Toward a National Strategy on Infant Mortality

Birth outcomes are improving in the United States. Following a plateau from 2000 through 2005, the US infant mortality rate (IMR) declined 12% from 2006 through 2011, with the greatest decline seen among non-Hispanic Black women (16%).[1] Similarly, preterm birthrate also declined by 10% from 2006 through 2012.[2]

But now is not the time to declare mission accomplished. The United States still ranks near the bottom among developed nations in infant mortality and other birth outcomes.[1] Furthermore, significant racial/ethnic and socioeconomic disparities persist. For example, despite recent improvements, African Americans have 2.3 times the IMR as non-Hispanic Whites.[3]

On June 14, 2012, Health and Human Services Secretary Kathleen Sebelius called for the first national strategy to address infant mortality.[4] The Secretary's Advisory Committee on Infant Mortality was charged with developing recommendations for the national strategy. The Committee consists of members who represent diverse backgrounds and perspectives: public and private; federal, state, and local; and providers, consumers, and families.[5] The Committee also brings together, as ex officio members, various federal agencies that are working to address infant mortality. The Committee delivered its recommendations to the Secretary earlier this year,[6] which we summarize in this editorial.

THE LIFE COURSE PERSPECTIVE

The Committee used the life course perspective as a guiding framework for the development of its recommendations. The life course perspective views life not as disconnected stages but as an integrated continuum.[7] It recognizes that each stage of life is influenced by all the life stages that precede it, and it, in turn, influences all the life stages that follow it. With respect to birth outcomes, it provides a longitudinal account of the interplay of biological, behavioral, psychological, social, and environmental factors in producing birth outcomes. It conceptualizes birth outcomes as the product of not only the nine months of pregnancy but of the entire life course of the mother from before her own conception and leading up to the pregnancy. Disparities in birth outcomes, therefore, are the consequences of not only differential exposures during pregnancy but of differential health trajectories across the life span.[7]

The life course perspective suggests a need for a paradigm shift in our national strategy to address infant mortality.[8] It calls for an expanded approach to improve birth outcomes in the United States, one that emphasizes not only risk reduction during pregnancy but also health promotion and optimization before and between pregnancies and, indeed, across the life course. The approach needs to be both clinical and population-based, addressing individual factors as well as social determinants of health.

TOWARD A NATIONAL STRATEGY ON INFANT MORTALITY

Recognizing that we have already neared the Healthy People 2020 target for IMR of 6.0 infant deaths per 1000 live births, the Committee called for a stretch goal—the nation should aim to reduce IMR to 5.5 infant deaths per 1000 live births by 2015 and to 4.5 by 2020 (Figure 1).

The Committee identified six strategic priorities for the national strategy, encompassing both "low-hanging fruits" as well as life course and intergenerational investments to address infant mortality.

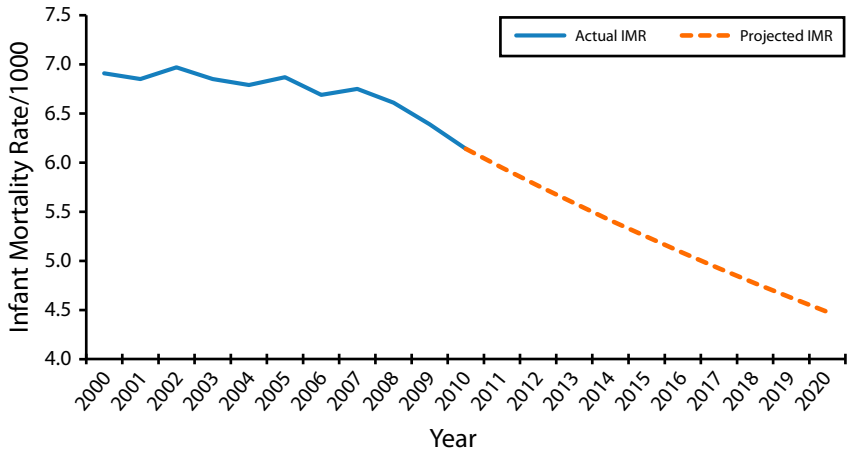
Improve Women's Health Before Pregnancy

For more than two decades, prenatal care was our nation's answer to the problem of infant mortality. In the late 1980s through the 1990s, federal and state efforts to expand Medicaid coverage for pregnant women led to significant increases in prenatal care utilization, but not in significant improvements in birth outcomes. This is not to take anything away from prenatal care. It's necessary, but not sufficient.[9,10]

