Chest Radiographs May Be Overused in Severe CAP

BY BRUCE K. DIXON
Chicago Bureau

CHICAGO — Routine follow-up chest radiography may not be appropriate for patients with severe community-acquired pneumonia who clinically respond to initial antibiotic therapy, according to a multicenter study presented at the Interscience Conference on Antimicrobial Agents and Chemotherapy.

"In addition, chest radiographs obtained prior to hospital discharge, as advised by the American Thoracic Society in their 1993 guideline, seem to be unnecessary," according to the authors, whose study was published shortly after the conference (Clin. Infect. Dis. 2007;45:983-91).

The use of follow-up chest x-rays of patients hospitalized for severe community-acquired pneumonia (CAP) has become common clinical practice, and the absence of guidelines leaves physicians reliant on recommendations derived from grade D evidence, said lead author and presenter Dr. Anke H.W. Bruns, a research fellow in the Department of Internal Medicine and Infectious Diseases at the University Medical Center Utrecht in the Netherlands. "The timing of those follow-up chest x-rays is difficult, in part because we know little about time-to-resolution of findings related to infection on a film. So, follow-up radiographs probably are ordered unnecessarily."

Timing follow-up x-rays is difficult as little is known about time-to-resolution of findings related to infection on a film. The follow-ups probably are unnecessary.

To address this question, the researchers studied 288 patients enrolled between July 2000 and June 2003 from a prospective randomized trial on the cost-effectiveness of an early switch from parenteral to oral therapy for severe CAP.

The mean age of the patients was 70 years, and two-thirds were men. The mean pneumonia severity index at admission was 113, half the patients had comorbidities, and virtually all patients had been placed on a β-lactam (82%) or β-lactam–macrolide combination (14%).

Of the 140 cases with proven microbiological etiology, 44% had *Streptococcus pneumoniae*. Another 20% had atypical pathogens, including *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, and *Legionella pneumophila*. The remaining 36% were infected with unidentified pathogens, Dr. Bruns explained.

Patients were observed for a maximum of 28 days, and those who were still hospitalized on day 7 underwent follow-up chest radiography. After hospital discharge, all patients were asked to return to the outpatient clinic for clinical evaluation, blood chemistry analysis, and a chest radiograph at day 28. Scores for clinical improvement on day 7 and for clinical cure on day 28 were calculated for each patient. The cumulative dropout rate for radiographs was 21% at day 7 and 32% at day 28.

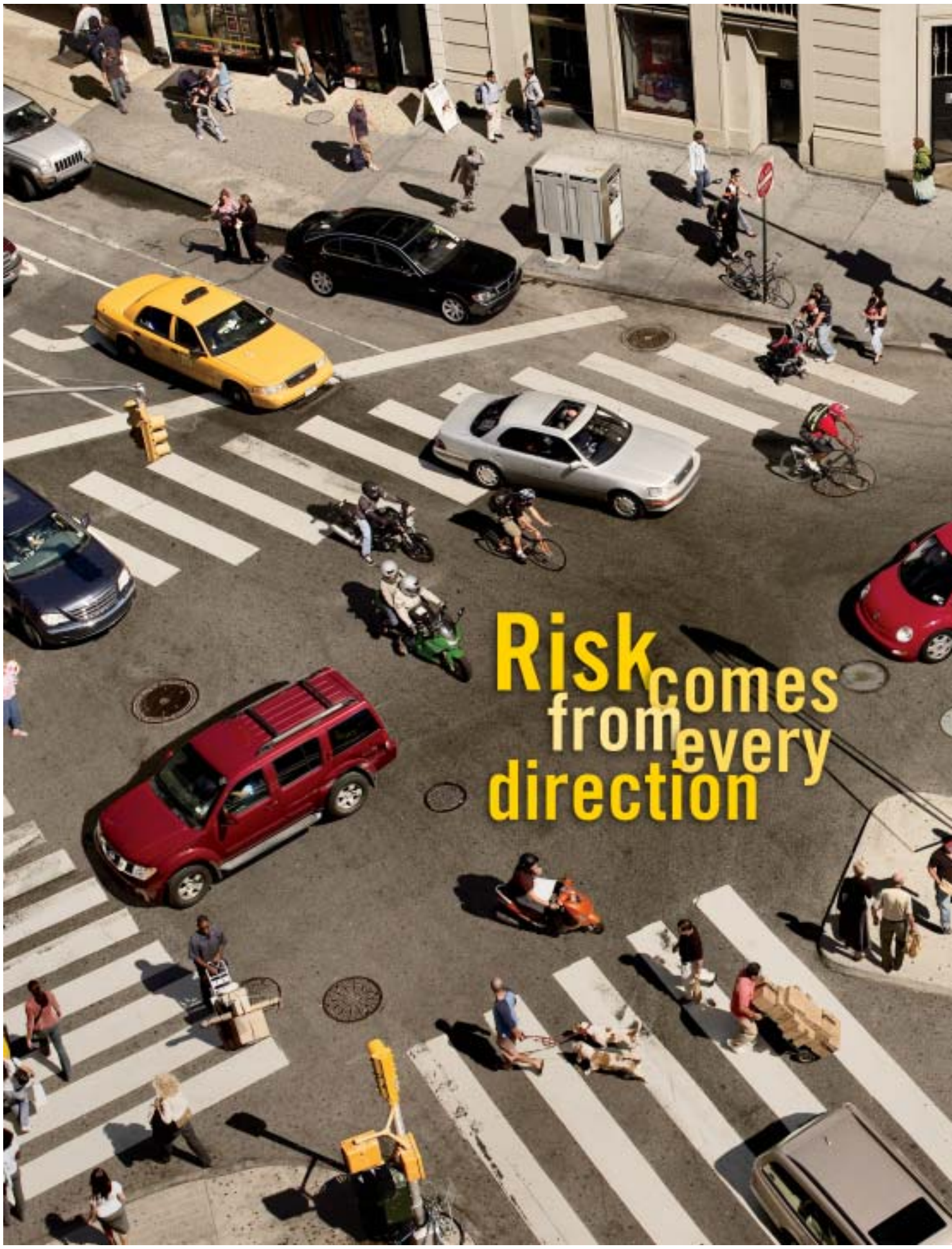
Radiologists reviewed the radiographs for the presence of pulmonary infiltrates, pleural fluid, atelectasis, pulmonary edema, and other findings. During follow-up, clearance of pulmonary infiltrates and resolution of chest radiograph abnormalities were established.

