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# Abstracts of invited speakers



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# *The role of epidemiology in SUID/SIDS in time and in the world*

**P. S. Blair**, University of Bristol, England, United Kingdom

In this lecture I am going to look at the role epidemiological observations have played in the welcome reduction of SIDS deaths; the wide net that was initially cast in search of risk factors, the background characteristics of the SIDS families and infants and the impact of the 'Back to Sleep' campaign in England & Wales in the 1990s. I am then going to try and address in the subsequent decades 4 questions; i) Have we found a causal mechanism? ii) Have the background characteristics changed? iii) Have some risk factors been eradicated? and iv) Have new risk factors emerged? Finally, given the fall in rates, I am going to explore how we can test new ideas and collect epidemiological observations in the future.

## *An example of epidemiological surveillance in Europe: the French model*

**I. Harrewijn**, K. Levieux, the OMIN (Observatoire des Morts Inattendues du Nourrisson) study group, the members of ANCREMIN (Association nationale des Centres de Référence de la Mort inattendue du Nourrisson), France.

With nearly 400 deaths every year, France is one of the countries with the highest SUID rates in Europe. Between 2007 and 2009, the French Institute for Public Health Surveillance (Institut National de Veille Sanitaire; INVS) conducted a national survey to estimate the number of SUID and SIDS cases in France, to describe these deaths and to evaluate their management. The French territory is covered since 1986 by 36 referral centers originally created by the French government to deal with the huge increase in the number of deaths in the early 1980s, becoming a real public health problem. The purpose of these centers is to conduct a thorough investigation into the causes of death, to assist bereaved families and to promote the prevention and safety of the baby's sleeping environment to the public and health professionals. Official recommendations concerning the management of these deaths were published by the French Health Authority (HAS) in 2007. However, the results of the INVS survey published in 2011, have shown a great disparity between centers with respect to their routine SUID investigations, which often deviated from official HAS recommendations, and their classification of deaths. In response to this, in 2013 the referral centers were regrouped within the French national association of SUID referral centers (Association Nationale des Centres Référents de la Mort Inattendue du Nourrisson; ANCREMIN). In 2014, a preliminar multicenter cross-sectional epidemiological study was conducted to reassess the SUID diagnostic approach in France, and the degree of implementation of the 2007 HAS recommendations, by sending a questionnaire about the routine of centers in case of SUID. In addition, six SUID test cases for death classification were also sent to the participating centers. This study showed that the heterogeneity between French referral centers was still relevant. Taking into account this reality, it became clear that the creation of a French national registry would be an effective tool for the evaluation and subsequent standardization of practices between referral centers. Furthermore, it would provide a source of accurate data, to characterize SUID deaths in our country, with the aim to guide medical research and to design new evidence-based prevention campaigns. An international consensus, The Global Action and Prioritization of Sudden Infant Death (GAPS) Project, has recently provided the international SUID research community with a list

of shared research priorities to more effectively work toward explaining and reducing the number of sudden infant deaths. Three main themes emerged: (1) a better understanding of mechanisms underlying SUID, (2) ensuring best practices in data collection, management and sharing and (3) a better understanding of target populations and more effective communication of known risk factors. To meet these challenges, the creation of innovative national SUID registries systematically collecting standardised data for every SUID case along with biological samples seems essential. Accordingly, 35 French SUID referral centres in collaboration with ANCREMIN initiated in 2015 a French national registry (Observatoire National des Morts Inattendues du Nourrisson; OMIN), to prospectively collect for all French SUID cases a large variety of socioenvironmental, behavioural, clinical, radiological and autopsy data simultaneously with biological samples as well as other health-related administrative data (health claim reimbursements and hospital admissions) concerning the infants and their mothers. The global objective of this registry is to sustainably decrease the number of sudden infant deaths by (1) basing prevention on standardised data, (2) understanding the mechanisms leading to sudden infant death, including the contribution of the already known or newly suggested risk factors, and (3) gathering a multidisciplinary group of experts to coordinate and develop research in the SUID area. This French sudden unexpected infant death registry was approved in 2015 by the French Data protection Authority in clinical research (Commission Nationale de l' Informatique et des Libertés; CNIL) and by an independent ethics committee (Groupe d'Etique Nantais dans le Domaine de la Santé). The OMIN registry is an observational prospective registry that over at least a 10 - year period (2015-2025) aims to include in 35 participating referral centers all SUID cases occurring on the French metropolitan territory and two overseas islands, la Martinique and la Reunion. Results will be discussed with associations of families affected by SUID, caregivers, funders of the registry, medical societies and researchers and will be submitted to international peer-reviewed journals and presented at international conferences. Since May 2015 over 800 cases of SUID have been recorded in the database. The French referral centers are firmly convinced that this integrative approach concerning SUID should be generalised and applied to other countries. It has the potential to provide an effective response to this major public health issue by helping better appreciation of several contributing risk factors and by monitoring specific SUID and SIDS trends, to improve the management of SUID cases and their families, and to develop fundamental research studies to effectively reduce infant deaths.

## ***Position, smoking and unsafe sleep context***

**S. Noce**, Center for Pediatric Sleep Medicine and SIDS, Regina Margherita Children Hospital. Città della Salute e della Scienza di Torino, Turin, Italy

**Background:** The sudden and unexpected death of an infant (SUID) is not a disease, but a tragic event that occurs, mainly during sleep, in a particular period of the life, in a particular infant, in a particular environment. Epidemiology, over the last 30 years, has shed light on the environment in which the risk of SUID increases and has allowed us to act on modifiable risk factors, determining a significant decrease in the incidence of the phenomenon. However, the SUID still represents the leading cause of infant death in industrialized countries, excluding the neonatal period and the main risk factors, after a rapid initial downward trend, have reached a plateau in the last 20 years.

**Aims:** The aim of my presentation will be to describe the main modifiable risk factors of SUID: prone and lateral position in sleep, unsafe environment and passive smoking. So I will focus on the possible causes of their persistence and on any improvement strategies starting from the evidences present

in the literature and taking into account the twenty years of clinical experience of our Center and the epidemiological observations derived from the epidemiological surveillance of our region.

**Materials and methods:** I will try to answer questions like this: why do many parents still choose to put their infants to sleep in a prone position or on their side? Why do healthcare professionals not follow international recommendations in this regard? What arguments can be used to reverse this trend?

**Results-Feedback:** Many parents are convinced that their children are not safe and uncomfortable if they sleep on their backs, in an empty bed, without bumpers, without a pillow, without a soft warm blanket, without a stuffed toy and on a firm mattress. On the other hand there are health professionals who fail to provide sufficiently convincing examples and indications as they because they consider the application of the recommendations for the prevention of SUID less important than the prevention of other conditions of secondary importance for the health and survival of infants such as gastroesophageal reflux and plagiocephaly

**Conclusions:** The prevention of SUID starts from the awareness on the part of health professionals of the central role played by this phenomenon in post-neonatal infant mortality and from the constant commitment by the operators themselves to recognize and combat the main risk factors.

## *The pacifier: a protective factor*

**L.M. Nosetti**, M. Agosti, L. Levrini, F.M. Riccaboni, Università degli Studi dell'Insubria, UO di Pediatria-Ospedale Filippo del Ponte di Varese, Italy

**Background:** The guidelines of the American Academy of Pediatrics, published in Pediatrics in 2016, include the pacifier among the protective factors for SIDS during the first year of age [1]. Several studies have shown that the pacifier reduces the risk of SIDS. Hauck et al. performed a meta-analysis of case-control studies and found that one death per 2733 could be prevented by using the pacifier. [2] Various hypotheses have been made about its role in reducing the risk of SIDS. For example, the pacifier prevents "rebreathing" by avoiding direct face contact with the sheets. We have also seen that it lowers the reachability threshold and determines a greater production of arousal in case of hypoxia. [3] [4]. Even the information given to parents about its protective role increases their attention in checking that the child does not lose the pacifier while sleeping. Furthermore, there are some theories that believe that non-nutritive sucking could regulate the infant's autonomic nervous system control. According to a 2004 study, children sleeping with a pacifier have reduced sympathetic activity and a corresponding increase in parasympathetic tone compared to when they sleep without a pacifier. [5] [6] By analyzing arterial oxygen saturation, Cozzi [7] in 2002 succeeded to demonstrate how the use of the pacifier during sleep, in healthy babies born at full term, can increase the ability of the infant to keep the airways open and adequate oral airflow, especially in patients with nasal obstruction. The result was correlated with the function of the pacifier to push the tongue upwards and forward, favoring the passage of air around the pacifier between the tongue and the palate. To Tonkin in 2007 [8] we owe the hypothesis that the association between the use of the pacifier and the reduction of the risk of SIDS may be mediated by the forward movement not only of the tongue but also of the jaw thanks to which the upper airways are kept opened. By measuring the position of the jaw (from the ear line to the most prominent point of the chin bilaterally) before and after allowing the children to suck a pacifier for 10-15 minutes, he was able to demonstrate that effectively the pacifier in the pre-born term was associated with a small but significant forward displacement of the jaw, stable even after

the pacifier was eliminated. Furthermore, data from lateral neck radiographs suggest that there is an association between apparently life-threatening events (ALTE) and an upper airway narrowing [9].

**Objectives:** Between 2017 and 2018, various studies were carried out at the University to investigate the correlation between the use of the pacifier and its impact on respiration.

