Presentation Overview

- Approval of November 12, 2015 and February 11, 2016 Meeting Minutes
- CEO/ED Updates -
  - APCD Implementation Timeline
  - Data Submission Status
  - Medicare Data Collection
  - Medicaid Data Collection
- APCD Data Grouping Approaches
- Discussion of Quality Measurement in Healthcare - Potentially Avoidable Complications (PACs)
- Designing Cost Transparency Report - An Overview
- Next Steps
- Future Meetings
- Adjournment
APCD Implementation Timeline

- **QTR 4, ’17**
  - Price & Quality Transparency – Physician Services

- **QTR 3, ’17**
  - Costs of Surgeries by Hospitals
  - SB-811 Reports

- **QTR 2, ’17**
  - 30-Day Readmission Price Transparency – By Select Procedures
  - SB-811 Reports

- **QTR 1, ’17**
  - Healthcare Utilization
  - Population Illness
  - Total Cost of Care
  - SB-811 Reports

- **QTR 4, ’16**
  - ER Costs
  - SB-811 Reports
  - Data Distribution

- **QTR 3, ’16**
  - Disease Prevalence
  - Population Coverage
  - Physician Density
  - SB-811 Reports

- **QTR 2, ’16**
  - Data Validation
  - Historical Data Build
  - Reporting Analytics
  - Web Report build

- **QTR 1, ’16**
  - Infrastructure Build
  - Security Compliance
  - Data ETL
  - APCD Website
APCD Data Submission Status

• APCD Data Collection Plan - Data collection is ongoing although data quality validation has been very slow for some of the submitting entities. Submitters are challenged with resources, having to support either multiple APCDs or are first-time submitters without prior experience. Despite that, we are targeting roughly 850,000 lives by mid-May 2016

• Once all other commercial payers complete submissions, we expect somewhere in the range of 1.4 million lives from commercial fully insured plans and an additional 200,000 members from Medicare Advantage plans (Part C)

• Medicare Part A & B population in CT is estimated at 633,000* members, which we are in the process of submitting application to acquire data from CMS (ResDAC)

• Medicaid/CHIP population was estimated at 763,000* in 2015; we would request DSS to submit data as required by PA 15-146
**APCD Data Submission Status**

- Total estimated population in CT is 3,577,900 in 2015*
- Non-collectable claims from ASO accounts is estimated at 558,000 lives, i.e., 28% of the commercial population
- Total estimated population in APCD in the future (even without ASO accounts) can be targeted at 3.02 million lives

<table>
<thead>
<tr>
<th>Collectable Commercial: Fully Insured</th>
<th>Non-Collectable Commercial: ASO</th>
<th>Medicare Advantage</th>
<th>Medicare Parts A &amp; B</th>
<th>Medicaid / CHIP</th>
<th>Total Collectable</th>
<th>ASO % of Commercial</th>
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</thead>
<tbody>
<tr>
<td>1,428,701</td>
<td>558,295</td>
<td>194,904</td>
<td>633,000</td>
<td>763,000</td>
<td>3,019,605</td>
<td>28.1%</td>
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</table>

Note: These are estimates and are subject to be refinement in the future

*Estimates for commercial plans are derived from APCD data submissions; Medicaid and Medicare estimates are from Kaiser State Health Facts ([http://kff.org/statedata/](http://kff.org/statedata/))
# APCD Data Collection Status Update

<table>
<thead>
<tr>
<th>Submitting Plan</th>
<th>Payer ID</th>
<th>Submitters</th>
<th>Data Type</th>
<th>Member Count</th>
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<td>Wellcare</td>
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<td>Caremark, LLC</td>
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**ALL** 1,623,605

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**N/S** Not Sent. Submitter has not yet provided a file for this data type.

**P/F** Prelim fail. File has a formatting issue that needs to be resolved by the submitter.

**L/F** Load fail. File does not conform to required thresholds.

**DQ Hold** Passed initial file load (met all thresholds) but Onpoint is questioning the quality of some of the data.

**DQ Pass** All thresholds and data quality validations have been passed and this file will be accepted for inclusion into the APCD.

**Not Applicable**. Submitter will not be providing this file type.
APCD Medicare Data Update

• Received confirmation from CMS that our APCD will be considered as eligible to receive Research Identifiable Files (RIF) data under the CMMI funded SIM program category of data request
• There will be no cost for data acquisition from CMS due to SIM support
• SIM will be able to use this data to develop performance metrics; inclusion of Medicaid data in the APCD will complete a true all-payer construct
• APCD intends to develop multi-payer reports for population analytics and for cost transparency based on appropriate claims experience from payer-specific population
• Working with SIM on finalizing data from CMS (details regarding how much history, frequency of updates, types of data, etc.)
# APCD Data Support to SIM for Performance Measures

