The Emergence of Zoonotic Diseases: Understanding the Impact on Animal and Human Health

Forum on Microbial Threats

Zoonotic diseases represent one of the leading causes of illness and death from infectious disease. Worldwide, zoonotic diseases have a negative impact on commerce, travel, and economies. In most developing countries, zoonotic diseases are among those diseases of major public health significance and contribute significantly to an already overly burdened public health system. In industrialized nations, zoonotic diseases are of particular concern for at-risk groups such as the elderly, children, childbearing women, and immunocompromised individuals.

As defined by the World Health Organization, zoonoses are “those diseases and infections that are naturally transmitted between vertebrate animals and man with or without an arthropod intermediate.” Outbreaks of zoonotic diseases emerge either by apparently new agents, or by known microorganisms that appear in areas or species in which the disease was previously unknown. New animal diseases with an unknown host spectrum are also included in this definition. The specific causes of such diseases are varied and include complex interactions at the molecular level as well as more large-scale social and ecological dynamics which influence the growth and movement of populations and changes in the environment. Additional factors such as climate, technology, land-use, and human behavior can converge in a manner favorable to the emergence of zoonotic diseases.

In an effort to increase our knowledge and understanding of current and probable future public health significance of zoonotic diseases, the Institute of Medicine’s Forum on Emerging Infections (now called the Forum on Microbial Threats) hosted a two-day workshop on June 7-8, 2000. The workshop explored the forces that drive zoonotic diseases to prominence, and sought to identify more broad-based strategies and research programs that need to be developed for better understanding.

The summary report of the workshop’s presentations and discussions, The Emergence of Zoonotic Diseases: Understanding the Impact on Animal and Human Health, was released in mid-April 2002. The report includes discussion summary and individually authored papers covering a range of topics, which include: an evaluation of the relative importance of zoonotic diseases against the overall backdrop of emerging infections; research findings related to the current state of our understanding of zoonotic diseases; surveillance and response strategies to detect, prevent and mitigate the impact of zoonotic diseases on human health; and information about ongoing programs and actions being taken to identify the most important needs in this vital area.

The Emergence of Zoonotic Diseases: Understanding the Impact on Animal and Human Health is available for sale from the National Academy Press, 2101 Constitution Avenue, N.W., Box 285, Washington, DC 20055; call (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area), or visit the NAP’s on-line bookstore at www.nap.edu. For more information about the Institute of Medicine, visit the IOM home page at www.iom.edu. For more information about the Forum on Microbial Threats, visit their page at http://www.iom.edu/project.asp?id=3924.
FORUM ON EMERGING INFECTIONS
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