

## Unmet Medical Need in Infectious Diseases

Physicians say the greatest challenge is the limited number of new antibiotics

*“As a pediatric infectious diseases physician, I have helplessly watched a patient die from a highly resistant Gram-negative infection where we simply had no drugs available for treatment. Unfortunately, I’m not alone. This is happening in hospitals across the country more and more often. Boosting the development of new antibiotics to treat resistant Gram-negative infections is an urgent public health priority.”*

—Jason G. Newland, M.D.

Co-Chair, Pediatric Infectious Diseases Society Committee on Antimicrobial Stewardship

Introduced more than 75 years ago, antibiotics have profoundly transformed health care. Thanks to these drugs and to advances in vaccines and infection control, many formerly devastating bacterial illnesses can be cured or contained. Antibiotics also help make surgery, chemotherapy, and other medical procedures possible by reducing their once prohibitively high risk of infection. However, unlike other drugs, antibiotics gradually lose their effectiveness as bacteria develop resistance.

Unfortunately, there are very few new antibiotics in late-stage development. In the 1980s, the U.S. Food and Drug Administration (FDA) approved 29 new systemic antibiotics. That number dropped to 23 in the 1990s, and to nine in the 2000s.<sup>1</sup>

The findings of an October 2011 survey published in the journal *Clinical Infectious Diseases* underscore the urgency of this growing problem.<sup>2</sup>

- More than 500 infectious diseases specialists across the country identified the limited number of new antimicrobials under development as the greatest challenge in the treatment of multidrug-resistant infections.
- Sixty-three percent of respondents reported caring for a patient with an infection resistant to all available antibiotics, and 56 percent felt that the number of untreatable infections is increasing.

- Survey respondents identified multidrug-resistant Gram-negative bacteria as the greatest area of unmet medical need—notably greater than for Methicillin-resistant *Staphylococcus Aureus* (MRSA) and multidrug-resistant tuberculosis, both of which have received far more attention from the public health community.
- The majority of respondents reported treating at least one patient with the antibiotic colistin in the past year. Colistin, an old drug that had fallen out of favor with physicians, went nearly unprescribed for years because of its toxic side effects—until now. The survey illustrates that it is being used more frequently as a “drug of last resort” to treat infections that are resistant to all other available therapies.

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Learn more and get involved at  
[WWW.PEWHEALTH.ORG/ANTIBIOTICS](http://WWW.PEWHEALTH.ORG/ANTIBIOTICS).

The Pew Health Group's Antibiotics and Innovation Project addresses the growing public health challenge of multidrug-resistant infections by supporting policies that stimulate and encourage the development of antibiotics to treat life-threatening illnesses.

<sup>1</sup> John Powers, M.D., “Scientific and Regulatory Issues in Studying Experimental Antibiotics; Doing Better with More Efficient Studies” (presented at the Pew-IDSA-PhRMA conference Reviving the Pipeline of Life-Saving Antibiotics: Exploring Solutions to Spur Innovation, Washington, DC, September 22, 2011). NB: Systemic antibiotics are those designed to treat infections throughout the body.

<sup>2</sup> A.L. Hersh et al., “Unmet Medical Need in Infectious Diseases,” *Clinical Infectious Diseases* (April 2, 2012), doi: 10.1093/cid/cis275.