The Role of the School Nurse in Public Health Preparedness

October 24, 2015
Illinois Association of School Nurses
Annual Conference

Winnebago County Health Department
Promoting A *Safer* and Healthier Community Since 1854

Vision: Healthy people in a healthy community without health disparities
Conflicts of Interest

• There are no conflicts of interest to disclose.
Objectives

Participants will be able to:

• Identify the alignment between the Standards of School Nursing Practice/Standards of Professional Performance for School Nursing and Public Health Accreditation.

• State the role of the local health department in health protection.

• Differentiate between a cluster, outbreak, epidemic, and pandemic.

• State the role of the school nurse in routine and enhanced surveillance activities in their school system.

• Apply concepts of surveillance and notification to the school-age population.
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3 Core Functions
10 Essential Services
Public Health Accreditation

• 12 Domains

  – Domain 1: *Conduct and disseminate assessments* focused on population health status and public health issues facing the community.
  
  – Domain 2: *Investigate health problems* and *environmental health hazards* to protect the community.
  
  – Domain 3: *Inform and educate* about public health issues and functions.
  
  – Domain 4: *Engage with the community* to identify and address health problems.
  
  – Domain 5: Develop *public health policies and plans*.
  
  – Domain 6: *Enforce public health laws*.

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Public Health Accreditation

– Domain 7: Promote strategies to improve access to health care services.
– Domain 8: Maintain a competent public health workforce.
– Domain 9: Evaluate and continuously improve health department process, programs, and interventions.
– Domain 10: Contribute to and apply the evidence base of public health.
– Domain 11: Maintain administrative and management capacity.
– Domain 12: Maintain capacity to engage the public health governing entity.

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Standards of School Nursing Practice

- Standard 1: Assessment
- Standard 2: Diagnosis
- Standard 3: Outcomes Identification
- Standard 4: Planning
- Standard 5: Implementation
- Standard 6: Evaluation
Standards of Professional Performance for School Nursing

- Standard 7: Ethics
- Standard 8: Education
- Standard 9: Evidence-Based Practice and Research
- Standard 10: Quality of Practice
- Standard 11: Communication
- Standard 12: Leadership
- Standard 13: Collaboration
- Standard 14: Professional Practice Evaluation
- Standard 15: Resource Utilization
- Standard 16: Environmental Health
- Standard 17: Program Management

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# Alignment Between School Nursing and Public Health

<table>
<thead>
<tr>
<th>Dimension</th>
<th>School Nursing</th>
<th>Public Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>Standard 1 – Assessment</td>
<td>Domain 1 - Assessment</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Standard 2 – Diagnosis</td>
<td>Domain 2 – Investigate</td>
</tr>
<tr>
<td>Focus on outcomes</td>
<td>Standard 3 – Outcomes</td>
<td>Domain 9 – Evaluate</td>
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<tr>
<td>Planning</td>
<td>Standard 4 – Planning</td>
<td>Domain 5 – Policies and Plans</td>
</tr>
<tr>
<td>Implementation</td>
<td>Standard 5 – Implementation 5A – Coordination of Care</td>
<td>Domain 3 – Inform, Education and Empower</td>
</tr>
<tr>
<td></td>
<td>5B – Health Teaching and Health Promotion</td>
<td>Domain 4 – Community Engagement</td>
</tr>
<tr>
<td></td>
<td>5C – Consultation</td>
<td>Domain 7 – Access to Care</td>
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<tr>
<td></td>
<td>5D – Prescriptive Authority and Treatment</td>
<td>Domain 8 – Maintain a Competent Workforce</td>
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<tr>
<td>Evaluation</td>
<td>Standard 6 - Evaluation</td>
<td>Domain 9 – Evaluate</td>
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<td>Public Health</td>
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<tr>
<td>Ethics</td>
<td>Standard 7 – Ethics</td>
<td>Domain 12 – Governance</td>
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<tr>
<td>Education</td>
<td>Standard 8 – Education</td>
<td>Domain 8 – Competent Public Health Workforce</td>
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<td>Evidence-based Practice</td>
<td>Standard 9 – Evidence Based Practice and Research</td>
<td>Domain 10 – Evidence-based Practice</td>
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<tr>
<td>Quality</td>
<td>Standard 10 – Quality of Practice</td>
<td>Domain 9 – Continuous Quality Improvement</td>
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<tr>
<td>Communication</td>
<td>Standard 11 – Communication</td>
<td>Domain 3 – Inform, Educate, and Empower</td>
</tr>
<tr>
<td>Leadership</td>
<td>Standard 12 – Leadership</td>
<td>Domain 11 – Administration and Management</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Standard 13 - Collaboration</td>
<td>Domain 4 – Community Engagement</td>
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<th>Public Health</th>
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<tbody>
<tr>
<td>Performance Evaluation</td>
<td>Standard 14 – Professional Practice Evaluation</td>
<td>Domain 9 – Competent Workforce</td>
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<tr>
<td>Environmental Health</td>
<td>Standard 16 – Environmental Health</td>
<td>Domain 2 – Investigate Environmental Health Concerns&lt;br&gt;Domain 5 – Public Health Policies and Plans&lt;br&gt;Domain 6 – Enforce public health laws</td>
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<tr>
<td>Program Management</td>
<td>Standard 17 – Program Management</td>
<td>Domain 11 – Management and Administrative Capacity</td>
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</table>