**Methods and Results:** The results of a first study published in 2019 showed that the use of pacifiers is related to a statistically significant reduction in the number of apneas and hypopneas (AHI) and to an improvement in the average SpO<sub>2</sub> and the value of the minimum SpO<sub>2</sub> detected during sleep time with Getemed Vitaguard V3100 in children who experienced an Apparent Life Threatening Event (ALTE) [10]. Subsequently a further study showed that the use of the pacifier in children aged between 0 and 2 years, admitted after an ALTE / BRUE event, significantly reduced the Apnea and Hypopnea index (AHI), detected by performing a complete polysomnography on NAP during the afternoon nap. Finally, in an even more recent study being published, the variation in SpO<sub>2</sub> was compared in relation to the use or not of the pacifier detected in the waking state and in different positions (supine and supine decubitus on a 30 ° inclined plane) in a sample of 54 children aged between 0 and 3, admitted to the Pediatric ward of the Filippo del Ponte Hospital in Varese, without known cardio-respiratory pathologies. The results obtained showed a statistically significant improvement in SpO<sub>2</sub> related to the use of the pacifier, an even more evident beneficial effect in a supine position on a 30 ° inclined plane.

**Conclusions:** We can state that the use of the pacifier after the first month of life, once the breastfeeding has stabilized, and only up to 2 years of age to prevent it from causing misalignment of the dental arch, turns out to be an excellent intervention for its tranquilizing effect and also for its important function in improving breathing both during sleep and in wakefulness. Such conclusions obviously need further studies to fully understand the limit of the benefits, in consideration of the geometry and the time of use of the pacifier.

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# ***Breastfeeding: protective effects and prevention campaigns***

**R. Pomo**, Reference Center of Sicily Region for the study and the prevention of SIDS and for the home-monitoring of infants at risk of cardio-respiratory impairment Ospedale Buccheri La Ferla Palermo, Italy.

The benefits of breastfeeding are universally recognized; low prevalence rates of breastfeeding and early cessation are accompanied by a greater risk of important negative consequences on the health of the child and the mother. Furthermore, the meta-analyses of several studies have shown the significant association between breastfeeding and reduced SIDS risk. According to the review conducted by researchers at the University of Virginia in Charlottesville and coordinated by Dr. Fern Hauck, breastfeeding is strongly protective against SIDS especially if it is exclusive and not alternated with artificial feeding. The accumulation of this evidence, consistent over time, has led the American Academy of Pediatrics and other international agencies to recommend breastfeeding also as a preventive and effective intervention in reducing the risk of SIDS. In Italy the current prevalence rates of exclusive breastfeeding and its duration are globally below the levels recommended by the WHO. According to an ISTAT survey, in Italy the proportion of women who have breastfed at least once in their lives has grown. In fact, a prevalence of 81.1% in 2005 and 85.5% in 2013 was estimated; the latter is accompanied by an increase in the average duration of breastfeeding with a national value of 4, 1 months. However, in many Italian regions, especially in the South, the prevalence rates of breastfeeding remain low. In 2015, promoted as part of a regional project, a survey was carried out in the Sicily region to monitor the effectiveness of a prevention intervention represented by an information campaign for the prevention of SIDS in Sicily. Information on breastfeeding has also been reported. Subsequently in the Sicily region a further prospective cohort study was conducted on a sample, proportional by province, of women resident in Sicily who gave birth between April and July 2017. The data was collected at 1 month from birth through a questionnaire administered by telephone. A multivariate logistic analysis was conducted to assess the association between the supine position during sleep and exclusive breastfeeding at 1 month, age, marital status, nationality, job, schooling, economic level, smoking, pre-birth course, rooming-in, prescription of the formula at discharge, use of pacifier. In both studies it is confirmed that exclusive breastfeeding can be considered an indicator of other good health practices, as the adoption of the supine position for the child's sleep. On the contrary, unhealthy behaviors such as smoking habits are predictive of unsuitable practices such as greater prevalence of the prone or side position. The lack of practice of exclusive breastfeeding is more frequent among mothers who have a greater socio-economic disadvantage, as well as, in general, inequalities in the population determine a different propensity to adhere to healthy behaviors and to a different recourse to assistance services.

**Considerations:** Almost all women are biologically able to breastfeed: only a few have contraindications that prevent them from starting or continuing. However, the dynamics that lead a mother to breastfeed naturally are influenced by a variety of historical, social, economic, cultural and individual factors. The proportion of women who choose to breastfeed their child, to maintain this practice for an adequate time and adhere to the exclusivity regime, together with breastfeeding promotion activities on the territory, are indices of the overall quality of the public health service in the field of maternal and child health. Breastfeeding is therefore the result of the interaction between different factors including the state of health and the skills of the child and the mother, but it is also an indicator of the offer of health services, general social conditions and the specific contexts in which women reside. The health policies must be oriented to promote breastfeeding as fundamental for the growth of the child and as a safeguard in the field of safe sleep.

## ***The pain of perinatal loss: a shock wave that propagates to concentric circles.***

**G. Gandino**, Department of Psychology, University of Turin, Turin, Italy

The term “Perinatal loss” refers to any death occurring during pregnancy, childbirth or the first week after birth. Although this is not a rare event, perinatal loss is not a theme to be talked about: in a historical period and in a society oriented to the preservation of life, for which death is the first and undisputed taboo, perinatal loss is not seen as a possible natural outcome of the pregnancy and presents itself as an unthinkable event. It is an invisible death, because it occurs in the womb, and often gives rise to a disinherited mourning: due to the lack of social recognition, the elaboration of mourning stops, and the pain does not flow. Starting from a pain that encysts in the body of the mother - where the loss happens - the repercussions of the perinatal loss spread, in concentric circles, within the nuclear family system and extended. Suffering extends from the mother and father to the couple system, and involves the “forgotten grievers”: grandparents, brothers and even children who could arrive later, who are not entitled to express their pain and who can carry on their shoulders consequences of loss even in the long term. Through a punctual analysis of international literature, and adopting a careful approach to family relationships, the intervention brings a clinical reflection on the phenomenon and its complex repercussions.

## ***When the unexpected happens: perinatal loss in the gynecology and obstetrics wards. Difficulties and needs in healthcare professionals***

**I. Vanni**, Department of Psychology, University of Turin, Turin, Italy

Despite the silence under which the perinatal loss falls in our society, the deaths in utero are far from rare. Loss in pregnancy comes as a dramatic event and potentially traumatic not only for parents affected, but also for the hospital staff that took care of them. As they are not immune to the emotional impact that the event generates, the operators have the difficult task to provide an adequate assistance to the woman and the couple at a time when they are themselves strongly involved in the event. To take care of the reactions of mourning of the patient and at the same time of the families can be difficult, if the appropriate tools are not available. In addition, the perinatal loss characterizes as a deep split with respect to their professional mandate, aimed at welcoming the birth of new lives, and emotions difficult to manage (such as impotence, anger, frustration, sense of guilt) can emerge; over time these emotions can affect the sense of personal efficacy and increase the risk of burnout. When the unexpected happens, the possibility of creating spaces where to discuss and process is an indispensable step for the well-being of the operators and, consequently, for adequate clinical practice. Operators need it not only to acquire adequate clinical practices to regulate their sense of effectiveness, but they also need tools to integrate those parts of oneself that resonate with the event of perinatal death, in order to acquire greater awareness in their own limits and personal resources. Taking care of the caregiver is the first step to move towards a careful and effective clinical practice.

# ***Sudden and unexpected infant death and the psychological impact of the mourning process***

*C. Carbonara*, Città della Salute e della Scienza di Torino, Turin, Italy

The intervention will have as its object some reflections on the experience of psychological support in the elaboration of mourning in cases of sudden and unexpected death of the child from 0 to 12 months. Starting from the analysis of the stages of elaboration of the physiological mourning (Bowlby), the report will focus on the traumatic which is characterized by the experience of sudden death of the small child, and therefore of complications in the process of mourning, which becomes pathological mourning, for the parents and for the brothers, if present. The clinical experience and the support of the theory predisposes the professional to a type of flexible, respectful and delicate intervention: some examples will help to reflect on the different ways of approaching and supporting pain, outlining different types of intervention depending on the request and availability of the family.

## ***Parents and family pediatricians' testimonies***

### ***Parents' testimonies***

*S. Scopelliti*, President of the Association SUID & SIDS Italia Onlus

**Introduction:** The suffering resulting from the Sudden and Unexpected Death in its various forms has its own specificity. Death in general always causes great suffering, but the death that is not expected (especially that of one's own child) is even more difficult and acute in its intensity and unsustainability. Unexplained events are at the origin of great psychological and social problems. The pain of the loss of one's own child is already a difficult event to overcome but nevertheless there are circumstances that can support the victims' families in the process of mourning.

**Materials and methods:** From 2016 until August 2019 we collected over 200 documents including questionnaires, interviews and testimonies.

**Results:** The psychological problems that arise from the sudden and unexpected death are evident. It emerges a bereavement that is already difficult to overcome and that becomes even more insurmountable in the context of non-existent assistance. Through the testimonies resound the difficulties that families unfortunately face, and it is through their narration that their needs stand out. The results show how the management of a victim family differs according to the place in which the event happened; there is no uniformity in taking charge of the family and in some cases the taking charge is not even considered. Furthermore, it emerges that it is essential to provide a well-structured management service that can immediately provide the right assistance and information on the event just occurred. Lastly, it is also evident that the family feels abandoned by the context and by the services on which it was supported by the birth of the child.

**Conclusions:** It is essential to devote attention to these events, providing the expected, but also qualified, assistance. Healthcare is delivered by the Regional Institutions that should be concerned about ensuring the protection of the family from the psychological point of view. In the traumatic context of these deaths, protocols are needed to guarantee the right assistance in the immediacy of the event. The protocol must consider the entire family needs (especially if there are minors) and the subsequent time for the mourning process; these services should be offered completely for free.

Furthermore, it is essential that the autopsy results are shown within the time allowed (maximum six months) through a detailed explanation of the clinical and anatomopathological aspects by the healthcare professionals experienced in the field.

