EASIE ECHO: Education in Antimicrobial Stewardship and Idea Exchange

CDC/Joint Commission Requirements

Speakers/Moderators:
• John Veillette, PharmD, BCPS
• Todd Vento, MD, MPH, FACP, FIDSA

Guidelines and Regulations

CDC Core Elements for ASPs
• Recommended by Joint Commission (TJC)
• Critical Access Hospitals – Compliant ASP required by 2022 for Medicare Flex grant program participation

Centers for Medicare and Medicaid Services (CMS)
• Proposed condition of participation
## TJC Requirements for Stewardship (Effective 1/1/2017)

<table>
<thead>
<tr>
<th>Notes</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leadership Commitment</strong></td>
<td>Essential for success</td>
</tr>
<tr>
<td>Obtain letter of support from admin (send to John/Todd)</td>
<td>- Keep admin informed of activities, projects, goals</td>
</tr>
<tr>
<td><strong>Multidisciplinary team</strong></td>
<td>Local accountability is important</td>
</tr>
<tr>
<td>Local team leads posted on ASP website homepage</td>
<td></td>
</tr>
<tr>
<td><strong>Tracking, Reporting, Action</strong></td>
<td>Collect, analyze, and report data</td>
</tr>
<tr>
<td>- Take action to improve use!</td>
<td>- Complete Vigilanz alerts</td>
</tr>
<tr>
<td>- Regular review of dashboard (e.g. ASP team meetings)</td>
<td>- Complete a quality improvement project</td>
</tr>
<tr>
<td>- Create a local ASP reporting structure</td>
<td>• e.g. ASP update at med staff meeting</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>Educate staff and practitioners</td>
</tr>
<tr>
<td>- Share activities and projects</td>
<td>- Feedback on patient cases</td>
</tr>
<tr>
<td><strong>Use protocols</strong></td>
<td>Adherence?</td>
</tr>
<tr>
<td>- Care Process Models, PowerPlans</td>
<td>- IV to PO conversion, Renal dosing</td>
</tr>
</tbody>
</table>

---

## Preparing for regulatory surveys

1. Reach out for help early!
2. Complete CDC Core Elements checklist
3. Have documentation ready (minutes, projects, Vigilanz alerts)
4. Make a power point

---

### Tracking and Reporting

**Antibiograms**

**Interactive Antibiogram**

**Antibiogram Pocket Cards**

- Alta View and Riverton
- American Fork, Orem and Utah Valley
- Bear River and Logan
- Casilla
- Cedar City
- Delta, Fillmore, Carbon, Sanpete and Sevier
- Dixie Regional Medical Center
- Intermountain Medical Center
- LDS Hospital
- McKay Dee
- Park City and Heber Valley
- Primary Children’s

**Dashboards**

- NHSN Antibiotic Use Dashboard
Questions?

EASIE ECHO: Education in Antimicrobial Stewardship and Idea Exchange

Influenza update

Speakers/Moderators:
- John Veillette, PharmD, BCPS
- Todd Vento, MD, MPH, FACP, FIDSA
Outline

• Local/National trends in this year’s flu
  • How to access Germwatch and CDC websites
• Vaccination updates
  • Vaccine effectiveness/benefits, shortage info
  • Intermountain compliance
• Treating flu
  • Diagnostics update – Cepheid
  • Treatment options
  • Importance of early treatment

20th Century Pandemics: Mortality

<table>
<thead>
<tr>
<th>Pandemic</th>
<th>Year</th>
<th>Subtype (A)</th>
<th>Deaths</th>
<th>CFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish flu</td>
<td>1918</td>
<td>H1N1</td>
<td>50-100M</td>
<td>3%</td>
</tr>
<tr>
<td>Asian flu</td>
<td>1956-58</td>
<td>H2N2</td>
<td>2M</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Hong Kong flu</td>
<td>1968-69</td>
<td>H3N2</td>
<td>1M</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Seasonal flu</td>
<td>Annually</td>
<td>H3N2, H1N1, B</td>
<td>250-500K</td>
<td>&lt;.05%</td>
</tr>
</tbody>
</table>
Which year had the highest influenza death toll (≈80,000) in the past 40 years?

a. 2000  
b. 2009  
c. 2013  
d. 2017

Source: Centers for Disease Control

Local influenza trends
- Intermountain.net → A-Z index → GermWatch
National influenza trends

- CDC website → Seasonal influenza → Flu & Activity Surveillance (FluView) [https://www.cdc.gov/flu/weekly/index.htm](https://www.cdc.gov/flu/weekly/index.htm)

