A 2016-2017 Influenza Season Update

The 2016-17 influenza season was an unparalleled year in terms of influenza tests performed and reported to the Georgia Emerging Infections Program (GA EIP) by facilities in Health District 3 and the number of laboratory-confirmed, hospitalized cases of influenza observed.

Last season, Georgia influenza activity began at the end of November, peaked near the end of February, and continued through April. GA EIP identified a total of 1,559 laboratory-confirmed, hospitalized cases of influenza yielding an overall attack rate of 38.8 cases per 100,000 people. There were 279 pediatric and 1,210 adult cases last season. Over the past decade there has been a nearly 4-fold increase in the number of influenza tests performed by local hospitals and reported to the GA EIP (Figure 1).

The predominant influenza A strain subtype was A-H3N2 during the 2016-17 season. Influenza B was observed throughout last season rather than the more typical pattern of influenza B peaking at the end of the influenza season. A-H3N2 seasons are typically more severe for the elderly. During the 2016-17 season, the rate of hospitalized influenza cases was 2.5 times higher among those 65 years of age and older than any other age group (Figure 2). Additionally, there were 33 deaths among individuals hospitalized with influenza (case fatality rate of 2.2).

GA EIP collects influenza vaccine status for laboratory confirmed, hospitalized influenza cases. Last season, the proportion of hospitalized influenza cases with verified influenza immunization was 38.2%; another 6.7% reported being immunized but date of immunization could not be verified. About half (50.4%) of the cases had not been vaccinated and 4.7% had unknown vaccine status. EIP data has shown even among hospitalized individuals, receipt of influenza vaccine is effective in lowering the odds of severe outcomes including hospital duration, admission to ICU, ICU duration and death (Arriola, C.S. et al., 2015, Journal of Infectious Diseases; Arriola, C.S., et al., 2017, Clinical Infectious Diseases). The proportion of GA EIP cases that received antiviral treatment was 85.8%.

GA EIP would like to thank you for submitting influenza specimens over the past several seasons. CDC, GA Department of Public Health and GA EIP are interested in genetic characterization of influenza specimens to determine influenza A subtype and influenza B lineage to inform vaccine development, identify novel strains, and characterize severity by subtype. We appreciate submission of influenza specimens to Georgia Public Health Laboratory from hospitals located in Health District 3. Thank you for your continued support! If you have any questions, please contact your EIP surveillance officer or the GA EIP Influenza coordinator, Kyle Openo, at 404-321-6111 x2530, kopeno@gaeip.org.
Respiratory Syncytial Virus: Three Adult RSV Seasons in Review

In 2014, the Georgia Emerging Infections Program (GA EIP) began surveillance for laboratory-confirmed, hospitalized cases of Respiratory Syncytial Virus (RSV) among children less than two years of age. Last year, EIP shifted the focus of RSV surveillance to adults to better characterize a baseline of RSV burden among adults in anticipation of future vaccines.

RSV infection results in a significant burden of disease among adults. Annually, RSV is estimated to cause 177,000 hospitalizations and 14,000 deaths among adults. The GA EIP, CDC and other partners are interested in obtaining more accurate estimates of RSV burden among adults.

GA EIP conducted retrospective surveillance during 2014-2016 and prospective RSV surveillance among adults during the 2017-18 respiratory season. From 2014-2017, rates of hospitalized RSV cases among adults was highest for adults 75 years and older (24.3 per 100,000), a rate about 3 times higher than the rate of hospitalized RSV cases among 65 to 74 year olds (7.2 per 100,000) – see Table 1.

The primary goal of RSV surveillance is to generate age-specific RSV hospitalization rates among adults. Secondary goals include 1) describing the characteristics of adults hospitalized with laboratory-confirmed RSV, 2) estimating the proportion of severe RSV-related outcomes such as ICU admission, 3) assessing risk factors for RSV-associated complications among hospitalized adults and 4) estimating RSV testing methods and frequency within the GA EIP catchment area.

