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Project Goals

• Improve overall KSWebIZ data quality.
• Identify problematic data quality issues for individual clinics.
• Educate clinics on use of KSWebIZ data quality reports.
• Correct erroneous or identify missing data.
• Advise clinical process flow to improve data quality (i.e. data entry, etc.)

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Specific Patient DQ Target Areas

- Patient Data Completeness
  - Patient Date of Birth
  - Patient Name (last, first)
  - Gender
  - Race/Ethnicity
  - Mother’s Name (first, last, maiden)
  - Patient Address
  - VFC Eligibility (patient level)
Specific Vaccination DQ Target Areas

- Vaccination Completeness
  - Missing/incorrect data for non-historical vaccinations
    - MFG
    - Lot Number
    - Expiration Date
    - Funding Source
    - Body Site/Route
    - Unspecified Formulation (UF)
Specific Vaccination DQ Target Areas (cont’d)

• Vaccination Accuracy
  – Vaccinations given at Invalid Age
    ▪ Looked at specific vaccines that were administered outside the ACIP recommendation (age).
  – Vaccinations Count Inconsistent with Age
    ▪ Looked at total counts of vaccinations given at specific ages (i.e. too many for that specific age).

• Vaccination Timeliness
  – Vaccinations given >7 days of administration date.
Timeline

• May 2013
  – Deployed New IZ Data Quality report to production

• June 2013
  – Sent out Call for pilot users (survey)

• July 2013
  – Ran baseline reports for clinics
  – Educated clinics on reports and how to ‘clean’ data

• August – Sept 2013
  – Ran monthly status reports to review progress
  – Surveyed participants (end of Sept) for feedback

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Data Quality Tool Design

• Idea for Data Quality Tool
  – September 2008: As a result of working on the MIROW DQ Chapter
  – Reviewed chapter and pulled out specific measurements that would be useful to check Data Quality in the system

• Design
  – September - December 2008
    • Input from VFC and KSWebIZ staff to expand and refine parameters
Data Quality Tool Development

- December 2008
  - Measurements transcribed into data queries generated by KSWebIZ Vendor
- December 2008-January 2009
  - Tool generated in PDF format (statistics portion only)
- January 2009-present
  - Tested tool; added patient level exceptions report
- Late 2012
  - Released to the KSWebIZ Test Site
- May 2013
  - Released to the KSWebIZ Production Site

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IZ Data Quality Tools

• Three types of reports are available:

  – Data Quality, Statistics – Scheduled
    • A scheduled report that presents a static view of clinic data based on the date it is generated. Snapshot of entire history for a clinic.
    • Full assessment of all data.
    • Ran monthly so clinic could review progress in changes of data.
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IZ Data Quality Tools (cont’d)

- **Data Quality, Statistics**
  - Run on an as-needed basis (real-time)
  - Limited to a one-month timeframe (either DOB or vaccination date range)
  - Clinic generates and uses data to track results of data cleansing for selected variables.

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Data Quality, Statistics

- Same layout as previous report just different data.
IZ Data Quality Tools (cont’d)

• **Data Quality, Patient Exceptions**
  – Run on an as-needed basis (real-time)
  – Limited to a one-month timeframe (either DOB or vaccination date range)
  – Clinic generates and uses data to track results of individual patient records with identified data issues.

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Data Quality, Patient Exceptions

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Data Quality, Patient Exceptions

Kansas Immunization Registry
Data Quality, Patient Exceptions (Beta Test)

Go Live Date Legacy Data Import Date Legacy Data System

Provider: KANSAS WEBIZ TRAINING
Clinic: KSWEBIZ DATA QUALITY
1800 SW JACKSON, UNIT #210
TOPEKA, KS 66612

Inventory Type: 3  HL7 Facility Code(s): NONE

Data Generated: Sep 12 2013 11:50 am

BUSINESS, CHARLENE (2427920) DOB: 12/07/2011
PATIENT COMPLETENESS
Patients with Middle Name
Patients with SSN
Patients with Birth State
Patients with Birth Country
Patients with Birth Order
Patients with Race
Patients with Ethnicity
Patients with VFC Eligibility
Patients with Mother's First Name
Patients with Mother's Middle Name
Patients with Mother's Maiden Name
Patients with Mother's Last Name
Patients with Street Name or PO Box
Patients with City
Patients with County
Patients with State
Patients with Zip Code
Patients with Home Phone Number
Patients with Cell Phone Number
Patients with Email Address