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School Nurse as a Public Health Practitioner

• Alignment of School Nursing Practice and Standards of Professional Performance with Public Health Core Functions and Essential Services (Accreditation Domains).

• Population of interest – school including students, faculty, and staff.

• Practice at all levels
  – Individual
    • Examples of practice
  – Family
    • Examples of practice
  – Community
    • Examples or practice
Role of Public Health in Communicable Disease

• Assessment (Domain 1) = Surveillance Activities
  – Reportable Diseases
    • INEDSS = Illinois National Electronic Disease Surveillance System
    • ESSENCE = Electronic Surveillance System for the Early Notification of Community-based Reporting of Epidemics
    • Laboratory Reporting Systems
    • Mandatory Provider Reporting
  – School Absenteeism Reports
    • Influenza Like Illness (ILI)
    • Gastrointestinal (GI)
    • Other
  – Sentinel Site Reporting
    • Influenza
    • West Nile Virus Vector
  – Community Health Professionals

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Reportable Diseases

Report to the state Certified Local Health Department for your community.
Sample Surveillance – West Nile Virus

Mosquito Pools & Precipitation (in.)
August 2015

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Sample Surveillance from ESSENCE - Influenza

INFLUENZA LIKE ILLNESS
OUTPATIENT SURVEILLANCE 2014-2015

% OF VISITS FOR ILI

CDC WEEK

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Sample Surveillance  Essence – GI Complaint

R Chart - (Range) Essence GI Data

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Sample Surveillance Laboratory Testing
Sample Surveillance from Skilled Nursing Facilities - Influenza

<table>
<thead>
<tr>
<th>CDC Week Number</th>
<th>Outbreak Record #</th>
<th>Number of Residents with ILI Symptoms</th>
<th>Influenza Tests Completed</th>
<th>Number of Positive Tests</th>
<th>Vaccination Rate of Residents Tested</th>
<th>Number of Staff with ILI Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>2014-0393</td>
<td>45</td>
<td>38</td>
<td>8</td>
<td>74%</td>
<td>3</td>
</tr>
<tr>
<td>48</td>
<td>2014-0442</td>
<td>51</td>
<td>13</td>
<td>8</td>
<td>73%</td>
<td>0</td>
</tr>
<tr>
<td>49</td>
<td>2014-0459</td>
<td>39</td>
<td>33</td>
<td>11</td>
<td>82%</td>
<td>24</td>
</tr>
<tr>
<td>50</td>
<td>2014-0462</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>50%</td>
<td>0</td>
</tr>
<tr>
<td>50</td>
<td>2014-0529</td>
<td>24</td>
<td>2</td>
<td>2</td>
<td>63%</td>
<td>8</td>
</tr>
<tr>
<td>50</td>
<td>2014-0460</td>
<td>18</td>
<td>18</td>
<td>6</td>
<td>56%</td>
<td>0</td>
</tr>
<tr>
<td>51</td>
<td>2014-0526</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>67%</td>
<td>0</td>
</tr>
<tr>
<td>51</td>
<td>2014-0533</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>83%</td>
<td>1</td>
</tr>
<tr>
<td>52</td>
<td>2014-0461</td>
<td>13</td>
<td>13</td>
<td>8</td>
<td>85%</td>
<td>5</td>
</tr>
</tbody>
</table>
Sample Surveillance - Laboratory Testing STD/STI