<table>
<thead>
<tr>
<th>Metric Title</th>
<th>Data Source</th>
<th>Reporting Frequency (Monthly, Quarterly, Annual, Biannual)</th>
<th>Definition</th>
</tr>
</thead>
</table>
| Adults with Regular Source of Care  | APCD            | Quarterly                                                 | NQMC 9851. Percentage of members 20 years and older who had an ambulatory or preventive care visit.  
Medicaid and Medicare members who had an ambulatory or preventive care visit during the measurement year  
Commercial members who had an ambulatory or preventive care visit during the measurement year or the two years prior to the measurement year |
| Well Child Visits-Low Income        | APCD            | Quarterly                                                 | NCMC 9059. Children and adolescents' access to primary care practitioners: % of members 1-19 years who had a visit with a pcp                                                                                   |
| Mammograms                          | APCD            | Quarterly                                                 | NQF 2372. The percentage of women 50-74 years of age who had a mammogram to screen for breast cancer.                                                                                                        |
| Colorectal Screening                | APCD            | Quarterly                                                 | NQF 0034 The percentage of patients 50-75 years of age who had appropriate screening for colon cancer during the measurement year (fecal occult blood test, flexible sigmoidoscopy, colonoscopy). Excludes patients with a diagnosis of colorectal cancer or total colectomy. |
| Diabetes care                       | APCD            | Quarterly                                                 | NQF 0059. The percentage of patients 18-75 years of age with diabetes (type 1 and type 2) who received an HbA1c test during the measurement year                                                                     |
| Hypertension control                | APCD            | Quarterly                                                 | The percentage of patients 18-75 years of age with diagnosis of HTN who are filling prescriptions for HTN                                                                                                    |
| Cost of Outpatient Care             | APCD and Payers | Yearly                                                    | Total charges and co-pays per enrollee for outpatient care                                                                                                                                               |
| Cost of Inpatient Care              | APCD and Payers | Yearly                                                    | Total charges and co-pays per enrollee for inpatient care                                                                                                                                               |
| Plan All-Cause Readmissions         | HIID; APCD      | Yearly                                                    | NQF 1786. This measure summarizes acute readmissions for patients 18 years of age and older. Data are reported in the following categories:  
1. Count of Index Hospital Stays (denominator)  
2. Count of 30-Day Readmissions (numerator)  
3. Average Adjusted Probability of Readmission |
APCD Data Support - Other Performance Measures

<table>
<thead>
<tr>
<th>#</th>
<th>Core Measures</th>
<th>NQI #</th>
<th>ACO #</th>
<th>Steward</th>
<th>Data Source</th>
<th>Health Equity Focus</th>
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<tr>
<td>1</td>
<td>PCMN – CAHPS measure</td>
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<td>Adolescent female Immunizations HPV</td>
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<td>NCQA</td>
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<tr>
<td>10</td>
<td>Weight assessment and counseling for nutrition and physical activity for children/adolescents Preventive care and screening: BMI screening and follow up</td>
<td>0421</td>
<td>CMMC</td>
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<tr>
<td>11</td>
<td>Developmental screening in first 3 years of life</td>
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<td>OHSU</td>
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<td>12</td>
<td>Well-child visits in the first 15 months of life</td>
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<td>13</td>
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<td>15</td>
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<td>16</td>
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<td>17</td>
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<td>Claims</td>
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</table>

**Continued need for this measure will be re-evaluated after NQI 58 is in production**

Source: Slide from Matt Katz’s presentation to the APCD Advisory Group on 2/11/2016
# APCD Data Support - Other Performance Measures

## Reporting Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>NO#</th>
<th>ACO#</th>
<th>Steward</th>
<th>Data Source</th>
<th>Health Equity Focus</th>
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<td>Care Coordination</td>
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<td>30-day readmission</td>
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<td>CMS</td>
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<td>% PCPs that meet Meaningful Use</td>
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<td>Prevention</td>
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<td>Frequency of Ongoing Prenatal Care (FPC)</td>
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<td>ADA</td>
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<td>Acute and Chronic Care</td>
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<td>Cardiac stress im: Testing in asymptomatic low risk patients</td>
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<td>ACC</td>
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<td>Behavioral Health</td>
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<td>Anti-Depressant Medication Management Initiation and Engagement of Alcohol and Other Drug Dependence Treatment</td>
<td>0105</td>
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<td>Follow up after hospitalization for mental illness, 7 &amp; 30 days</td>
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<td>Adult major depressive disorder (MDD): Coordination of care of patients with specific co-morbid conditions</td>
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## Development Measures

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<td>Acute and Chronic Care</td>
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<td>ASC admissions: chronic obstructive pulmonary disease (COPD) or asthma in older adults</td>
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<td>ASC: heart failure (HF)</td>
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<td>Preventable hospitalization composite (NCOA)/Ambulatory Care Sensitive Condition composite</td>
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<td>All-cause admission rate (child)</td>
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<td>Annual % asthma patients (2-20) with 1 or more asthma-related ED visits</td>
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<td>Acute and Chronic Care</td>
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<td>Gap in HIV medical visits</td>
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<td>HIV/AIDS: Screening for Chlamydia, Gonorrhea, and Syphilis</td>
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<td>HIV viral load suppression</td>
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Source: Slide from Matt Katz’s presentation to the APCD Advisory Group on 2/11/2016
U.S. Supreme Court Decision Impact on APCD

• SCOTUS Decision Impact: Due to recent Supreme Court decision, two carriers have stopped submitting data until they are able to separate ERISA data from fully insured — estimated at 12+ weeks. It remains unclear what will happen with ERISA data in the future.

