Study of Influenza Disease Burden among Children in Eastern China

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Site presentation
The study carried out in Suzhou University Affiliated Children Hospital (SCH) in Suzhou, China. Suzhou is a major city located in the southeast of Jiangsu Province in eastern China. It is one of the key cities in the Yangtze Delta, having an area of 8,486 km² and a population of approximately 12 million people. Suzhou consists of 5 municipal districts and 5 county-level cities. The 5 municipal districts were defined as Suzhou downtown and selected as study districts in this study. SCH is a comprehensive tertiary hospital for children, has a capacity of about 1000 beds. Annually, there are 560,000 outpatient visits including emergency visits and there are about 38,000 hospitalizations per year.

Since 2011, an enhanced surveillance on severe acute respiratory infection was carried out SCH. These provided a strong support for this GiHNSN project.

Methods
Inclusion
Pediatric patients (<14 years old) were included in the study if they with acute process, referred a seven days or less antecedent of a common onset of influenza infection (ICD-10), and were residents in Suzhou or living in Suzhou longer than 6 months.

Exclusion criteria
- Non-resident or not belonging to the predefined population in Suzhou
- Hospitalized in the previous 30 days

Sample collection, management and laboratory procedures
A nasopharyngeal swab or aspirate for all enrolled children (less than 14 years old) was collected and detected. (Figure 1)

Data analysis
A descriptive analysis of the frequency of laboratory results by epidemiological week, age group, and comorbidities was conducted.

Results
A total of 1264 patients admitted to the respiratory wards in SCH with symptoms of respiratory infection were carefully screened. After opening the case report form, 549 patients were excluded because: 180 patients were not residents in Suzhou, 1 patient was institutionalized, 65 patients were admitted to hospital for the same disease within 30 days, 300 patients’ initial symptoms occurred before 7 days prior to admission, 3 patients’ parents refused to participate. And then 30 patients were not sampled. Finally, 685 patients were included into data analysis. (Figure 1)

Of the 685 patients, 283 children (41.3%) were ≤6 months and 613 children (89.5%) were ≤5 years old. The average age was 1.88±2.44 years and 419 patients were male. There are 62 children (9.1%) with low birth weight and 187 patients with previous hospitalization within 3 months. (Table 1)

Key aspects & challenges
- For the 2016-2017 influenza season, the influenza virus was epidemic year-around with peak in January and March in Suzhou, China. The dominant prevalent virus was A/H3N2 and B/Victoria. While the positive rate of influenza virus was only 5.8% of the study period, even at the prevalent period, the positive rate was only 8.6%. These was lower than our expectation. Thus the vaccine effectiveness estimation can’t be completed because the small sample size.
- The RSV was the most common detected respiratory virus in Suzhou, and with a single peak in winter and early spring.

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