fleming
The care of a bereaved family after a sudden and unexpected death in infancy (SUDI) poses a huge responsibility for all professionals involved. Many needs have to be addressed and the challenges of supporting a distressed family alongside the requirements of a thorough death scene investigation have to be balanced.
In the South West of England, the investigation of SUDI and care of bereaved families has developed and evolved over many years. The region is a mixture of urban and rural communities, mainly white with a population of 5 million. Currently we are conducting the South West infant Sleep Scene (SWISS) Study investigating the deaths scene of SUDI infants and sleep-scene of age-matched surviving control infants. The families are interviewed where possible within hours of the death or infant sleep and a video recording is taken along with several measurements of the sleeping environment. The standard approach is for the health professionals and police to interview the families jointly. Liaison with other core agencies is dependent on the circumstances.
Professionals working in isolation of each other is of limited value. Optimal practice is achieved within a structured multi-agency approach where parallel needs can be met without compromise. Collaboration of professionals ensures appropriate use of skills and a less traumatic experience for the family with minimal repetition. The multi -agency response begins with a strategy meeting often conducted by telephone; this discussion is a sharing of information between all the professionals involved. A joint visit at the family home usually by police and a paediatrician is then conducted. The bereaved family receive compassionate and sensitive care while the investigation is performed within a structured and co-ordinated framework. A report is prepared for the pathologist before the post mortem is performed. A case discussion meeting is also held 3 months after the death for all the professionals involved as an opportunity to review all the information, classify the death and plan continued support for the family.
This joint agency approach [1] was incorporated into the Children Act 2004, and is a statutory requirement for all Childrens Authorities in England from April 2008.
1 Kennedy Report. Sudden unexpected death in infancy available on the Royal College of Pathologists website (www.rcpath.org) or the Royal College of Paediatrics and Child Health (www.rcpch.ac.uk)

236 (S)

RANDOMISED CONTROLLED TRIAL OF HOME BASED MOTIVATIONAL INTERVIEWING BY MIDWIVES TO HELP PREGNANT SMOKERS QUIT OR CUT DOWN

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Objective To determine whether motivational interviewing; a behavioural therapy for addictions; provided at home by specially trained midwives helps pregnant smokers to quit.
Design Randomised controlled non-blinded trial analysed by intention to treat.
Setting Clinics attached to two maternity hospitals in Glasgow.
Participants 762/1684 pregnant women who were regular smokers at antenatal booking: 351 in intervention group and 411 in control group.
Interventions All women received standard health promotion information.Women in the intervention group were offered motivational interviewing at home. All interviews were recorded.
Main outcome measures Self reported smoking cessation verified by plasma or salivary cotinine concentration.
Results 17/351 (4.8%) women in the intervention group stopped smoking (according to self report and serum cotinine concentration < 13.7 ng/ml) compared with 19/411(4.6%) in the control group. Fifteen (4.2%) women in the intervention group cut down (self report and cotinine concentration less than half that at booking) compared with 26 (6.3%) in the control group. Fewer women in the intervention group reported smoking more (18 (5.1%) v 44 (10.7%); relative risk 0.48, 95% confidence interval 0.28 to 0.81). Birth weight did not differ significantly (mean 3078 g v 3048 g).
Conclusion Good quality motivational interviewing did not significantly increase smoking cessation among pregnant women.

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RISK FACTORS IN FAMILIES EXPERIENCING TWO SIDS

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The Care of Next Infant (CONI) programme is offered to families who have experienced a sudden unexpected death in infancy (SUDI) in England, Wales and Northern Ireland, to support parents with a subsequent child. Over 9,000 babies have been entered on the programme. By December 1999, 6373 infants had been enrolled. Of these, 57 (8.9/1000) infants died aged under one year, 48 presenting unexpectedly and 9 due to diseases with recognised poor prognoses.
Parents of the babies dying unexpectedly were offered confidential enquiries by members of the programme steering group. This included a full family and social history of both parents, life histories of all children born to both parents, detailed history of the events leading up to the deaths of the infants and a review of pathology reports and histological sections. A case discussion with the local professionals involved determined the likely cause of both deaths, contributing factors and considered the care of subsequent children. Information about the inevitable deaths were given by the local programme co-ordinator and paediatrician.
Of the 48 unexpected deaths, 7 were due to homicide, 28 to natural causes and in 13, enquiries were not fully completed. In 3 families, both deaths were explained (metabolic disorder; cardiac arrythmia: dysmaturity and congenital abnormality). In 6 families one death was explained and in 19 both were classified as SIDS.

The enquiries showed the families who had suffered 2 SIDS has a high prevalence of social disorganisation and a high count of factors known to be associated with an increase risk of SUDI. In 63% families at least on partner smoked, alcohol use was common and 4 mothers and 5 partners used recreational drugs. Three fathers were known to have been in prison and 40% were unemployed. In at least 6 families there were mental health concerns.
Comparisons have been made with the prevalence of risk factors in cases and controls assembled by the European Concerted Action on SIDS (ECAS). This study considered 745 cases and 2411 controls from 20 areas across Europe. The CONI families were generally disadvantaged in comparison with the ECAS cases. Risk factors were totalled. The CONI families had at least 2 risk factors with 83% having 6 or more. It appears that these families have multiple deprivations and it may be possible to predict a high risk group within the families using CONI.

238 (S)

SIDS IN THE NETHERLANDS

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The Netherlands has a very low incidence of SIDS compared to other Western countries. The incidence for infants between 1 week and 1 year old in the period 1983 to 1986 was between 1.03 to 1.22 per 1000 live births. In October 1987 Prof. G. A. de Jonge lectured effectively on the danger of prone sleeping(1). While about 60% of Dutch infants slept prone in 1985/1987 this decreased to 9.2% in 1992. Simultaneously the SIDS incidence per 1000 live births dropped sharply: in 1988 it was 0.58, in 1989 0.70, in 1990 0.56, and in 1992 0.41 (2). That this drop in incidence is real is supported by the Dutch infant mortality and post-neonatal mortality per 1000 live births which dropped from 7.7 and 2.9 respectively in 1986, to 6.3 and 1.9 respectively in 1992. In 1992 the recommendation was modified: side sleeping was discouraged after the age of 2 weeks, and supine was considered the safest position. In 1994 a new recommendation was added to not use duvets for children under 2 years of age. In 1998 the results of the Dutch ECAS study(3) led to another modification. If a child was bottle fed, a dummy was considered beneficial and Dutch sleeping sacks were seen as preventive. Furthermore, unaccustomed prone sleeping was considered an important risk factor. After the sharp decrease in SIDS incidence after discouraging prone sleeping the incidence decreased more slowly. In 2004 it was 0.09 per 1000 live births, the lowest incidence since SIDS has been officially registered.
It is a challenge to maintain and decrease this low incidence. In 2003 the Consumer Safety Institute in the Netherlands launched a 2 year program concerning safe sleeping. The well known recommendations were highlighted and for the first time bed sharing under 3 months of age was discouraged. The program utilized television, radio and magazine commercials, an informative website, educational material for health professionals, targeted education for immigrant groups, and for the first time an educational program for baby products stores. By means of this multimedia campaign we hope to reach those groups in Dutch society that have not profited from previous campaigns.
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239 (ST)

