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Public health and criminal justice are intertwined

— Lainie Friedman Ross, MD, PhD

The United States (US) has the largest prison population in the world and the highest per-capita incarceration rate. The incarceration exposed population is not representative of the US public but is disproportionately male, black, unmarried, and earns less than $50 000/year. Many are parents. Not surprisingly, incarceration of pregnant women and/or their partners has adverse health consequences for infants. Using data from the Pregnancy Risk Assessment Monitoring System (PRAMS), 2009-2017, Testa and Jackson found that the incarceration of a pregnant woman or her partner is associated with low birth weight and preterm birth. They found that receiving Medicaid or WIC attenuates the impact of incarceration and receiving both forms of public assistance reduces the risks even further. The importance of public assistance for these infants cannot be understated. Unfortunately, as the authors note, "legislative efforts have placed diverse forms of public assistance benefits for formerly incarcerated individuals in jeopardy."

The death of George Floyd has led to widescale activism and calls for police reform during the COVID-19 pandemic. The protests amidst the pandemic have increased the salience of the authors' observation that public health and criminal justice policies are intimately connected and need to be analyzed and reformed in tandem. A first step will be to ensure that all children have adequate access to food and health care, regardless of their parent(s)' incarceration status.

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Disentangling the pathways of parent screen time and child behavior

— Jennifer L. Vande Voort, MD

The topic of digital device usage is a growing area of importance as devices are increasingly becoming a part of daily life for people of all ages worldwide. The medical field has made recommendations on limiting screen use for young children. However, new data are emerging that goes beyond focusing on just child screen time. In this volume of *The Journal*, Wong et al disentangle the factors of parent screen time, distracted parenting, parent-child interactions, and child behaviors. They used data from 1254 parent-child dyads (mean child age 3.4 years) from disadvantaged backgrounds in Hong Kong and evaluated the use of parent and child electronic use, parent-child interactions, and children's psychosocial behavior.

Results showed that increased parent technology use was associated with higher levels of distracted parenting, reduced parent-child interactions, increased child screen time, and psychosocial difficulties. Additionally, children's internalizing difficulties were related to parent's high use of digital devices primarily because of the reduction in parent-child interactions. Children's externalizing behavior was related to increased problematic parental device use through reduced parent-child interactions, distracted parenting, and increased child screen time. These results suggest that limiting parental use of electronics in front of young children may be beneficial and help foster child psychosocial development.

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Non-diagnostic results from rapid exome sequencing can change clinical management in the critical care setting

— Michael H. Duyzend, MD, PhD

Exome sequencing, the simultaneous sequencing of the ~20 000 genes in the human genome, has helped elucidate the molecular etiology of disease and is increasingly used as a diagnostic test. In this volume of *The Journal*, Freed et al discuss how 46 individuals were selected for rapid exome sequencing (rES) in critical care units of a single hospital and how the results led to a change in clinical management in over 50% of cases. Even though a molecular diagnosis was made in ~40% of cases, a "negative" or non-diagnostic exome, helped change management in 5 cases. For example, in light of a non-diagnostic exome, a patient with cardiomyopathy was escalated to ECMO and in a patient with severe ichthyosis invasive biopsies were performed. Different from other studies, trios (exomes from mother, father, and patient) were sequenced, allowing determination of inheritance. In 4 cases, an inherited dominant variant was identified leading to further parental investigation and provided information regarding recurrence risk in future pregnancies.

Over 80% of patients sequenced in this study were under one month of age and over 50% were in the neonatal intensive care unit (NICU), adding to the importance of rapid sequencing in this age group in the critical care setting. This study was conducted in a single hospital, using an outside reference laboratory, providing a model for how rES can be implemented at institutions without an in-house sequencing facility. The authors demonstrate the value of rES in the critical care setting and highlight how both negative and positive results can change clinical management and foreshadow an approach that will likely become commonplace in the future.

Article page 202 ►

The continuing problem of post-hemorrhagic ventricular dilation in infants born prematurely

— Raye-Ann deRegnier, MD

In this volume of *The Journal of Pediatrics*, 3 articles are devoted to a life-altering condition in infants born prematurely: severe brain hemorrhage with post-hemorrhagic ventricular dilation (PHVD). Infants with extreme prematurity are particularly vulnerable to this condition and Shankaran et al assembled a cohort of 815 infants born in 2011-2015 at ≤26 weeks of gestation with PHVD and followed them to 18-26 months. The high rates of death or neurodevelopmental impairment reported in this cohort obligate us to find new approaches to help infants recover from severe brain injury and improve outcomes. One approach, intervention at lower thresholds of ventricular dilation was studied in the European ELVIS trial and Cizmeci et al report the long awaited 2-year outcomes of that study. Finally, El-Dib et al present a Medical Progress report on the pathophysiology of PHVD and proposed management strategies to promote better outcomes. Although we do not yet have all the evidence we need to ensure the best outcomes for infants with preterm birth and PHVD, progress can be made by focusing attention on this problem, increasing our understanding of its significance, sharing trial results globally, and developing innovative strategies for moving forward.