• The National APCD Council has been working with the National Academy for State Health Policy (NASHP) to address strategy following SCOTUS decision. They have outlined issues for next steps.
  – Feasibility of voluntary submissions by self-funded ERISA plans (employers)
  – Questions regarding how ERISA employers’ opt-out process is structured currently and documentation that would be required for implementation by plans
  – NASHP has reached out to the U.S. Department of Labor (USDOL); USDOL is trying to understand where its authority lies

• National Association of Health Data Organization (NAHDO) has also approached USDOL with the idea of collecting uniform data from various states as a remedy to ERISA restrictions. NAHDO also has developed a uniform data lay out detail. CT’s APCD is evaluating the proposed uniform data lay out standard currently. This is a promising approach.
APCD Data Grouping Approaches

1. Meeting with various stakeholders, seeking inputs and collaboration. Discussions were held with Qualidigm, Universal Healthcare Foundation, Data Haven, and Connecticut Health Foundation. Scheduling meetings with Connecticut Hospital Association and Connecticut State Medical Society (CSMS). Intend to meet others, including Consumers Union, Choosing Wisely, etc.

2. Developed a modified Hospital Service Area (HSA) distribution list based on town and zip code mapping following Dartmouth Atlas schema. We modified some of the HSA mapping due to changes in acute care hospital geography and remapping towns on the border of CT to in-state hospitals rather than out-of-state hospitals.

APCD Data Grouping Approaches - Hospital Service Area (HSA) Regional Grouping

- Based on Dartmouth Atlas grouping
- Modified slightly to improve distribution and proximity of hospitals
- There are 25 HSAs in CT
- Rationale – instead of town-level reporting and encountering small number problems, modified HSAs are alternative geographic reporting units

<table>
<thead>
<tr>
<th>HSA #</th>
<th>HSA City</th>
<th>Resident Population (2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7001</td>
<td>Bridgeport</td>
<td>324,204</td>
</tr>
<tr>
<td>7002</td>
<td>Bristol</td>
<td>113,723</td>
</tr>
<tr>
<td>7003</td>
<td>Danbury</td>
<td>200,212</td>
</tr>
<tr>
<td>7004</td>
<td>Derby</td>
<td>102,265</td>
</tr>
<tr>
<td>7005</td>
<td>Farmington</td>
<td>54,356</td>
</tr>
<tr>
<td>7006</td>
<td>Greenwich</td>
<td>62,396</td>
</tr>
<tr>
<td>7007</td>
<td>Hartford</td>
<td>528,356</td>
</tr>
<tr>
<td>7008</td>
<td>Manchester</td>
<td>101,866</td>
</tr>
<tr>
<td>7009</td>
<td>Meriden</td>
<td>105,597</td>
</tr>
<tr>
<td>7010</td>
<td>Middletown</td>
<td>188,203</td>
</tr>
<tr>
<td>7011</td>
<td>Milford</td>
<td>53,137</td>
</tr>
<tr>
<td>7012</td>
<td>New Britain</td>
<td>111,349</td>
</tr>
<tr>
<td>7013</td>
<td>New Haven</td>
<td>411,876</td>
</tr>
<tr>
<td>7014</td>
<td>New London</td>
<td>178,996</td>
</tr>
<tr>
<td>7015</td>
<td>New Milford</td>
<td>35,218</td>
</tr>
<tr>
<td>7017</td>
<td>Norwalk</td>
<td>164,307</td>
</tr>
<tr>
<td>7018</td>
<td>Norwich</td>
<td>76,721</td>
</tr>
<tr>
<td>7019</td>
<td>Putnam</td>
<td>77,171</td>
</tr>
<tr>
<td>7020</td>
<td>Rockville</td>
<td>109,472</td>
</tr>
<tr>
<td>7021</td>
<td>Sharon</td>
<td>16,689</td>
</tr>
<tr>
<td>7023</td>
<td>Stafford Springs</td>
<td>24,096</td>
</tr>
<tr>
<td>7024</td>
<td>Stamford</td>
<td>147,786</td>
</tr>
<tr>
<td>7025</td>
<td>Torrington</td>
<td>79,606</td>
</tr>
<tr>
<td>7026</td>
<td>Waterbury</td>
<td>285,822</td>
</tr>
<tr>
<td>7027</td>
<td>Willimantic</td>
<td>42,656</td>
</tr>
<tr>
<td></td>
<td>Total CT</td>
<td>3,596,080</td>
</tr>
</tbody>
</table>