At 1 week, 33% of the patients had clearance of pulmonary infiltrates, and only 25% demonstrated resolution of chest radiograph abnormalities. At 1 month, 62% of the patients had clearance of infiltrates, and 53% had resolution of radiograph abnormalities. Resolution occurred more slowly in patients with proven *S. pneumoniae* pneumonia, the investigators reported.

Resolution of radiograph abnormalities lagged behind clinical improvement: At 1 week, clinical improvement was observed in more than half of patients, while resolution of chest radiograph abnormal-

Database for RSV

A redesigned Web site from the Centers for Disease Control and Prevention now provides data that has been gathered on respiratory syncytial virus (RSV) in the U.S., thus allowing parents and physicians to track the locations of virus outbreaks in their own state and region. The site is located at www.cdc.gov/surveillance/nrevss. ■



ities was seen in only one-quarter of patients. At 1 month, 78% of patients had clinical cures, and 53% showed resolution on radiograph.

The cohort was then split into two equal groups: one with radiographic deterioration, and one without radiographic deterioration. The researchers compared the groups for outcomes that included clinical cure at 1 month, mortality, and intervention during follow-up.

"We saw no difference in any of those three parameters; so, we can state that chest radiograph deterioration during follow-up was not associated with poor outcome," Dr. Bruns said at the conference sponsored by the American Society for Microbiology.

Clinical parameters that independently predicted delayed resolution of chest radiograph findings at 1 week included dullness to percussion, multilobar disease, high respiratory rate, and high C-reactive protein (CRP) level. CRP level greater than 200 mg/L at admission also predicted delayed resolution of chest radiograph abnormalities at day 28.

The authors noted that the number of interventions in patients with deterioration of chest radiograph findings was comparable to the number of interventions in other patients, suggesting that physicians' decisions were not made solely on the basis of chest radiograph findings.

"Performing a chest x-ray to exclude a noninfectious cause of pneumonia within 4 weeks of initial diagnosis is not indicated, because at this point half of patients have radiographic findings that are a result of normal clinical course and do not necessarily indicate pathology," Dr. Bruns said. "Chest radiograph deterioration during follow-up was not associated with poor outcome, so in our opinion, routine in-hospital follow-up radiographs in severe CAP have no additional value." ■

Approach to *C. difficile* Must Change

BY SHERRY BOSCHERT
San Francisco Bureau

SAN FRANCISCO — Community-onset *Clostridium difficile* infection that is not antibiotic related has emerged as a multinational problem that can be life threatening, said Dr. Sarah S. Long, chief of infectious diseases at St. Christopher's Hospital for Children, Philadelphia.

The conventional way of thinking about *C. difficile* infection was that it was usually associated with antibiotic use, mainly affected adults, was not life threatening, and seldom produced severe diarrheal illness in children. "Throw that [way of thinking] away. You have to start thinking and worrying about *C. difficile* as community onset without antibiotic exposure," Dr. Long said at the annual meeting of the American Academy of Pediatrics.

The more modern *C. difficile* shows antibiotic resistance that is probably caused by widespread use of fluoroquinolones. It has mutated to lose a regulatory gene that normally suppresses production of toxin by the organism. The mutated form produces 16-20 times the amount of toxin as that of the organism without the gene deletion.

The global occurrence of this antibiotic-resistant, toxin-producing organism could increasingly cause problems for 'an unprepared planet.'

The global occurrence of this antibiotic-resistant, highly toxin-producing organism could increasingly cause problems for "an unprepared planet," she said.

Four healthy people died recently in Philadelphia from *C. difficile* infection after failing treatment with multiple antibiotics followed by colectomies. Two of the infections were in postpartum women. "*C. difficile* in pregnant ladies and post partum can be a very severe disease," said Dr. Long.

Clinicians should consider *C. difficile* infection in otherwise healthy patients with diarrhea persisting beyond 3 days, whether or not the patient has been exposed to antibiotics, especially if there's blood in the stool or the patient is feverish or toxic appearing. "Put that on your list of things to worry about alongside *Salmonella*, *Shigella*, *Campylobacter*, and … *Escherichia coli*."

Culture isn't helpful for diagnosis. A test for toxin in the stool is the diagnostic test of choice. An enzyme immunoassay for toxin, which can give a result in 2 hours, is a good test. Specialists also may order a cytotoxin assay on stool. Nearly 90% of patients will respond to treatment with metronidazole for 10 days, but 20%-25% will relapse. Of those, half will relapse again after retreatment. There is no standard therapy for chronic recurrences, but a number of antibiotic regimens or fecal transplants have been tried. ■