Outpatient visits attributed to influenza-like illness (ILI)

Copyright 2003 by Randy Glasbergen.
www.glasbergen.com

“I can install this virus software if you bend over. But a flu shot would be easier for both of us.”
Benefits of influenza vaccination

• “Vaccine effectiveness” = risk reduction for outpatient visit
  • 40-60% risk reduction
  • ~2.6 million visits prevented in 2016-17

• Reduction in severity of illness
  • Reduces hospitalization – est. 85,000 admissions prevented in 2016-17
  • Reduces ICU admission, ICU length of stay, in-hospital mortality

[Links to sources]

Intermountain caregiver flu vaccines

2018: 99% OVERALL

Note: Best previous annual compliance: 81%
Influenza vaccine shortage

• 1/8/2019 – Supply Chain is borrowing supply from hospitals for the Medical Group. System might run out of flu vaccine for April 2019. Stock in the clinics is not transparent. Status changed to critical.

• 12/18/2018 – GSK has exhausted supply. Redistributing supply as needed to Medical Group Clinics in need. Unknown what the stock of each clinic is.

Influenza diagnostic testing

• All hospital-based labs
  • *NEW* Cepheid GeneXpert – turnaround < 60 min
    ➢ Influenza A/B (FLUPCR) - OR - Influenza A/B + RSV (FLURSV)
    ➢ More sensitive than previous Rapid influenza antigen test
    ➢ Equally sensitive and less costly than RFA PCR (big respiratory panel)
      ▪ RFA PCR discouraged – absence of resp symptoms or result won’t change management

• Urgent cares and Outpatient Clinics
  • Rapid influenza antigen (INAAB)
  • Rapid RSV antigen (children < 5)
Rapid Diagnostics (additional info)

• Sensitivity:
  • Flu PCR: 90+%  
  • Flu Antigen: 70%

• Costs: (of running the test*)
  • Flu PCR: $30
  • Flu A/B Antigen: $12
  • RSV Antigen: $ 6
  • RFA PCR: $90

*bill to patient: $250-300 for Flu PCR $50-70 for Flu A/B antigen,, $500-700 for RFA PCR

Influenza treatment options

• Neuraminidase inhibitors
  • Oseltamivir (oral, formulary)
    ➢ 75mg PO BID x5 days
    ➢ Adjust for renal function
    ➢ 1st-line option (including H1N1)
  • Peramivir (IV, non-formulary)
  • Zanamivir (inhaled, formulary)

• Adamantanes
  • Amantadine, Rimantadine
    ➢ NOT recommended for use due to resistance of circulating strains

• Cap-dependent endonuclease (CEN) inhibitor *new class*
  • Baloxavir marboxil (Xofluza®)
    ➢ Oral, non-formulary
    ➢ Resistance concerns
    ➢ Awaiting data in severe/hospitalized influenza patients
Early Oseltamivir and Viral Shedding

Figure 2. Effects of time of antiviral initiation on longitudinal viral load changes in a final mixed-effect model. Effects of age, sex, comorbidity, and corticosteroid use were adjusted in this final model.

Importance of early influenza treatment: survival analysis

Time of Treatment, days after symptom onset

Clin Infect Dis.
2012;55(9):1198-204
Importance of early influenza treatment

IDSA Influenza Guidelines, 2018

• “In studies showing a benefit, the greatest clinical benefit was reported when antiviral treatment was started within 2 days of illness onset, but benefit was noted even when treatment was started in most patients 4–5 days and up to 7 days after illness onset.”

• Clinicians should start antiviral treatment as soon as possible...for persons of any age who are hospitalized with documented or suspected influenza, regardless of illness duration prior to hospitalization (A-II)

Infection control: Viral Load(VL)/Shedding

• Viral load correlated w/ symptom severity
• Hospitalized patients higher viral load
• Patients w/ comorbidities: higher and persistent VL
• Detectable virus copies after 1 week
• Earlier oseltamivir
  • Viral clearance → Decreased symptom severity

  Shorter hospital stay
Vaccine components: 2018

- 2018-2019, trivalent (three-component) vaccines are recommended to contain:
  - A/Michigan/45/2015 (H1N1)pdm09-like virus
  - A/Singapore/INFIMH-16-0019/2016 A(H3N2)-like virus (updated)
  - B/Colorado/06/2017-like (Victoria lineage) virus (updated)

- Quadrivalent (four-component) vaccines, which protect against a second lineage of B viruses, are recommended to contain:
  - the three recommended viruses above, plus B/Phuket/3073/2013-like (Yamagata lineage) virus

References

Questions?