- Each modified HSA city is further broken down by towns and zip codes
- Reporting will be done at County, HSA, and Town Level (where data permits)
- HIPAA requirements is >10 patients in the numerator
APCD Data Grouping Approaches - Hospital Service Area (HSA) Regional Grouping

Prepared by Division of the Office of Health Care Access, Department of Public Health, August 2013
APCD Data Grouping Approaches - Planning Regions
APCD Data Grouping Approaches - Redesigned Planning Regions

<table>
<thead>
<tr>
<th>Region</th>
<th>2010 Population</th>
<th>SQ Miles</th>
<th>Num of towns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitol</td>
<td>973,959</td>
<td>1,047</td>
<td>38</td>
</tr>
<tr>
<td>Greater Bridgeport</td>
<td>318,004</td>
<td>144</td>
<td>6</td>
</tr>
<tr>
<td>Lower CT River Valley</td>
<td>175,685</td>
<td>443</td>
<td>17</td>
</tr>
<tr>
<td>Naugatuck Valley</td>
<td>448,738</td>
<td>420</td>
<td>19</td>
</tr>
<tr>
<td>Northeastern</td>
<td>96,617</td>
<td>563</td>
<td>16</td>
</tr>
<tr>
<td>Northwest Hills</td>
<td>115,247</td>
<td>807</td>
<td>21</td>
</tr>
<tr>
<td>South Central</td>
<td>570,001</td>
<td>374</td>
<td>15</td>
</tr>
<tr>
<td>Southeastern</td>
<td>286,711</td>
<td>619</td>
<td>19</td>
</tr>
<tr>
<td>Western</td>
<td>589,135</td>
<td>550</td>
<td>18</td>
</tr>
</tbody>
</table>
Combining Connecticut’s APCD with DPH Birth Records

- Collaboration involving UConn, Access Health CT, DPH, Onpoint, CSMS

- Two step process:
  1. Merge birth records with APCD member file
     - ~60% of CT residents born in CT; have child in CT (?)
  2. Use multiple imputation to impute race and ethnicity for patients not in birth records
     - Uses patient demographics (address, name, age etc.) to build a predictive model for patients race/ethnicity

- Results included in APCD files

Source: Slide from Dr. Robert Aseltine’s presentation to the APCD Advisory Group on 2/11/2016
# APCD Data Collection Status Update - Race Data Completion

## Race Information Completion Rate

<table>
<thead>
<tr>
<th>Submitters</th>
<th>Race Information Completion Rate</th>
<th>Population Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aetna</td>
<td>32.6%</td>
<td>19.8%</td>
</tr>
<tr>
<td>Anthem</td>
<td>0.3%</td>
<td>24.4%</td>
</tr>
<tr>
<td>Cigna</td>
<td>0.0%</td>
<td>9.4%</td>
</tr>
<tr>
<td>ConnectiCare</td>
<td>3.2%</td>
<td>17.3%</td>
</tr>
<tr>
<td>Harvard Pilgrim</td>
<td>5.2%</td>
<td>0.3%</td>
</tr>
<tr>
<td>United Health Group</td>
<td>0.1%</td>
<td>27.8%</td>
</tr>
<tr>
<td>Well Care</td>
<td>49.4%</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>OVERALL</strong></td>
<td><strong>7.6%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Note: Based on test data for year 2012; current completion rate may be different.
### APCD Data Grouping Approaches - Health Reference Group (HRG)