The GA EIP is asking all hospitals in Health District 3 to submit regular reports for RSV testing performed at their facility, or at the reference lab serving their facility, to their surveillance officer. If you have any questions about RSV surveillance, please contact Kyle Openo at 404-321-6111 x2530 or kopeno@gaeip.org.

Healthcare-Associated Infections (HAIs) and Antimicrobial Use Prevalence Survey

Findings from the HAIs and Antibiotic Use Prevalence Survey from ten EIP sites was presented at ID Week in October, 2017. The presentation included information from all 148 hospitals that participated in both the 2011 and 2015 prevalence surveys. The proportion of patients with HAIs was lower in the 2015 survey as compared to the 2011 survey (3.2% vs. 4.1%, p=0.001), largely due to reductions in surgical site and urinary tract infections. In a multivariable model, patients in the 2015 survey had a 22% lower risk of HAIs than patients in the 2011 survey after adjusting for age, days from admission to survey day, presence of ventilators, central lines, and urinary catheters, and being in a large hospital. GA EIP would like to thank all participating hospitals for working with us on this project. Detailed information from the prevalence surveys will be provided to the participating hospitals.

<p>| Table 1: Hospitalized RSV Cases by Age, 2014-2017, Georgia Health District 3 |
|---|---|---|</p>
<table>
<thead>
<tr>
<th>Age</th>
<th>Number of Cases</th>
<th>Rate / 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-49</td>
<td>75</td>
<td>1.3</td>
</tr>
<tr>
<td>50-64</td>
<td>88</td>
<td>4.1</td>
</tr>
<tr>
<td>65-74</td>
<td>53</td>
<td>7.2</td>
</tr>
<tr>
<td>75 &amp; Older</td>
<td>73</td>
<td>24.3</td>
</tr>
</tbody>
</table>

Respiratory syncytial virus (RSV) infection x400
In the News: New beta-lactam antibiotic/beta-lactamase inhibitor drug combination for the treatment of carbapenem-resistant infections

The FDA approved the new antibiotic meropenem/vaborbactam (Vabomere) in late August 2017 for the treatment of complicated urinary tract infections (cUTI) and pyelonephritis in adults caused by carbapenem-resistant Enterobacteriaceae (CRE). The drug is a combination of a new beta-lactamase inhibitor, vaborbactam, and meropenem. Although vaborbactam has little antibiotic activity on its own, it restores the bactericidal activity of meropenem against Class A carbapenemase-producing CRE, including Klebsiella pneumoniae carbapenemases (KPC). Combinations of beta-lactam antibiotics and beta-lactamase inhibitors have been in clinical use since the approval of amoxicillin/clavulanic acid in 1984, but Vabomere is the first drug combination containing a carbapenem. The phase III clinical trial compared the clinical cure or improvement and microbiological eradication of 186 adult patients with cUTI including pyelonephritis treated with Vabomere to 175 patients treated with piperacillin/tazobactam (Zosyn). The trial reported an increase of 4.1% (95% CI: 0.3%-8.8%) in clinical cure or improvement and microbiological eradication in patients treated with Vabomere. The drug is now available and provides a new treatment option for carbapenem-producing CRE in specific circumstances.

https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm573955.htm?source=govdelivery&utm_medium=email&utm_source=govdelivery

EIP Spotlight: Pathology Network

For the first time at the Georgia Emerging Infections Program (GA EIP), partnerships have been developed with pathology departments as part of the Mold Sentinel Surveillance Program. Building these relationships involved many new partners, from IT specialists to chief pathologists. We appreciate the hard work from the pathology departments at Emory University Hospital, Grady Health System, and the Atlanta Veterans Administration Medical Center (VAMC) to ensure our surveillance is successful.

Emory

The Emory University Hospital Pathology department is led by Dr. Geoffrey Hughes, a vital member in establishing mold surveillance guidelines with the CDC and adapting these guidelines for the Mold Sentinel Surveillance Program. Dr. Jeannette Guarner’s knowledge and expertise in pathology was crucial in determining an appropriate algorithm for identifying cases. Ross Raiff has been instrumental in developing the text-based search algorithm (another first for the GA EIP), ensuring timely delivery of reports, and troubleshooting any technical issues that arise. Jennifer Smith has ensured that specimens are available for DNA sequencing in addition to helping establish the surveillance methods.

