TABLEAU CONFERENCE
Lake County Health Dept: Tableau Prep Builder and Conductor at Enterprise Scale

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Lake County Health Department and Community Health Center

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Lake County Health Department and Community Health Center

#data19
Agenda

- Analytics at Lake County Health Department
- Life Before Prep Conductor
- Prep Conductor Changed Our Lives
- Future of Tableau at Lake County Health Department
Analytics At the Lake County Health Department
Lake County, IL

Third Largest County in Illinois
- Suburb of Chicago
- Approximately 705,000 residents

Lake County Health Department and Community Health Center (LCHD/CHC)
- Statutory public health entity
- Provider of behavioral and physical health services
- 908 Full Time Employees
- Approximately $84 million budget
Analytics at LCHD/CHC

Part of the Community Health Improvement Plan and LCHD/CHC Strategic Plan

Centralized function organized under Health Informatics and Technology

- Put the analysts with the technologists
- Ensures strategy is driven by data
- Six analysts

Self-Service Orientation

- All decisions based on data
- Making citizen data scientists
- Data in the hands of the people who need it most
Tableau at LCHD/CHC

Implemented in November 2017

- Prior to centralization of analytics
- Reached a max of 35 active users

Centralized Analytics and Publication of High Visibility Reports

- Converted to Server
- Published Agency Financial Dashboard - November 2018
- Published Clinical Quality Dashboard – February 2019
Life Before Prep
Data Lake

- Chameleon Animal Sheltering Software
- Oracle Financial
- Oracle PeopleSoft
- NextGen EHR

Data Lake

- Prep Conductor
- Server
- Prep Builder
Tableau before Prep Conductor

Constrained by Resources
• One FTE for traditional data engineering operations
• Curating data from over 20 sources

Manual Report Updates
• Analyst Time Management
• Necessity of Reminders
• Lower Productivity
• Lower Job Satisfaction
  • Lower creativity
  • Lower skills development

Report Type Limitations
• Select reports that are monthly/quarterly
• Select reports that require limited manual updates
• Less emphasis on daily reports
• No predictive analytics
Why Tableau Prep?

Prep puts Data Transformation and Calculation in the hands of the Analysts

- Closest to the operations and strategy
- Greater familiarity with what the data means
- More of them

How fast/how did we get funding
Adopting Tableau Prep

How we learned it

• 6 weeks of Training using a combination of Tableau website training videos, in-person trainings, and on-the-job training
• Tableau Online Forums
• Lots of Google searches

Builder before Conductor

• The Analytics team learned Tableau Prep before the Conductor feature was introduced
• Leadership was aware of the coming availability of Conductor
• Conductor was and is an enhancement of Builder
Prep Conductor Changed Our Lives
What does it do?

Automated Report Updates
• Data extraction to keep report current
• No manual updating
• Scheduling of Flows

Greater End User Satisfaction
• Feels more “in control”
• Less reliant of analyst support
• Analysts time can be re-allocated
Scheduling Tableau Prep Flows

Prenatal Patients Flow

Status: Succeeded: Sep 4, 2019, 11:02 PM
Schedule: Every night - 11:00PM
<table>
<thead>
<tr>
<th>Trimester at Enc.</th>
<th>Day of Enc_Da.</th>
<th>Lab Test_Panel_Description</th>
<th>Test_Name</th>
<th>Test_Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Trimester</td>
<td>July 3, 2019</td>
<td>ABO GROUP</td>
<td>ABO GROUP</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ANTIBODY SCREEN, RBC W/REFL ID, TITER AND AG</td>
<td>ANTIBODY SCREEN, RBC W/REFL ID, TITER AND AG</td>
<td>NO ANTIBODIES DETECTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CBC (INCLUDES DIFF/PLT)</td>
<td>ABSOLUTE BASOPHILS</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ABSOLUTE EOSINOPHILS</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ABSOLUTE LYMPHOCYTES</td>
<td>2466</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ABSOLUTE MONOCYTES</td>
<td>425</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ABSOLUTE NEUTROPHILS</td>
<td>8803</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BASOPHILS</td>
<td>0.3</td>
</tr>
<tr>
<td>Patient Name</td>
<td>Registration Location</td>
<td>Payer 1</td>
<td>Max. Most Recent Encounter</td>
<td>Registration Expiration</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------</td>
<td>---------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>CCP-Crisis</td>
<td>DMH</td>
<td></td>
<td>September 3, 2019</td>
<td>September 13, 2019</td>
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<tr>
<td>CSS-CM</td>
<td>DMH</td>
<td></td>
<td>July 30, 2019</td>
<td>September 24, 2019</td>
</tr>
<tr>
<td>OPMH-Therapy</td>
<td>DMH</td>
<td></td>
<td>July 25, 2019</td>
<td>September 19, 2019</td>
</tr>
<tr>
<td>OPMH-Therapy</td>
<td>DMH</td>
<td></td>
<td>August 22, 2019</td>
<td>September 19, 2019</td>
</tr>
<tr>
<td>CABS-CM</td>
<td>DMH</td>
<td></td>
<td>June 17, 2019</td>
<td>August 3, 2019</td>
</tr>
<tr>
<td>OPMH-ICARE</td>
<td>DMH</td>
<td></td>
<td>July 30, 2019</td>
<td>August 2, 2019</td>
</tr>
<tr>
<td>CABS SAMHSA SOC</td>
<td>DMH</td>
<td></td>
<td>June 27, 2019</td>
<td>September 18, 2019</td>
</tr>
<tr>
<td>OPMH-Therapy</td>
<td>DMH</td>
<td></td>
<td>August 15, 2019</td>
<td>August 21, 2019</td>
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<tr>
<td>CABS-CM</td>
<td>DMH</td>
<td></td>
<td>June 4, 2019</td>
<td>September 18, 2019</td>
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<tr>
<td>OPMH-Therapy</td>
<td>DMH</td>
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<td>June 4, 2019</td>
<td>September 29, 2019</td>
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<tr>
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<td>DMH</td>
<td></td>
<td>August 21, 2019</td>
<td>September 14, 2019</td>
</tr>
</tbody>
</table>
# Ohio Screening Evaluation
## Patient Review