DETERMINANTS OF STILLBIRTH IN DEVELOPING SETTINGS AND PATHWAYS TO PREVENTION: AN OVERVIEW

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Objective: The rate of stillbirth is disturbingly high in resource-deficient nations and account for about 50% of all-cause perinatal mortality. We present a periscopic view of the main factors/determinants of stillbirth in the developing world, and examine pathways through which prevention strategies could be instituted.
Materials and Methods: Because determinants of stillbirth in developing countries are heterogeneous, complex and inter-related we provide a simple classification system that will aid understanding and assessment of these factors. The individual determinants are grouped into five categories comprising Medical (Category I), Obstetric (Category II), Biologic (Category III) and Environmental (Category IV). The discussion is reinforced by the application of a model in which these categories are nested. The model explains in simple terms the linkage between these factors and in utero fetal demise. We exploit this basic conceptual understanding to identify candidate pathways that will provide effective means of preventing stillbirth in the developing world.
Results: The burden of stillbirth in resource-scarce countries is, on average, ten times as high as in developed nations, and this may even be an under-estimate. The absence of reliable recording systems in most developing regions of the world means that a significant proportion of stillbirth in these settings remains un-reported. The determinants of stillbirth in these countries are numerous and the synergistic linkages among these factors present a formidable challenge to health professionals as well as those involved in improving in utero fetal well-being. Our presentation disentangles this complexity and identifies linkages that are susceptible to interventions that are cost-effective. The emphasis is on solutions that target synergistic determinants across categories rather than individual determinants contained within a category. It is also noteworthy that parallel rather than vertical solutions are recommended because in the majority of cases the causal factors of stillbirth in developing nations occur in concert rather than in isolation.
Conclusion: An overview of stillbirth occurrence and its determinants is presented. A solution-based model that depicts the intricate linkages among etiological factors across several pathways represents the highlight of this contribution.

240 (ST)

EFFECTIVENESS OF TBA TRAINING ON PERINATAL AND MATERNAL MORTALITY: A CLUSTER RANDOMIZED CONTROLLED TRIAL IN RURAL PAKISTAN

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Background
Most of the estimated 4 million neonatal and 500,000 maternal worldwide deaths each year occur in developing countries, at home and attended by Traditional Birth Attendants (TBAs). Debate regarding the effectiveness of training TBAs on perinatal and maternal mortality has continued for years in the absence of evidence from randomized controlled trials. We present the results of a cluster randomized controlled trial of training and integrating TBAs with existing healthcare.
Methods
The 7 talukas (sub-districts) of Larkana, a rural district of Pakistan, were randomly assigned to intervention and control. In 3 intervention talukas, TBAs were trained and issued with disposable delivery kits; Lady Health Workers linked traditional birth attendants with established services and documented processes and outcomes in both groups; and obstetrical teams provided outreach clinics for antenatal care. Women in the four control talukas received usual care. The primary outcome measures were perinatal and maternal mortality.
Results
Between May and November 1998, 10,114 women were recruited in the 3 intervention talukas and 9443 in the 4 control talukas, 84% and 79% respectively of estimated eligible women. In the intervention group 9184 (90.8% received care by trained TBAs who used 8172 safe delivery kits. There was a statistically significant reduction in perinatal mortality in the intervention compared to control groups (OR 0.70, 95% CI 0.59 to 0.82) and a similar sized, but non-significant reduction in maternal mortality.
Conclusions
Training and integrating TBAs with existing services was feasible and effective in reducing perinatal mortality and possibly maternal mortality.

241 (ST)

CHANGES IN STILLBIRTH RATES IN CHINA, 1970-2000

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The population policies have been implemented very successfully since 1970's in China. The infant mortality rate reduced to about 36 per thousand live birth now. However, the stillbirth have not yet been evaluated before. The national data and information surveyed in 1988, 1997, 2001 was used in the paper. It's found following results: 1) since 1970's, the stillbirth rate was very slowly increasing from 1.25% to 1.36%. but in the end of 1970' , it almost keep about 1.0% and not change more. However, during this period, just in the higher level of Induce Abortion in China. After this period, the rate began to increase again to 1.55% in 1989. 2) From 1990', the stillbirth showed very turbulence situation, the higher will be 1.71 and low will be 0.91%. 3) During the time, the proportion of birth defect in infant mortality rate in many city from the about one forth increased to one thirds. 4) recent years, it's awaked that the birth defect incident and risk is increasing in China. 5) The stillbirth rate has very big regional difference. In 2000, Chinese government initiatives a national program entitled National Program of Health Baby Promotion. We are morning the national baby birth, death, health, and other birth outcome now.

242 (ST)

LEVEL AND DIFFERENTIALS OF STILLBIRTH RATES IN 20 DEVELOPING COUNTRIES: A COMPARATIVE ANALYSIS

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Newborn health is one of the most striking examples of health inequity in the world, 99% of the 4 million neonatal deaths occur each year in the poorest countries of the world. These figures are even more catastrophic because it is estimated that for every neonatal death stillbirth occurs. Perinatal deaths are responsible for approximately 7% of global burden of diseases in the world. Number of stillbirth is comparable to deaths of children due to malaria. Knowledge of the social determinants of stillbirth in developing countries is still lacking and this study is an attempt to remedy this gap. The study is a comparative non-facility-based that estimates stillbirth and it's differentials from pregnancy histories collected through household surveys in developing countries.
Using data from 20 Demographic and Health Surveys (DHS) that conducted between 1990 and 2004, the DHS is an ideal source of information for comparative analysis, because their surveys use nationally representative samples and standardized instruments, training, data collection and data processing. The primary respondents are women aged 15-49 years in selected households and response rates are typically 90% or more. The surveys have collected detailed pregnancy histories (gestational age and pregnancy outcomes) in the form of month-by-month calendars for at least 5 years prior to the interview date. In this analysis, the numbers of pregnancies ranged from 1,177 in Kazakhstan to 14,850 Indonesia.
The preliminary results show that the crude still birth rate per 1000 birth ranged from 0.9 in Viet name to 4.9 in Bangladesh. Using meta-analysis approach, the overall pooled relative risk of still birth is higher among rural, less educated women compared to their urban, educated counterparts RR=1.171: 95%CI (1.032-1.330) and 1.454 (1.254-1.686), respectively. Further analysis on determinants such as age and access to antenatal care will be conducted.