Total Exceptions for Patient Id 2427920: 20

Total Patients: 1
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Selection of Providers

- Reviewed all provider profiles of respondents of survey.
- Selected 15 providers based on the following criteria:
  - HL7 Interface providers vs. Direct Entry providers
    - NOTE: All interfacing providers currently use the HL7 2.3.1 standard and exchange data bi-directionally with KSWebIZ
  - Small, Medium vs. Large clinics
    - Small: 100-999 patients
    - Medium: 1,000-9,999 patients
    - Large: 10,000+ patients
  - Private provider clinics vs. Public provider clinics
### Selection of Providers

<table>
<thead>
<tr>
<th>Public vs. Private</th>
<th>Direct Access vs. Interfaced</th>
<th>Small vs. Medium vs. Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public: 8</td>
<td>Direct Access: 8</td>
<td>Small: 2</td>
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<tr>
<td>Private: 7</td>
<td>Interfaced: 7</td>
<td>Medium: 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Large: 5</td>
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</tbody>
</table>

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## Provider Profiles

<table>
<thead>
<tr>
<th>Clinic Name</th>
<th>Public vs. Private</th>
<th># Patients (Approx.)</th>
<th>Type of Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Konza Prairie</td>
<td>Private</td>
<td>2,341</td>
<td>Direct</td>
</tr>
<tr>
<td>Norton CHD</td>
<td>Public</td>
<td>5,437</td>
<td>Direct</td>
</tr>
<tr>
<td>St. Francis Fam Med Jewell</td>
<td>Private</td>
<td>1,570</td>
<td>Direct</td>
</tr>
<tr>
<td>Logan CHD</td>
<td>Public</td>
<td>3,948</td>
<td>HL7 2.3.1 PHClinic, KIPHS</td>
</tr>
<tr>
<td>Mercy Clinic</td>
<td>Private</td>
<td>4,296</td>
<td>HL7 2.3.1 EPIC</td>
</tr>
<tr>
<td>Mercy and Truth</td>
<td>Private</td>
<td>231</td>
<td>Direct</td>
</tr>
<tr>
<td>St. Francis Fam Med Hunter’s Ridge</td>
<td>Private</td>
<td>126</td>
<td>Direct</td>
</tr>
<tr>
<td>Douglas CHD</td>
<td>Public</td>
<td>40,637</td>
<td>HL7 2.3.1 Netsmart, Insight</td>
</tr>
</tbody>
</table>

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## Provider Profiles (cont’d)

<table>
<thead>
<tr>
<th>Clinic Name</th>
<th>Public vs. Private</th>
<th># Patients</th>
<th>Type of Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meade CHD</td>
<td>Public</td>
<td>7,880</td>
<td>HL7 2.3.1 PHClinic, KIPHS</td>
</tr>
<tr>
<td>Wyandotte CHD</td>
<td>Public</td>
<td>33,122</td>
<td>HL7 2.3.1 NetSmart, Insight</td>
</tr>
<tr>
<td>Med Ped Clinic West</td>
<td>Private</td>
<td>1,542</td>
<td>Direct</td>
</tr>
<tr>
<td>Riley CHD</td>
<td>Public</td>
<td>33,902</td>
<td>Direct</td>
</tr>
<tr>
<td>St. Francis Fam Med Mission Woods</td>
<td>Private</td>
<td>8,446</td>
<td>Direct</td>
</tr>
<tr>
<td>McPherson CHD</td>
<td>Public</td>
<td>16,743</td>
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<tr>
<td>Sedgwick CHD</td>
<td>Public</td>
<td>61,348</td>
<td>HL7 2.3.1 PHClinic, KIPHS</td>
</tr>
</tbody>
</table>

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Results of Data Quality Pilot

• Identified Issues with Beta DQ Reports
  – Identified bug in calculation of one of the line items (Rotavirus).
  – Total Percentage of Patients was of complete population but want to add additional line to only look at Total Percentage of Patients under 19 years of age.
  – Some line items are based off ACIP recommendation which are subject to change, so report will need to be reviewed often for changes (minimum = annually).
Results of Data Quality Pilot (cont’d)

• Identified Issues with data coming from HL7 Interfacing Clinics
  – Some clinics not sending lot number, expiration date, body site/route, MFG for administered vaccinations.
    • After working with vendor, these issues were addressed.
  – Administered vaccinations were not timely (> 7 days of administration)
    • After education this improved.
  – Clinics entered Patient VFC Eligibility and VIS Information into EMR system but was not transferred to KSWebIIZ
    • Currently working with vendors to resolve this.