Grady

The Grady Health System Pathology department is led by Dr. George Birdsong. He has been essential in revising a previously determined text-based search algorithm and adapting it to meet Grady standards and guidelines. Rhoda Sanders has been extremely helpful in creating and delivering reports as well as assisting with specimen retrieval for DNA sequencing. We would also like to thank Dr. Uma Krishnamurti for helping us in the initial phases of understanding the inner workings of the Department of Pathology at Grady.

Atlanta VAMC

Dr. Stephen Lau has been an enthusiastic partner with the GA EIP since we began mold surveillance in March of this year. We thank him for his availability to answer questions and helping our program grow. George Vaughn helps ensure report accuracy in a timely manner and has adapted to our changing needs. We thank him for all of his hard work.

Thank you to everyone in our growing GA EIP Pathology Network! Please contact Taylor Chambers, tchambers@gaeip.org, with any questions.

Staffing Updates

EIP welcomes:
- Alex Dretler, MD-EIP Fellow
- Anna Smart, BS-ABCs Assistant SO
- Lois Sharpe, BA-CDI Assistant SO
- Daniel Fridkin-Data Analyst

EIP wishes a fond farewell to:
- Maddie Lionberger-University of Pittsburgh

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SAVE THE DATE:
THE ANNUAL GA EIP CONFERENCE
WILL BE HELD ON APRIL 27TH, 2018
*****************************************************************************
The EIP is a collaborative project with 10 state health departments (CA, CO, CT, GA, MD, MN, NM, NY, OR, and TN) and their academic partners that was established in partnership with the Centers for Disease Control and Prevention (CDC) in 1995. In Georgia, the EIP is a collaboration between the Georgia Department of Public Health, Emory University School of Medicine, the Atlanta VA Medical Center, and the CDC.

Be on the lookout!

The Georgia Emerging Infections Program (GA EIP) conducts active surveillance for all the organisms listed in column 2 and 3. Please continue to set aside the isolates/specimens for the GA EIP.

HD3 refers to the eight-county Health District 3: Clayton, Cobb, DeKalb, Douglas, Fulton, Gwinnett, Newton and Rockdale.

MSA refers to the 20-county metropolitan Atlanta area: Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Newton, Paulding, Pickens, Rockdale, Spalding, and Walton county.

Sterile sites include blood, bone, CSF, joint, muscle, pericardial fluid, peritoneal fluid, placenta/amniotic fluid, pleural fluid, and other internal body sites.

FOODNET-MSA
All body sites
Campylobacter
Cryptosporidium
Cyclospora
E. coli O157/STEC
Listeria
Salmonella
Shigella
Vibrio
Yersinia

VIRAL RESPIRATORY SURVEILLANCE -HD3
Influenza and RSV
Rapid test+/PCR+
Hospitalized case
*NP swab in viral media can be sent via EIP to GPHL for RT-PCR testing (RSV specimens not collected)

CDI-HD3
Stool & ileostomy
C. difficile-specimens collected at select hospitals

ABCs-MSA
Sterile body sites
Group A Streptococcus**
Group B Streptococcus
Haemophilus influenzae
Legionella (specimens not collected)
Bordetella pertussis (specimens not collected)
Invasive Staphylococcus aureus***
Neisseria gonorrhoeae-NEW!
Neisseria meningitidis
Streptococcus pneumoniae
** GAS from any site with NF or STSS
***MRSA collected at select hospitals only

MuGSI-HD3
Urine and sterile sites
Carbapenem-nonsusceptible:
Enterobacteriaceae
Acinetobacter baumannii
Pseudomonas aeruginosa

MYCOTIC-HD3
Candida all species - Blood only
Mold – Select labs (all sites: except hair and nails)

Have questions about isolates, courier pick up, shipping supplies, or sending reports? Call 404.321.6111 x6492

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