243 (ST)

ASSOCIATION BETWEEN CHRONIC ARSENIC EXPOSURE AND STILLBIRTH IN BANGLADESH

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Few studies have suggested an association between chronic arsenic exposure and stillbirth, although the association is not conclusive. In this case-control study conducted in Bangladesh, 83 women with a history of stillbirth in their first pregnancy and 270 women as controls were studied to determine the association between chronic arsenic exposure through drinking water and still birth.
Excess risk for stillbirth was observed among the cases exposed to increasing concentrations of arsenic in drinking water, after adjusting for participant's age, educational status, age at menstruation and age at first pregnancy. The odds ratio for stillbirth was 2.1 (95% CI: 1.1 - 3.9) for females drinking water with >50 ppb compared to ≤ 50 ppb arsenic. This risk is both clinically and statistically significant. A statistically significant dose-response association and stillbirth ($p < 0.001$) was also observed.
This study finding suggests that chronic arsenic exposure may increase the risk of stillbirth.

244 (ST)

RISK FACTORS FOR ANTEPARTUM AND INTRAPARTUM STILLBIRTH: BLACK-WHITE DISPARITY

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Background: Despite declining rates of stillbirth over the past 2 decades, racial disparity in stillbirth risk continues to persist. Race-specific risk factors for antepartum versus intrapartum stillbirth remain virtually unknown.
Objective: To examine race-specific risk factors by stillbirth subtypes (antepartum versus intrapartum).
Methods: We carried out a population-based, retrospective cohort analysis using data on 649,092 singleton births delivered at >=20 weeks in Missouri between 1989 and 1997. Distribution of risk factors for antepartum and intrapartum stillbirth among Caucasians and African-Americans was examined. Odds ratio (OR) and 95% confidence interval (CI) were derived from multivariable logistic regression models and population attributable risks were estimated to examine the impact of risk factors on stillbirth.
Results: Risks of antepartum and intrapartum stillbirth were 5.5 and 1.1 per 1,000 singleton births, respectively, among African-American, and 3.3 and 0.5 per 1,000 births, respectively, among Caucasian women. Smoking during pregnancy (OR 1.2, 95% CI 1.1, 1.4), no prenatal care (OR 1.3, 95% CI 1.1, 1.5) and maternal body-mass index >=25 kg/m2 (OR 1.3, 95% CI 1.2, 1.5) were significantly associated with antepartum stillbirth among Caucasians, but not in African-American women. On the other hand, maternal body-mass index <18.5 kg/m2 (OR 1.7, 95% CI 1.3, 2.1) was associated with antepartum stillbirth among African-American, but not among Caucasians. The presence of any congenital anomaly, abruption, excessive pregnancy bleeding, and cord complications were significant risk factors for antepartum stillbirth in both races (OR=1.4-9.3). Maternal fever was associated with antepartum stillbirth among Caucasian women (OR 1.4, 95% CI 1.0, 1.9), and chronic hypertension was a significant risk factor among African-American women (OR 2.1, 95% CI 1.3, 3.2). Excessive pregnancy bleeding was significantly associated with intrapartum stillbirth among Caucasians only (OR 5.2, 95% CI 3.5, 7.6). These risk factors were implicated in 58.8% and 21.1% of antepartum and intrapartum stillbirths, respectively, among African-American, and in 41% and 11.8%, respectively, among Caucasian women.
Conclusion: The study reveals considerable heterogeneity in risk factors between antepartum and intrapartum stillbirths, as well as by race. Approximately 40% and 80% of antepartum and intrapartum stillbirths among African-American women, and even greater proportions among Caucasians, remain unexplained.

245 (HP)

THE ROLE OF THE CARE GIVING TEAM FOR THE BEREAVED FAMILY IN OUR HOSPITAL

Akiko Goto, Mayumi Furuya
Kanagawa Children's Medical Center, Japan

There is little information how to care the grieving family in the perinatal period.
First of all, we (docters, midwives, nurses and socialworkers) have experienced many things for the perinatal, neonatal loss for more than 10 years. We are going to inform our network related to the mourning care in our hospital.
Later I'will introduce 3 support groups who have all experienced perinatal and neonatal loss. They are separately working related to the bereavement
The purpose of presentation is to let the health professionals know how to support the grieving family.

246 (HP)

MOTHERS' UNRESOLVED GRIEF OF PERINATAL LOSS AND ITS EFFECT ON NEXT GENERATIONS

Hisako Watanabe
Department of Pediatrics, Keio University, School of Medicine, Tokyo, Japan

Supporting a mother work through her perinatal loss is crucial both for herself and for her family especially children. Even a baby born after the loss sensitively picks up its mother's unresolved grief. Through examples of my clinical work in Japan I hope to show how cultural inhibition of expression of grief hampers each mother's reflective capacity and how full validation of her honest feelings facilitates her to eventually mature through the experience of loss.

247 (HP)

EFFECTS OF CARING FOR BEREAVED PARENTS ON DOCTORS AND NURSES

Jillian Romm
Oregon Health and Science University, USA

Many medical communities appreciate that families are significantly impacted by perinatal losses. However, there is little published about the impact of bereaved parent care-giving on health care providers.
This presentation will explore the reactions to perinatal loss and bereavement care-giving, as experienced by obstetrician gynecologist physicians and labor and delivery nurses. Content will be based on information obtained during focus group interviews. Recommendations will be offered about self care and professional support strategies.

248 (HP)

"WITH ANGELS IN THE SKY—WAIS" AN INTERNET-BASED SELF-HELP GROUP FOR FAMILIES WHO HAVE EXPERIENCED STILLBIRTH OR MISCARRIAGE

Keiko Ishii
Osora-no-tenshi Papa & Mama-no kai (With the Angels In the Sky), Japan

"Osora no Tenshi Papa & Mama no Kai" (With Angels In the Sky- WAIS) was created as an internet based self-help group targeting parents who have gone through the experience of stillbirth and miscarriage.
At present out activities include internet site management, bulletin publication, holding self-help meetings, and participating in cooperative self-help meetings with medical professionals. WAIS wants to let concerned parties know that "You are not alone." In the initial stage, those who have experienced the loss of a small life are in a state of spiritual and social isolation. Unsuitable reactions from their surroundings make the solitude more profound. Computer-mediated communication enables them to communicate with others who have gone through similar experiences, while also maintaining anonymity.
However, there are limitations to web communities. So we are offering a place to "meet (share)", where concerned parties can actually get together and face their experiences safely and with ease.

249 (HP)

"WITH YOU" A SUPPORT GROUP WHERE PARENTS SHARE THEIR EXPERIENCES OF STILLBIRTH AND NEONATAL DEATH

Yuka Sato
With You, Japan

In May 2002, the group"With You"was created when families who had lost children to stillbirth and neonatal death wanted to establish a place for expressing their thoughts,a place to share and huddle together.
This association is helping to organize gatherings for bereaved families and their exchange with medical professionals, communicate information on our homepage, and conduct research relating to the care of the bereaved.In addition, we are administering a survey for bereaved families and medical professionals, and at present have heard from more than 400 bereaved family members. For the bereaved, the reception that they receive during hospitalization has a great influence on their spirits later. However, looking at the survey results, only a very small fraction of the concerned parties received strong support. We believe that the feelings of bereaved families, learning the thoughts of medical professionals, and sending out this information might be a trigger for thinking about deeper care.
Continuing into the future, we hope to broaden the scope of our activities so that we may act as go-betweens for medical professionals involved in tragic deliveries, and parents and their lost children.

