

Assessment Tool Helps Classify CAP Severity

BY PATRICE WENDLING
Chicago Bureau

CHICAGO — A simple severity-assessment tool for community-acquired pneumonia accurately identified patients needing intensive respiratory or inotropic support in a multicenter validation study.

SMART-COP was developed as part of the Australian Community-Acquired Pneumonia (CAP) study and measures eight features readily available at the time of initial assessment: low systolic blood pressure (less than 90 mm Hg), multilobar chest x-ray involvement, low albumin level (less than 3.5 g/dL), high respiratory rate (age-adjusted cutoffs), tachycardia (at least 125 beats per minute), confusion (new onset), poor oxygenation (age-adjusted cutoffs), and low arterial pH (less than 7.35).

A modified version for primary care physicians, called SMRT-CO, does not require the results of investigations such as serum albumin, arterial pH, and arterial oxygen tension.

For SMART-COP and SMRT-CO, the cutoff scores for increased risk of needing intensive respiratory or inotropic support (IRIS) are at least three points and at least two points, respectively, Dr. Patrick G.P. Charles of the department of infectious diseases, Austin Health, Heidelberg, Australia, and his associates reported in a late-breaking poster at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

The researchers calculated the area under the receiver operating characteristic (ROC) curve and the Hosmer-Lemeshow goodness-of-fit statistic to determine the ability of SMART-COP to predict the need for IRIS in 7,464 patients from five CAP databases, including 474 patients who

needed IRIS. The patients' mean age was 65 years (range 18-100 years).

Sensitivity and specificity for SMART-COP in each of the five databases were 80% and 61%, 58% and 75.5%, 69% and 73%, 86% and 73%, and 89% and 46%, respectively. For SMRT-CO, the results were 86% and 51%, 71% and 59%, 81% and 58%, 85% and 55%, and 95% and 36%, respectively.

This high accuracy was found even though it wasn't possible in most cases to assess the lower cutoff values for respiratory rate and oxygenation in patients aged 50 years or younger, as proposed in the SMART-COP model, the researchers said at the meeting sponsored by the American Society for Microbiology.

These data weren't available because some databases didn't record actual values, but simply noted whether, for example, the respiratory rate was 30 breaths or more per minute. In the SMART-COP model, the cutoff is at least 25 breaths per minute for patients aged 50 years or less, and at least 30 breaths per minute for those older than 50 years.

Without the actual value for each test, the missing data were assumed to be normal, and no points could be assigned, Dr. Charles explained in an interview. He said it is difficult to know exactly how many data points were missing, but noted that albumin level was not recorded in about 4,500 patients and arterial blood gases were not recorded in about 4,500 patients.

"Based on this, it is likely that the SMART-COP scores given to many patients were inappropriately low, making the sensitivity figures look lower than they probably should be if complete data were available," he said. "A prospective study is planned, which should answer this." ■

Petting Zoos, Swimming Pools Bring Infectious Diarrhea Closer to Home

BY SHERRY BOSCHERT
San Francisco Bureau

SAN FRANCISCO — Go beyond the usual questions about travel to other countries or the keeping of nontraditional pets, when asking parents about potential environmental exposures to diarrhea-causing agents, Dr. Sarah S. Long said at the annual meeting of the American Academy of Pediatrics.

Ask about two increasingly recognized sources of infection—petting zoos and swimming pools, said Dr. Long, chief of infectious diseases at St. Christopher's Hospital for Children, Philadelphia.

Agricultural fairs, petting zoos, and their equivalents are prime grounds for enteropathogens that can cause acute and often bloody diarrhea, especially in children younger than age 3 years who carry pacifiers, bottles, toys, or food in the vicinity of animals.

"I don't think we spend enough time asking about whether they've traveled to places where there are animals," Dr. Long said.

Whether someone brings animals to a day care center or a family visits a local 4-H fair, the transient nature of most petting zoo environments usually results in poor hygiene. They often feature high-risk animals such as baby chicks, which harbor *Salmonella* species, or neonatal calves, which can transmit *Escherichia coli*. Children under age 5 years should not touch these animals, she said.

