Bi-Directional Immunization Data Transmission

Mercy Clinic East Communities

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Learning Objectives

- Mercy’s EMR Journey
- Establishing a Bi-Directional Immunization Data Interface
- Regulatory Compliance
- Successes, Challenges, and Ongoing Work
- Clinic Provider and Co-Worker Experience
- Immunization Rates at Mercy
- Key Learning and Replicability

Our EMR Journey

- EMR was implemented in the clinic in 2003, and at the hospitals in 2009. This has helped to hardwire quality improvement processes.
  - Hospital “Best Practice Alerts” for both pneumococcal vaccines.
  - Bi-directional feed between EMR and State Registries in 2012.
  - Up-to-date immunization records in “Health Maintenance” and the “Daily Visit Planner” in 2013.
  - Improved functionality to identify and close gaps using the “Encounter guide” in 2018.
Establishing a Bi-Directional Immunization Data Interface

Regulatory Compliance

- **Meaningful Use**
  - American Reinvestment and Recovery Act 2009
  - Incentives
  - Stage 1: to test and establish a connection between one’s EHR and local ISS
  - Stage 2: requires ongoing data submission

- **Immunization Information Services (ISS)**
  - Confidential, population-based, computerized databases that record all immunization doses administered by participating providers
  - Point of Clinical Care and Population Level
  - Consolidates Records
  - Privacy and Confidentiality
  - Timely immunizations
  - Clinical Decision Support
  - Data Exchange

https://www.cdc.gov/vaccines/programs/iis/about.html
https://www.cdc.gov/vaccines/programs/iis/meaningful-use/index.html
Bi-Directional Data Transmission

- Initial build started in 2012
- Mercy is currently connected to 7 state registries:
  - Arkansas, California, Kansas, Louisiana, Nevada, Indiana and Missouri
- We’ve also assisted in setting up interfaces to:
  - Maryland, Virginia, West Virginia
- Oklahoma stopped connectivity back in 2014, to upgrade systems, and has recently asked that we go thru the process of re-establishing connectivity

Bi-Directional Data Transmission

- Mercy administers and sends on average 2,400 vaccines a day.
- Unable to determine how many vaccines we receive from outside sources.
- Successes
  - Real time data, point of clinical care
  - Population Health
  - Vaccines for Children Program (VFC)
- Ongoing work
  - Enhancing interfaces; working with local pharmacies and county health department
  - Engaging specialty office vaccine administration
  - Leveraging EMR (e.g. targeting at risk and high risk pneumonia)
Challenges

- Initially there was a learning curve with Engine connectivity to the registries.
- Now it’s keeping up with the security concerns, and the everchanging Meaningful Use requirements as registries update.
- Each state’s requirements are different.
- Not all immunizations are reported
  - Only clinics registered within the state, for patients that live within the state.
- Co-workers must manually click a button to “pull-in” and reconcile outside immunizations in our EMR.
- Adding new facilities/clinics to a state registries can be an arduous process.

Pearls of Wisdom

- One centralized registry would be a positive step – that acts as a repository for all states, all vaccines, and from all reporters…. regardless of where the patient lives.
- Current state does not give a complete picture of a person’s vaccines.
Clinic Provider & Co-Worker Experience

Immunization Registry

<table>
<thead>
<tr>
<th>Immunizations/Injections</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New immunizations from outside sources are available for reconciliation</strong></td>
</tr>
<tr>
<td>DTaP Hep B IPV Combined Vaccine IM 9/24/2018</td>
</tr>
<tr>
<td>DTaP Vaccine &lt; 7 YO IM 7/19/2017, 11/26/2014, 8/8/2014, ...</td>
</tr>
<tr>
<td>Hepatitis A Vaccine 8/8/2016, 7/1/2015</td>
</tr>
<tr>
<td>Hepatitis A Vaccine Peds Adol IM 2 Dose 4/19/2017, 8/18/2016</td>
</tr>
<tr>
<td>Hepatitis B Vaccine 8/8/2014, 5/27/2014, 9/24/2013, ...</td>
</tr>
<tr>
<td>Hib PRP-OMP Vaccine IM 3 Dose 9/24/2013</td>
</tr>
<tr>
<td>Hib Vaccine 11/26/2014, 8/8/2014, 5/27/2014, ...</td>
</tr>
<tr>
<td>IPV/OPV 7/19/2017</td>
</tr>
<tr>
<td>Influenza Vaccine Quad Split 6 Mos+ IM 11/1/2017</td>
</tr>
<tr>
<td>MMR Vaccine SQ 7/19/2017, 8/8/2014</td>
</tr>
<tr>
<td>Pneumococcal 13-valent Conjugate Vaccine 9/18/2016, 11/26/2014, 8/8/2014, ...</td>
</tr>
<tr>
<td>Poliovirus IPV 11/26/2014, 8/8/2014, 5/27/2014, ...</td>
</tr>
<tr>
<td>Varicella Vaccine Live SQ 7/19/2017, 8/8/2014</td>
</tr>
</tbody>
</table>
Immunization Registry
Immunization Registry