250 (HP)

"ANGEL'S BOUTIQUE" MEETING WITH BEREAVED PARENTS AND MAKING BABY CLOTHES FOR BABIES THAT HAVE DIED

Noriko Izumiyama
Tenshi no Boutique (Angel's Boutique), Japan

There wasn't anyplace nearby,for bereaved mothers like ourselves,where we could talk about our lost babies.There are quite a few mothers who are searching for such a place, somewhere we can talk about our loss at any time. At "Tenshi no Boutique" (Angel's Boutique) fellow bereaved mothers share time and space as we offer a periodic monthly meeting place where we can talk about our babies without reserve. Also, rather than just talking,we make hand sewn baby clothes,hats,etc. stitch by stitch for those families whose tiny babies were born and passed away, and present them as gifts. We feel that it helps to heal the family's spirit if they can see off the lovable appearance of their baby when it is dressed in our clothes that fit its tiny body. We think that each person has their own means of healing their spirit after a sorrowful experience, and for that purpose feel there should be many resources available. One such means is the activity we are introducing.

251 (S)

SAFETY CAR SEATS - THEIR BENEFITS, POTENTIAL HAZARDS AND ALTERNATIVES

Hajime Nakamura
Kobe Children's Hospital, Japan

More children between the age of one and ten die in automobile crashes than from any other type of injury or disease. In the under-one-year age group, numbers of infant deaths are 15 in a year, this health risk is only one twenties of the number of Sudden Infant Death Syndrome (SIDS) (292 cases a year 2002).
Since April 2000, Transport Japan requires that drivers ensure that passengers under 6 years are buckled up and secured in a child safety seat. There are two types of car seats for infants; that is, bed-shaped seat and chair-shaped seat.
We have studied on the effects on cardiovascular- respiratory system of infants at the age of 5 to 7 days during sleep state in the car seat of the angle of 45 degrees and in the bed shaped car seat.
The episode of oxygen desaturation less than 90% was more often found in angled car seat, especially at the deep sleep state, compared with that in the bed-shaped car seat. We advocated the risk of suffocation by the use of the chair-shaped car seat for the infants not yet hold up their head. Then, we recommend that the infants before sitting in the toddlers, at least three months of age, should be used the bed-shaped car seat. For the use of proper child safety seat, the effective prevention techniques are as follows;
1. Use adequate type of car safety seat according to the age,
2. Attach the safety child seat restraint to the rear car seat correctly,
3. Don't be alone the baby in the seat at the time leaving the car, preventing from dehydration due to high temperature.
It is important that parents have a knowledge of child restraint use in vehicles for protecting the infants from car crash, and also an incorrect use might be possible to threat the baby's life even without car crashes.

252 (S)

HAZARDOUS SLEEPING ENVIRONMENTS IN WHICH INFANTS MAY SLEEP ALONE - RESULTS FROM A CASE CONTROL STUDY OF POTENTIAL HAZARDS OF THE SLEEP ENVIRONMENT

Peter Sidebotham
Child Health University of Warwick, UK

Background
The impact on SIDS incidence of campaigns to "educe the risk" in the early 1990s demonstrated clearly the importance of the sleep environment and the potential for change. In addition to the well recognised risks of prone sleeping, other factors in the sleeping environment may be significant. In order to recognise and interpret possible hazardous environments, it is essential to compare the sleep environment of babies who die unexpectedly with those of healthy infants in the general population.
Methods
The South West Infant Sleep Scene Study (SWISS) is a prospective, population based case-control study of all sudden unexpected infant deaths between birth and 2 years of age within the South West Region of England. Data on the sleep environment and other factors from SUDI cases have been compared with similar data from two control groups (one randomly selected and one selected on the basis of socio-economic deprivation).
Results
Data are available from the first 3 years of the study on 47 SIDS, 22 explained deaths, 68 random controls and 51 high risk controls. Data will be presented describing the sleep environment in cases and controls. Specific cases where potentially hazardous sleep environments were identified will be described, drawing on both interview data and the results of a video evaluation of the sleep environment.

253 (S)

HEAVY WRAPPING, HEAD COVERING AND SOFT BEDDING - POSSIBLE MECHANISMS CAUSING SIDS

Bradley T Thach
Washington University, St. Louis, USA

There are several theories for why heavy wrapping of an infant might cause SIDS. Heavy wrapping may constitute a thermal stress in a vulnerable infant causing death. This stress is perceived to be less then that causing fatal heat stroke. Otherwise, the mechanism of death in thermal stress is unclear possibly ineffective autoresuscitation (AR) from severe hypoxemia could play a role. This has been demonstrated in animal models, however, AR failure occurs only at very high body temperatures. Of relevance, studies have shown that post mortem body temperatures in SIDS infants are no different from control infants dying from other causes. Also, relevant is that extreme elevations in environmental temperatures are not associated with increased SIDS deaths. Both of these findings would not have been predicted by the thermal stress theory. Furthermore, heavy wrapping is usually accompanied by quilts or blankets covering the infant, which could cover the head or end up under the infant, conditions that might cause asphyxiation. Also, “firmly wrapped” infant's or “infants wrapped in any type of bedding” in the supine position are at decreased for risk for SIDS in studies from New Zealand and Australia. Assuming that such wrapping could impose a heat stress, these findings are inconsistent with the heat stress hypothesis for SIDS.
There are two primary theories for the mechanism of death in head covered infants. As above, heat stress has been suggested as the lethal factor. In contrast, other studies have shown that head covering can cause asphyxia in infants due to limiting access to fresh air. Asphyxia was found to progress so rapidly that there was insufficient time to cause an elevation in body temperature.
Many SIDS infants have been found prone with their faces down into soft bedding. Since the highly vascularized infant's face is important for heat loss, it has been suggested that infants found face down would be heat stressed. In contrast several studies, have found that sleeping infants placed face down on soft bedding rebreathe expired air leading to asphyxia in a matter of seconds.
In summary, two competing theories for mechanisms of death in infants who are heavily wrapped, covered by bedding or lying on soft bedding have been suggested. Both heat stress and asphyxiation would occur in these situations however, the timing of these events suggests that asphyxiation is the primary lethal factor.

254 (S)

MATTRESSES, MICROENVIRONMENTS AND MICROORGANISMS - DO THEY MATTER?