<table>
<thead>
<tr>
<th>HEALTH REFERENCE GROUP</th>
<th>1 Urban Centers (UC)</th>
<th>2 Manufacturing Centers (MC)</th>
<th>3 Diverse Suburbs (DS)</th>
<th>4 Wealthy Suburbs (WS)</th>
<th>5 Mill Towns (MT)</th>
<th>6 Rural Towns (RT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Cities/Towns</td>
<td>3</td>
<td>10</td>
<td>15</td>
<td>27</td>
<td>39</td>
<td>75</td>
</tr>
<tr>
<td>Total Population</td>
<td>384,733</td>
<td>662,398</td>
<td>587,504</td>
<td>487,620</td>
<td>698,517</td>
<td>584,793</td>
</tr>
<tr>
<td>Percent of Total Property Valuation that is Residential</td>
<td>51.7</td>
<td>66.7</td>
<td>72.8</td>
<td>88.8</td>
<td>74.1</td>
<td>84.7</td>
</tr>
<tr>
<td>Residential Property Valuation Per Capita</td>
<td>$11,989</td>
<td>$26,216</td>
<td>$28,459</td>
<td>$106,0665</td>
<td>$32,688</td>
<td>$51,197</td>
</tr>
<tr>
<td>Average Town Population</td>
<td>128,244</td>
<td>66,240</td>
<td>39,167</td>
<td>18,060</td>
<td>17,911</td>
<td>7,797</td>
</tr>
<tr>
<td>Percent of Family Households Headed by Single Females with Children Under 18</td>
<td>32.3</td>
<td>17.2</td>
<td>12.4</td>
<td>4.6</td>
<td>8.7</td>
<td>5.9</td>
</tr>
<tr>
<td>Percent Black-alone Not Hispanic Population</td>
<td>33.6</td>
<td>12.2</td>
<td>11.2</td>
<td>0.8</td>
<td>1.8</td>
<td>1.0</td>
</tr>
<tr>
<td>Percent Hispanic Population</td>
<td>31.2</td>
<td>18.9</td>
<td>5.4</td>
<td>2.0</td>
<td>2.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Population Density Per Square Mile</td>
<td>7,435</td>
<td>3,315</td>
<td>1,830</td>
<td>649</td>
<td>821</td>
<td>277</td>
</tr>
<tr>
<td>Percent College Graduates Among Residents 25 and Over</td>
<td>17.2</td>
<td>21.9</td>
<td>26.3</td>
<td>56.2</td>
<td>23.8</td>
<td>34.5</td>
</tr>
<tr>
<td>Percent Below Poverty Criteria</td>
<td>46.9</td>
<td>28.7</td>
<td>18.7</td>
<td>7.2</td>
<td>15.8</td>
<td>10.9</td>
</tr>
</tbody>
</table>
APCD Data Grouping Approaches - Health Reference Group (HRG)

Data Source: University of Connecticut Libraries Map and Geographic Information Center.
APCD Data Grouping Approaches - The Five Connecticuts
APCD Data Grouping Approaches - Opportunity Index

Opportunity mapping is an analytical tool that deepens our understanding of "opportunity" dynamics within regions. The goal of opportunity mapping is to identify opportunity-rich and opportunity-isolated communities.

Source: http://www.ctoca.org/introduction_to_opportunity_mapping
APCD Data Grouping Approaches - Opportunity Index
### APCD Data Grouping Approaches - Opportunity Index

<table>
<thead>
<tr>
<th></th>
<th>Very Low Opportunity</th>
<th>Low Opportunity</th>
<th>Moderate Opportunity</th>
<th>High Opportunity</th>
<th>Very high Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Black (non-Hispanic)</strong></td>
<td>48.98%</td>
<td>24.29%</td>
<td>13.07%</td>
<td>9.19%</td>
<td>4.47%</td>
</tr>
<tr>
<td><strong>Hispanic (any race)</strong></td>
<td>46.85%</td>
<td>25.86%</td>
<td>11.82%</td>
<td>9.07%</td>
<td>6.41%</td>
</tr>
<tr>
<td><strong>Asian (non-Hispanic)</strong></td>
<td>12.16%</td>
<td>23.43%</td>
<td>19.74%</td>
<td>22.38%</td>
<td>22.30%</td>
</tr>
<tr>
<td><strong>White (non-Hispanic)</strong></td>
<td>7.00%</td>
<td>18.94%</td>
<td>22.44%</td>
<td>25.00%</td>
<td>26.62%</td>
</tr>
</tbody>
</table>
Presentation of Quality Measurement Approach

Risk-standardized Rates of Complications: A Novel Approach To Provider Performance Measurement

By

François de Brantes
Executive Director
Health Care Incentives Improvement Institute
Risk-standardized Rates of Complications: A Novel Approach To Provider Performance Measurement
RSPR: A New Method To Measure Physicians

• Developed over a decade as part of the PROMETHEUS Payment model

• Defines Potentially Avoidable Complications (PACs) by condition, illness, procedure
  – PACs are negative outcomes and clinical events that occur during, because of, or after the treatment of a patient, for example wound infections after surgery, or an acute exacerbation of a condition

• Definitions vetted by Clinical Working Groups and significant field testing
Prevalence of PACs: Data From a Recent CPR Report

Coefficients of Variation

- Respiratory Infections
- Asthma
- Arrhythmia
- Hypertension
- CAD
- Osteoarthritis
- Endoscopies
- Breast Cancer + Biopsies + Mastectomies
- Low Back Pain
- Depression
- Diabetes
- Pregnancy + Newborn

PAC Rate
- 0.26%
- 47.96%
Methodological Rigor

• Comprehensive adjustment for patient severity/risk
  – Validated using split sample method. Demonstrate consistent predictive power
  – Not all variation is explained, nor should it because much of the variation has nothing to do with patient factors
  – No adjustment for socio-economic factors, but we mitigate effect by avoiding co-mingling of datasets such as Medicaid, Medicare and Commercial

• Systematic analysis of reliability of scores
  – Condition by condition, procedure by procedure, a separate reliability score is calculated which yields a specific and required minimum sample size to calculate score
  – Reliability has to be assessed for each dataset analyzed

• Conversion of severity-adjusted PAC rates into Risk-Standardized PAC Rates (RSPR), pegged on a market average of 1
  – We further split the providers into 3 groups, below average (one standard deviation below), above average (one standard deviation above), and average
What is reliability?