- Identifies gaps in care
- Utilized by the medical assistant during rooming
- Sources of data:
  - EMR
  - Integrated databases
    - State immunization registry
    - Insurance claims
    - Medicare claims
    - Lab
    - Mercy legacy EMR

Daily Visit Planner

<table>
<thead>
<tr>
<th>Measure</th>
<th>Result</th>
<th>Date</th>
<th>Freq</th>
<th>Src</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Visit</td>
<td></td>
<td>4/5/19</td>
<td></td>
<td>E</td>
</tr>
<tr>
<td>Medications Reviewed</td>
<td></td>
<td>4/3/19</td>
<td></td>
<td>E</td>
</tr>
<tr>
<td>Flu Vaccine</td>
<td>--</td>
<td>10/27/18</td>
<td>1 Yr</td>
<td>M</td>
</tr>
<tr>
<td>Pneumonia Vaccine</td>
<td>PREVAN</td>
<td>12/18/15</td>
<td>Lifetime</td>
<td>E</td>
</tr>
<tr>
<td>Tobacco Assessment</td>
<td>Quit</td>
<td>4/3/19</td>
<td>2 Yrs</td>
<td>E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure</th>
<th>Result</th>
<th>Date</th>
<th>Freq</th>
<th>Src</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Visit</td>
<td>--</td>
<td>4/15/19</td>
<td>1 Yr</td>
<td>E</td>
</tr>
<tr>
<td>Medications Reviewed</td>
<td></td>
<td>4/15/19</td>
<td></td>
<td>E</td>
</tr>
<tr>
<td>Flu Vaccine</td>
<td>--</td>
<td>10/9/17</td>
<td></td>
<td>E</td>
</tr>
<tr>
<td>Pneumonia Vaccine</td>
<td>--</td>
<td>DUE</td>
<td>Lifetime</td>
<td>--</td>
</tr>
<tr>
<td>Tobacco Assessment</td>
<td>Never</td>
<td>4/15/19</td>
<td>2 Yrs</td>
<td>E</td>
</tr>
</tbody>
</table>
Health Maintenance

• Epic registry pulls data
  – Many times requires manual entry of data
  – Unable to pull some data for reporting

<table>
<thead>
<tr>
<th>Health Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/03/1982</td>
</tr>
<tr>
<td>06/03/1994</td>
</tr>
<tr>
<td>06/02/2009</td>
</tr>
<tr>
<td>10/01/2012</td>
</tr>
<tr>
<td>09/01/2018</td>
</tr>
<tr>
<td>09/19/2019</td>
</tr>
<tr>
<td>03/19/2020</td>
</tr>
<tr>
<td>03/19/2020</td>
</tr>
<tr>
<td>03/22/2020</td>
</tr>
</tbody>
</table>

Encounter Guide

• Launched in 2018. Improved functionality to identify and close gaps in care.
• 2 immunizations included on the adult encounter guide
  – Influenza
  – Pneumococcal
• 13 immunizations included on the pediatric encounter guide
  – Meningococcal
  – Tdap
  – Dtap
  – Hep A
  – Hep B
  – Hib
  – MMR
  – Rotavirus
  – IPV
  – Zostavax
  – Influenza
  – PCV 13
  – HPV
How Has All of This Improved Immunization Rates at Mercy?

Mercy Clinic Adult AI Collaborative Pre-Intervention vs. Post-Intervention Rates

- **M1a**: Patients 65+ who have received ONE pneumococcal vaccination
- **M1b**: Patients 65+ who have received BOTH pneumococcal vaccinations
- **M2a**: High-Risk Patients 19-64 who have received a pneumococcal vaccination
- **M2b**: At-Risk patients 19-64 who have received a pneumococcal vaccination
- **M3**: Patients 18+ who have received an influenza vaccination

### Pre-Intervention Period:
- Pneumococcal Vaccines: 1/1/16 - 12/31/16
- Influenza Vaccine: 7/1/15 - 6/30/16

### Post-Intervention Period:
- Pneumococcal Vaccines: 1/1/18 - 3/31/18
- Influenza Vaccine: 4/1/18 - 6/30/18
Key Learning & Replicability

• Leveraging technology is key to improving healthcare.

• It can be arduous work to establish new interfaces, and keep up with security concerns and everchanging Meaningful Use requirements for multiple state registries.

Questions?

Thank you all very much