Peter J Fleming, Pete S Blair
Institute of Child Life and Health, University of Bristol, UK

Whilst clear recommendations have been published on sleeping place and position of infants to minimise the risk of Sudden Infant Death Syndrome (SIDS) less guidance has been given on the nature of the surface on which infants should sleep, other than that it should be clean and firm [1].
Concerns have been raised about the potential harm to infants from features of their sleeping surface, including toxic effects associated with fungal or microbial colonisation of mattresses, the effects of bedclothes on thermal balance and rebreathing of carbon dioxide, and the mattress as a reservoir for allergens, particularly house dust mites, that are associated with sensitisation and the development of allergic diseases.Recent data on bacterial colonisation of infant mattress fillings, and the proposal that colonisation of the infant's upper airway with toxigenic Staphylococcus aureus might precipitate a cascade of events leading to cardiovascular collapse and death have drawn attention to the potential importance of the infant's sleep surface, and its micro flora. The increased prevalence of SIDS infants sleeping on previously used mattresses in Scotland remains unexplained. [1,2,3,4,5,6,7,8].
In this talk the evidence for and against each of these postulated mechanisms contributing to unexpected infant deaths will be reviewed.
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255 (S)

POTENTIAL CARDIOPULMONARY MECHANISMS FOR SIDS

Adrian Walker
Ritchie Centre for Baby Health Research, Monash University Institute of Medical Research, Monash Medical Centre, Australia

The exact cause or causes of Sudden Infant Death Syndrome (SIDS) remain obscure, but epidemiological and pathological investigations suggest a number of plausible pathways which could lead to pulmonary or cardiovascular failure and death during sleep. Among potential pulmonary causes is the possibility that a sequence of repetitive hypoxic events, perhaps associated with obstructed breathing or apnea, may progress to severe respiratory dysfunction, profound hypoxia, failure to arouse, and cardio-respiratory failure. At this point, profound hypoxia could culminate in SIDS if the terminal gasping episode was rendered ineffective by, for example, airway obstruction associated with the prone posture or heart failure. Evidence that cardiovascular failure may precede SIDS death is found in “death records” of infants who continue to breath after the onset of terminal bradycardia. Recently it has been proposed that the mechanism of SIDS may be uncompensated hypotension, perhaps involving nitric oxide (NO) in a “shock-like” sequence triggered by infection. The possibility that cardiovascular failure may lead to SIDS has stimulated interest in the control of blood pressure and critical organ perfusion in sleep. As the risk for SIDS is amplified by preterm birth, and the numbers of surviving preterm newborns is growing, study of preterm infants including their vulnerability to respiratory instability, arousal failure, impaired circulatory control and the physiological changes induced by prone sleeping posture are critical areas for new SIDS research.

256 (S)

SIDS AND SUBCLINICAL PULMONARY HYPERTENSION

Hiroyuki Kitajima[1], Masahiro Nakayama[1], Akira Miyano[1], Naoki Maruyama[2], Fumihiko Namba[1], Masanori Fujimura[1]
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<Background>
Kelly DH and coworkers showed that cardiac bradycardia preceded firstly, apnea followed it and then the infants died, by cardiorespiratory recordings from infants dying suddenly and unexpected at home. However, the cause of this condition is quite mysterious.
<Patients and methods>
1) We examined the serum levels of tenascin-C (TN-C) in 10 infants with fatal pulmonary hypertension (FPHT) and 11 infants of SIDS and 33 control infants between 2 months and 3 years of age. Serum TN-C was quantified by ELISA of a commercial kit (Human tenascin-C high molecular weight variant assay kit (L)-IBL. Co., Ltd).
2) We examined the production of antibodies (IgM class) in the infants against some viral envelope protein by Western blotting. The specific envelope protein was produced as a recombinant fusion one by E.coli transformed with constructed plasmid containing envelope region of some human endogenous retrovirus. The following sera were studied; 20 cord (10 preterm, 10 term infants) 26 normal infant (6 preterm, 5 from 1 month (M) to 3M, 5 from 4M to 6M, 10 over 6 M) 8 infants with FPHT between 8M and 3years, and 5 infants of SIDS between 2M and 8M of age.
<Results>
1) The serum levels of TN-C in the infants with FPHT (177±26ng/ml) and SIDS (196±39ng/ml) were significantly higher than those of normal infants (126±39ng/ml).
2) All cord sera and infant sera of FPHT and SIDS showed no specific antibody production. But almost of all normal infant sera over 3M of age had some amount of antibodies against a specific envelope fusion protein, and the concentration of them increased by age.
<Conclusion>
The infants of SIDS are similar to infants with FPHT from the point of increased TN-C levels in their sera. These findings may suggest that SIDS conceal their pulmonary hypertension.
The antibody states of SIDS infants are similar to those of fetuses and infants of FPHT. Because the reaction of their pulmonary vessels looks like the fetal period, the infection such as colds has the possibility to fall from a mild state of pulmonary hypertension into the abrupt constriction of their pulmonary blood vessels. This condition of the pulmonary hypertension causes the vicious cycle in the cardiopulmonary circulation additionally and shows the possibility to the cardiac arrest. These situations must be seen at the death of SIDS infants.

257 (S)

OVERLAPPING OF PATHOLOGICAL ABNORMALITY OF CARDIOVASCULAR AND CENTRAL NERVOUS SYSTEM IN THE CASES OF SUDDEN INFANT DEATH WITH PRONE-POSITIONED SLEEPING

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Researchers investigating the cause of sudden infant death (SID) have proposed various pathogenesis and have demonstrated recently that many diverse conditions contribute to SID. Respiratory insufficiency, including prone positioned-sleeping or aspiration, has been indicated as a dominant etiology of SID. However, the findings of asphyxia often cannot be established in infant victims. Several abnormalities of cardiovascular and/or central nervous system have been frequently seen in SID by detailed histological examination. In this study, we investigated retrospectively 17 cases of SID to evaluate an overlapping of the following 3 categories and compared them to 9 cases of infant death due to explained causes. The first category is cardiovascular abnormality, including the complete examination of the cardiac conduction system to find an accessory connection (AC). The second consists of the central nervous system; we especially focused on the anatomical and pathological changes of medullary arcuate nucleus (ARC). ARC hypoplasty is considered to cause hypoventilation due to low responsiveness for hypercapnic state. The third category is the patient's background with a focus on breathing disturbance (BD), including prone-positioned sleeping, upper respiratory inflammation, and non-life threatened aspiration. Consequently, AC and ARC hypoplasty have been frequently observed in SID in prone-positioned sleeping cases, and these findings were overlapped in many of the cases. We assume that the cause of SID is unique, but unfortunate overlapping of transient BD that is caused by ARC and/or prone-positioned sleeping and cardiac abnormality, especially in AC, may pose a major risk of SID during sleeping.