Reported STI Cases
January 2015

- Syphilis
- Gonorrhea
- HPV
- Chlamydia
- HIV
- Other

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School ILI Reporting

Important to know if and how your school participates in Influenza surveillance
Epidemiology Definitions

• Cluster
  – A disease cluster is an unusually high incidence of a particular disease or disorder occurring in close proximity in terms of both time and geography. Typically, when clusters are recognized, they are reported to public health departments in the local area.


  – Typically involve a relatively uncommon disease
    • e.g. brain cancer, leukemia
  – Not due to chance – statistically significant

I have had 4 students from science class in my office this morning with sore throats.
Epidemiology Definitions

• Outbreak
  – An **outbreak** is a sudden increase in occurrences of a disease in a particular time and place. It may affect a small and localized group or impact upon thousands of people across an entire continent. Two linked cases of a rare infectious disease may be sufficient to constitute an outbreak.


  – An **epidemic confined to a local area** (Oleckno, 2002)

  Report on over 100 confirmed cases of mumps at the University of Illinois – Champaign Urbana

  Retrieved September 21, 2015 from http://peoriapublicradio.org/post/more-mumps-cases-eiu#stream/0
Epidemiology Definitions

• Epidemic
  – *Epidemic* refers to an increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area.
    

  – Causes include:
    • An increase in the amount or virulence of the agent
    • Novel agent
    • An enhanced mode of transmission
    • A change in the susceptibility of the host
    • Factors that increase exposure and/or portals of entry.
Epidemiology Definitions

• Pandemic
  – *Pandemic* refers to an epidemic that has spread over several countries or continents, usually affecting a large number of people.

So…….

- Report any cluster, outbreak, epidemic or pandemic to the local health department.

Day or Night – 24/7
Your local health department is on call
School Nurse Surveillance

- Individual Health Plans (IHP)
- Utilization of School Nurse (Logs, sign-in, etc.)
- Immunization Rates
- Certificate of Child Health Examination
- Occurrence/Accident Reports
- Grade Reports
- Achievement Tests
- Others?
School Nurse Surveillance

• Attendance Records

![Graph showing difference in Math CST Percentile Points by Number of Days Absent (Grades 3-8), School Year 2010-11](Exhibit 9)

School Nurse Surveillance

• Immunization Records

![Five-Year Trend in Protection against Mumps](http://www.isbe.net/research/htmls/immunization.htm#immu)

Retrieved September 16, 2015 from http://www.isbe.net/research/htmls/immunization.htm#immu
### School Nurse Surveillance Data

- **BMI – Obesity Data**

<table>
<thead>
<tr>
<th>Category</th>
<th>Count RPS Student</th>
<th>/1000</th>
<th>Percent</th>
<th>National</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy weight</td>
<td>902</td>
<td>515.4</td>
<td>51.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td>291</td>
<td>166.3</td>
<td>16.6%</td>
<td>14.9%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Obese</td>
<td>502</td>
<td>286.9</td>
<td>28.7%</td>
<td>16.9%</td>
<td>11.8%</td>
</tr>
<tr>
<td>Underweight</td>
<td>55</td>
<td>31.4</td>
<td>3.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>378</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>2128</td>
<td>1000</td>
<td>100.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
School Nurse Surveillance Data

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<th>National</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy weight</td>
<td>779</td>
<td>500.6</td>
<td>50.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td>269</td>
<td>172.9</td>
<td>17.3%</td>
<td>16.9%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Obese</td>
<td>435</td>
<td>279.6</td>
<td>28.0%</td>
<td>14.9%</td>
<td>13.1%</td>
</tr>
<tr>
<td>Under weight</td>
<td>73</td>
<td>46.9</td>
<td>4.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>405</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>1961</td>
<td>1000.0</td>
<td>100.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Description of a school nurse visit syndromic surveillance system and comparison to emergency department visits, New York City.


