Traditional influenza reporting methods are inherently delayed, as they require active submission of results. This can be a multi-step process in which lag-time is magnified, often delaying influenza reporting trends by up to 3 weeks.

Disease surveillance in clinic settings was a core function of the first primary care PBRN in the US (Ambulatory Sentinel Practice Network, ASPN). ASPN was created and functioned prior to the era of computing.

Given primary care PBRNs' long history of disease surveillance, PBRNs are uniquely qualified to test a novel, real-time approach to influenza surveillance.

**Objective**

- Describe the feasibility of implementing and maintaining real-time rapid influenza detection test (RIDT) analyzers connected to wireless routers for real-time reporting in typical primary care settings.

**Methods**

- Wisconsin Research and Education Network (WREN) research coordinators:
  - Installed RIDT analyzers in clinics;
  - Briefly trained clinic providers and staff to identify eligible patients, collect anterior nasal samples, and process these samples using the RIDT analyzers.
  - RIDT results were automatically reported to surveillance staff on a daily basis and analyzed weekly to identify trends at the clinic level, public health region, and for the entire state of WI.
  - Aggregate results were also disseminated back to clinics on a weekly basis.

**Clinic Eligibility**

- Clinics agreed to use RIDT analyzers on at least some patients meeting eligibility criteria.
- On-site laboratory not mandatory.

**Patient Selection**

- Clinic visit for any reason (any age)
- Acute Respiratory Infection (within 4 days)
- 2+ symptoms: fever, cough, sore throat, nasal congestion, hoary nose

**Specimen Collection**

- No written consent (fill out requisition form)
- Collect from nose/tip (sponge tip nasal swab)
- Place swab in paper sheath; attach patient label
- Send to clinic lab personnel for testing

**Laboratory Processing**

- Clinic lab processes samples using RIDT
- Send sample and requisition form to WI State Laboratory of Hygiene (WSLH) for confirmation of real-time results

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**Clinic Staff Protocol**

- Briefly trained clinic providers and staff to identify eligible patients, collect anterior nasal samples, and process these samples using the RIDT analyzers.

**Clinical/Staff Protocol**

- Wisconsin Research and Education Network (WREN) research coordinators:
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**Results**

<table>
<thead>
<tr>
<th>Clinic (n=15)</th>
<th>At least 1 clinic was from each of the 5 public health regions in WI (Figure 2).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic demographics varied in size, personnel, Institutional Review Board (IRB) status, laboratory infrastructure, and level of integration into health systems (Table 1).</td>
<td></td>
</tr>
<tr>
<td>Clinic Staff</td>
<td>194 clinic staff (median 9 per clinic, range 3-38) were trained on the study protocol.</td>
</tr>
<tr>
<td>Staff included providers (MD, DO, PA, NP, CNM), nurses, medical assistants, laboratory staff, pharmacists, dieticians, and administrative staff (reception, clinic managers).</td>
<td></td>
</tr>
</tbody>
</table>

**Patient Sample Population**

- As of 5/19/2014, 575 samples have been analyzed at participating WREN clinics (Table 2, Figure 1).
- The median number of samples collected per clinic is 24 (range 2-188).
- Mean patient age of 30.82 years (standard deviation 21.16 years, range 0.13 to 88 years).

**Table 1. Clinic Demographics**

<table>
<thead>
<tr>
<th>Clinic Ownership</th>
<th>Count (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital or health system</td>
<td>7 (46.7%)</td>
</tr>
<tr>
<td>Clinic physicians</td>
<td>4 (26.7%)</td>
</tr>
<tr>
<td>Other organization</td>
<td>4 (26.7%)</td>
</tr>
<tr>
<td>Federally Qualified Health Center</td>
<td>3 (20.0%)</td>
</tr>
<tr>
<td>Community Health Center</td>
<td>1 (6.7%)</td>
</tr>
<tr>
<td>Clinics requiring IRB approval</td>
<td>7 (46.7%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Geographical Location</th>
<th>Count (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>9 (60.0%)</td>
</tr>
<tr>
<td>Urban</td>
<td>5 (33.3%)</td>
</tr>
<tr>
<td>Suburban</td>
<td>1 (6.7%)</td>
</tr>
</tbody>
</table>

**Table 2. Samples collected by age**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Count (n=575)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5 years</td>
<td>94</td>
<td>16.3%</td>
</tr>
<tr>
<td>6 - 21 years</td>
<td>123</td>
<td>21.4%</td>
</tr>
<tr>
<td>22 - 59 years</td>
<td>295</td>
<td>51.3%</td>
</tr>
<tr>
<td>60+ years</td>
<td>62</td>
<td>10.8%</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

**Discussion: PBRN Lessons Learned**

- An "easy" PBRN project is never an "easy" project. Plan for more time than you think you’ll need.
- Involve relevant clinic staff early in planning process (e.g., lab supervisors).
- Allow adequate time for clinic teams to plan workflows.
- Each site needs to tailor project plans to fit within internal processes.

**Discussion: Problems & Complexities**

- Site-specific IRB issues
- Site visits required for project initiation
- Site visits required for project review
- Site visits required for adjustments

- EMR implemented
  - Federally Qualified Health Center
  - Community Health Center

- EMR includes Epic, GE Centricity, Cerner, NextGen, MacPractice, Meditech, and Practice Partner

- Clinic staff required to maintain concurrent documentation of patients meeting eligibility criteria.

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