There is now growing recognition that to improve US birth outcomes, we need to start by improving the health of girls and women before pregnancy.[11] Since 2005, Centers for Disease Control and Prevention has led a national movement to promote preconception health and health care in the United States.[12] But the game changer this time is the Affordable Care Act. Starting in August 2012 with the implementation of the clinical preventives services for women, millions of women gained access to health care even when not pregnant (including coverage for preconception and interconception care without copay), services that provide an extraordinary opportunity to improve women's health not only during pregnancy but before, between, and beyond pregnancy and across their life course.[13,14]

Improve Quality and Safety of Maternal and Neonatal Care

An example of a low-hanging fruit for improving birth outcomes is to reduce early elective deliveries. Compared with infants born after 39 completed weeks of



Note. The projected IMR is based on 2007–2010 average annual trend (–3.1%).

FIGURE 1—Trend in US infant mortality rate (IMR): actual and projected to 2020.

gestation, infants delivered after 37 weeks but before 39 weeks have significantly greater risks of mortality and morbidities[15,16] and account for an estimated $1 billion in increased hospital costs annually.[17] Efforts in recent years to educate patients and providers, implement rapid-cycle quality improvement processes, or institute a hard-stop policy at the hospital or payer level have been shown to be effective in curbing early elective deliveries.[15,18,19] A recent study of a rapid-cycle process improvement program in 26 hospitals resulted in significant reduction in elective scheduled early-term deliveries, from 28% to less than 5% in 12 months.[19] Several national initiatives are now under way such as the Healthy Babies Are Worth the Wait Campaign (March of Dimes),[20] Healthy Babies Initiative (Association of State and Territorial Health Officials [ASTHO]),[21] Strong Start Initiative (Center for Medicare and Medicaid Innovation [CMMI]),[22] and Collaborative Improvement and Innovation Network (Health Resources and Services Administration [HRSA]).[23] There are many other low-hanging fruits whereby better care can lead to better outcomes and lower costs, such as the Maternal Safety Bundle (Society for Maternal–Fetal Medicine, American Congress of Obstetricians and Gynecologists [SMFM-ACOG])[24] to reduce morbidities from thromboembolism, hemorrhage, and preeclampsia on the maternal side, and appropriate use of 17P (a Food and Drug Administration–approved progesterone medicine for use by pregnant women with a previous preterm delivery), screening for asymptomatic bacteriuria or group B streptococcus, or reducing central-line–associated bloodstream infections in newborns on the neonatal side.

A central tenet of quality-improvement science is that quality improvement is not about making individuals work harder; it is about making the system work smarter.[25] Presently our so-called perinatal health system is highly fragmented, and the key to making that system work smarter is integration—vertical, horizontal, and longitudinal. Vertical integration refers to appropriate levels of care. For very low birth weight and very preterm infants, birth outside of a level III hospital is significantly associated with increased likelihood of neonatal or predischarge death,[26] and yet nearly one in four such infants are born outside of a level III hospital.[27] (Level III hospitals provide perinatal services outlined for all levels of care, as well as diagnosis and treatment of high-risk pregnancy and neonatal problems.) The American Academy of Pediatrics recently updated its policy statement regarding levels of neonatal care, to state that facilities that provide hospital care for newborn infants should be classified on the basis of functional capabilities and that these facilities should be organized within a regionalized system of perinatal care.[28] Horizontal integration refers to service coordination and systems integration across multiple sectors. The State of North Carolina developed a statewide network of pregnancy medical homes, and CMMI, through its Strong Start Initiative, is testing a similar model of maternity care home to enhance the quality of prenatal care.[22] Longitudinal integration refers to the continuum of comprehensive women's health care, from preconception through prenatal to postpartum and interconception care and across the life course. The State of Georgia is using its Medicaid 1115 waiver to provide interconception care to high-risk women whose pregnancy-related Medicaid would have otherwise terminated at 60 days postpartum, and the Committee calls for CMMI to expands its initiative to expand beyond prenatal care to test innovative models of preconception and interconception care.