Author information

1Elisha L. Wilson, Marc Paladini, Don Weiss, and Trang Q. Nguyen are with the Bureau of Communicable Disease, New York City Department of Health and Mental Hygiene, Queens, NY. Joseph R. Egger and Kevin J. Konty are with the Bureau of Epidemiology Services, New York City Department of Health and Mental Hygiene.

Abstract

OBJECTIVES: We compared school nurse visit syndromic surveillance system data to emergency department (ED) visit data for monitoring illness in New York City schoolchildren.

METHODS: School nurse visit data recorded in an electronic health record system are used to conduct daily surveillance of influenza-like illness, fever-flu, allergy, asthma, diarrhea, and vomiting syndromes. We calculated correlation coefficients to compare the percentage of syndrome visits to the school nurse and ED for children aged 5 to 14 years, from September 2006 to June 2011.

RESULTS: Trends in influenza-like illness correlated significantly (correlation coefficient = 0.89; P < .001) and 72% of school signals occurred on days that ED signaled. Trends in allergy (correlation coefficient = 0.73; P < .001) and asthma (correlation coefficient = 0.56; P < .001) also correlated and school signals overlapped with ED signals on 95% and 51% of days, respectively. Substantial daily variation in diarrhea and vomiting visits limited our ability to make comparisons.

CONCLUSIONS: Compared with ED syndromic surveillance, the school nurse system identified similar trends in influenza-like illness, allergy, and asthma syndromes. Public health practitioners without school-based surveillance may be able to use age-specific analyses of ED syndromic surveillance data to monitor illness in schoolchildren.

PMID: 24228684 [PubMed - indexed for MEDLINE]
Conclusions

This project demonstrated that school clinics are a significant resource for primary healthcare among school-aged children and that clinic syndromic surveillance is valuable for preparedness and education programs. Baseline burdens of both infectious and chronic diseases may be established, which can be used to identify trends or outbreaks in the future.
Evidence

Conclusions

The system (ESSENCE) has shown potential, if used with other biosurveillance systems and data, to help public health monitor community health trends and respond to findings in a focused partnership with schools. As participation grows, the system will be increasingly useful for both its current and future applications.
Case Study

Note: All school names have been changed.

- August 28 – Ridgemont High Football team plays Metro High Football Team.
- September 10 – 4 student football players (Ridgemont High) present to School Nurse (SN) for suspected impetigo.
  - SN sends remaining 20 football players home with note to be evaluated by primary care provider (PCP).
  - All 20 football players return next day (September 11) with required follow-up from PCP.
  - SN works with janitors to sanitize desks, weight, and locker rooms used by football players.
- September 11 – Ridgemont High Football Team plays Central High Football team.
- September 12 – 5 student football players from Central High are diagnosed with impetigo.
Case Study - continued

• September 18 – Local county health department receives call from a concerned parent from Ridgemont High regarding “outbreak” of impetigo in their school. Local media also calls regarding impetigo.

• September 21 – Illinois Department of Public Health sends out alert to school nurses.
  – SN from Ridgemont High reports a total of 30 students infected.

• September 22 – Media reports on total of 12 infected students at Central High School and references infection control efforts being taken at Metro High School.
Case Study - continued

• Considerations
  – Impetigo is not a “reportable” communicable disease.
  – Mode of transmission: contact with infected lesions
  – Causative agents:
    • Staphylococcus aureus
    • Streptococcus pyogenes
  – Incubation period:
    • Staphylococcus aureus: 4 – 10 days
    • Streptococcus pyogenes: 1 – 2 days
  – Treatment: oral or topical antibiotics; covering of lesions
Case Study – AAR/Improvement Plan

• Strengths – what went well
  – Surveillance by SN
  – Management of impacted students
  – Early identification of potential
  – Early notification for prevention
  – Sanitation of environment for prevention
  – Others???

• Opportunities for Improvement – what could have been done better
  – No contact to local health department
  – No notification to other schools
  – No overall management of media
  – Others???
Closing Thoughts

Your local health department is there to **partner** with your school to protect the public’s health through:

- Surveillance
- Guidance
  - Management of illness
  - Prevention of additional cases
- Communication
  - Students and parents
  - Faculty and staff
  - Media
- Education
- Follow-up

Vision: Healthy people in a healthy community without health disparities
Questions and Comments

Thank you for your contribution to public health through your work in the schools!
References


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