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CHANNEL ABNORMALITIES AND SIDS

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Sudden infant death syndrome (SIDS) is a multifactorial disorder influenced by developmenttal, environmental, and biological risk factors. The environmental risk factors, or trigger events, are the best known; to date, prone sleeping, smoking during pregnancy, overheating, and cosleeping have been identified. The biological risk factors, or predisposing factors, are less well documented and may include mutations and polymorphisms in genes involved in metabolism and the immune system, as well as conditions in the medullary serotonergic network.
The genetic component of sudden infant death can be divided into 2 categories, i.e., (1) mutations that give rise to genetic disorders that constitute the cause of death by themselves, such as in cardiac K^+, Na^+, Ca^+ channel gene disorders in neonatal arrhythmias including long QT syndrome (LQTS), or medium-chain acyl-CoA dehydrogenase gene disorders, or gene disorders in glucose metabolism and in thrombosis, and (2) polymorphisms that might predispose infants to death in critical situations. Polymorphisms investigated as possible genetic predisposing factors for SIDS include the genes encoding complement component 4, HLA-DR, interleukin-10, the serotonin transporter, genes involved in thermal regulation, and mitochondrial DNA. However, the association of these genes with the cause of this syndrome is not clearly understood. It is unlikely that one mutation or polymorphism is the predisposing factor in all SIDS cases. It is likely that there are “SIDS genes” operating as a polygenic inheritance predisposing infants to sudden infant death, in combination with environmental risk factors, for example, a slight infection, a prone sleeping position, and a warm environment may trigger a vicious circle with a death mechanism, including hypoxia and irregular breathing, eventually leading to coma and death. Therefore, in 1998 we established Holistic Molecular Genetic (HMG) medicine, which is a new system of molecular genetic medical care. The aim of HMG is to clarify the molecular genetic pathogenesis of congenital and hereditary disease throughout life. Using this strategy, some of the cases now diagnosed as SIDS will probably be diagnosed as metabolic or cardiac disease associated with neonatal arrhythmia including LQTS. With such knowledge, it might be possible to prevent SIDS and, in cases of repeated deaths in a family, to distinguish between SIDS and homicide. Although highly trained in a particular research and/or clinical discipline, medical workers should not lose sight of the totality of the patient the close relationship of the body-mind duality and its importance in the evolution of the disease process.

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DEVELOPMENTAL PATTERN OF AROUSAL RESPONSES TO RESPIRATORY STIMULI

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All infants have respiratory pauses during sleep. It may not be so important why infants have apneas, but rather how they rescue themselves from apneas, to understand SIDS. Arousal is an important defense mechanism against danger-signaling stimuli during sleep. The CHIME Study showed that normal infants experience hypoxia during sleep in their own homes (Hunt, C.E., et al. J. Pediatr., 135: 580-586, 1999). We hypothesize that infants may die from SIDS, at least in part, because they fail to arouse from sleep in response to potentially dangerous situations, such as hypoxia.
In a cross sectional study of normal infants, we showed that infants were more likely to arouse from quiet sleep in response to a hypoxic challenge (FIo2 = 0.11, for 3-minutes or until arousal occurred, whichever is shorter) before the age of 2-months than after (Davidson Ward, S.L., et al. Pediatrics, 89: 860-864, 1992). This corresponds to the age where the SIDS incidence increases, suggesting the possibility that infants below 2-months of age may have a protective physiologic arousal response to hypoxia, which is lost after 2-months of age. However, this study looked at hypoxic arousal responses in different infants.
Thus, a longitudinal study was performed, where hypoxic arousal response testing was performed in the same infants before the peak age of SIDS risk (1-month), at the peak age of SIDS risk (3-months), and after the peak age of SIDS risk (6-months). In this longitudinal study, infants at 1-month of age were much more likely to arouse in response to hypoxia (FIo2 = 0.11, for 3-minutes or until arousal occurred, whichever is shorter) than those at 3-months and 6-months of age (Hamutcu, R., et al. Am. J. Respir. Crit. Care Med., 163: A953, 2001). The hypercapneic arousal threshold was also studied in these infants at the three ages and in the prone vs supine sleeping positions. There was no difference in PETco2 at arousal between prone and supine at any age. Thus, differences in arousal responses to hypercapnia do not explain the protective effect of supine sleeping on SIDS.
We conclude that normal infants have a developmental pattern to a potentially protective hypoxic arousal response. This is lost at the age when SIDS increases (~2-months). Loss of the hypoxic arousal response to contribute to the unique age distribution of SIDS.

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STRATEGIES FOR SCREENING AND STILLBIRTH PREVENTION

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Fetal death prior to the onset of labour accounts for two thirds of all perinatal deaths and affects approximately 1 in 200 pregnancies. In the developed world, rates of stillbirth are static or rising over recent years. Multiple risk factors have been identified for stillbirth. However, there is no widely accepted and effective method for population-based screening and intervention. Previous evaluations of methods to prevent stillbirth have generally failed to distinguish between risk assessment and the effectiveness of an intervention among women deemed to be at high risk. The requirements for population based screening for stillbirth will be discussed, both in terms of the required performance of tools to predict risk and available interventions. A two stage research strategy is proposed (1) a large scale prospective study to assess the ability of established and novel risk factors to predict stillbirth at different gestational ages, and (2) a randomised controlled trial of the derived multivariable statistical model with a standardised intervention.

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MANIPULATING IN UTERO FETAL NUMBER TO PREVENT STILLBIRTH

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OBJECTIVE: To estimate the level of potentially preventable excess stillbirth achievable by avoiding the creation of higher-order multiple gestation with assisted reproductive technologies.
METHODS: A retrospective cohort study of multiple pregnancies delivered in the United States between 1995-1997 involving 304 466 twins, 16 068 triplets, 1 448 quadruplets and 180 quintuplets. We computed adjusted relative risks for stillbirth using the generalized estimating equation framework to account for intra-cluster correlation. We then calculated potentially preventable excess stillbirth among higher-order gestations using twins and triplets sequentially as referent category.

RESULTS: Stillbirth rate increased significantly with each additional fetus in a dose-dependent fashion ($p < 0.0001$), corresponding to relative risks (95% confidence interval) of 1.8 (1.6-2.1) for triplets, 3.4 (2.1-5.4) for quadruplets, and 3.9 (1.1-14.6) for quintuplets. The creation of twin rather than quadruplet pregnancies would be associated with a substantially higher level of preventable excess (70.4%) than the creation of triplet pregnancies (53.7%). Similarly, limiting quintuplets to twins in lieu of triplets had a higher level of beneficial effects (74.2% versus 60% respectively).
CONCLUSION: Primary prevention of stillbirth can be achieved by regulating the number of transferred embryos that result in quadruplet and quintuplet pregnancies.