- Describes how one can distinguish the performance of one physician from another (or some benchmark)

- Statistically, the ratio of signal (provider’s actual performance) to noise (total variance)
  - Values range from 0 to 1 (higher=better reliability)

- Measures a provider’s risk of misclassification
Reliability: Signal-to-Noise

Measure can distinguish bad providers from good ones.
Performance Misclassification

- Reliability measures risk of misclassification
- Being labeled as ‘poor’ performer when actual performance is ‘good’ and vice versa

![Performance Misclassification Diagram]

Provider A: High Risk
Provider B: High Risk
Provider C: Low Risk
Provider D: Low Risk

Measurement Error
Reliability depends on…

1. Provider’s Sample Size

2. Variation in provider performance

\[
\text{Reliability} = \frac{\text{Variance\_across\_physicians}}{\text{Variance\_across\_physicians} + \text{Variance\_within\_physicians}}
\]
Applying Reliability Scores to Reporting

- Reliability scores can be used to inform the decision about which providers’ performance should be reported.
- No hard rules about what constitutes “acceptable” reliability, but generally…
  - Scores >0.70 are considered reliable enough to distinguish a provider from the average
  - Scores >0.90 are considered reliable enough to compare individual providers
- HCI3 adopted approach:
  - select the minimum sample size at which all providers have scores >0.70
  - For providers meeting threshold, report performance category (i.e., high, avg, low)
    - +/- 1 standard deviation from average
  - While this sometimes excludes many providers, it ensures that providers with low sample sizes are appropriately protected from being mislabeled as high or low performers.
Findings (Part 1)

<table>
<thead>
<tr>
<th>Episode</th>
<th>Total # of Providers</th>
<th>Median</th>
<th>IQR*</th>
<th>Point at which all scores &gt;=0.70</th>
<th>% Providers or Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chronic Conditions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asthma</td>
<td>1,231</td>
<td>0.79</td>
<td>0.69 – 0.89</td>
<td>20</td>
<td>50.1%</td>
</tr>
<tr>
<td>Hypertension</td>
<td>3,658</td>
<td>0.80</td>
<td>0.68 – 0.89</td>
<td>25</td>
<td>54.0%</td>
</tr>
<tr>
<td>CAD</td>
<td>458</td>
<td>0.73</td>
<td>0.62 – 0.83</td>
<td>25</td>
<td>36.5%</td>
</tr>
<tr>
<td>Low Back</td>
<td>2,994</td>
<td>0.81</td>
<td>0.64 – 0.96</td>
<td>40</td>
<td>27.7%</td>
</tr>
<tr>
<td>Pain</td>
<td>1,660</td>
<td>0.73</td>
<td>0.63 – 0.83</td>
<td>25</td>
<td>34.0%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1,053</td>
<td>0.69</td>
<td>0.57 – 0.81</td>
<td>35</td>
<td>19.8%</td>
</tr>
<tr>
<td>Depression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Procedures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI</td>
<td>40</td>
<td>0.47</td>
<td>0.28 – 0.62</td>
<td>185</td>
<td>12.5%</td>
</tr>
<tr>
<td>Bariatric Surg</td>
<td>47</td>
<td>0.87</td>
<td>0.80 – 0.93</td>
<td>25</td>
<td>80.9%</td>
</tr>
<tr>
<td>Knee Arth</td>
<td>374</td>
<td>0.05</td>
<td>0.03 – 0.21</td>
<td>^</td>
<td>0.0%</td>
</tr>
<tr>
<td>Lumbar Lam</td>
<td>58</td>
<td>0.50</td>
<td>0.32 – 0.72</td>
<td>80</td>
<td>27.6%</td>
</tr>
</tbody>
</table>

*Inter-quartile range (IQR)

Reliability analysis dictates sample size requirements:
- Not all physicians can be measured on everything
- Not all facilities can be measures on everything
- Not all conditions or procedures can be measured
Findings (Part 2)

Not every physician (or facility) is good (or bad) at everything
Tying Quality To Price

- Research by Hibbard & Sofaer has shown that consumers understand the link between complications and costs.
- PAC scores have been focus-grouped tested as useful measures of physician quality.
- We plan to release scores for certain states with APCDs when we have the rights to publish results.
Policy Implications

• APCDs are key to these measures
  – This raises the stakes for proponents and opponents of APCDs

• Price information can now be linked to quality information on a consistent basis to show the variability in both
Health Care Incentives Improvement Institute (HCI³)
13 Sugar Street, Newtown, CT 06470-2046
info@hci3.org | www.hci3.org
Designing Costs Transparency Report

