Ambulatory Pediatric Infection Control

Kris Bryant, M.D.
Professor of Pediatrics

Disclosures

• Clinical investigator on trials funded by Pfizer

Learning Objectives

• Develop a practical infection prevention program for an outpatient office

Practical Goals for Today

• Scope of the problem
• Relevant guidance
• Call to action

Scope of the Problem

Health Department Identifies 14 Sites Where Salmonella Exposure Could Have Occurred

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Infection Outbreak Problems Lift With Water Boil Order

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An Instructive Case

- 8 year old child with history of T-cell lymphoma
  - Hemophagocytic lymphohistiocytosis
  - Treated with steroids and etoposide
- Only clinic for routine labs (CBC)
  - Finger stick performed by “new person”
  - Persistent bleeding
  - Outpatient observation unit for platelet transfusion
  - Port accessed for platelet transfusion
- Clear drainage from finger at time of discharge

From my.shea-online.org

- Lack of any IC program or training
- Lack of annual TB risk assessment and HCW screening (or justification of why not needed)
- Lack of injection safety audits
- Lack of proper supplies for environmental cleaning
- Lack of written procedures for device reprocessing
- Multiple sterilization issues, including lack of biologic indicators, proper marking, and proper storage of sterilized items

Scope of the Problem

- Self-controlled case series in 29 clinic sites
- Children < 6 years of age
- Risk for influenza-like illness 1-8 days after visit for non-ILI
- Results
  - 283,856 visits in 73,345 children
  - 5,666 ILI encounters with 605 classified as HA-ILI
  - Incidence rate ratio for HA-ILI = 3.56 (95% C.I. 3.23, 3.91)

Transmission in Outpatient Settings, 1961-90

<table>
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<tr>
<th>Mode of Transmission</th>
<th>Setting</th>
<th>Injection</th>
<th>Other</th>
<th>Asymptomatic Person</th>
<th>Acute or Delayed</th>
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</thead>
<tbody>
<tr>
<td>Medical/office, clinics, emergency departments</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>20</td>
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<tr>
<td>Inoculation</td>
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<tr>
<td>Total</td>
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<td>15</td>
<td>14</td>
<td>5</td>
<td>54</td>
</tr>
</tbody>
</table>
Transmission Involving Children

- Mycobacterial from contaminated DTP vaccine
- Group A streptococcal infections from contaminated DTP vaccine
- Measles from an infected child in pediatrician’s office

Scope of the Problem

“Many of the reported outbreaks and episodes would appear to have been preventable if existing infection control guidelines had been followed.”

Recommendations (1991)

- Assign responsibility for infection control, perform surveillance in setting where patients at increased risk, monitor prevention practices
- Develop policies for disinfection/sterilization of equipment
- Educate and train outpatient healthcare providers
- Develop clear and effective policies for managing infected healthcare workers

Outbreaks and Outpatient Settings

- 28 investigations
- Variety of settings
- Substantial morbidity
  - 1/3 hospitalized
  - 3% died
- Most outbreaks associated with ≥1 infection control breach
- Breeches more common in unlicensed facilities

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Resources for Infection Prevention in Ambulatory Settings

Tools

GUIDE TO INFECTION PREVENTION FOR OUTPATIENT SETTINGS: MINIMUM EXPECTATIONS FOR SAFE CARE


Recommendations

- Make infection prevention a priority
- Dedicate resources
  - Equipment and supplies for Standard Precautions
  - One individual trained in Infection Prevention employed or “readily available”
  - Written policies and procedures
- Educate and train healthcare providers
  - Upon hire, annually and as needed
  - Document competencies

- Adhere to Standard Precautions

Hand hygiene

Recommendations

• Adhere to Standard Precautions
  – Hand hygiene
  – Appropriate use of PPE

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Safe Injection Practices

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  – Appropriate use of PPE
  – Safe injection practices

  – Cough etiquette
  – Cleaning and disinfection of environmental surfaces
  – Cleaning, disinfection and sterilization of medical devices
Recommendations

• Adhere to Standard Precautions
• Surveillance and Reporting

• Educate patients about signs and symptoms of infection that can occur after procedure
• Adhere to local, state and federal requirements regarding HAI surveillance, reportable diseases and outbreak reporting
• Perform audits of adherence to infection prevention practices
• Annual risk assessment

Tools


Compliance with Recommended Practices

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![Graph showing compliance with recommended practices]

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Compliance with Recommended Practices

![Graph showing compliance with recommended practices]

PPE to Prevent Pertussis Exposures

![Graph showing PPE use]

Why Standard Precautions are Important

- 35 week gestation infant
- Presents with 7 week of age history of worsening rash
  - Began on legs and then generalized
  - Initially red but began to peel
  - Baby systemically well
- Exam
  - Erythematous papules on soles of feet and palms of hands
  - Bilateral legs with many desquamating papules
  - On right thigh there may be burrowing pattern
  - No mucosal involvement
  - Few papules on upper extremities, and chest
Why Standard Precautions are Important

“Differential diagnosis includes viral infection such as enterovirus, scabies, or much less likely syphilis (she has no other symptoms of syphilis and mom's prenatal labs reportedly normal)”

Why Standard Precautions are Important

- Labs
  - WBC 15.34
  - HgB 9.3
  - AST 159
  - ALT 116
  - Protein in urine >300
- Referral to Peds ID
- Persistent rash
  - Worsening transaminitis (AST 783, ALT 498)

Why Standard Precautions are Important

- Use contact precautions for all encounters
  - Ambulatory
  - Inpatient settings
- Persons with CF wear a mask within the healthcare facility
- Persons with CF are separated from one another by 6 feet
CF Infection Prevention Guidelines

- CF care teams collaborate with their institutional IP&C teams to develop protocols, checklists, and audits to standardize implementation of practices
  - Single-patient-use, disposable items
  - Cleaning and disinfecting multuse
  - Cleaning and disinfecting surfaces in the healthcare environment
  - Monitor adherence and provide feedback

Challenge

- Use the CDC tool to audit your practice
- Do you have opportunities?
- What intervention might you implement next week to make care safer for patients and healthcare providers?

Conclusions

- Infection associated with ambulatory healthcare cause substantial morbidity
- Official guidance emphasizes standard precautions
- Compliance (as far as we know) is suboptimal
- Additional studies are needed to define burden and barriers to prevention
- Patient/family engagement facilitates success