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REDUCED FETAL MOVEMENTS - SIGNIFICANCE AND MANAGEMENT

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Maternal perception of reduced fetal activity is a common complaint in pregnancy. Between 4 and 15% of women in the third trimester of pregnancy will at some point contact health care professionals with a concern for reduced fetal movements (RFM). Far more will be worried without making such contact.
There is no scientific consensus on what constitutes significant RFM, a result of normal variation that makes any rigid limit of normality of restricted value. There is great variation in advice given, both from lay and professional contributors, and women are at risk of receiving obsolete and counterproductive advice. In particular, many “alarm limits” that are often used, are not only based on an obsolete way of counting (Daily Movement Counts), but were never intended as a screening tool to identify a pregnancy at increased risk, but were limits that identified death.
A pregnancy complicated by RFM represents a risk pregnancy. In a wide range of studies, it has been demonstrated that RFM are significantly associated with increased risk of IUGR, severity of IUGR, low birth weight, oligohydramnios, polyhydramnios, preterm birth, threatening preterm labor, congenital malformations and chromosomal abnormalities, fetomaternal transfusion, perinatal brain injuries and disturbed neurodevelopment, low Apgar scores, asphyxia, acidemia (low umbilical vein pH), hypoglycemia, umbilical cord complications, emergency deliveries, inductions and cesarean sections, stillbirths and neonatal deaths.
There are no randomized controlled trials of the effect of basic evaluation of RFM, and for the most basic and widely used evaluations, time has escaped such studies. Few seem to have developed guidelines, and published suggestions are mainly descriptions of current practice, not an analysis of its performance.
The wide variations in published approaches (if any) range from NST / CTG as sole screening tool, to the hospitalization of all women with RFM, clinical examination, NST / CTG every 8 hours for 48 hours, ultrasound examination including a structured biophysical profile, Umbilical artery Doppler, Kleihauer-Betke's test, maternal Hemoglobin, amnioscopy if ≥ 37 weeks of gestation, and repeated antepartum testing following the initial hospitalization.
The Femina collaboration has registered and analyzed population-based surveys of pregnant women's and health professional's preferences, over 2,500 cases of RFM, their outcome, as well as the clinician's report on what tests were actually useful in the management of each case of RFM. This presentation will present the background and recommendations for management of RFM and information given to expectant mothers.

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SAFE SLEEPING PRACTICES FOR INFANTS LIVING IN WESTERN AUSTRALIAN ABORIGINAL COMMUNITIES

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Aim: To develop resources and training to reduce the risk of Sudden Infant Death Syndrome (SIDS) in the Aboriginal population in Western Australia (WA).
Methods: Using total population linked data, we identified those Aboriginal communities in WA with high infant mortality rates attributed to SIDS. These communities are based in metropolitan, rural and remote locations. Focus groups using semi-structured questionnaires were developed, and subsequent to community agreement to participate, information was obtained from members of the community and Aboriginal and non-Aboriginal community health workers. The information was compiled and analysed. The results, which will be presented at the conference, will inform the development of education materials and programs, and possible intervention initiatives and activities. The effectiveness of the implementation of initiatives and programs developed as a result of the qualitative arm of the research will be evaluated using the baseline quantitative information.

Results: Fifteen focus groups were convened which included over 100 participants. A number of important findings were identified. Preliminary results indicate a lack of understanding of the mechanism and causal factors of SIDS. Contributing to this are a number of cultural and spiritual beliefs that confuse an understanding of the contributory risk factors for SIDS. Rates of maternal smoking during pregnancy are over 50% and a general lack of antenatal care was reported by participants. As a result of discussions during the focus group a number of potential barriers to previous attempts to introduce educational and measures were identified. These and other findings from the research will be discussed at the session.
Conclusion: The unacceptably high rates of deaths and the absence of any decrease in infant mortality attributable to SIDS that currently exists among the Aboriginal population, strongly suggest that the health promotion and education messages are not reaching Aboriginal families. Ways in which this may be overcome will be discussed.
Significance: Deaths attributed to SIDS continue to be the main cause of mortality among Aboriginal infants born in WA.This research is the first of its kind ever undertaken in WA to address the unacceptably high rate of infant deaths attributed to SIDS. This research project is being undertaken and led by Aboriginal researchers and community members in collaboration with non-Aboriginal community members, health professions and researchers. The research is based on sound scientific information and the results from the qualitative arm of the research will be used to develop culturally appropriate education programs and interventions.

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SIDS PREVENTION IN MAORI COMMUNITIES - AN INDIGENOUS PERSPECTIVE

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The New Zealand Government has, in the SIDS arena, recognised the value and effectiveness of an ethnic specific public health initiative in its ongoing support for the establishment and development of a national Maori SIDS prevention programme.
Maori are a tribal people with at least a millennium of indigenous occupation of Aotearoa and 200 years of (British) colonisation, war, appropriations of native lands, economic and cultural disruption have resulted in the marginalisation of Maori communities to the point where we are effectively second-class citizens in our own country. Although Maori live integrated among other New Zealanders in a free market, Western democracy, the large bulk of the Maori population live in poorer urban areas with distressingly high exposure to academic under achievement, high rates of unemployment, poverty, cultural erosion and an inability to access appropriate health services. The tragedy of Maori SIDS is born from this reality.
The typically Western cultural features of health service provision impact negatively on Maori. This unfortunate state of affairs demands a Maori approach when offering support to Maori families who lose a child. The situation can be a hugely complex situation involving cultural imperatives around death rituals, religious practices, legal requirements, medical explanations, environmental factors and the socio economic situation. Maori SIDS workers are effective in these situations because of their in-depth knowledge of Maori communities, their personal knowledge and their intensive training they receive in SIDS education.
This session is an opportunity to hear about the 'Maori experience of SIDS' and to discuss and question the continued development of this ethnic specific SIDS initiative nine years since its inception.

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A QUALITATIVE EXPLORATION OF THE EXPERIENCES OF MAORI PARENTS AND CAREGIVERS THE LIFE HISTORY APPROACH

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Aotearoa has historically had higher SIDS rates than comparable Western countries. Between 1989 and 1992, SIDS information dissemination and a national cot death prevention campaign advertising the modifiable risk factors halved the national SIDS rate. While Maori SIDS rates are trending downwards, they remain four times higher than those of the general population.
While biomedical and epidemiological research has contributed much to our understanding of SIDS there have been no systemic studies in which Maori parents life experiences have been for nearly three quarters of the total SIDS numbers.
A qualitative research project, currently in progress, seeks to explore the complex experiences and insights of Maori SIDS families in order to gain greater insight into the broad conditions and processes within which Maori SIDS occurs. The significance of this research, is its potential to enhance our knowledge and understanding of the environmental factors around Maori SIDS and therefore to contribute to the development of new prevention and projects within a public health framework. The methods and preliminary findings of this research will be presented.