Basic Components
1. Web based delivery
2. Web design simplicity
3. Choices of Services - Elective vs Nonelective, Shoppable vs Non-shoppable
4. Bundling of Services
5. Selection controls
   a. Distance (in miles)
   b. Products (POS, PPO, HMO)
   c. Carriers (health insurance companies)
   d. Comparisons (between facilities and/or providers)
6. Description of the service(s) in layman’s terms
7. Outcomes - costs and quality by facility and/or provider group
8. Outlier suppressions, median values, removal of incomplete encounters
Designing Costs Transparency Report

- Office Visits
- Physical & Occupational Therapy
- Alternative Medicine
- Mental & Behavioral Health Services
- Obstetrics/Gynecological Procedures
- Radiology and Imaging Procedures
- Laboratory Services
- Outpatient Surgical Procedures
- Inpatient Surgical Procedures
Designing Costs Transparency Report

Office Visits

- New Patient Office Visit (10 min.)
- New Patient Office Visit (20 min.)
- New Patient Office Visit (30 min.)
- New Patient Office Visit (45 min.)
- New Patient Office Visit (60 min.)
- Established Patient Office Visit (5 min.)
- Established Patient Office Visit (10 min.)
- Established Patient Office Visit (15 min.)
- Established Patient Office Visit (25 min.)
- Established Patient Office Visit (40 min.)

- Patient office consultation (15 min.)
- Patient office consultation (30 min.)
- Patient office consultation (45 min.)
- Patient office consultation (60 min.)
- Patient office consultation (80 min.)

- Remove tissue from wounds <20 sq. centimeter
- Negative or vacuum pressure wound therapy <50 sq. centimeter

- Adult preventative care
- Pediatric/adolescent preventative care
- Office or outpatient visit
- Specialist consultation
- Wound management

- New patient preventative care visit for adult, ages 18-39
- New patient preventative care visit for adult, ages 40-64
- New patient preventative care visit for adult, ages 65 and above
- Preventative care visit for adult, ages 18-40
- Preventative care visit for adult, ages 40-64
- Preventative care visit for adult, ages 65 and above

- New patient preventative care visit for child <1 years age
- New patient preventative care visit for child, ages 1-4
- New patient preventative care visit for child, ages 5-11
- New patient preventative care visit for child, ages 12-17
- Preventative care visit for child <1 years age
- Preventative care visit for child, ages 1-4
- Preventative care visit for child, ages 5-11
- Preventative care visit for child, ages 12-17
Designing Costs Transparency Report

Physical Therapy

- Physical therapy evaluation
- Physical therapy re-evaluation
- Physical med. treatment to one area-- hot or cold packs
- Physical medicine treatment to one area-- traction- mechanical
- Physical medicine treatment to one area-- electrical stimulation
- Physical medical treatment to one area-- paraffin bath
- Physical medicine treatment to one area-- whirlpool
- Application of a modality to one or more areas; iontophoresis,15 min.
- Application of a modality to one or more areas; ultrasound, 15 min.
- Physical med. treatment to one area, initial 30 min., each visit; therapeutic exercises
- Physical med. treatment to one area, initial 30 min., each visit; neuromuscular reeducation
- Therapeutic procedure, one or more areas, each 15 min.; aquatic therapy
- Physical med. treatment to one area, initial 30 min., each visit; gait training
- Physical med. treatment to one area, initial 30 min., each visit; massage
- Manual therapy techniques, one or more regions, each 15 min.
- Therapeutic procedure(s), group (2 or more individuals)
- Kinetic activities, strength and/or range of motion, one area, initial 30 min., each visit

- Occupational therapy evaluation
- Self care/home management training, direct one on one contact by provider- each 15 minutes
- Orthotic(s) management and training - lower extremity(s) and/or trunk- each 15 minutes
- Checkout for orthotic/prosthetic use- established patient- each 15 minutes

Occupational Therapy
Designing Costs Transparency Report

Alternative Medicine

- Osteopathic manipulative treatment
- Nutrition Services

- Osteopathic manipulative treatment - one to two body regions involved
- Osteopathic manipulative treatment - three to four body regions involved
- Osteopathic manipulative treatment - five to six body regions involved
- Osteopathic manipulative treatment - seven to eight body regions involved
- Osteopathic manipulative treatment - nine to ten body regions involved

- Occupational therapy evaluation
- Self care/home management training, direct one on one contact by provider - each 15 minutes
- Orthotic(s) management and training - lower extremity(s) and/or trunk - each 15 minutes
- Checkout for orthotic/prosthetic use - established patient - each 15 minutes
Designing Costs Transparency Report