Articles pages 16, 28, and 36 ►

Neural tube defects persist despite fortification

— Paul G. Fisher, MD

Many pediatricians assume that neural tube defects (NTDs) are disorders of past times, prior to the introduction of prenatal vitamins in the 1970s and 1980s and then fortification of cereal grain products with folic acid in the late 1990s. However, in this volume of *The Journal*, Dean et al show that such thinking is simply wrong. The investigators examined the incidence of NTDs—spina bifida, anencephaly, and encephalocele—with and without other associated anomalies in South Carolina over 6 years before fortification and during 20 years with fortification (**Figure**). Total NTDs (black boxes) declined from 1/769 livebirths and fetal deaths to 1/1242, while isolated NTDs (clear boxes) during fortification years continued on average to comprise 74% of all NTDs compared with 26% of NTDs associated with other

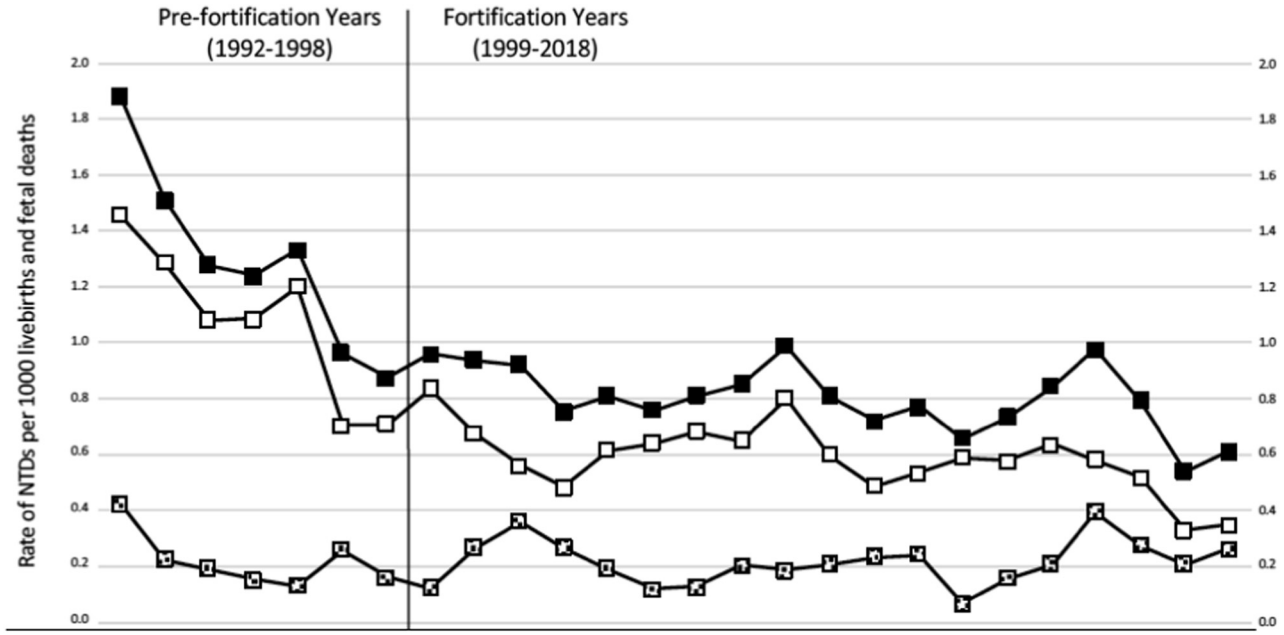

Figure. **A**, Year-by-year prevalence for all isolated and nonisolated neural tube defects. **B**, Year-by-year prevalence for isolated and nonisolated spina bifida, anencephaly, and encephalocele cases. Annual deliveries (live births and fetal deaths) are provided at the bottom of A. Note the scale change in the encephalocele rates.

birth defects (stippled boxes). Isolated NTDS are considered to be less likely due to chromosomal aberrations or known teratogens.

From this study, we should note that the overall prevalence of NTDs, particularly isolated, is still notably high compared with other severe pediatric disorders. Perhaps we have reached the limits of folic acid supplementation to prevent NTDs. As the authors note, failure to consider other causes of NTDs and then act with additional measures is akin to stating tacitly that the continued occurrence of isolated NTDs is acceptable. More work is clearly needed.

Article page 186 ►

The relationship between adverse childhood experiences (ACEs) and childhood-onset arthritis

— Philip J. Hashkes, MD, MSc

Rubinstein et al examined the relationship of adverse childhood experiences (ACEs) and childhood-onset chronic arthritis by using a sample of youth from the 2016 US National Survey of Children's Health. They found a significant association when children with chronic arthritis (most also had other chronic physical conditions) were compared with healthy children or children with other chronic physical conditions without arthritis. The odds ratio of chronic arthritis increased with a greater number of ACEs; those having ≥4 ACEs had an odds ratio of 9.4. This was much larger than the association reported in studies of other chronic childhood physical diseases and ACEs, such as asthma.

However, despite these impressive odds ratios, the study does not answer several cardinal questions. The first is the cause-effect relation of ACEs to childhood arthritis. Are ACEs one of the multifactorial environmental causes of arthritis or conversely a result, at least in part, of the adversity chronic arthritis can infer on children and their families. Studies from 2012 as well as a recent study showing the association of ACEs on the development of adult rheumatoid arthritis seem to suggest a causative effect. Furthermore, this study did not address potential mechanisms of this effect. The authors speculate mostly on stress-related hormonal effects via the hypothalamic-pituitary-adrenal axis impacting various arms of the immune system. Other, perhaps

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more plausible and longer lasting (even generational) effects of stress, may be related to epigenetic modifications. Regardless of the direction of this relationship or its mechanism, this study adds another tier to the crucial role physicians and other health care providers have in addressing ACEs, whether in, perhaps, preventing chronic arthritis or at least in assisting with the management of these children.

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