It is with great delight for me to write to you in the first edition of the newsletter for the Section on Child Death Review and Prevention. I am honored to be the chair for this section and look forward to collaborating with you for the benefit of all children.

Howard Needelman, the newsletter editor, asked me to introduce myself. I completed an internal medicine/pediatrics residency in Phoenix at Good Samaritan Medical Center (now Banner), Phoenix Children’s Hospital and Maricopa Medical Center in 1998, and headed back east to join the faculty of the Penn State Hershey Family Medicine & Community Residency program. While I did leave that position for a 7 year stint in private practice, I am now back with the medical center and residency program. I first got involved with CDR when, as a young faculty member, our social worker asked if I wanted to attend a CDR meeting. It was a very foreign experience to me, but I was curious as to its impact. Soon thereafter, the AAP chapter (in PA, CDR is housed at the AAP chapter) was looking for a replacement for the medical director of the CDR program. I took a leap of faith and haven’t looked back. While we struggle with budget issues, team turnover, and many other challenges, I am proud of my time with the PA CDR program. We were able to get legislation passed mandating our existence, and participate in a coalition that helped pass legislation requiring school based suicide prevention education. Infant safe sleep has been an ever present issue that we try to address on multiple fronts.

My state CDR program director instilled in me that one of the most important components of CDR is to foster community involvement. The local teams drive many changes in regards to CDR, serving as the source of data to drive our policies. Pediatricians play a pivotal role in making this happen. While CDR is truly a group effort – a pediatrician who displays leadership on a local level is beneficial to a successful team. And that is why I am so excited this section has formed.

In 2005, the AAP held an injury prevention conference at the Chicago headquarters and each chapter could send a representative. Through discussion with other participants, I found that there were many of us working on CDR in our respective states but didn’t have a platform to discuss ideas as medical providers. The energy at that conference was truly a catalyst to say – we need to be organized as pediatricians doing CDR work and realize our full potential.

In 2008, an ALF (annual leadership forum) resolution passed stating the Academy should provide infrastructure for pediatricians involved in CDR. Since, there have been a number of informal gatherings at the NCE’s and a formal meeting in 2013 hosted by the Academy to explore how to move this resolution forward.

That brings me to today – the official section is here! The provisional status is conferred for 3 years, and if we show there is a steady interest, we become a full fledged section.

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Please share a success you have had with either your local or state team. We want to share ideas from teams across the country that can support future implementation!

From the Editor

Hello and welcome to the first edition of our quarterly newsletter from the Provisional Section of Child Death Review and Prevention of the American Academy of Pediatrics. I have happily accepted the job of coordinating the provisional sections newsletter. While my day jobs included years of practicing neonatology, I now practice Developmental/Behavioral Pediatrics at the University of Nebraska Medical Center. However, from their inception, I have been interested in and active in Nebraska’s CDRT and the Douglas County (the county in which Omaha is located) FIMR.

On behalf of Dr. Erich Batra, the section leader, Florence Rivera, our AAP staff member, other members of the executive committee and myself, we appreciate your interest in our fledgling section. Following a meeting at the Academy offices in Elk Grove Village several years ago, it was felt there was both an interest in, more importantly, a need for the Academy to become the home advocate of children who were addressing ways to diminish the number of child deaths through the child death review process. In order to measure interest within the AAP community, a survey was developed to help focus our efforts. Approximately 30% of responders responded positively to being members of either a Child Death Review team or a Fetal Infant Mortality Review team. Most respondents were at the local level and over 80% of the nearly 700 respondents saw a benefit to linking pediatricians across the country through the AAP. Most respondents were from urban or suburban areas. Important benefits of a section within the AAP included networking resources, educational credits including CME and Maintenance of Certification activities, advocacy and policy development.
Subsequent to this survey, primarily through the efforts of Dr. Vincent Palusci, the Program Chair, in October of last year at the AAP National Convention and Exhibition in Washington there was an educational session and a networking session. The comments from the above survey directed much of the conversation. Based on all of these discussions, it was decided that the primary focus areas of the first three years of the provisional section will be to raise awareness of Child Death Review teams for pediatricians and the public, to provide education for members both as CME and MOC, to engage member to advocate at the community, state, and national level for CDR with CDR data, and to serve as a home for pediatricians engaged in CDR and/or FIMR teams.

The proposed section is to have four primary goals. It should 1) foster collaboration between pediatricians and national organizations, 2) support pediatricians involved with state and/or local teams with the development in the promotion of educational processes, 3) support and facilitate current policy recommendations and 4) empower pediatrician to be leaders and voices advocating for issues that arise through the course of child death reviews.

