Office vs. ED Outcomes in Bronchiolitis Studied

BY DOUG BRUNK
San Diego Bureau

E ffebrile infants with bronchiolitis treated in primary care settings re-
cieved a full sepsis evaluation one-
half as often as other febrile infants and seemed to have even lower rates of seri-
ous bacterial illness, compared with in-
fants treated in emergency departments and hospitals, results from a study of more than 3,000 cases show.

Those are key findings from the first large-scale study to examine primary care treatment and associated bacterial infections among febrile infants with clinically diagnosed bronchiolitis. Although most existing studies in the medical literature have shown that the rates of serious bacterial illness in chil-
dren evaluated in emergency depart-
ments or hospitalized with fever and
bronchiolitis or respiratory syncytial virus (RSV) range from 0% to 10%, “No studies of the office-based care of febrile infants with clinically diagnosed bronchiolitis have been published, leav-
ing primary care practitioners without generalizable guidelines for manage-
ment,” researchers led by Dr. Lynn M. Luginbuhl of the department of pedi-
atrics at Harvard Medical School, Boston, reported.

In a report from the Pediatric Research in Office Settings (PROS) network, a re-
search program of the American Acad-
emy of Pediatrics, Dr. Luginbuhl and her associates prospectively studied 3,066 febrile infants in 219 practices in 44 states who were evaluated between Feb. 28, 1995, and April 25, 1998 (Pediatrics 2008;122:947-54).

Infants were eligible for the trial if they had a temperature of 38° C or higher in the office or in the preceding 24 hours at home and were previously healthy, without major comorbidity.

They compared the frequency of sep-
sis evaluation, parenteral antibiotic treat-
ment, and serious bacterial illness in in-
fants with and without clinically diagnosed bronchiolitis, which was de-
defined in the study manual as "an infec-
tion of the bronchioles characterized by wheezing, tachypnea, fever, and cough, and is usually associated with respira-
tory viruses, in particular RSV. Conclusive diagnosis includes isolation of RSV from nasopharyngeal washings or positive RSV antigen. Parami-
flu A and B are also common causes."

The researchers then used logistic re-
gression to identify predictors of sepsis evaluation and parenteral antibiotic treatment.

Clinicians made a clinical diagnosis of bronchiolitis in 218 of the 3,066 (7%) in-
fants. Compared with infants without a di-
agnosis of bronchiolitis, those with the diagnosis were significantly older (a mean of 8 weeks vs. 7 weeks, respec-
tively) and were significantly less likely to undergo a complete sepsis evaluation (14% vs. 28%, respectively); urine testing (33% vs. 54%); cerebrospinal culture (16% vs. 32%); and to receive parenteral antibiotic treatment (33% vs. 45%).

There were no serious bacterial ill-
nesses (SBIs) among infants with a diag-
nosis of bronchiolitis. SBIs among the in-
fants without a diagnosis of the condition included 167 (5%) cases of uri-
inary tract infection, 49 (2%) cases of bac-
teremia, and 14 (less than 1%) cases of meningitis.

Dr. Luginbuhl and her associates had no relevant conflicts to disclose.

In-Hospital C. difficile Rises, but Not Mortality, Colectomy Rates

BY ELIZABETH MECHCATIE
Senior Writer

C ases of Clostridium difficile–associated dis-
ease at children’s hospitals increased sig-
nificantly between 2001 and 2006, but in-hos-
pital mortality and colectomy rates did not increase during that time, in what the authors say is the first study to report “the increasing nationwide burden” of C. difficile–associated disease at freestanding pediatric hospitals.

A significant increase in the use of oral metronidazole to treat C. difficile–associated disease (CDAD) and the preponderance of cases in children with complex medical con-
ditions were among the other notable find-
ings of the retrospective cohort study, con-
ducted at 22 children’s hospitals across the United States, according to Dr. Jason Kim of the division of infectious diseases at Chi-
ldren’s Hospital of Philadelphia, and his as-

They pointed out that, while the incidence and severity of CDAD in adults had been in-
creasing, the epidemiology of CDAD in the pediatric population has “remained relatively un-
defined.”

