INCREASING ADULT IMMUNIZATIONS THROUGH THE USE OF MICHIGAN'S IMMUNIZATION INFORMATION SYSTEM.

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Michigan Care Improvement Registry (MCIR)

- A statewide, population-based IIS
  - Implemented in 1998 for health care providers to track children's vaccinations
  - Continually populated since 1994 with birth records through a linkage with Michigan's Vital Records
  - Required reporting within 72 hours of administration for children aged less than 20 years
- Expanded to adults in 2006
  - Strongly encouraged reporting for adult vaccinations
## MCIR Participation

<table>
<thead>
<tr>
<th></th>
<th>2013 Census</th>
<th>MCIR- MI only* (% of Census)</th>
<th>MCIR – All Persons*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults 18+</td>
<td>7,650,421</td>
<td>5,847,809 (76%)</td>
<td>6,405,065</td>
</tr>
<tr>
<td>18-49 Years</td>
<td>4,071,197</td>
<td>3,389,268 (83%)</td>
<td>3,835,181</td>
</tr>
<tr>
<td>50-64 Years</td>
<td>2,091,631</td>
<td>1,193,814 (57%)</td>
<td>1,243,233</td>
</tr>
<tr>
<td>65+ Years</td>
<td>1,487,593</td>
<td>1,264,727 (85%)</td>
<td>1,326,651</td>
</tr>
<tr>
<td>All Ages</td>
<td>9,839,187</td>
<td>8,161,445 (83%)</td>
<td>9,104,809</td>
</tr>
</tbody>
</table>

*As of January 2015

## 1998 Interoperability

Five floppy disks to install an IIS program on computer stations in provider offices. Dial-up modem that dialed an 800 number.
Michigan Health Information Network (MiHIN)

The Michigan Health Information Network Shared Services (MiHIN) is a public and private nonprofit collaboration dedicated to improving the healthcare experience, improving quality and decreasing cost for Michigan’s people by supporting the statewide exchange of health information and making valuable data available at the point of care.
Network of Networks:

Federal

HIE QOs (Qualified sub-state HIEs)

Doctors & Community Providers

State-wide Shared Services

Pharmacies (more coming)

Statewide LABS

MDCH Data Hub

MSSS

Single point of entry/exit for state

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MCIR Current HL7 Status

- March 2012 production for HL7 2.51 VXU
- 28 EHR Vendors approved to send VXU’s to MCIR
- Testing QBP 2.51 (Query Immunization Record)
- Over 1700 provider sites including pharmacies and hospitals submitting VXU’s through the HIE to MCIR
Immunization Reporting

HIE (QOs, VQOs or sub-state HIEs)

State-wide Shared Services

MDCH Data Hub

VPN into State

Immunization Registry

Immunizations via Direct Secure Messaging

- doctor@direct.florida.org
- doctor@direct.ohio.org
- doctor@direct.wisconsin.org
- immunizations@corrections.mihin.org

mcir@direct.mihin.org

State-wide Shared Services

State of Michigan Data Hub

Immunization Registry
Timeliness of reporting

Percent Distribution of Total Doses Entered Target Sites

<table>
<thead>
<tr>
<th>Time Elapsed Since Administration</th>
<th>Percent Distribution of Total Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= 1 Day</td>
<td>92%</td>
</tr>
<tr>
<td>2-7 Days</td>
<td>63%</td>
</tr>
<tr>
<td>8-14 Days</td>
<td>32%</td>
</tr>
<tr>
<td>15-30 Days</td>
<td>4%</td>
</tr>
<tr>
<td>&gt; 30 Days</td>
<td>11%</td>
</tr>
</tbody>
</table>

- Pre HL7 (N=132060)
- Post HL7 (N=128916)

Influenza Vaccination Doses Reported to MCIR from Pharmacies by Season

<table>
<thead>
<tr>
<th>Year</th>
<th>Pharmacy Doses</th>
<th>Non-Pharmacy Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>193,819</td>
<td>753,429</td>
</tr>
<tr>
<td>2012-13</td>
<td>369,868</td>
<td>853,396</td>
</tr>
<tr>
<td>2013-14</td>
<td>420,451</td>
<td>982,209</td>
</tr>
</tbody>
</table>
### Adult Vaccinations Reported to MCIR from Pharmacies

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoster</td>
<td>20,993</td>
<td>60,947</td>
<td>57,025</td>
<td>50,084</td>
</tr>
<tr>
<td>PPSV23/PCV13</td>
<td>8,463</td>
<td>11,712</td>
<td>13,292</td>
<td>15,252</td>
</tr>
<tr>
<td>Td/Tdap</td>
<td>6,643</td>
<td>9,968</td>
<td>14,308</td>
<td>17,441</td>
</tr>
</tbody>
</table>

### Proportion of Influenza Vaccinations Reported to MCIR during the 2013-14 Influenza Season by Pharmacies

Map of Michigan showing the proportion of influenza vaccinations by county during the 2013-14 season.
Benefits

- HIE “throttles” the HL7 messages being sent to MCIR
- Michigan Health Information Network is recruiting Pharmacies
  - Onboarding staff focuses on Data Quality and not transport issues
  - Biweekly stakeholder calls provide updates on current and future enhancements with Michigan Health Information Network.
  - Connected with a State Master Person Index
    - Found over 14,000 duplicate MCIR patient records
  - Medicaid Funding and support for the Immunization Program!!!!!
Conclusion

- Flu vaccination administered at a large retail pharmacy chain:
  - Records were reported to MCIR more promptly post-HL7
  - Proportion of duplicate records decreased
- HL7 messaging may enable improved flu vaccination surveillance using IIS