As we begin this effort, we are working on planning further educational endeavors. For example, we are hoping to have further programs at the NCE this year and are endeavoring to successfully fully implement our listserv.

And so, with that brief background, I invite you to actively engage with us in our effort to make this section successful and, as a direct effect of that effort, to help craft policy which can successfully accomplish our goal of diminishing the number of child deaths. To help accomplish this, I would like you to feel free to contact Erich, Florence or myself (I can be reached at kneedelm@unmc.edu) regarding pieces for this newsletter. I would also urge you to contact us regarding any ideas you might have to make this a successful section and hopefully one in which you will be proud to participate.

Sincerely,
Howard Needelman, MD FAAP

National Center on Child Fatality Review

What is a Fatality Review?
Unexpected fetal, infant and child deaths are opportunities to turn tragedies into lessons that can prevent other deaths. Understanding the circumstances of, and taking action to prevent, these deaths is the work of fatality review programs. There are 177 local Fetal Infant Mortality Review teams (FIMR) and over 1300 Child Death Review teams (CDR) throughout the U.S. All states manage their local CDRs at the state level, and several states coordinate their local FIMR teams. Although each process has unique features, the unifying attribute is that both are multidisciplinary case studies of deaths. Information from both reviews can be used at the local, state and Federal levels to focus policy development, quality improvement, and enhancement of efforts to develop and maintain risk reduction and prevention programs.

HRSA MCHB Support for the Review Process
Since the early 1990s, the Health Resources and Services Administration (HRSA) Maternal and Child Health Bureau (MCHB) has provided funding for separate CDR and FIMR national resource centers to improve the capacity of these review programs. In 2015, the MCHB funded a new National Center for Fatality Review & Prevention to bring these two review processes into one coordinated data and technical support center. The MCHB believes that centralizing data collection, training and technical assistance can facilitate the strengths of each of these death review processes, thus improving both systems of review and building efficiencies to better improve systems of care for mothers, infants, children, and families.

The Michigan Public Health Institute (MPHI), the grantee for the CDR resource center, is managing the new coordinated NCFRP. The American College of Obstetricians and Gynecologists (ACOG), The grantee for the former FIMR resource center, is partnering with MPHI to support the Center’s work, especially the FIMR focused activities.
National Center on Child Fatality Review

Training and Technical Assistance

NCFRP will continue the work of the two previous centers to provide high quality training and technical assistance to both FIMR and CDR state and local review teams through on-site and remote consultations, web-based trainings, an interactive website, and the development and distribution of materials. Support will focus on helping teams improve their effectiveness in moving from review findings to policy, practice and prevention improvements. Federally-funded Healthy Start grantees that are building or supporting FIMR programs will receive priority for FIMR technical assistance.

The Integrated Case Review Data System

NCFRP is building an integrated data system for FIMR and CDR. MPHI developed the National CDR Case Reporting System, in which 45 states currently submit comprehensive data on their reviews into a web-based platform. There is now information on over 160,000 reviews in the system, and national level data is available to researchers and policy makers. NCFRP will work with ACOG and FIMR teams to enhance and integrate a FIMR case reporting function into the CDR system – leading to a national CDR and FIMR Case Reporting System. This new system will allow local, state and national analysis of findings from reviews. NCFRP is also implementing a Data Quality Initiative in selected states to improve the quality of the data that review teams enter into the system with the assistance of Dr. Patti Schnitzer, an epidemiologist with extensive experience in child maltreatment and SIDS/SUID surveillance and child death review.

Improving CDR and FIMR Coordination

NCFRP is developing strategies and providing technical assistance to states to improve the coordination between and/or integration of their FIMR and CDR programs. This includes a work group that is developing a guidance on different approaches to collaboration and technical assistance to states upon request to improve their collaboration. The Center has a contract with the children’s Health Alliance of Wisconsin to manage these efforts.

Taking Data to Action at the National Level

NCFRP is building upon existing relationships both former centers developed with national organizations and federal agencies. The cornerstone is the Center’s Advisory Committee, whose membership comprises a number of national organizations, Federal partners, and representatives of state CDR and FIMR programs. The Committee will help to identify ways to translate local and state CDR and FIMR findings into program and policy recommendations at the national level to improve child health and safety. The Center is also continuing its data dissemination activities and encourages researchers and others to apply for access to the National Case Reporting System dataset of over 160,000 cases. Thus far, Dr. Rachel Moon, Dr. Vince Palusci and Dr. Rich Lichtenstein have published results on SIDS/SUID, child maltreatment and suicide respectively in peer reviewed journals using the data set.
Readers are encouraged to consult the full articles for their more extended discussions and references as well as the Society of Pediatric Radiology's website, which has a comprehensive list of reference articles, at http://www.pedrad.org/Specialties/Child-Abuse-Imaging