Previous studies were usually done in one center, and reported conflicting results. But this study was a multicenter trial and docu-
mented the largest number of pediatric CDAD cases reported—4,895 cases among children under age 18 years, they said.

The median age of these children was 4 years; CDAD was defined as a hospitalized child with a discharge code for C. difficile in-
festation, a laboratory billing charge for C. dif-
ficile toxin assay, and an initial dose of CDAD antimicrobial therapy (oral or parenteral administration of metronida-
zole or oral vancomycin).

Of the cases, 54% were boys, 76% were white, 26% were aged 1 year or younger, and 5% were under 1 month of age. Most (67%) had at least one complex underlying medical condition, which among children 1 month and younger was most often a cardiovascular condition; a malignancy was the most com-
mon condition among the oldest children.

Between 2001 and 2006, the annual rate of CDAD increased from 2.6 to 4.0 cases per 1,000 admissions, a 53% increase. No re-
gional differences in CDAD incidence were detected.

When they analyzed age groups separate-
ly, the authors found a marked increase in cases among children ages 1-5 years, from 0.7 to 1.3 cases per 1,000 admissions, an 85% in-
crease. There were increases from 1.2 to 1.8 cases per 1,000 admissions among children ages 5-17 years. But there was no significant difference in the CDAD incidence among children under age 1 year.

Single therapy of oral metronidazole was the most common treatment (61%), use of which increased significantly over the period studied. The use of oral vancomycin, which was used to treat 3.5% of the children, did not increase during the study.

During the period studied, 61 of the chil-
dren underwent a colectomy, at a median age of 2.1 years, but the rate did not increase dur-
ing the study.

All-cause mortality among the children with ED was 4%, and did not increase, unlike the increase that has been document-
ed in adults, they observed.

The increase in CDAD cases in the hospi-
talized children could be attributable to more people carrying C. difficile, or to an in-
crease in the more virulent strain of C. dif-
ficile, the North American pulsed-field gel electrophoresis type 1 (NAP1), which “is considered a major factor for the recent in-
crease in adults,” Dr. Kim and his associates wrote.

The researchers pointed out that 26% of the cases occurred in children under age 1 year and 5% under age 1 month—a signifi-
cant proportion of whom “were at an age previously thought to be unaffected by C. dif-
ficile toxin.”

Key Risk Factors Identified For Bronchiolitis Relapse

BY PATRICIE WENDLING
Chicago Bureau

C HICAGO — Age less than 2 months and male gender were significant independent predictors of relapse in children after ED treatment for bronchiolitis, ac-
cording to a secondary analysis of a prospectively, observational multicenter cohort of 1,459 patients.

Almost one in five children re-
lapsed within 2 weeks of discharge from the ED—a number comparable with relapse rates observed in children with asthma, Dr. Muhammad Waseem and colleagues reported at the annual meeting of the American College of Emergency Physicians.

Bronchiolitis is a com-
mon condition in children younger than 2 years—yet there is little, if any, evidence for physicians and parents about which children will have a worsening of their disease after being discharged home from the ED, Dr. Waseem said.

Children younger than 2 years (median 6 months) were enrolled at 30 sites in 15 states during two consecutive bronchiolitis seasons: Dec. 1, 2004, through March 31, 2005, and Dec. 1, 2005, through March 31, 2006. A total of 58% of the Multicenter Airway Research Collaboration cohort’s children were male; 38% of patients were white; 31% were black; 26% were Hispanic, and 4% were categorized as other.

Among the 1,243 (85%) patients for whom telephone follow-up was completed at 2 weeks, 722 (58%) were discharged home and met the analysis criteria.

Of the 717 children with relapse data, 121 (17%) had a post-
ED relapse event defined as any ur-
ery visit to an ED or clinic for worsening of bronchiolitis during the 2-week follow-up period.

Using a more restrictive defini-
tion of worsening of bronchiolitis that included changing the child’s medication or hospital admission,

Children who had a post-ED relapse event were significantly more likely than those who did not to be younger than 2 months and male.