Focus on Primary Prevention

While much of prenatal care currently focuses on secondary and tertiary prevention, the Committee identified five areas where there are highly effective evidence-based strategies for reducing infant mortality through primary prevention: smoking cessation, breastfeeding, family planning, immunization, and safe sleep. Despite the success of the back-to-sleep campaign, still one in four US infants and nearly 40% of non-Hispanic Black infants are not placed on their back to sleep.[29] Furthermore, infant deaths caused by accidental suffocation and strangulation in bed and other sudden unexplained infant deaths are on the rise. The Eunice Kennedy Shriver National Institute of Child Health and Human Development and its partners have now broadened their safe sleep campaign to include three key messages: back-to-sleep for every sleep, room-sharing without bed-sharing, and keep soft objects and loose bedding out of the crib.[30] The Committee recommends exploration of new platforms, such as group prenatal care model,[31] and new technologies, such as the use of short messaging service and social media, to deliver health messaging

on prevention and promotion to a new generation of mothers and families.

Address Social Determinants

The Committee recognizes that there are important social determinants operating across the life course, which are the root cause of disparities in birth outcomes. Addressing these social determinants will require working outside the health care domain. The Committee calls for greater support for more place-based initiatives working across multiple sectors—health care, education, economic and community development. Addressing these social determinants will also require working at the policy level, and the Committee recommends inclusion of antipoverty programs, such as Temporary Assistance for Needy Families, as part of the national strategy to address infant mortality.

Currently, HRSA is redesigning its Healthy Start program,[32] the largest federal program dedicated to addressing infant mortality in our nation—with six major aims:

1. improve perinatal health outcomes not only for its clients but for the entire communities it serves (if it is to be truly place-based);
2. improve women's health before pregnancy, with a focus on preconception health promotion and reproductive life planning;
3. promote quality services, with a focus on quality improvement, care coordination and systems integration, and linkage to medical home;
4. strengthen family resilience, with a focus on strengthening fatherhood and parenting, addressing toxic stress, and supporting trauma-informed care;
5. achieve collective impact, with a focus on its role in the community as a "backbone" organization working across multiple sectors to support a common agenda, develop shared measurement systems, coordinating mutually reinforcing activities, and facilitating continuous communication[33]; and
6. increase accountability.

And if it is better aligned with other early childhood investments, such as the Maternal, Infant, and Early Childhood Home Visiting program; Early Head Start; Head Start; universal preschool; and Women, Infants, and Children, along with other place-based initiatives such as Promise Neighborhood, Choice Neighborhood, and Project Launch, Healthy Start can become a first rung in the ladder of opportunity that will set disadvantaged children and families on a different life course trajectory. From a life course perspective, this type of intergenerational investment is what it will take to stop the transmission of social inequality across generations and to close the infant mortality gap in our nation.

Support Surveillance and Research

The Committee calls for greater investments in adequate data, monitoring, and surveillance systems, focusing on standardizing vital statistics and measurements, improving state capacity for data linkages (e.g., linking Medicaid claims data to vital statistics), and supporting rapid-cycle quality improvement processes with real-time data.

The Committee recognizes the need for more research, but not for more of the same. We need the three Ts: *transformative* research to help us better understand the developmental origins of social inequality (not only how social inequality gets under the skin but how social inequality gets inside the womb and how social inequality gets transmitted across generations through epigenetic and other mechanisms),[34,35] *transdisciplinary* research that brings researchers out of their disciplinary siloes around a shared conceptual framework,[36] and *translational* research (not only from bench to bedside but more importantly from bedside to curbside and from curbside to policy) that will help accelerate translation of research to practice and policy in addressing disparities in infant mortality.

Maximize Collaboration

We are not going to win this fight against infant mortality by working in siloes. The Committee calls attention to the need to maximize the potential of interagency, public–private and multidisciplinary collaboration. A good example of such collaboration is HRSA's Collaborative Improvement and Innovation Network, which has accelerated collaborative improvement and innovation across the 13 Southern states by bringing together public and private partners at the federal, state, and local levels in a learning system, complete with shared workspace and a real-time data dashboard, to implement rapid cycles of change to reduce early elective deliveries and promote smoking cessation, safe sleep, perinatal regionalization, and interconception care.[23] In 2014 HRSA is planning to scale up the Collaborative Improvement and Innovation Network nationwide.

A healthy start is foundational to the American Dream. The Committee's recommendations provide a roadmap for our nation not only to improve birth outcomes but also to begin to restore the American Dream for the next generation. (For a full report of the Committee's recommendations, please visit the HRSA Web site.[6]) ■

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