Inflicted vs Medical: Sorting out Fractures

Recent articles in the lay and medical press have highlighted the increasing identification of vitamin D deficiency among several populations and our increasing attention to the important functions of this hormone in several systems. A number of theories have been proposed which try to explain fractures as being from “subclinical” rickets when children have insufficient or deficient vitamin D levels and no radiographic changes. Clinicians evaluating this information for child death review teams have often been asked the question: “Was it medical or inflicted?” This is particularly relevant for children with special medical needs or complex chronic conditions which, while increasing the risk of more easily fractured bones, can also place children at increased risk for maltreatment because of the stress these special needs can place on the family and caregivers.

While little has been published on the rate of inflicted fractures found in dead children, we do know that rates of physical abuse are highest among infants and children younger than 2 years and that fractures are the second most common injury after bruises (1). It has been reported that 1–4 per 1,000 children younger than 2 years are treated annually for fractures from all causes, with 10% of these being evaluated for possible physical abuse (2). Fractures from child abuse are much more common than fractures caused by underlying medical conditions such as rickets and osteogenesis imperfecta. Given the rarity of these medical conditions, children younger than 3 years are 100 times more likely to have a fracture caused by abuse than a fracture caused by a metabolic abnormality such as rickets and 24 times more likely to have a fracture caused by abuse than by osteogenesis imperfecta (1). Factor in the rarity of children with osteogenesis imperfecta without family history or clinical features such as blue sclera, that becomes 2,400–7,200 times more likely to have a fracture from child abuse than due to osteogenesis imperfecta (3).

A recent paper endorsed by the Society for Pediatric Radiology and published in Pediatric Radiology has tried to summarize what is known about this important question. Servaes et al. (4) address significant misconceptions regarding the etiology of fractures in infants and young children in cases of suspected child abuse and synthesize the relevant scientific data distinguishing clinical, radiologic and laboratory findings in metabolic disease from findings in non-accidental abuse. They review evidence on the role of vitamin D in bone health and the relationship between vitamin D and fractures which can inform practice and help courts of law to properly assess, use, and limit medical evidence and medical opinion testimony to that which is medically-accepted by the pediatric community to accomplish optimal care and protection of the children.

Several recommendations have been made for history-taking, physical examination, and use of the laboratory and imaging. The evaluation for suspected abusive fractures requires a multidisciplinary assessment that includes consideration and exclusion of other possible causes. The American Academy of Pediatrics (AAP) has reviewed how the medical evaluation should proceed (5). It is important to obtain details about the child’s pre-injury activity and position and final post-injury position and location. In addition to the history of present illness, one must consider the past medical history, the age and developmental status of the child, the location and type of fracture, the reported mechanism of injury, the particular type of fracture, and the presence of other injuries. Most children with long-bone fractures have swelling, pain or other signs or symptoms, such as decreased use of the extremity, but some have minimal external signs of injury (6). Most children with fractures do not have bruising associated with the fracture, and the presence or absence of such bruising does not help to determine the etiology. The child should be examined for other injuries that could be caused by child abuse in addition to signs of medical conditions associated with metabolic bone disease or mimics of abuse. Serum calcium, phosphorus and alkaline phosphatase should be evaluated, and it is prudent to obtain a vitamin D level and parathyroid hormone if there is evidence of demineralization or other findings suggestive of rickets (5).
Inflicted vs Medical: Sorting out Fracture and Vitamin D

If osteogenesis imperfecta is suspected, sequence analysis of the COL1A1 and COL1A2 genes may be more sensitive than biochemical tests of type I collagen and may identify a mutation to guide testing of other family members. Consultation with subspecialists in child abuse pediatrics, pediatric endocrinology, genetics, orthopedics, and bone mineral metabolism may be helpful in deciding which children to test and which tests to order.

When interpreting results, it is important to remember that a vitamin D level is a laboratory value and not a diagnosis of disease, and that metabolic bone disease cannot be accurately diagnosed solely on the basis of a vitamin D level. Considerable scientific controversy surrounds the amount of vitamin D needed by humans, and this controversy is largely related to proposed extra-skeletal effects of such as autoimmune disease, diabetes and cardiovascular disease (7). Vitamin D is involved in the regulation of up to 2,000 genes, which suggests it has a role in many physiological processes in addition to maintenance of calcium concentrations. Although 25-hydroxyvitamin D levels of >20 ng/ml have long been regarded as adequate to prevent rickets and osteomalacia, proposed extra-skeletal effects have led many physicians to recommend higher vitamin D levels, designating <20 ng/ml as deficiency, >30 ng/ml as sufficiency, and 20–29 ng/ml as insufficiency (8). Insufficiency has been used to indicate levels that are not associated with rickets or osteomalacia but are considered by some not to provide the full extraskeletal benefits of vitamin D. A 2011 report by the Institute of Medicine of the National Academy of Science concluded that insufficient evidence of extra-skeletal effects precluded the use of these effects to establish recommendations for human vitamin D requirements (9), concluding that >20 ng/ml is indicative of vitamin D sufficiency. The institute further recognized that a normal distribution for vitamin D requirements exists and that lower levels would be sufficient for many people.