### Instrument
- Ohio Scales - Functioning

### Med Rec Nbr
- 123321

<table>
<thead>
<tr>
<th>Doe, Jane</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Earliest Score</th>
<th>Most Recent Score</th>
<th>Average Score</th>
<th>Clinical Improvement</th>
<th>Number of Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>60</td>
<td>54.2</td>
<td>Clinically Significant Improvement</td>
<td>5</td>
</tr>
</tbody>
</table>

### Trending

<table>
<thead>
<tr>
<th>Day of Encounter Date</th>
<th>Avg. Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 17, 2019</td>
<td>38</td>
</tr>
<tr>
<td>July 18, 2019</td>
<td>50</td>
</tr>
<tr>
<td>July 19, 2019</td>
<td>70</td>
</tr>
<tr>
<td>July 24, 2019</td>
<td>53</td>
</tr>
<tr>
<td>July 27, 2019</td>
<td>60</td>
</tr>
</tbody>
</table>

- **Concern Range 49 and Below**
- **Typical Range 50 and Above**
From Information to Data

Prep Makes our Work Transparent
Benefits to LCHD/CHC

- Automated Data Workflow
- Data manipulation closer to where the analysis happens
- Shorter time to information delivery
- Up-to-date information
- Transparency
Future of Tableau at Lake County Health Department
Lessons Learned

• Transitioning to Prep takes time
• Can’t get rid of your SQL experts
• Near real-time is not near enough
• Adoption comes through education
• Transparency is a double edged sword
Data Governance and Metadata Management

Complete view of data origin and meaning.

Provider Name: [Name]
Month Filter: [Filter]

Provider Productivity

- Workbook: [Workbook]
- Productivity Indicator
- Author: [Author]
- Modified: Sep 27, 2018 (v1.00)
- Data Sources: (1)

- Field in Use (3):
  - Active # of Units
  - Active Production Rate
  - Live Date
  - First Score
  - Last Score
  - Location
  - Current Location
  - Over or Under
  - Over or Under Color
  - Provider Name
  - Target # of Units

Encounter_Procedures

- Contact: [Contact]
- Field: [Field]
- Description: [Description]

Columns (2):

- Type: [Type]
- Name: [Name]
- Sheaths: [Sheaths]
- Data Sources: [Data Sources]
- Description: [Description]

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Sheaths</th>
<th>Data Sources</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPT</td>
<td>CPT</td>
<td>0</td>
<td>1</td>
<td>Current Procedure Terminology (CPT) number (code) used to report medical, surgical, and diagnostic procedures.</td>
</tr>
<tr>
<td>CPT</td>
<td>CPT_Description</td>
<td>0</td>
<td>0</td>
<td>No description</td>
</tr>
<tr>
<td>CPT</td>
<td>Diagnosis_Code_1</td>
<td>2</td>
<td>1</td>
<td>Primary (Principal) diagnosis associated with the billed CPT code.</td>
</tr>
<tr>
<td>CPT</td>
<td>Diagnosis_Code_2</td>
<td>2</td>
<td>1</td>
<td>No description</td>
</tr>
</tbody>
</table>
Machine Learning

- Execute complex R and Python Code in Prep and through Conductor
- Enables real time machine learning
- Makes machine learning accessible to end users
Please complete the session survey in the mobile app

View ‘My Evaluations’ in the menu or find your session under ‘Schedule’
Thank You

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