### *A family paediatrician testimony*

**C.Bevegni**, Medical Doctor, Pediatrician, Turin, Italy

**Background:** SUIDs and SIDS are the most frequent cause of death in the first year of life, excluding the perinatal period (first month). Therefore, each pediatrician in his career may face this dramatic event and its impact on the family.

**Objectives:** The family pediatrician, who generally takes care of the child from birth to adolescence, plays a role not only as a doctor but also as a mediator of relationships for a harmonious psycho-social development of the child. It also has a privileged role as he knows the family and the environment in which the baby lives and can intervene by supporting the various parts. The pediatrician, in an event of this severity, must be able to support the family both through specific professional training and as an intermediary with the network of professionals involved in this situation: the Epidemiological coordinator of the Surveillance of sudden deaths in the range 0-2 years of the Piedmont Region, the SIDS center, the legal medicine division, the anatomopathologist and the magistrate

**Methods:** The testimony that I present to you concerns a patient of two months of age who, in full health in the previous days, died at night during sleep. There are many difficulties that present themselves to the pediatrician in managing the relationship with the family that is facing such a serious and sudden event. Therefore the paediatrician must be supported from the psychological, technical and decisional point of view (for example in the choice of autopsy). The network of doctors and professionals is fundamental (the Epidemiological coordinator of the Surveillance of sudden deaths in the range 0-2 years of the Piedmont Region, the SIDS center, the legal medicine division, the anatomopathologist and the magistrate), as they collaborate with the pediatrician, supporting him in the intervention and requesting information from him related to the child's health before the event.

**Results:** The presence of the family pediatrician as a trusted person who until then has taken care of the child and who now supports the family in this circumstance of extreme pain, is fundamental. He must interact immediately and act as an intermediary with other network professionals, exchanging information and experiences useful to strengthen the intervention in favour of the family.

**Conclusions:** It is important that all the local health authorities of Piedmont and in all the Italian regions provides such an organized network. It is also essential that all doctors receive specific training, in order to prevent SUID cases (as is already being done) and to be aware of the presence of the network. In this way, the pediatrician will be able to interact correctly with it, receiving first-hand the psychological and material support to support the work and reduce emotional stress to the minimum possible. Only then it will be possible to provide effective and timely help to the affected family.

# *The importance of a homogenous approach and dialogue with the other specialists involved*

**G. Botta**, Department of Pathology, Città della Salute e della Scienza di Torino, Turin, Italy

Sudden Unexpected Infant Deaths (SUID) are deaths that occur suddenly and unexpectedly in previously healthy infants and have no obvious cause of death prior to investigation. SUID excludes deaths with an obvious cause, e.g., motor vehicle accidents. Sudden Infant Death Syndrome (SIDS) is one subgroup of SUID. SIDS is defined as “...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”. Currently, due to the lack of systematic application in everyday practice of precise diagnostic algorithms, only 15-20% of SUIDs find an explanation. 80-85% of SUIDs thus remain unexplained and, by exclusion, they are classified as SIDS. In practice, therefore, the diagnosis of SIDS is overcounted. Only after a systematic application of a) a thorough examination of the case, including a complete autopsy (with toxicological, radiological, microbiological, and metabolic tests), b) a detailed examination of the death scene, and c) a meticulous review of clinical history would the diagnosis of SIDS be justified. An autopsy, when performed, rarely responds to scientifically adequate diagnostic standards. There is a need for autopsies to be performed according to systematized norms and for optimal standards of study protocols to be followed. These protocols must respond to rigorous methods of scientific evidence in order to be able to determine the causes of death as frequently as possible, and to reduce the cases of SUIDs with indeterminate or unexplained causes due to approximation or superficial procedures. The SUID study method should adopt the following algorithm:

- 1) Examination of the clinical history and circumstances of death. This fundamental act is preliminary to the autopsy and of great help in directing subsequent investigations, thereby reducing the chances of labeling as SIDS many cases that can be otherwise explained. It must be considered as important as the autopsy.
- 2) The autopsy (or diagnostic check) must be carried out in a complete manner; in particular, an investigation must be carried out on vital organs such as the heart, lungs, brain, adrenal glands, and kidneys – the most frequent sites of acute pathologies that can be causes of sudden death. During the autopsy, it is necessary to take samples for toxicological, microbiological, virological, metabolic, and genetic investigations. The conclusive diagnosis is therefore contributed by different medical figures (the coroner, the clinician / pediatrician, the pathologist, the microbiologist, the geneticist ...) each of whom must interact and collaborate with each other. It would thus be desirable for this team to be coordinated by a committee of experts, a “SIDS center”.

Too often affixed to a case of sudden neonatal death, the label “SIDS” hides our present incapacity for diagnostic integration. The ultimate goal is to reduce the number of cases today left without explanation (“SIDS”) and, once we understand all the mechanisms that contributed to these deaths, to lower the child mortality rate. To do this, current diagnostic procedures are insufficient. It is necessary to invest in further research.

## ***The intervention of the judiciary in SIDS / SUID cases: how, when and why***

**A. Baldelli**, Acting prosecutor at the Juvenile Court of Piedmont and Valle d'Aosta, Turin, Italy

The law n. 31 of 2006 opened the door to important investigations aimed at acquiring greater skills in the field of SIDS in order to protect new children of couples who have suffered the loss of their baby. There are, however, legal implications, which pertain to the discipline of family law and must be explored and known by those who, for whatever reason, must deal with the matter, since there are many critical issues that can be detected.

## ***The role of arousals in SIDS: from physiopathology to prevention***

**P. Franco**, Claude Bernard University, Lyon, France

Arousals from sleep allow sleep to continue in the face of stimuli that normally elicit responses during wakefulness, but also permit awakening to the most urgent information. Such an adaptive mechanism implies that any malfunction may have clinical importance. A lack of an adequate arousal response to a noxious nocturnal stimulus reduces an infant's chances of autoresuscitation, and thus survival, increasing the risk for SIDS. Polysomnographic studies have shown that SIDS could be linked to arousal defects during sleep: in the weeks preceding their death, SIDS victims present fewer arousals than healthy babies at the end of the night and their arousals are more often incomplete. All prenatal and postnatal risk factors for SIDS such as prematurity, tobacco exposure during pregnancy, sleep in prone position, sleep deprivation, high ambient temperature decrease arousability from sleep, although that protective factors like breastfeeding, pacifier use have an inverse effect. The age range concerned by SIDS is very narrow: most SIDS occur between 2 and 6 months. This suggests that SIDS could be due to a developmental abnormality. Impairment in the maturation of sleep and wakefulness processes is therefore likely to be involved in SIDS. During this presentation, we will review the electrophysiological results of these studies but also the new data concerning the different arousal systems that could be involved in this condition.

## ***Sleep medicine and SIDS: the importance of instrumental sleep tests in at-risk infants***

**S. Scaillet**, Hôpital Universitaire Des Enfants Reine Fabiola (HUDERF), Brussels, Belgium.

Instrumental sleep tests (IST) have allowed the scientific community to further understand the potential mechanisms involved in the pathogenesis of SIDS. Professor Kahn and his research team contributed greatly to this understanding through the use of polysomnography to study infant's sleep. A large study involving 40 polysomnographies of infants who later died of SIDS showed that they had significantly more apnea during their sleep. Further polysomnographic studies on arousal responses and autonomic reactivity in at risk infants confirmed that the presence of the apnea observed in SIDS victims reflects a certain immaturity of the respiratory control. So, although epidemiological studies can identify "risk factors", such as tobacco smoking during pregnancy or prematurity, IST has the potential to identify which individual is at increased risk for SIDS.

## *To know to prevent: prevention campaigns and worldwide objectives*

**P.S. Blair**, University of Bristol, England, United Kingdom

In this lecture I am going to look at the problems with the SIDS and SUDI classifications and which ICD codes we need to use to compare rates across different countries. Comparing these rates from 2000 to 2017 for 9 countries there are clear differences which may potentially be linked to prevention campaigns. Although most risk reduction advice is non-controversial the advice surrounding bed-sharing is polarised into those countries who advise against this practice and those that acknowledge bed-sharing happens and advise against bed-sharing in hazardous circumstances. These approaches will be described and we will also look at the debates surrounding dummy (pacifier) use and immunisation. Finally I will look at future objectives in terms of identifying high risk families and using interventions to keep infants safe.

## *In memory of Dr Elisa Ferrero. Sleep related risk and worrying behaviours: a retrospective review of a tertiary centre's experience*

A. Vigo<sup>1</sup>; S. Noce<sup>1</sup>, **G. Costagliola**<sup>1</sup>, E. Ferrero<sup>1</sup> +, O. Bruni<sup>2</sup>

1. Center for Pediatric Sleep Medicine and SIDS, Regina Margherita Children Hospital, Città della Salute e della Scienza di Torino, Turin, Italy

2. Department of Developmental and Social Psychology, Sapienza University, Rome, Italy  
+ 2017

**Background:** Parents of infants are often frightened by events taking place in sleeping hours. This may be because the Sudden Infant Death Syndrome (SIDS), the main cause of sudden infant death in western countries, typically occurs during sleep. As a consequence, parents can spend most of their time in observing their babies sleeping: in the infant's sleep there are several phenomena, which can look like life-threatening. In these case parents can activate Emergency Medical Services (EMS) and bring infants to Emergency Divisions (ED), where healthcare professionals, who may be not well-versed in paediatric sleep medicine, can find difficulty in understanding the severity of those phenomena too.

**Objectives:** This report aims at: 1) describing the worrying behaviours in infants' sleep as reported by their parents 2) identifying babies considered at risk for fatal events during sleep.