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CRIBS FOR KIDS - A SAFE-SLEEP EDUCATION PROGRAM

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Providing a safe sleep environment consists of more than just placing a baby on his/her back. Application of the 1996 CDC protocol for infant death scene investigation in Pittsburgh, Pennsylvania, has led to the accrual of a database that strongly supports the hypothesis that the majority of post neonatal deaths are related to the presence of a modifiable unsafe sleep environment.
The Allegheny County Health Department reviewed 66 deaths from 1997 to 2003. In almost all cases, risk factors related to either sleep position or sleep location were found. 62% of these deaths occurred while the infant was sleeping either on a couch or in an adult bed. In most cases the infant was sleeping with an adult or other child on these surfaces. The majority of the deaths were black (60%) despite the fact that the black population represents only 12% of the total population of Allegheny County. In only 20% of the deaths was the infant in a crib or bassinet and in most of these cases the infant was put to sleep on the stomach. The new AAP Policy Statement of the Task Force on Sudden Infant Death Syndrome recommends promoting not just correct sleep position but also sleep location and appropriate sleeping environment.
In Pittsburgh, SIDS of Pennsylvania, a member of the CJ Foundation for SIDS Partnership, created a 'Cribs for Kids' Campaign in 1998, which includes not only safe sleep education but the gift of a crib to families in need. It is the first of its kind in the country. With its success, it is being hailed as a national model to help reduce the disparity between African American and Caucasian deaths in infancy. Since the inception of 'Cribs for Kids' over 4,000 infants in the Pittsburgh area have received a safe-sleep environment. Through the efforts of SIDS of PA, 'Cribs for Kids' continues to grow. Currently there are partners in 44 counties in Pennsylvania and 16 other states. Over 10,000 cribs have been distributed in those areas. The SIDS/Accidental Suffocation rates in Allegheny County have gone from 17 in 1998 to 5 in 2004. 'Cribs for Kids' was credited with this reduction by the Allegheny County Child Death Review Team. More importantly, every baby who has received a crib and safe-sleep education through the 'Cribs for Kids' Campaign lived to celebrate its first birthday.

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COMPARISON OF BEHAVIOUR MODIFICATION WITH AND WITHOUT SWADDLING AS INTERVENTIONS FOR EXCESSIVE CRYING

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Objectives
In the Netherlands excessive crying occurs in 5-15% of all infants. A variety of different interventions can be launched to reduce the crying, but in the Netherlands no fixed strategy is used. Sometimes parents may employ potentially dangerous interventions to reduce the crying, for example placing the infants in a prone sleeping position or co-sleeping with their infant.
Swaddling might be an effective method to reduce excessive crying but it has never been systematically investigated.
Study Design
In a randomized trial a standardized approach, which consists of offering regularity and stimulus reduction (R-group), was compared with an experimental group, which received the same approach, supplemented with swaddling (RS-group). Health care nurses coached 398 excessively crying infants up to the age of 12 weeks and 6 days and specially trained health care nurses guided them for a period of three months. Participating parents were mainly referred by healthcare workers from well-baby clinics. The intervention cost little time (3 contacts and 6 telephone calls).
Results
Outcome measurements are the amount of crying as measured by the 24-hours diary of Barr (1), and parental perception of the crying in a cry-perception scale (2). Crying decreased with 42% in both groups after the first intervention week and with 75% after eight intervention weeks. Therefore, swaddling has no added benefit in reducing crying in the total group. Subgroup analyses however show interesting results and these will be presented.
During the first week of intervention the amount of crying differed between both groups, which has implications for the implementation of the strategies. In the R-group the amount of crying increased on the first day and in the RS-group the crying decreased on the first day. After a few days there was no difference in decrease of crying between both groups. Based on the results of this trial, a nationwide campaign is launched in 2005 through well-baby clinics to effectuate an efficient and standardized approach to excessively crying infants.

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HIGH RISK GROUPS BETTER DEFINED

Maaike van Schaijk[1], Caren I Lanting[2], Ko van Wouwe[2], Adele C Engelberts[3], Monique P L'Hoir[10]
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The good health care, high standard of living and level of education of the general population unquestionably contribute to the low incidence of cot death in The Netherlands. Previously established risk factors for cot death are mainly associated with families who live under unfavourable socioeconomic circumstances, but for targeted prevention more specific information is necessary as some families will be difficult to influence through regular preventive strategies. A national survey on baby care habits was carried out in 2003 in order to gather data on specific high-risk groups.
2783 infants, aged 0-6 months old were included.
Prone sleeping, occurred in 6,1%, and was related to: prematurity, having a single mother, a young mother (17-24 years of age), or a jobless mother and belonging to an ethnic minority.
Side sleeping, which occurred from 23,5 % in the first month to 8,2% at the age of two months, was related to prematurity, having a young or single mother, and belonging to an ethnic minority.
Duvet use, 7%, was related to having a single mother, or a jobless mother or one with a low education level.
Sleeping sacks (considered protective) are used for 52% of 3-month-old infants. Ethnic minorities use a sleeping sack less often (32% v 45%).
Bedsharing occurred in 5%. Young (17-24), as well as older mothers (> 34) bedshare more often as do ethnic minorities and single mothers.
Placing the bed in the parental room (considered protective) occurs in 20% of the population. Older mothers (> 34), more highly educated parents and ethnic minorities do so more often.
Conclusion
Intervention strategies should focus on early detection of specific unfavourable conditions of families. These include: single mothers, young mothers, ethnic minorities, low educated mothers and mothers who receive social security. These families not only need to be specifically informed about preventive measures concerning cot death, but should be offered help, extra guidance for instance by public health nurses, with the care of their child.
Parents of preterm and small for gestational age infants should be informed about preventive measures before discharge of the hospital. A special campaign to inform ethnic minorities about the risk for cot death has recently started.

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BEDSHARING: DEVELOPING MESSAGES FOR MAORI NEW ZEALANDERS

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The National Coordination of Maori Sudden Infant Death Syndrome

This paper discusses the struggle of an indigenous Maori SIDS prevention programme to develop the appropriate public health message around bedsharing with infant children. The problem before us was that bedsharing, a valued practice for generations of Maori, was implicated by New Zealand epidemiologists as a risk factor in SIDS and we, as health professionals, were charged with the responsibility of presenting a public heath message that was at the same time, acceptable in Maori communities and cognizant of scientific opinion.
The thrust of our public health message regarding bedsharing changed over the years as research reveled more about the relative importance of various risk factors for SIDS. In particular, the interaction between bedsharing and cigarette smoking was of vital importance. We began considering bedsharing to be an independent risk factor. Then it was discovered that the bedsharing was a major risk in the presence of cigarette smoking and on its own the risk was almost negligible. Finally, the realization that smoking in pregnancy (not environmental smoke) was the culprit in the bedsharing/cigarette smoking risk led us to our present health promotion messages.
We presently promote 'Safe Sleeping Environments for Infants'. We do not counsel against bedsharing at all where there was a smoke-free pregnancy. We advise that where mother smoked during pregnancy, the baby can be cuddled, fed and cradled in bed but that when the parents go to sleep, the baby should be placed, on their back in a cot free of potential suffocants like bumpers, toys, pillows and loose blankets.

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