Clinical studies have demonstrated no correlation between low vitamin D levels and the likelihood of either abusive or accidental fractures in children (10). No study has demonstrated that low serum vitamin D level without radiographic bone changes increases susceptibility to bone fractures. Fractures in rickets are noted in association with abnormal bone radiographs, which demonstrate osteopenia and metaphyseal cupping, fraying and splaying, and in general are not those most specifically associated with child abuse, such as posterior rib fractures and classic metaphyseal lesions. Rickets is not associated with subdural hematoma or retinal hemorrhage (11). Rickets is not fatal except in the most severe instances when the child’s immune system is impaired and the terminal event is pneumonia, seizures or cardiac dysfunction (7).

Editorials in Pediatric Radiology have characterized as “denialists” those that inappropriately use vitamin D levels to create “non-disease” (12, 13). Licensing bureaus can intervene by limiting practice, and professional societies can consider whether the unethical activity of these denialists challenges the missions and by-laws of their organizations. Strouse adds that “debate is healthy and new ideas are encouraged; however, poor science, fabrication and perpetuation of unsubstantiated hypotheses pose a substantive threat to the integrity of our medical literature” (12, p.2).

So what can we do when reviewing cases with fractures and potential underlying medical causes? Servaes et al. (4) recommend that we acknowledge: (a) Vitamin D levels do not denote bone disease and the category of “insufficient” (greater than 20 ng/ml to less than 30 ng/ml) is not a valid threshold for bone health; (b) Rickets is a metabolic bone disease that must be diagnosed by objective historical, laboratory and radiologic findings. When hypocalcemia is present but there are no radiographic findings of rickets, there is no evidence of bone fragility and increased susceptibility to fractures; (c) Fetal and neonatal bone health is not correlated with maternal vitamin D levels; (d) Congenital rickets is an incredibly rare phenomenon and has only been seen in newborns born to severely impaired mothers (e.g., renal failure, placental insufficiency). In such rare cases, there are always radiographic changes in the newborn indicative of poor bone health; (e) Rickets is not associated with retinal hemorrhages or subdural hematomas which occur with abuse; (f) Fractures with high specificity for child abuse—classic metaphyseal lesions and posterior rib fractures—are not sequelae of rickets; and that (g) Death is extremely rare in childhood rickets and is usually caused by superimposed infection in a malnourished child.

REFERENCES
Upcoming Events & Announcements

**Helfer Society** Annual Meeting April 10th-13th, Tucson AZ

**NACCHO Annual event** July 18-21st, Phoenix AZ

**National Association of Medical Examiners (NAME)** September 9-13th, Minneapolis MN

**AAP National Convention and Exhibition** October 21st-26th, San Francisco CA
  Provisional Section on Child Death Review & Prevention education program Monday October 21st

**APHA Annual Meeting** October 29th- November 2nd, Denver CO

**Community Pediatrics Visiting Professorship.** 2016 Call for Applications for the Leonard P. Rome CATCH Visiting Professorship. This program will support up to eight accredited pediatric residency programs with a maximum of $4,500 each to implement 2- or 3-day programs focusing on resident education, faculty development and building partnerships for community health and advocacy. **Due: May 11.**

The **AAP Mentorship Program** seeks to establish mentoring relationships between trainees/early career physicians and practicing AAP member physicians.

**AAP State Advocacy Focus on Firearms**: StateView is a state health policy news and analysis resource for AAP chapter and national leaders.

- **Erich Batra MD, FAAP Chair**
- **Carol Berkowitz MD, FAAP**
- **Amanda Kay MD, FAAP**
- **Howard Needelman MD, FAAP**
- **Tim Corden MD, FAAP**
- **Vince Palusci MD, MS, FAAP Program chair**
- **Florence Rivera, MPH AAP staff**

Please encourage your colleagues to sign up for the section. We are not collecting membership dues for the first 3 years.

**Contact Florence Rivera, frivera@aap.org**

From Left: Vince Palusci MD, MS, FAAP; Amanda Kay, MD, FAAP; Erich Batra, MD, FAAP; Florence Rivera, MPH; Tim Corden, MD, FAAP