**Methods:** Retrospective charts review of medical records of infants aged >12 months who showed a worrying behaviour during sleep, subsequently activate EMS /ED and eventually were referred to the Center for the Pediatric Sleep Medicine and for SIDS of Regina Margherita Children Hospital, Turin in the period January 1st 2009 to December 31st, 2015.

**Results:** A total of 70/799 infants visited in the Centre after ED/EMS activation were identified as having worrying behaviour during sleep. Their average age was 55±54.37 days. There were 7 infants born preterm. At the first medical examination (by EMS/ or ED) 97% infants were asymptomatic; 61% patients had a Capillary Blood Gas Analysis. A severe acid-base disorder was observed only in

two infants, asymptomatic at the first medical evaluation. Reconstruction of the episode revealed that had assumed an unsafe sleeping position, as they slept in prone position.

No death nor neurological adverse outcome where reported in the three months follow up period.

**Conclusions:** Even if strongly alarming, most worrying infant behaviour during sleep can be related to paraphysiological phenomena; Capillary Blood Gas Analysis and anamnesis are pivotal to identify the cases at risk of fatal events.

### **References**

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## ***Newborn collapse: the update of the Guidelines of the Italian Society of Neonatology and Piedmont Region experience***

**C. Carbonara**, Neonatology and Neonatal Intensive Care Unit, Città della Salute e della Scienza di Torino, Turin, Italy

**Background:** The definition of the Sudden Unexpected Postnatal Collapse (SUPC) is widely debated and controversial. Including criteria such as gestational age, postneonatal adaptation and temporal interval are different among the literature. The SIN guidelines published on September 2018 refer to the definition of the British Association of Perinatal Medicine (March 2011) which include in the SUPC any healthy infants born at greater than 35 weeks of gestational age, with a 5 minute Apgar score of 8 or greater, who collapse suddenly and unexpectedly within the first postnatal week of life.

**Aims:** Since SUPC is more frequent in the first 2 hours and in the following 72 hrs after birth and it has been associated with the prone position, SSC (Skin-to skin care) and co-bedding, the SIN has recently formulated guidelines in order to indicate the correct management of newborns both in the delivery room (DR) and during rooming-in. The aim of these recommendation is to implement SSC and rooming-in, widely accepted as beneficial for the family bonding and for breastfeeding, keeping a correct surveillance.

### ***Guidelines (main topics)***

- SSC, early breastfeeding and rooming-in must be implemented and correctly understood by all the caregivers in the DR and nursery.
- A neonatal-PBLS should be attended each 2 years by all the caregivers in the DR and nursery.
- During the first 2 hrs of life, a document indicating vital signs must be completed each 15 minutes assisting the mother-newborn diad.
- Surveillance must be reinforced in the case of a primiparous mother
- The use of the pulsossimetry can be considered when no other member of the family is present in the DR, parents are not considered adequate (language barrier, anesthesia), heavy work in the DR.
- During rooming-in a single caregiver can take care of no more than 3 mother-newborn diad.
- According to widely accepted indications, bed sharing must be discouraged.

In addition guidelines offer a detailed program to manage a SUPC event, with specific attention to diagnostic exams and counselling with the family.

**Conclusions:** SIN guidelines represent a useful tool in order to correctly manage a potentially critical step in neonatal adaptation and a crucial moment for the development of family bonding. The application of these rules will result in prevention SUPC and possibly also postneonatal outcomes showing parents the safe sleep recommendations.

## ***Prevention and risk factors elimination strategies starting from birth***

**A. Vigo**, Division of Pediatrics, Hospital of Ivrea, ASL TO4, Turin, Italy

In this lecture I am going to show the application of all the good practices to reduce the incidence of sudden infant death in a Neonatology Unit for babies at term, within a Division of Pediatrics, verifying the feasibility of the scientific evidence in the territorial context.

I will talk about the Sudden Unexpected Post Natal Collapse (SUPC) and its association with the Skin to Skin care. I will also expose the main rules about SIDS prevention in relation to Rooming in practice.

## Selected Abstract

PROTOCOL  
NUMBER

TITLE

AUTHOR

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<b>0011A</b>	SIDS and ANTI-SIDS: Primary prevention of "cot death"	J. Versino
<b>0012A</b>	Between guilt and shame. Perinatal mourning in a cross-cultural perspective.	A. Provera G. Gandino
<b>0013A</b>	SIDS: protection of the newborn and infant. Survey on the knowledge about risk reduction in standard care	G. Tavormina S. Silenzi R. Pomo
<b>0014A</b>	When pregnancy interrupts: perinatal loss in the couple	G. Gandino - A. Sensi I. Vanni
<b>0015A</b>	The paradox in obstetrics: perinatal loss and repercussions on health workers.	G. Gandino I. Vanni
<b>0016A</b>	The safe to sleep campaign:survey about knowledge on SIDS prevention rules in Sicily Region	D. Cigna R. Pomo
<b>0017A</b>	SIDS and co-sleeping: a survey among mothers and an educational proposal	V. Basile L. Puglioli
<b>0018A</b>	Main characteristics of sudden and unexpected deaths caused by Respiratory Syncytial Virus	F. Lupariello - C. Petetta G. Botta - G. Di Vella
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<b>0020A</b>	Apparent Life-Threatening Events and Epilepsy: main predictive factors	A. Vigo - M. Farioli G. Costagliola - S. Costa S. Noce
<b>0021A</b>	A dangerous "diagnosis of convenience": ALTE caused by gastroesophageal reflux	M. Farioli - A. Vigo G. Costagliola R. Fazio - S. Noce
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<b>0023A</b>	Unexpected neonatal death due to Persistent Pulmonary Hypertension: a retrospective analysis	C. Petetta F. Lupariello G. Di Vella - G. Botta
<b>0024A</b>	The Computerized Micro Tomography As A New Diagnostic Tool in the Case of Cardiac Pathologies	F. Lupariello C. Petetta - T. Genova F.D. Costanti Mussano G. Di Vella - G. Botta
<b>0025A</b>	SIDS / SUID PREVENTION: the role of health workers to educate parents about the rules that make their baby's sleep safer.	L. Guido M. Uras G. M. Terragni
<b>0027A</b>	Good practices in case of infant death in the emergency room	V. Carmellino I. Bergese
<b>0030A</b>	Investigation of Sleep Environments in Japanese Healthy Infants	I. Kato - K. Ichikawa H. Togari
<b>0031A</b>	Back to sleep: press campaign in Piedmont, Italy	A. Guala

## 0010 A

**Title:** Management of infants with a Bordetella Pertussis (BP) infection at “Hôpital Universitaire Des Enfants Reine Fabiola” (HUDERF), Brussels, Belgium.

**Authors:** P. Perlot, P. Couillandre and S. Scaillet  
“Hôpital Universitaire Des Enfants Reine Fabiola” (HUDERF), Brussels, Belgium.

### **Background**

Infants who are not completely immunized for Bordetella Pertussis (BP) are at risk of contracting the infection. These infants are often aged between birth and 6 months, which places them in the risk period for SIDS.

While the detection and treatment of the infection is relatively straightforward, the discharge from the hospital is often rapid, and there remains uncertainties as to how the child will fare during sleep while he continues to recover from the infection at home.

### **Objectives**

At “Hôpital Universitaire Des Enfants Reine Fabiola (HUDERF), the attitude is to give the child at discharge a cardiorespiratory (CR) monitor with a memory, to be used during the child’s sleep. The question remains how long should the monitor be used.

### **Methods**

This is an observational study of a cohort of 14 infants hospitalised at HUDERF between march 2016 and May 2019.

### **Results**

The average age at diagnostic (PCR) was 74 days (median 63; min 26; max 143). 9 of these infants had a polysomnography (PSG) an average of 65 days after the day of diagnostic (PCR), and 7 of them had a normal PSG. Three infants had an abnormal PSG, with an unusual amount of obstructive events during sleep.

The 7 infants with a normal PSG had an average surveillance time at home (during sleep) of 73 days (median 71; min 46 and max 105 days).

### **Conclusions**

On the basis of the observations described in this short study, it seems safe to recommend that young infants within the ‘at risk period for SIDS’ who contract a BP infection requiring hospitalization benefit from a home cardio-respiratory surveillance during sleep for an average period of 2 months past infection date.

## 0011 A

**Title:** SIDS and ANTI-SIDS: Primary prevention of “cot death”

**Author:** J. Versino  
Regina Margherita Children’s Hospital, City of Health and Science of Turin, Turin, Italy

### **Background**

SIDS is the third cause of death in infants between one month and one year and represents the 8% of all the deceases in infantile age. This syndrome manifests itself with the death of the child, so it’s necessary for families to have a good knowledge about risk and prevention factors of this syndrome. Health professionals who have contact with parents must be well prepared on this subject, so they can make a clear and correct education, essential for SIDS’ prevention and tutelage of life.

### **Objectives**

The objective of this work is to observe the clinical practice realized in born centers of Turin and Turin's first hinterland, to verify the adherence to the actual literature on SIDS' prevention.

### **Methods**

This investigation is a multicentric transversal observation study. The sample survey includes 725 newborns: 586 observed during the rest, 516 in their cots and 70 in bed sharing; 139 unobserved because awake.

To scan those data it's been used Microsoft's Excel Professional software.

### **Results**

The results obtained show that in most of the cases information is correct and efficacious. But some health professional's indications sometimes are discordant with scientific literature. The data of newborns sleeping in their cots reveal: 79.84% of correct posture, 100% mattress' conformity, 98.45% pillow's lack, 92.53% right level of the coverlet, 60.66% lack of short ropes or objects near the face of the baby, 91.86% adequacy of temperature and change of air in the room, 100% right distance of the baby from heat sources. The data of bed sharing show that the posture is correct just for 51.43%; only 25.71% the use of the coverlet is right.

