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COMMENTARY

Preventing infant mortality: Pharmacists' call to action

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ABSTRACT

Objective: To highlight ways in which pharmacists can influence the infant mortality rate.*Summary:* The infant mortality rate in the United States is higher than in many other industrialized nations. Because pharmacists are accessible and knowledgeable health care professionals, there are multiple opportunities for pharmacist intervention from the preconception to the postpartum periods that can affect the leading causes of infant death. Specifically, areas of focus for pharmacists' direct patient care activities can include family planning, substance use, folic acid, drug information, maternal disease management, maternal medication management, infant medication management, safe sleep, breastfeeding, and vaccines. In addition, there are opportunities for pharmacists to influence infant mortality through clinical–community linkages, research, and advocacy.*Conclusions:* Through clinical–community linkages and direct patient care, pharmacists can work toward reducing infant mortality in their communities.

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Infant mortality refers to a baby who is born alive but dies within the first year of life. The infant mortality rate (IMR) is calculated by dividing the number of infants born alive who die before aged 12 months by 1,000 live births. The IMR excludes miscarriage or stillbirths.¹ Often, the IMR is used to gauge the overall health and well-being of a population.²

The most recent data available indicate that the IMR in the United States is 6.1 deaths per 1,000 live births and ranks 26th among the Organisation for Economic Co-operation and Development countries (Figure 1). Even after including only births at 24 weeks' gestation or later to allow for a more accurate assessment, the U.S. IMR still ranks 22nd. For infants born at 37 weeks' gestation or later, the U.S. IMR is the highest among Organisation for Economic Co-operation and Development countries.³ There are significant differences in IMR seen regionally in the United States, with southern states generally having a higher IMR⁴; the IMR in Mississippi, for example, is 9.6 deaths per 1,000 live births.⁵ New Hampshire has an IMR of 3.9 deaths per 1,000 live births,⁵ and states in its region tend to report an IMR lower than the national average.⁴

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In addition, significant differences are seen in the IMR among racial and ethnic groups, with IMR for infants born to African American mothers more than twice the IMR for infants born to Caucasian mothers (11.5 deaths per 1,000 live births versus 5.2 deaths per 1,000 live births).^{4,6}

The three leading causes of infant mortality in the United States are congenital malformations, deformations, and chromosomal abnormalities; preterm birth (<37 weeks) and low birthweight (<2500 g); and sudden infant death syndrome (SIDS).^{4,7} These three causes of death and deaths caused by injuries or effects from maternal complications of pregnancy account for nearly 60% of all infant deaths nationwide.² The root causes of infant mortality are complex and multifactorial. Risk factors for infant mortality can be broadly classified as demographic characteristics or health and health system characteristics. Demographic attributes, such as the mother's age, race or ethnicity, income, educational attainment, and other environmental factors influence infant mortality. Health or health system attributes (e.g., health status; genetics; health behaviors before, during, and after pregnancy; access to quality health care services) also affect infant mortality. In addition, these characteristics may be correlated with each other.⁴ Therefore, to reduce infant mortality and its associated disparities, many suggest adopting a “life course” perspective when developing health promotion programs and clinical interventions to foster healthy lifestyles, improve health, and advance equity among all girls and women in the United States.^{8,9}