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Results of Data Quality Pilot (cont’d)

- Identified Issues with data coming from HL7 Interfacing Clinics (cont’d)
  - Added prompt in EMR system to add Mother’s Maiden name and additional demographics.

- Overall data quality improvements
  - Increased percentage of demographics data
    - Race/Ethnicity
    - Mother’s first, last, and maiden name
    - Increased number of records with complete address data.
Results of Data Quality Pilot (cont’d)

• Improvements on clinic administration process
  – Number of invalid doses decreased administered going forward
    • Decreased number of MMR, Hep A, and Varicella vaccinations given before 1 year.
    • Decreased number of DTaP vaccinations given before 6 weeks of age.
    • Decreased Meningococcal vaccinations before 11 years of age.

• Data Quality Coordinator getting more feedback from clinics with DQ issues.

• For Direct Access Clinics increases in VIS Date Given and VIS Effective Date for administered vaccinations.

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Results of Data Quality Pilot (cont’d)

• Unresolved Issues to be addressed…
  – Documentation of inactive patients (MOGE’d).
    • Most clinics stated this was too time consuming.
    • Immunization Program is working on a resolution for this since this affects over-inflated county saturation coverage statistics.
    • Small increase of inactive patients was noted after study for these clinics.
Results of Provider Survey

- How was the Quality of Training when learning how to use the Data Quality Reports?

  - Useful: 66%
  - Somewhat Useful: 27%
  - Not Useful: 7%

  N=10

Other text:

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Results of Provider Survey

• With Regard to Generating and Reading the Reports, How would You Rate the Ease of Use?

- Simple: 53% (N=8)
- Somewhat Simple: 27% (N=4)
- Somewhat Complicated: 20% (N=3)
Results of Provider Survey

- How well has this Data Quality Project been Accepted?

<table>
<thead>
<tr>
<th>Response Category</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted</td>
<td>60.0%</td>
<td>9</td>
</tr>
<tr>
<td>Somewhat Accepted</td>
<td>40.0%</td>
<td>6</td>
</tr>
<tr>
<td>Somewhat Disapproved</td>
<td>6.7%</td>
<td>1</td>
</tr>
<tr>
<td>Disapproved</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>No Comment</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>6.7%</td>
<td>1</td>
</tr>
</tbody>
</table>
Survey Feedback

• Comments from Clinics
  – Increased their awareness and understanding of additional reports available in KSWebIZ.
  – Most liked the new IZ Data Quality reports.
  – Proud of their clinics level of data quality!
  – Indicated that the whole process was helpful.
  – Identified Data Quality excellence was reassuring and motivating.
Survey Feedback (cont’d)

• Comments (cont’d):
  – Will help me to weed out patients that are no longer seen at our clinic.
  – Will help us determine active patient numbers and if we need to look at MOGE data better.
  – Will help reception staff to take a closer look at completeness of registration information.
  – Shows us what we are not inputting.
  – Will help keep kids up to date.
  – Ensures that we chart in a timely manner.
Survey Feedback (cont’d)

• Comments (cont’d):
  – Helps us to check on mistakes/missed opportunities.
  – Helps the nurses pay closer attention to which vaccines are given at which ages.
  – Helps us give the right vaccines at the right time.
  – Will help us follow through with documentation.
  – Will help us to make sure that the registry is being updated after giving immunizations.
Survey Feedback (cont’d)

• Comments (cont’d):
  – Will facilitate gathering more information from patient for demographics.
  – Facilitated the education of staff on required data fields that needed to be input.
  – Helped us to identify bugs in our Patient Management/EHR system.
Future Plans

• Continue to work with pilot sites for the next six months.
• Continue to Capture Feedback for improvements.
• Make changes to the DQ tool as needed.
• Expand the use of the DQ tool to all KSwEBIz Clinics.
  – Training, Feedback, etc.
• Using the Tool, Monitor Data Quality on an ongoing basis.
Questions

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## Contact Information

<table>
<thead>
<tr>
<th>Contact</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
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<td>785-296-1440</td>
</tr>
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<td>785-296-1021</td>
</tr>
<tr>
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<td>303-914-9797 x17</td>
</tr>
</tbody>
</table>