### **Conclusions**

The survey should be continued to obtain most important results. Health professionals should receive updates and learning about this tricky and important topic, easy to prevent, to give a better assistance and to protect life's sacredness.

## **0012 A**

**Title:** Between guilt and shame. Perinatal mourning in a cross-cultural perspective.

**Authors:** A. Provera, G. Gandino

Department of Psychology, University of Turin

### **Background**

Perinatal mourning is one of the most difficult and complex experiences of loss to be elaborated; this happens because of its characteristics that make it a dramatic, paradoxical and traumatic event, as well as socially denied as it is not visible. The following work is inspired by the hypothesis that cultural differences, particularly between collectivist and individualist societies, can influence the experience of the woman who suffers this type of loss both at the individual level, in the subjective experience and in family relationships, and at the collective level, in terms of social relations with the community to which they belong.

### **Objectives**

The paper proposes a reflection on the theme of perinatal death in a cross-cultural perspective, going to investigate the role and impact of the culture and society of belonging in influencing the subjective experiences of mothers who have suffered a perinatal loss. The hope is that this work may also have an implication in clinical practice, providing operators in the sector with additional ideas for an increasingly personalized treatment tuned to the needs of those who have suffered a perinatal loss.

### **Methods**

The work was carried out through an analysis of the existing literature. As far as the choice of the cultural contexts taken into consideration is concerned, with respect to the societies characterized by an individualistic type of organization, reference was made to research conducted in Western societies.

As far as collectivist cultures are concerned, instead, the field of analysis has been limited to the Ethiopian context only for reasons that concern the availability of study material and the impossibility of reducing all the cultural diversity present in Africa under a single all-inclusive category .

### **Results**

Starting from the distinction between collectivist and individualist societies, theories on sociocultural factors that influence the construction of a concept of self, respectively interdependent on the one hand and independent of the other, have been taken into consideration. From the analysis of the literature it emerged how the formation of a structurally and functionally interdependent rather than independent Self leads the woman to experience feelings of shame, in the first case, or of guilt, in the second case, following a perinatal loss.

### **Conclusions**

Perinatal loss is a phenomenon whose evaluation and consequences vary considerably from culture to culture. In this age marked by great migratory flows, it is desirable to take into account the cultural diversity with respect to which women attribute meaning to the event; in fact, being aware of the differences that can characterize a woman's experience, also based on her cultural belonging, can be indispensable to approach her experience adequately, in order to bring support in a personalized and effective way.

## **0013 A**

**Title:** SIDS: protection of the newborn and infant. Survey on the knowledge about risk reduction in standard care

**Authors:** G. Tavormina<sup>1</sup>, S. Silenzi<sup>2</sup>, R. Pomo<sup>3</sup>

<sup>1</sup> Marche Polytechnic University;

<sup>2</sup> Ost.-Gin Clinic. Ancona;

<sup>3</sup> SIDS-ALTE Region of Sicily reference center

### **Background**

SIDS is the name given to the sudden unexplained death of a baby during sleep. One of the most influential hypotheses explaining its mechanism is the etiology-pathogenetic model of triple risk: biological vulnerability, risk factors and the critical age group. The American Academy of Pediatrics (AAP) promotes actions that significantly reduce the risk in the first year of life (safe to sleep). In the countries where the phenomenon is monitored, the containment of these factors has made it possible to lower mortality by 50%: to date SIDS affects about one infant every 2000 births.

### **Objectives**

This study aims to verify the knowledge about SIDS in the population, through a survey on care standards.

### **Methods**

The study consists of two investigations. The first one was an Online questionnaire addressed to all women of childbearing age on a national scale; it received 1265 answers. The second one was a sample study, aimed at producing representative estimates of the Health District of Ancona, through paper questionnaire administered to parents of children between the 2nd and 4th months of life on the occasion of the first vaccination session (100 answers obtained).-

### **Results**

The first questionnaire established that 21.1% cases were not aware of the existence of SIDS, the

remainder part instead claimed to have collected information by mass media (80.7%); consequently 37.2% do not know any preventive measure to reduce the risk. From the results it can be seen how the interest on such information grows exponentially, considering that 75.9% cases declared that the childbirth class is the most favorable setting for divulgation. The second questionnaire investigated the putting into practice of such behavioral norms in the territorial reality of Ancona, with a similar estimate of the insufficient information of the parents, even in greater number: in everyday life 20% cases smoked in pregnancy and 10% cases smoked in lactation, 50% cases adopted an excessive environmental temperature.-

### **Conclusions**

The SIDS Center in Palermo has conducted a similar assesment on standards of care in the Sicily region. From the discordance of the answers obtained in the comparison between Sicily and Marche, it results evident that the information on the syndrome and on its prevention is not sufficient, nor homogeneous; an interregional health intervention is necessary, through a network of information that confers greater awareness to parents. The purpose of this verification therefore becomes the design of an information campaign that aims to prevent the phenomenon.

## **0014 A**

**Title:** When pregnancy interrupts: perinatal loss in the couple

**Authors:** G. Gandino, A. Sensi, I. Vanni

Department of Psychology, University of Turin

### **Background**

The term perinatal loss refers to the death that occurs in the last gestational weeks, at birth or during the first week of the child's life. There the loss of a child in the gestational period can be defined as an "invisible death" as it happens in a hidden space: the mother's womb. It is also a little socially recognized loss, which obliges the parental couple to integrate the emotions of joy at the expectation of one new life with the sudden suffering of the unexpected death experience.

### **Objectives**

The objective of the work is to investigate the psychological repercussions of perinatal loss on the couple. The couple is expected to have differences with respect to intensity and manifestation of the mourning process. Furthermore changes are needed, which concern the structure and the couple dynamics, interpersonal and communication skills and the delicate area of sexuality.

### **Methods**

The work presents a review of the literature through the questioning of the main psychological databases.

### **Results**

The number of international studies dealing with the operation of the couple after a perinatal loss is reduced. The works mostly do not adopt a systemic perspective and only partially address the different roles of different family members and complex emotions that must be managed with respect to perinatal mourning. In addition to addressing communication difficulties at the family level, parents who suffer a perinatal loss experience aspects of ambiguity even in terms of the couple's relationship in a dance between the surroundings distance: if on the one hand the search for proximity and the opening towards the other emerge, on the other avoidance and relational withdrawal appear. The different ways of facing and expressing mourning, if not supported by good communication, can lead to the relational deterioration; otherwise, when the dyad is characterized by a good capacity

for communication and understanding of life of the other then the mournful event can turn into a resource for the bond itself, and reinforce it.

### **Conclusions**

When couples react as a unit and implement strategies together they show a better adaptation to the loss; vice versa, frictions emerge when individual needs arise and come into opposition. Awareness about the onset of possible couple functioning issues is a protective element. The presence of a comprehensive and welcoming family context and the possibility of using a dedicated listening space, where each partner can feel supported, accompanied and recognized in his pain, also turn out important in the resolution of the bereavement mourning.

## **0015 A**

**Title:** The paradox in obstetrics: perinatal loss and repercussions on health workers.

**Authors:** G. Gandino, I. Vanni

Department of Psychology, University of Turin

### **Background**

Perinatal loss is a silent death, a paradoxical event that occurs in spaces dedicated to the birth of new lives. Healthcare professionals are in check, in place of life they find themselves accepting death. These events, if not processed, affect the well-being of all personnel involved and can compromise the quality of the service offered.

### **Objectives**

The research set the following objectives: 1) to investigate the experiences and emotions of the health professionals who in their clinical practice are facing perinatal losses; 2) understand how their experiences affect the perceived level of well-being.

### **Methods**

Research was conducted in 2012/2013 and was attended by 16 hospitals in Piedmont Region, with a total of 485 health workers involved (doctors, obstetricians, nurses, OSS). The investigation was conducted through the administration and analysis of three questionnaires: one specific on perinatal loss care (The perinatal loss care intervist-HP), one for the detection of burnout (MBI-HSS inventory) and the last one on coping strategies (short COPE), in addition to detecting the socio-demographic variables.

### **Results**

The majority of hospital staff do not have received specific training on the subject of mourning; this fact affects the perception of self-efficacy: those who have received specific training feel more competent both in the professional and personal sphere with respect to those who have not received training. Perceiving of not having the skills to face the tragic events prejudices the operators' well-being and the quality of the relationship with their patients. Compared to the risk of burnout, our sample is positioned below the standardized average of Italian health workers; nevertheless, perinatal deaths are a potential risk for the well-being of health professionals, not only from the professional but also from the personal point of view.

### **Conclusions**

Perinatal deaths involve health professionals personally and professionally. Although the gynecology and obstetrics departments are "joyful" places in which new lives are welcomed, we must not deny the emotional impact that perinatal deaths have on staff. The lack of specific training and processing space compromises the well-being of both the operators and the patients receiving care.

## 0016 A

**Title:** The safe to sleep campaign:survey about knowledge on SIDS prevention rules in Sicily Region

**Authors:** D. Cigna, R. Pomo

SIDS-ALTE Reference Center of Sicily Region, Buccheri La Ferla FBF Hospital, Palermo

### **Background**

The Sudden Infant Death Syndrome consists in the sudden death of a child under one year of age unexplained after a thorough investigation, including a detailed examination of the circumstances and the place where the death occurred, the review of the clinical history and of a complete autopsy. SIDS is responsible for 40% of post-neonatal deaths; 90% of children who died of SIDS have not completed 6 months of life with a maximum incidence between 2 and 4 months. Following several studies, the American Academy of Pediatrics has renewed its recommendations for sleep disorders, "Safe to sleep", to promote actions that make the child's sleep safe in the first year of life and that allowed for a marked reduction the risk of SIDS. This work stems from the need to spread the value of prevention, the most effective weapon we have to fight against this syndrome.

