Antimicrobial Resistance

(Adopted 1999 and reaffirmed 2004)

At the turn of the century, infectious diseases were the leading cause of death in the United States. Three such illnesses – tuberculosis, diarrheal disease, and pneumonia – accounted for 30 percent of all deaths and kept life expectancy at about 47 years. Yet, several factors helped reduce the mortality rate from infectious diseases. Individuals placed a higher priority on personal hygiene, food and water supplies became cleaner, sanitation services were vastly improved and, most importantly, penicillin was introduced after World War II. However, since then, the improper use of antibiotics and the natural process of evolution combined, so that certain bacteria adapted in order to survive.[1] As a result, some bacterial diseases, such as tuberculosis, meningitis, and salmonella, previously thought to be virtually dormant, have reappeared in recent years in new drug-resistant forms. Individuals with immunosuppression, for instance, HIV infection,[2] and those with chronic medical conditions, have also contributed to the emergence of drug-resistant organisms.

Misuse and overuse of antimicrobial agents[3-4] have exacerbated the problem and include inappropriate prescribing by clinicians, expectation, demand for, and poor compliance by patients, and availability of antimicrobial agents without a prescription in many developing countries.[5-6] The practice of feeding antimicrobials to animals to promote their growth and prevent infection has led to more drug resistance, particularly the emergence of drug-resistant Salmonella.[2,7] International travel also promotes the spread of drug-resistant strains.[7]
Drug resistance is now a serious public health problem, especially among those with nosocomial and community-acquired infections.[8] For instance, vancomycin-resistant enterococcus (VRE) is a rapidly emerging nosocomial drug-resistant infectious agent. VRE are often resistant to all available antimicrobials, rendering infection with these strains essentially untreatable. The emergence of vancomycin resistance in *Staphylococcus aureus* infection has also been reported.[9]

The problem of drug resistance is multifactorial. Solutions will require coordinated efforts of clinicians, microbiologists, researchers, the pharmaceutical industry, public health personnel, and our patients. Programs to improve antimicrobial use must be implemented to help preserve the effectiveness of current drugs since few new effective antimicrobial agents are being introduced.[7]

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