Poster #899

Incidence of Community-acquired Pneumonia (CAP) Hospitalizations among Children and Adults in the United States: Data from the CDC Etiology of Pneumonia in the Community (EPIC) Study

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BACKGROUND

- Community-acquired pneumonia (CAP) is a common cause of hospitalization, yet contemporary rates of CAP hospitalization, based on prospective clinical studies, and the relative contributions of different pathogens based on sensitive diagnostics are not well defined.
- Using traditional and novel methods, the CDC Etiology of Pneumonia in the Community (EPIC) study aims to determine the populationbased incidence of CAP hospitalization among children and adults.

METHODS

- Children <18 years old admitted to three pediatric hospitals in</p> Memphis, Nashville, and Salt Lake City and adults ≥ 18 years old admitted to five adult hospitals in Chicago and Nashville were enrolled.
- CAP defined as an acute respiratory infection with radiographic findings compatible with pneumonia in a patient requiring hospitalization residing in the catchment area without recent hospitalization or severe immunosuppression.
- Blood, urine, and respiratory specimens were systematically collected for multi-pathogen testing.
- To calculate incidence, the number of enrolled CAP patients was adjusted by the percent enrolled and percent market share and divided by the respective population estimates based on the U.S. Census.
 - Percent market share was the proportion of pneumonia admissions to study hospitals among all pneumonia admissions in the catchment area based on ICD-9 codes (480-486, 487.0, 510).
 - To calculate 95% confidence intervals, bootstrap methods with 10,000 samples were utilized.

RESULTS

- The majority were white (44%) or black (37%).
- Most children were < 5 years old (69%). Adults were 18–49 (30%), 50–64 (34%), and ≥65 years old (36%).</p>
- CAP incidence varied by year but was highest in patients < 5 years and \geq 65 years old.

Table and Figure: Estimated Annual CAP Hospitalization Incidence Rate per 10,000 Population by Age and Year

Age in years	Year 1: July 1, 2010–June 30, 2011, Incidence Rate with 95% CI (12,882,792 person-years)	Year 2: July 1, 2011–June 30, 2012, Incidence Rate with 95% CI (13,026,510 person-years)
<5	49.7 (48–51.4)	44.7 (43.0–46.4)
5-17	6.2 (5.8–6.5)	6.8 (6.4–7.2)
18-49	9.3 (9.1–9.4)	5.5 (5.4–5.6)
50-64	31.8 (31.5–32.1)	25.4 (25.1–25.7)
65+	123.2 (122.6–123.7)	86.4 (86.0–86.9)
Overall	28.9 (28.8–29.1)	21.5 (21.4–21.7)
140 120 100 80 60 40 20 0	■ Year 1 ■ Year 2	50-64 65+
Age in Years		

From July 1, 2010 to June 30, 2012, 2257 (70%) of 3241 eligible children and 2210 (70%) of 3181 eligible adults were enrolled.



LIMITATIONS

- Although enrollment rates among children and adults was consistently 70%, more adults \geq 65 years old declined participation.
- Not all etiologic testing is complete, therefore final pathogen specific incidence is pending.

CONCLUSIONS

- Preliminary results from this multi-site prospective study indicate a substantial burden of CAP hospitalizations, especially among the very young and the very old.
- Future analyses include calculation of rates with more granular age and race/ethnicity groups as final data become available.
- As diagnostic testing is completed, pathogen specific CAP incidence may provide further insight into the differences between the two years, and the impact of vaccines and therapeutic approaches on disease burden.

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