### **Objectives**

The survey aims to verify the spread of knowledge about SIDS among the parents of the children subjected to the first vaccination.

### **Methods**

This is a transversal multi-center descriptive study. Thanks to the collaboration of the Epidemiological Department of Health, the information was collected in the vaccination centers present in the Sicily region by administration of a questionnaire to parents of children between the second and the fourth month of life on the occasion of the vaccination session. The questionnaire was distributed to all Sicilian provinces from 1 to 30 May 2015. The total number of questionnaires collected is 2903.

### **Results**

The data collected are significant because they testify that awareness of the main care standards is not yet unanimous due to some factors such as socio-economic status or level of education. The results show that the lateral position (29%) is still adopted even though it is not safe. The combination of prone / cigarette smoking position increases the risk by over 55%; unfortunately about 10% of mothers who usually adopt the prone position in a cradle for their child also smoke while breastfeeding. The percentage of those who practice bed-sharing and at the same time smoke while breastfeeding is around 10%.Lastly, from the data there is no high adherence to breastfeeding, as around 60% of mothers claim to use mixed or artificial feeding.

### **Conclusions**

In 1994, the situation in Sicily was alarming because the knowledge concerning the SIDS prevention rules was not yet widespread and mortality rates were high. Thanks to the spread of the Safe to Sleep campaign, the incidence of SIDS in recent years has decreased considerably. The effectiveness of the information campaign also depends on the involvement of the population,for example through "ad hoc" occasions, posters, brochures, videos and even gadgets. The information campaign on Sudden Infant Death Syndrome must therefore be homogeneous incommunication, widespread and exportable, and must also include a surveillance system through verification in the population.

## 0017 A

**Title:** SIDS and co-sleeping: a survey among mothers and an educational proposal

**Authors:** V.Basile, L.Puglioli

University of Florence School of Human Health Sciences, Degree Course in Obstetrics

### **Background**

The Sudden Infant Death Syndrome (SIDS) is the sudden death of an infant, also referred to as “cot death” and can affect children in the first year of life. The causes are still unknown but some preventive behaviors to be implemented are known. Among the factors recognized as protective for SIDS are: to put the newborn to sleep on his back, in a separate crib on a mattress rigid and exclusive breastfeeding. It is also known that there are factors that rise the incidence; among the most important there are: to put to sleep the newborn prone, to fall asleep on the couch, to use blankets or pillows that could cover the baby’s face, to have a body temperature excessive and cigarette smoking. Currently the literature does not provide a unique version on the practice of Co-sleeping: in fact some studies describe this practice as a protective factor integrating it into the physiology of newborn’s sleep. Other works, instead, including Italian guidelines, advise against adopt this practice because it is associated with an increased risk of SIDS.

### **Objectives**

To understand knowledge about the SIDS phenomenon and the practice of Cosleeping in the Italian population by a survey.

### **Methods**

A questionnaire containing 21 questions on 3 main topics:

1. Sample information
2. Behaviors and habits adopted
3. Knowledge and information sources on SIDS and Co-Sleeping

was elaborated through google doc and shared via Facebook 2495 people spontaneously joined the questionnaire. The sample obtained was stratified according to age, educational level and Parity.

### **Results**

In 87.9% cases the couples have obtained information on SIDS; the first source of information on SIDS are the Birth Accompanying Courses (38.5%), followed by web information (27.9%), mixed information (books, information leaflets, magazines) (22.2%) while only 11.4% obtain information during their stay in the hospital.

The results show an inversion of the established strategies to take care of the baby at night before and after delivery. The practice of Co-Sleeping before birth was considered as an option in 10.9% cases; 59.1% cases adopted it of cases after birth.

The level of exposure of the newborn to the best known risk factors was also investigated.

### **Conclusions**

The data emerged from the study show that co-sleeping is adopted by couples in 59% cases (especially in mothers who carry out exclusive breastfeeding, 76% in our study) despite being aware that this practice is considered risky for the development of SIDS, (especially if associated with other risk factors known). The data of the study are in line with those emerging from the literature, that recognize the high adhesion to the practice of co-sleeping: therefore it becomes fundamental a complete and adequate information based on evidence in order to guarantee an informed choice of couples and full safety in caring the newborn.

**Title:** Main characteristics of sudden and unexpected deaths caused by Respiratory Syncytial Virus

**Authors:** F. Lupariello<sup>1</sup>, C. Petetta<sup>1</sup>, G. Di Vella<sup>1</sup>, G. Botta<sup>2</sup>

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### **Background**

Respiratory syncytial virus (RSV) can cause respiratory tract infections in newborns. They can cause fever, cough and rhinorrhea. The virus can colonize the lower airways causing bronchiolitis and interstitial pneumonia, and may cause marked impairment of gas exchange up to sudden death with characteristics similar to the sudden infant death syndrome (SIDS). The involvement of the lung is difficult to identify due to the non-specificity of the symptoms and the involvement of the pulmonary interstitium.

### **Objectives**

The analysis identifies the clinical, autoptical and histological characteristics of the sudden deaths from RSV. In addition, the study notes the existence of possible clinical-diagnostic-therapeutic recommendations aimed at averting these types of deaths.

### **Methods**

A retrospective analysis (January 2018 - July 2019) of the clinical, autoptical and histological data of all the lethal cases of RSV infection observed at the Pathological Anatomy of the Città della Salute e della Scienza di Torino is proposed.

### **Results**

Three cases of death due to VRS were detected. Two deaths related to male infants of 21 days and 4 months of life respectively. The third related to a 1-year-old and 3-month-old girl. In two cases out of three older siblings and / or sisters they were contextually affected by rhinitis. The onset was characterized by non-specific symptoms and silent objective examination. In all cases the evolution of the pathology led to sudden death without any diagnostic suspicion. The microscopic examination of the lungs showed extensive atelectasis areas and inflammatory infiltrate. The bacteriological examination highlighted VRS positive in all three cases.

### **Conclusions**

The analysis of the clinical course of the sample in question confirms what has been expressed in the literature regarding the concrete possibility that the deaths determined by RSV have characteristics in common with those referable to SIDS. In fact, the careful bacteriological and histological analysis in all three cases analyzed was fundamental for the correct differential diagnosis. Furthermore, the present study allows us to point out that the simultaneous existence of rhinitis in siblings and / or sisters should pose the clinical suspicion for RSV infection. In addition, the literature analysis highlights the possibility of preventing such deaths thanks to the prompt execution of the VRS test on aspirate or nasal wash.

## 0019 A

**Title:** Infants' sleep habits during the 1st year of life: an international multicentric study

**Authors:** S. Noce<sup>1</sup>, M. Farioli<sup>1</sup>, G. Costagliola<sup>1</sup>, C. Campanella<sup>1</sup>, S. Costa<sup>1</sup>, S. Scaillet<sup>2</sup>, I. Kato<sup>3</sup>

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### **Background**

Sudden unexpected infant death represents the main cause of death within the 1st year of life in industrialized countries, excluding the perinatal period. Although a certain cause has not yet been identified, several risk factors seem to take part in the tragic event. For this reason, dealing with the conditions of risk and widely disseminating the recommendations developed during the years is of primary importance.

### **Objectives**

Our Centre has joined a multicentric study together with University of Mie (Japan) and University Hospital Reine Fabiola of Brussels (Belgium) in order to analyse infants' sleep habits in different socio-cultural contexts better to address the recommendations to the parents and improve prevention.

### **Methods**

Administration of an anonymous questionnaire to the parents of infants who turned for ultrasound screening of congenital hip dysplasia at the Regina Margherita Children's Hospital in Turin and to parents of children under 12 months who presented to our Centre for an episode of Apparent Life-Threatening Event.

### **Results**

75 questionnaires were collected over the course of one year (July 2018-july 2019).

The sample under examination had a mean age of 3.17 months  $\pm$  1.422. 57.3% of the babies are first-born children. More than 70% among the parents interviewed were married couples of Italian nationality and had a high cultural level (diploma or graduation).

Regarding sleep position, 79.4% of the babies slept supine and the remaining 20.6% slept in lateral or prone position. Almost 70% of the children slept in a child-sized bed, the remaining 30% in an adult bed. In all ages, more than 30% of the babies slept in the same bed together as their parents, with the highest percentage among children aged 2-6 months. In the lower category of age (0-2 months), as many children slept with the parents as those who slept in a bedside cradle (32% each).

Furthermore, 56% of the babies were breastfed; about 30% of the infants never used a pacifier while just over 20% used it during sleep. Approximately 66% of the children had the habit of used to finger sucking. 60% of the interviewed parents did not smoke.

Among the infants who came to visit at SIDS Centre, more than 80% slept supine already before or on the same visit; the remaining 20% went from a lateral or prone position to a supine one after the visit. 27% of the babies slept in the same bed as their parents: of these, only one case maintained this habit, while the others switched to the bedside cradle for co-sleeping after the visit.

Among those not visited, 87% already slept in supine position and maintained the trend in later ages. Instead, almost 35% of the infants slept in the same bed as their parents, and only 12% changed this habit.

### **Conclusions**

In the interviewed sample, a good application of the recommendations for SIDS prevention was found as regards the supine position, the child-sized bed and breastfeeding.

The percentage of children under 6 months who slept in the same bed with their parents remains high, particularly in the category aged 2-6 months, namely the time lapse that includes the age at highest risk of SIDS.