Advise parents that when they take children to these environments, bring nothing that a child might put in his or her mouth, and avoid eating food prepared there if possible. Most importantly, everyone should wash their hands with hand sanitizer when leaving, whether they touched anything or not.

The summer of 2007 saw 400 cases of *Cryp-*

tosporidium-associated vomiting and diarrhea from an outbreak of infections around swimming pools in Philadelphia.

Cryptosporidium species also can be transmitted in day care centers and from farm animal contacts.

This protozoan is very chlorine resistant and remains in the stool of infected people for about 2 weeks after the diarrhea stops, unlike other agents that cause acute diarrhea. "We did anticipatory treatment of an awful lot of



Animals can transmit enteropathogens that cause diarrhea in young children, especially those under age 3 years.

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children" this past summer, Dr. Long said.

Routine lab tests for ova and parasites will not detect *Cryptosporidium*. "You want to ask about swimming pools," and order specific antigen detection on stool specimens if you suspect *Cryptosporidium*. Treatment with 3 days of nitazoxanide is approved for children aged 1 year or older.

To prevent this infection, one should advise parents of all young children not to change diapers at poolside. A child with diapers in the pool should be checked frequently and taken to the bathroom to clean their diapers and wash up. Anyone with a diarrheal illness in the very recent past should stay out of the pool. In addition, a pool associated with *Cryptosporidium* infection should be shut for 2 weeks and hyperchlorinated. ■

Asthmatic Children Bear the Brunt of the Influenza Burden

BY ELIZABETH MECHCATIE
Senior Writer

The influenza-related hospitalization rates of young children with asthma were four times greater than those of children without asthma, and outpatient visits attributable to influenza were about twice as likely among those with asthma, according to Dr. E. Kathryn Miller and her associates.

The results are similar to those of retrospective studies that found that the rate of influenza-attributable outpatient visits for children with asthma and other medical conditions was higher than among healthy children, the investigators noted. But they added that their study may be the first to use prospective, laboratory-confirmed surveillance over several years to estimate rates of influenza-attributable visits

for these two groups of children in outpatient settings (Pediatrics 2008;121:1-8).

The investigators conducted a prospective study that included children aged 6-59 months. Patients were either hospitalized between 2000 and 2004 or presented to clinics or emergency departments with acute respiratory illnesses (ARIs) or fever during two flu seasons between 2002 and 2004. In both the hospital and outpatient settings, throat and nasal swabs were obtained and tested for influenza, said Dr. Miller of the department of pediatrics at Vanderbilt University in Nashville, Tenn.

Of the 1,468 children hospitalized, 81 (6%) had lab-confirmed influenza; about one-quarter of these 81 children had asthma. Among children aged 6-23 months, the average annual rate of hospitalizations attributable to influenza was 2.8 cases/1,000 children with asthma, compared with 0.6

cases/1,000 children among healthy children, a significant difference. But the difference was not significant among those children aged 24-59 months: 0.6 cases/1,000 children among those with asthma, compared with 0.2 cases/1,000 children among the healthy children.

Among the 1,432 children enrolled in the outpatient settings, influenza was confirmed in 249 patients (17%); 15% had asthma. Among the children aged 6-23 months with asthma, the average annual rate of outpatient visits attributable to influenza was 316/1,000 children, compared with 152/1,000 children among healthy children. Among those children aged 24-59 months, the rates were 188 cases/1,000 children with asthma, compared with 102 cases/1,000 healthy children in 2003-2004. Both differences were statistically significant.

The authors speculated that possible

explanations for the higher rates of inpatient and outpatient visits among children with asthma included their greater susceptibility to influenza and the greater likelihood they will have a more severe influenza-related illness. They also may be more likely to seek medical help for a fever or ARI and may be more likely to be hospitalized because of concerns about their risk of asthma exacerbations, the investigators noted.

Vaccination rates were low in both groups: About 27% of those children with asthma had been vaccinated, and 12%-15% of the children without asthma had been vaccinated, according to parent reports. "Targeted strategies to increase the influenza vaccination rates for both children with asthma and healthy children [aged] 6-59 months are needed," the researchers said. ■