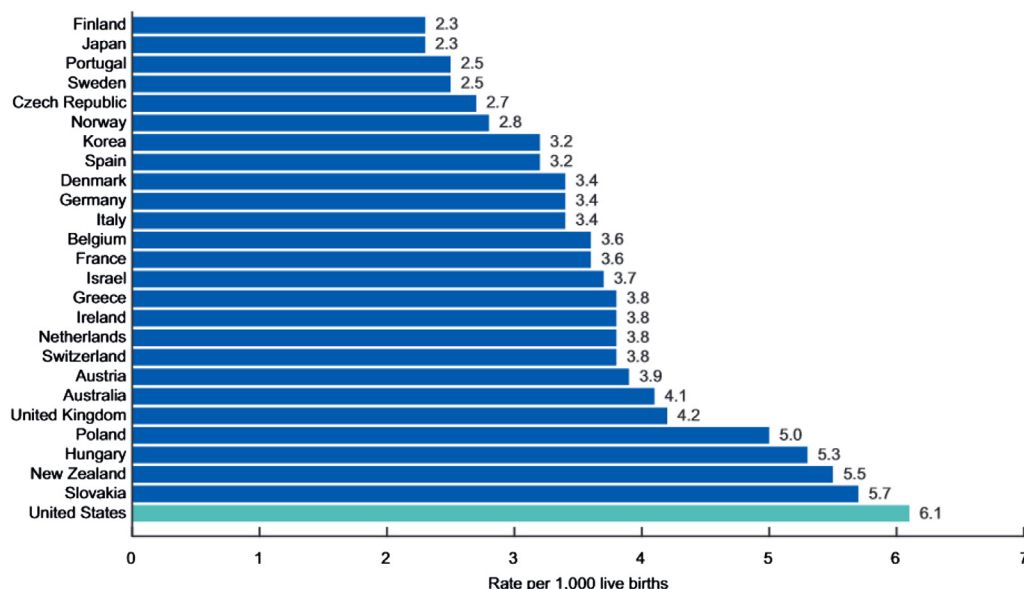


Figure 1. United States infant mortality rate compared with other Organisation for Economic Co-operation and Development countries. From MacDorman MF, Mathews TJ, Mohangoo AD, Zeitlin J. International comparisons of infant mortality and related factors: United States and Europe, 2010. National vital statistics reports, vol. 63, no. 5. Hyattsville, MD: National Center for Health Statistics; 2014.

Clinical–community linkages

Clinical–community linkages can be used as a framework to coordinate and expand patient access to these initiatives. Clinical–community linkages align and inform efforts among clinical providers, hospitals, community-based organizations, public health and governmental agencies, and other stakeholders to provide services to patients and to close existing gaps. Examples include coordinating services at one or multiple locations and developing systems to refer patients to resources. These linkages connect partners and facilitate collaboration to improve access to medical interventions, chronic care services, clinical preventive services (e.g., screening, counseling) and community-level activities.^{10,11} Pharmacists and pharmacy services can be integrated in clinical–community linkages and relationships can be formed to enable an interdisciplinary approach to reducing infant mortality.

Opportunities for pharmacist-directed interventions

Data have shown a positive impact on infant mortality in all income levels through increased access to health care for women.⁴ Using the pharmacist patient care process,¹² pharmacists in diverse practice settings can make targeted interventions with patients regarding family planning, substance use, folic acid, drug information, maternal disease management, maternal medication management, infant medication management, safe sleep, breastfeeding, and vaccines. Each of these interventions has evidence to support that its implementation can reduce the risk of one or more of the three leading causes of infant mortality (i.e., congenital malformations, deformations, and chromosomal abnormalities; preterm birth and low birthweight; and SIDS). In addition to the provision of clinical or preventive services and integration

in clinical–community linkages, pharmacists can also be active in research and advocacy efforts related to infant mortality.

Pharmacists have many resources available to them. Pharmacists can familiarize themselves with local departments of health, community organizations, and other resources in the community. In addition, pharmacists can use free patient education materials or technological resources (listed in the [online Appendix](#)) to initiate conversations with patients. National observances (listed in the [online Appendix](#)) may also provide opportunities to raise awareness of these issues among patients at the practice site. With appropriate documentation, pharmacists may be reimbursed for these services through multiple mechanisms. For example, the Affordable Care Act (ACA) requires Medicaid plans to cover smoking cessation services for pregnant women.⁴ The ACA also requires coverage of U.S. Preventative Services Task Force A and B recommendations; a recently launched website, “Healthier Pregnancy: Tools and Techniques to Best Provide ACA-Covered Preventive Services” compiles tools and provides examples of successful practices (see <http://www.ahrq.gov/professionals/prevention-chronic-care/healthier-pregnancy/index.html>). Medication therapy management (targeted medication reviews or comprehensive medication reviews) can also be used.¹³ Pharmacists can look into these and other potential avenues for reimbursement for the interventions listed as follows.

There are three periods of opportunity in which pharmacists can intervene directly with patients to reduce the risk of infant mortality: the preconception period, pregnancy, and the postpartum period. Some of the interventions suggested here can be applied in each of the three periods; others may be more effective at certain times ([Figure 2](#)). During the preconception period, pharmacists should identify and mitigate risks to a woman’s health. Interventions in the preconception

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