## 0020 A

**Title:** Apparent Life-Threatening Events and Epilepsy: main predictive factors

**Authors:** A. Vigo, M. Farioli, G. Costagliola, S. Costa, S. Noce

Center for Pediatric Sleep Medicine and SIDS, Regina Margherita Children's Hospital, Turin City of Health and Science, Turin, Italy

**Background:** The acronym ALTE (Apparent Life-Threatening Event) refers to a group of unexpected events that occur suddenly in an infant and strongly alarm the witnesses. The episode resolves quickly and spontaneously in most cases, but its interpretation is complex: the clinician has to set up a differential diagnosis that may include physiological, paraphysiological phenomena and pathologies of important severity

**Objectives:**

To identify the predictive factors that allow an easier diagnosis of epilepsy in an infant who presented an episode of ALTE.

**Methods**

A retrospective study was conducted on infants less than 12 months of age evaluated for an ALTE at the Center for Pediatric Sleep Medicine and for SIDS in the Piedmont Region in the period 2009-2017. The quantitative variables were studied by the Mann-Whitney test, the qualitative ones by the Fisher test.

**Results**

926 patients were eligible. 12 out of 926 resulted to have epilepsy. The average age of non epileptic patients was 55 days, while epileptic patients presented an average age of 120 days. Familiarity with epilepsy and / or sudden death was statistically significant between the two samples (p value = 0.0102) and increased the patient's risk of being epileptic by 6.2 times. The longer duration of the event (p value = 0.0053) increased the risk by 6.8 times, the presence of clonias (p value = 0.0007) and stereotypes (p value = 0.0024) increased the risk respectively of 13.9 and 15.3 times. The presence of recurrences during hospitalization (p value = 0.0003) and during follow-up (p value = 0.0004) increased the risk by 31 and 65 times. There was no statistically significant difference between full-term and preterm-born patients.

**Conclusions**

The results suggest that a careful medical history may guide physicians towards the suspicion of an epileptic event in an ALTE episode. In particular, the attention should be focused on the patient's age, on the characteristics of the episode (duration, presence / absence of clonias and / or stereotypes), on possible recurrences and on familiarity for epilepsy and / or sudden death.

## 0021 A

**Title:** A dangerous "diagnosis of convenience": ALTE caused by gastroesophageal reflux

**Authors:** M. Farioli, A. Vigo, G. Costagliola, R. Fazio, S. Noce

Center for Pediatric Sleep Medicine and SIDS, Regina Margherita Children's Hospital, Turin City of Health and Science, Turin, Italy

**Background:** The acronym ALTE (Apparent Life-Threatening Event) refers to a group of unexpected events that occur suddenly in an infant and strongly alarm the witnesses. The episode resolves quickly and spontaneously in most cases, but its interpretation is complex: the clinician has to set up a differential diagnosis that may include physiological, paraphysiological phenomena and pathologies of important severity

### **Objectives**

Make a correct and timely diagnosis.

### **Methods**

Case Report

### **Results**

D., 6 months old, is brought to Emergency Department (ED). Parents reported episodes of Apparent Life-Threatening Events (ALTE) characterized by hypotonia and hyporeactivity with doubtful loss of consciousness occurring for about a month mainly one hour after waking up. The events lasted about 40 seconds and were followed by complete well-being without clear sleep. The child had been visited two weeks before in the Neuropsychiatric clinic and had performed electroencephalogram (EEG) in sleep that had shown sporadic anomalies of dubious meaning. In the ED the child was in good general condition, afebrile, with normal vital signs, neurological examination and capillary blood gas analysis (CBG). D. was discharged with a cardiological evaluation and a follow-up EEG planned. The following day, after an episode with similar characteristics but longer than usual, D. was brought back to the ED and admitted for further investigations. During admission Electrocardiogram (ECG), EEG in sleep and echocardiogram, 4-channel cardiorespiratory monitoring for 24 hours were performed and resulted normal. The following week the follow-up EEG was free of asymmetries or clear irritative signs but indicated slow posterior activity with sharp morphology. On the occasion of a neurological visit, in consideration of the abundant and voracious feeding of the baby, gastroenterological investigations were suggested while keeping following-up the child in the neurological division. A radiography of the gastrointestinal tract with barium was performed; it showed complete gastroesophageal reflux (GER). pH-Impedance study was also performed and recorded only a critical episode, resulting overall negative for GER. However, esomeprazole was introduced. Meanwhile, the child kept presenting episodes of ALTE: in particular, one night he presented an episode of apparent loss of consciousness with bradycardia (<80 heartbeats per minute) during sleep. Magnetic resonance imaging of the brain and 24-hour-ECG Holter were therefore performed and both resulted negative. After about 20 days of hospitalization the child was brought to the Center for Sleep Medicine and SIDS; a possible epileptic nature of the events was hypothesized. In the meantime the episodes had become very frequent (even several times a day). A second 4-channel cardiorespiratory monitoring was performed as requested by the admitting division; it showed numerous bradycardias <80 hpm lasting> 5 seconds that had not been present in the previous trace, performed before starting esomeprazole therapy. It was therefore recommended to suspend drugs potentially active on cardiorespiratory activity; however esomeprazole therapy was continued. One month after admission to the ED the child presented three close episodes characterized by loss of contact, diffuse tremors in the limbs and bilateral palpebral and buccal clonias, together with sialorrhea and desaturation. The episodes resolved spontaneously after two minutes. The post-critical EEG showed inconstant slow-pointed activity in the right temporal area. A diagnosis of generalized epilepsy was made and therapy with Phenobarbital 5mg / kg / day was started. At the follow-up visit two months later no convulsive episodes or episodes of loss of contact were reported.

### **Conclusions**

Gastroesophageal reflux, a phenomenon that is mostly paraphysiological in the first months of life, becomes too often a convenient label that is applied on non-clinically relevant events, even without

the instrumental confirmation. On the other hand, GER is often considered the underlying etiology of some episodes of ALTE, risking to delay the diagnosis and treatment of much more severe pathologies such as epilepsy. Lastly, starting empirical therapies for RGE may also expose the infants to potentially harmful side-effects, as in our case

## 0022 A

**Title:** Simple tool for assessing the quality of breastfeeding

**Authors:** R. Fazio<sup>1</sup>, M. Serra<sup>2</sup>, F. Donadonnibus<sup>1</sup>, G. Re<sup>1</sup>

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<sup>2</sup> Piedmont Region family doctor

### **Background**

The World Health Organization (WHO) has recommended exclusive breastfeeding since 2011 until the 6th month of life. In 2018 it published a new guide in 10 steps to support breastfeeding, in fact, breast milk is the only natural food that contains all the nutrients in the right proportions, is easily digested and contains a series of factors that protect against infections and help to prevent some diseases and allergies, therefore offers many advantages for the child in terms of health, growth and psychological development, and is strongly protective against SIDS by increasing arousability. On these premises the question we asked ourselves is whether mothers receive sufficient help in the first months after giving birth to breastfeed their baby.

### **Objectives**

Help new mothers to deal with the healthcare professionals in charge

### **Methods**

Use of a questionnaire distributed during visits or performance of instrumental examinations in the hospital unit of the OIRM

### **Results**

We got a sample of 40 questionnaires

### **Conclusions**

Greater attention and empathy can certainly improve and support mothers in the process of breastfeeding.

## 0023 A

**Title:** Unexpected neonatal death due to Persistent Pulmonary Hypertension: a retrospective analysis

**Authors:** C. Petetta<sup>1</sup>, F. Lupariello<sup>1</sup>, G. Di Vella<sup>1</sup>, G. Botta<sup>2</sup>

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### **Background**

Persistent pulmonary hypertension (PPHN) is a severe syndrome due to the lack of physiological decrease in pulmonary vascular resistance at birth. It is frequently found in pediatric hospitals, as it

often arises suddenly after birth in about 2% of preterm or full-term births. It represents an important cause of unexpected neonatal death (Sudden Unexpected Infant Death - SUID), with a mortality rate of 10-20% of affected patients. PPHN can be associated with structural or functional pathologies of the lung, not always identifiable in the prenatal period. It is manifested by sudden tachypnea, retraction, severe cyanosis, acidosis, rapid and worsening hypoxemia. The diagnosis of PPHN, in neonates with respiratory failure, is based on the finding of pulmonary and right atrium values alteration at echocardiography, in the absence of heart disease. The treatment consists of pharmacological and / or ventilatory support therapies, sometimes ineffective.

### **Objectives**

To identify precise histological criteria of PPHN-associated diseases, to better understand their histopathogenesis, and contribute to a better clinical management of newborns with PPHN, reducing their mortality rate.

### **Methods**

Retrospective analysis of neonatal autopsy data, performed from 2014 to 2018, archived in the Department of Pathological Anatomy of the Città della Scienza e della Salute di Torino, Turin, with subsequent revision to the optical microscope of the histological findings of lung tissue of each selected case, by the use of new histological and immunohistochemical stains.

### **Results**

86 neonatal autopsies were analyzed. 18 out of 86 autopsies resulted with neonatal PPHN. PPHN was associated with: diaphragmatic hernia in 5 cases, congenital pulmonary hypertension in 5, alveolar-capillary dysplasia in 3, pneumonia in 2, bronchodysplasia in 2, inhalation of meconium in 1.

### **Conclusions**

The research carried out shows that PPHN represents 20% of the causes of neonatal death and, in accordance with scientific literature, it recognizes a very heterogeneous histopathogenesis, associated with multiple structural or functional lung malformations. Some pathologies are almost always fatal (congenital pulmonary hypertension, alveolar-capillary dysplasia), despite immediate therapeutic assistance; others, on the other hand, are lethal only in the most severe forms (bronchodysplasia, diaphragmatic hernia, meconium inhalation, pneumonia).

