The Coming Trials of Generation Zika

We may see an increase in the incidence of mental illness, Parkinson’s and dementia.

By W. IAN LIPKIN
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Some four million children are born each year in the U.S., about half in areas where the mosquito species capable of carrying the Zika virus is found. If we assume that 3% of pregnant women in the U.S. will become infected over the next three years and at least 1% of children born to those mothers will be microcephalic, we can anticipate up to 20,000 microcephalic children. Humanitarian considerations aside, the estimated cost of caring for one such child over the course of his lifespan is $10 million.

The potential cost of Zika-associated microcephaly alone in the U.S. may be as high as $200 billion. This is money that won’t be invested in housing, schools or quality of life. It will also make a permanent imprint on our society. If baby boomers and millennials have been defined by the environments that shaped them, whether through the backdrop of Vietnam and Watergate or Facebook and the economic crisis of 2008, it may be time to begin anticipating a Generation Zika. The question is how large we will allow its impact to be.

Microcephaly may be merely the most obvious anomaly of Zika virus infection and one of the few that can be detected by brain scans during pregnancy. Scientists acknowledge that the complete ramifications of infection will not be known for several years. Babies without apparent damage at birth may remain susceptible to serious developmental problems or life-threatening diseases for the remainder of their lives.

The virus appears to be distinctive in targeting and damaging neural stem cells, which are essential to brain repair and are implicated in learning, memory and healthy aging. As members of Generation Zika move through life, we may see an increase in the incidence of some forms of mental illness such as autism or schizophrenia in children and adolescents, or of neurodegenerative disorders like Parkinson’s and dementia in young adults.
Since the Zika virus can be transmitted sexually, the disease has the potential to spread beyond the tropical and subtropical range of the Aedes mosquito vector. Some young adults will delay pregnancies. More women will be required to choose between giving birth to a child with brain damage or having an abortion. Because we lack the diagnostic tools to determine which children are at risk for adverse outcomes that cannot be detected during pregnancy, these will not be well-informed decisions. Instead, they will rip apart families and communities and pose new challenges for religious and political leaders already struggling to maintain comity in an increasingly fractious culture.

As in the early days of the HIV/AIDS epidemic when homosexuals and Haitians were ostracized, we may observe Central and South Americans facing stigma in the workplace, in their private lives, and in the selection of life partners. If, like HIV, the Zika virus will disproportionately affect intravenous drug users, it may also pose a threat to the safety of organ transplantation and the blood supply.

The Food and Drug Administration has released a commendable and proactive recommendation that all blood donations be screened for the Zika virus. As these threats are appreciated, potential organ donors will be excluded, resulting in shortages; we will also incur the additional burden of paying the costs of screening.

We have no effective drugs to reduce the morbidity of Zika virus infections. Even if we did, many infections are asymptomatic and damage may be under way by the time a diagnosis is made. The best path forward is a global vaccination program to reduce the impact of Zika here and in the developing world where resources to address the social and economic consequences are even more scarce.

Unlike HIV, it will not be difficult to engineer an inexpensive and effective Zika vaccine. Vaccines for similar agents, known as flaviviruses, including yellow fever and Japanese encephalitis, have been in use for decades. Furthermore, Zika vaccines proven effective in monkey models are already in the pipeline. It will take up to $1 billion and two to three years to complete the process of safety and efficacy testing, manufacture, and distribution.

This is a nonpartisan challenge that cannot wait until after the November election. We must immediately invest the relatively modest resources needed to prevent our own and future generations from being defined by an infectious agent.

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