

Clinical Management of Respiratory Infections: Healthcare Decisions in an Age of Increasing Pathogen Resistance

Primary care physicians play a critical role in the treatment of patients with respiratory infections. These physicians are frequently the first healthcare professionals who evaluate patients with respiratory tract infections. Because of increasing pathogen resistance to antibiotics, the decisions made by these primary care practitioners in initiating treatment affect not only the future course of the individual's infection but also the efficacy of antibiotic treatment in the community at large. Therefore, physicians need to have access to the most current diagnostic and treatment information available.

Because the rise of antibiotic-resistant pathogens is caused, at least in part, by the overuse of antibiotics or by the prescription of inappropriate antibiotics, determining the need for antibiotic therapy is of paramount importance. After the need for such treatment has been established, the significance of prescribing the most effective antibiotic for an infection cannot be overstated. Resistant pathogens are a challenge for all healthcare employees because they limit therapeutic choices and increase both the costs of ambulatory healthcare and the risk for side effects from the new broad-spectrum antibiotics.

Confounding the diagnostic picture, the bacterial causes of respiratory infections are numerous and have changed over time. The most common causative pathogen in community-acquired pneumonia (CAP)

is *Streptococcus pneumoniae*.¹ In recent years, however, additional organisms have been complicating successful treatment, including *Mycoplasma* species and *Staphylococcus aureus*.¹ By the 1980s, gram-negative bacilli, such as *Moraxella catarrhalis*, *Haemophilus influenzae*, *Chlamydia pneumoniae*, and *Legionella* species, were of increasing importance in the etiology of CAP.^{1,4} Other unknown pathogens may be involved as well, as current diagnostic procedures are unable to determine the causative agent in about 50% of CAP cases.^{2,3,5,6}

For the other major respiratory disorders and diseases, the therapeutic picture is equally problematic. As with CAP, acute exacerbation of chronic bronchitis (AECB), acute otitis media (AOM), and acute sinusitis are difficult to cure clinically because of the many pathogens associated with these diseases. Unlike other sites of infection, such as the urinary tract or soft tissue, respiratory tract infections are most often treated empirically. *S. pneumoniae*, *H. influenzae*, and *M. catarrhalis* are 3 of the most common bacterial causes involved.⁷⁻⁹ Difficulties in the isolation and culture of pathogens from this site often preclude determining the cause of infection before initiating treatment.

This Special Report supplement to *The American Journal of Managed Care* includes 4 presentations from a symposium that took place December 11 to 13, 1997 in Short Hills, New Jersey. The symposium was held both

to assess the clinical problems associated with the treatment of respiratory tract infections and to review the current therapeutic armamentarium. The meeting addressed the difficulties of managing respiratory tract infections in the face of increasing pathogen resistance.

The first article is based on a presentation by Michael R. Jacobs, MB, BCh, PhD, Director of Clinical Microbiology, University Hospitals of Cleveland, and deals with the issue of increasing antibiotic resistance in the bacteria commonly associated with respiratory tract infections. Dr. Jacobs discusses a number of topics related to the antibiotic treatment of respiratory tract infections, including the types of pathogens typically found in these infections, their resistance to particular antibiotics, and the mechanisms of bacterial resistance. Finally, Dr. Jacobs argues for a more rational system of breakpoints to be used in determining effective treatment for respiratory tract infections.

In the next article, management of otitis media is detailed by Stephen I. Pelton, MD, Chief, Section of Pediatric Infectious Diseases, Professor of Pediatrics, Boston University School of Medicine, Boston Medical Center. Dr. Pelton discusses the prevalence of otitis media among young children, the risk factors involved, and the problems of treating this disease. The importance of aggressive treatment of young infants at risk for persistent middle ear effusion is addressed, and methods of prevention for otitis media, both current and on the horizon, are discussed.

Michael D. Poole, MD, PhD, Professor of Otolaryngology and Pediatrics, University of Texas Health Sciences Center, gives an overview of sinusitis and its treatment in the third article. He outlines the difficulties in diagnosis and in differentiating viral and bacterial sinusitis and discusses the danger presented by resistant *S. pneumoniae*.

Dr. Poole also discusses the most effective treatments for the condition and argues for the development of vaccines to reduce the incidence of sinusitis.

Finally, John Southard, MD, PhD, Chairman of Infectious Diseases, Jennie Edmundson Hospital, Council Bluffs, Iowa, describes the challenges presented by AECB and the progres-

ACRONYM LIST

The following acronyms appear within the pages of this Special Report supplement:

AECB	Acute exacerbation of chronic bronchitis
AOM	Acute otitis media
AUC	Area under the serum concentration curve
CAP	Community-acquired pneumonia
CAT	Computerized axial tomography
CI	Confidence interval
COPD	Chronic obstructive pulmonary disease
HCV	Coronavirus
Hib	<i>Haemophilus influenzae</i> type b
H₂-receptor	Histamine ₂ -receptor
HRV	Human rhinovirus
IgG	Immunoglobulin G
ITT	Intention-to-treat
MEF	Middle ear fluid
MIC	Minimum inhibitory concentration
NPA	Nasopharyngeal aspirates
OM	Otitis media
OME	Otitis media with effusion
OR	Odds ratio
PK/PD	Pharmacokinetic/pharmacodynamic
RSV	Respiratory syncytial virus
URI	Upper respiratory infections

sive nature of the underlying condition. Dr. Southard discusses the difficulties of treating patients with minimal respiratory reserves and the necessity of taking aggressive action against AECB to prevent further damage to the airways in these patients.

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