## **0024 A**

**Title:** The Computerized Micro Tomography As A New Diagnostic Tool in the Case of Cardiac Pathologies

**Authors:** F. Lupariello<sup>1</sup>, C. Petetta<sup>1</sup>, T. Genova<sup>2</sup>, F. D. Costanti Mussano<sup>2</sup>, G. Di Vella<sup>1</sup>, G. Botta<sup>3</sup>

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### **Background**

The diagnostic process in case of stillbirth, sudden infant death syndrome (SIDS) and sudden unexpected death in infant (SUID) is a challenge. In such cases, the heart should always be carefully analyzed: the exclusion or confirmation of diseases affecting this organ is, in fact, a fundamental step in a correct diagnostic process. From time to time, the need to develop new diagnostic methods appears increasingly evident, in order to achieve a more accurate identification of cardiac pathological

processes. Recently the use of the computerized tomography (micro-CT) for the detailed analysis of fetal hearts has been proposed in the literature.

### **Objectives**

The study aims to develop a reliable and reproducible method for the study of fetal hearts by micro-CT.

### **Methods**

12 fetal hearts were selected. 5 out of 12 were treated with 5% formalin and subsequently with lugol. 3 were treated by injection of a polymerizing radiopaque substance (Microfil) into the coronary circulation via the aortic route after 5% formalin fixation. 4 were treated with EDTA fresh injection and polymerizing radiopaque substance (Microfil); subsequently they were fixed in formalin. Following these operations all the hearts were scanned by micro-CT. The data obtained were analyzed using the CTvox® and DataViewer® software for reconstruction in two and three sample sizes.

### **Results**

The use of lugol as a radiopaque medium has allowed an impregnation of heart chambers and large vessels. The use of Microfil on hearts already fixed has determined the partial possibility of highlighting the coronary tree of the hearts examined. The use of EDTA and pre-fixation polymerising substance has allowed the possibility to highlight the cardiac vascular tree.

### **Conclusions**

The study shows that the use of micro-CT in the examination of fetal hearts is certainly possible. In particular, the use of lugol allows a clear highlighting of the cardiac chambers and the vascular peduncle; the use of EDTA and polymerizing substance has allowed an accurate analysis of the cardiac coronary tree. Ultimately it is possible to conclude that micro-CT is a reliable and reproducible tool in the study of fetal hearts. In addition, the computerized analysis of the data makes it possible to hypothesize that this method will also allow the printing of 3D models of the hearts being studied, usable for diagnostic and didactic purposes.

## **0025 A**

**Title:** SIDS / SUID PREVENTION: the role of health workers to educate parents about the rules that make their baby's sleep safer.

**Authors:** L. Guido<sup>1</sup>, M. Uras<sup>1</sup>, GM Terragni<sup>2</sup>

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<sup>2</sup> Medical Director of the Division of Pediatrics of Chieri Hospital (Turin)

### **Background**

The Division of Pediatrics of Chieri Hospital is the reference of the local health services (ASL TO 5) for the diagnostic classification and the counseling related to the episodes of Apparent Life-Threatening Events (ALTE) and it was the first Hospital connected with telemedicine with the Center for Pediatric Sleep Medicine and for the SIDS in Regina Margherita Children Hospital in Turin (OIRM). For the management of infants with ALTE we refer to the document of the regional work group - Piedmont / Valle d'Aosta processed in 2015 which includes an algorithm aimed at guiding and supporting the clinical-diagnostic behavior of hospital and territorial pediatricians.

### **Objectives**

During the observation period of the infant admitted in the Chieri Pediatric Division, a fundamental goal of health workers is to educate parents about prevention.

## **Methods**

For this reason, an informational and educational booklet has been studied and developed ; the booklet is explained and delivered to parents during an organized meeting.

## **Results**

This booklet focused on which behaviours should be avoided in a possible critical event (“what NOT to do”) in order to reassure and not to frighten the parents, rather than highlighting which manouvers have to be performed. The “golden rules” for a safe sleep are also listed and explained. (first page is attached)

## **Conclusions**

In our experience, the parents of infants who presented an episode of ALTE potentially dangerous for their life are very eager to receive the right information on how to behave on the occasion of a possible new episode and above all how to prevent it. Written information with a simply and clearly written booklet and a reassuring interview are certainly the most effective methods to adopt.

# **0027 A**

**Title:** Good practices in case of infant death in the emergency room

**Authors:** V. Carmellino, I. Bergese

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## **Background**

The Sudden Infant Death Syndrome (SIDS) is the main cause of death in the first year of life in the industrialized countries excluding the neonatal period, and is responsible for 20% of deaths in pediatric emergency departments. In Piedmont, the estimate provided by the regional reference center is 0.09 episodes out of 1000 live births (2004-2015 data).

## **Objectives**

Given the medical and psychological importance of this event and its multidisciplinary impact, both parents’ associations and a Regional Network for the monitoring and the epidemiological surveillance of sudden deaths 0-2 years were born. In most cases these little patients are brought to the emergency room while resuscitation maneuvers, started at home by emergency services’, are still in progress.

## **Methods**

A regional protocol was drawn up to facilitate the clinical care pathway of SIDS events and to support the activity of the health personnel who first face this tragic event in the out of the hospital context ,such as to give assistance to the Emergency Department and the Intra-hospital Emergency Unit where the small patient is admitted. The protocol, developed by the SIDS Center in collaboration with the Departments of Hygiene and Public Health (SISP), produce an accurate representation of the event and state of health of the small patient through a punctual data collection. It does so by anamnesis collection, interviewing both the parents and the attending physician, and by a precise description of the autoptic examination, in order to exclude all other etiologies before identifying the death of an infant as an unexpected and sudden death.

## **Results**

This protocol is in use in the emergency room of the Regina Margherita Children hospital in Turin. Most often the out of the hospital emergency team brings the patient to the emergency room, but

sometimes patients are brought there by their caregivers; in 66% cases cardio pulmonary resuscitation is started by the care giver. There is considerable agitation when the emergency room staff prepares to face a situation of cardio-circulatory arrest in a child. After the identification of the team leader and the division of roles, resuscitation starts according to the Pediatric Advanced Life Support (PALS) protocols and can involve other specialists present in the presidium (cardiologist, anesthesiologists) depending on the specific situation. In the event that resuscitation is ineffective, death is ascertained. If it is an infant, in addition to the investigations required by the Italian law for the declaration of death, we also proceed with the execution of a total-body radiograph together with the collection of blood, urine and hair samples as required by the regional protocol . Following the latest studies concerning the presence of the parent during resuscitation, it is proposed to the parent to stay close to their child during all these moments. It is important to activate as soon as possible the staff of the SIDS Center and the representatives of the regional network for the surveillance of sudden deaths, as an early contact between an expert and the family is desirable, as well as the possibility of performing an autopsy on the body.

#### **Conclusion**

In order to be able to avoid, contain, or identify further risk factors for SIDS in the future, it is important that every step, from the reconstruction of the moment of well-being of the newborn to the autopsy examination, is performed with scrupulous attention.

## **0030 A**

**Title:** Investigation of Sleep Environments in Japanese Healthy Infants

**Authors:** Ineko Kato<sup>1</sup>, Kotaro Ichikawa<sup>2</sup>, Hajime Togari<sup>3</sup>

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#### **Background**

To reduce the incidence of SUID (Sudden Unexpected Infant Death), supine sleep position, avoiding soft bedding, keeping soft objects and stuffed toys out of the baby bed, room sharing, prohibition of smoking, alcohol, or drug during pregnancy and after delivery, breast feeding, and using pacifier are recommended in many countries.

#### **Objectives**

The purpose of this study is to investigate the sleep environments of Japanese healthy infants in order to adapt the recommendations given to new parents about sudden infant death risks taking into account the different cultural settings.

#### **Methods**

Questionnaire on infant sleep environment was carried out between November 2017 and March 2018 for the mothers with the babies from 7 months up to 18 months old who visited pediatric units of three hospitals in Japan. The questionnaire includes type of feeding, type of beddings, room sharing, use of pacifier, brightness of the baby's sleeping room, co-sleeping at the age of 1-2months, 3-6 months, after 7months old. The questionnaire is anonymous and participation to the study is voluntary. The study protocol was approved by the ethical committee in each hospital.

#### **Results**

Totally 318 responses for the questionnaire were analyzed. A half of the babies was breast-feeding and one third was bottle-feeding. Almost two third of the babies sleep in the same room with parents,

one third sleep in the same room only with mother. No baby sleeps in the independent room. At the age of 1-2 months, approximately, 55% of the babies sleep in the baby bedding, 45% was in the adult bedding. At the age of 3-6 months old, approximately, 45% of the babies sleep in baby bedding and 45% in adult bedding. After 7 months old, one third was in baby bedding and two third was in adult bedding. The rate of co-sleeping was less than 30% at the age of 1-2 months, and increased according to baby's age, up to almost 55%. Pacifier use was not common in Japan.

### **Conclusions**

In Japan, the ratio of co-sleeping tended to increase according to the baby's age. These results seemed that most of parents take care of their babies thinking about the physical development of the baby. The reason why pacifier was not used commonly is that pacifier use considered to disturb breast-feeding or to cause the alignment of the teeth.

## **0031 A**

**Title:** Back to sleep - Prevention communication campaign in Eastern Piedmont

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The message to parents of newborns about primary prevention of SIDS starts already during pregnancy in birth accompanying courses. This message is reiterated during the Nursing and discharge hospitalization. In collaboration with the Rotary Club of Valsesia, Vallemosso, Biella, Borgomanero-Arona, Pallanza-Stresa, Novara and Vercelli, a t-shirt was produced with the words "I sleep on the back", which was given to all those born (around 6,000 in 2018) at the hospitals of Vercelli, Borgosesia, Biella, Novara, Borgomanero, Verbania and Domodossola.







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