Mental & Behavioral Health Services

- Diagnostic Evaluation
- Procedures
- Health & Behavior Assessment
- Therapy

- Psychotherapy, 30 min. w/patient and/or family member
- Psychotherapy, 30 min. w/patient and/or family member, with e&m
- Psychotherapy, 30 min. w/patient and/or family member, lasting 45 min.
- Psychotherapy, 30 min. w/patient and/or family member, with e&m, lasting 45 min.
- Psychotherapy, 30 min. w/patient and/or family member, lasting 60 min.
- Family medical psychotherapy (without the patient present)
- Family medical psychotherapy (conjoint psychotherapy) by a physician
- Group medical psychotherapy (other than of a multiple-family group) by a physician

- Psychiatric diagnostic evaluation
- Psychiatric diagnostic evaluation w/medical services

- Electroconvulsive therapy (includes necessary monitoring) - single seizure

- Health and behavior assessment (eg- health-focused clinical interview- behavioral observations- psychophysiological monitoring-health-oriented questionnaires)- each 15 minutes face-to-face with the patient-- initial assessment
Designing Costs Transparency Report

**Obstetric / Gynecological Procedures**

- Delivery
- Laboratory Services
- Ultrasounds

- Urine pregnancy test - by visual color comparison methods
- Folic acid - serum
- Echography - pregnant uterus - b-scan and/or real time with image documentation - follow-up or repeat
- Echography - transvaginal

- Routine obstetric care including antepartum care - vaginal delivery (with or without episiotomy and/or forceps) and postpartum care
- Routine obstetric care including antepartum care - cesarean delivery and postpartum care
Designing Costs Transparency Report

Radiology Imaging

- Echography - breast(s) (unilateral or bilateral) - b-scan and/or real time with image documentation
- Echography - abdominal - b-scan and/or real time with image documentation - complete
- Echography - abdominal - b-scan and/or real time with image documentation - limited (e.g. single organ quadrants - follow-up)
- Echography - pelvic (non-obstetric) - b-scan and/or real time with image documentation - complete

- Radiologic examination - chest - two views - frontal and lateral -
- Radiologic examination - spine - lumbosacral - anteroposterior and lateral
- Radiologic examination - shoulder - complete - minimum of two views
- Radiologic examination - wrist - complete - minimum of three views
- Radiologic examination - hand - two views
- Radiologic examination - knee - anteroposterior and lateral - with oblique(s) - minimum of three views
- Radiologic examination - ankle - complete - minimum of three views
- Radiologic examination - foot - anteroposterior and lateral views
- Radiologic examination - foot - complete - minimum of three views

MRI - brain (including brain stem) - without contrast material
MRI - brain (including brain stem) - without and with contrast material
MRI - spinal canal and contents - cervical - without contrast material
MRI - spinal canal and contents - lumbar - without contrast material
MRI - any joint of upper extremity
MRI - any joint of lower extremity
MRI scan of both breasts, with contrast
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Radiology Imaging

- CT (computed tomography) scans
- MRI (Magnetic resonance imaging) scans
- Ultrasounds
- X-rays
- Mammograms
- Other imaging procedures

- Bone density test of spine or hips using dedicated X-ray machine
- Bone and/or joint imaging-- whole body
- Tumor imaging- positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization-- skull base to mid-thigh

- Analog diagnostic mammogram
- Analog screening mammogram
- Analog diagnostic mammogram of one breast
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Laboratory Services

- Blood
- Urine
- Fecal
- Swab
- Electrolyte panel
- Lipid panel
- Renal function panel
- Acute hepatitis panel
- Hepatic function panel
- Albumin
- Alpha-fetoprotein
- Amylase
- Calcium
- Carcinoembryonic antigen (cea)
- Cholesterol
- Cortisol
- Creatine kinase
- Cyanocobalamin (vitamin b-12)
- Chryhydroepiandrosterone-sulfate (dhea)
- Ferritin
- Others

- Culture- bacterial- definitive-- any other source
- Culture- bacterial- screening only- for single organisms
- Infectious agent antigen detection by enzyme immunoassay technique- qualitative or semiquantitative- multiple step method- influenza- a or b- each
- Infectious agent antigen detection by enzyme immunoassay technique- qualitative or semiquantitative- multiple step method- streptococcus- group a
- Infectious agent detection by nucleic acid (dna or rna)- chlamydia trachomatis- amplified probe technique
- Infectious agent detection by nucleic acid (dna or rna)- neisseria gonorrhoeae- amplified probe technique
- Infectious agent detection by nucleic acid (dna or rna)- papillomavirus-human- amplified probe technique
- Urinalysis- by dip stick or tablet reagent for bilirubin- glucose- hemoglobin- ketones- leukocytes- nitrite- ph-protein- specific gravity- urobilinogen- any number of these constituents- without microscopy- automated
- Protein- total- except by refractometry- urine
- Culture- bacterial- urine- quantitative- colony count
- Culture- bacterial- urine- identification- in addition to quantitative or commercial kit
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Outpatient Surgical Procedures

- Knee arthroscopy
- Shoulder arthroscopy
- Hernia repair
- Carpal tunnel release surgery
- Cardiac catheterization
- Percutaneous Angioplasty (PCI)

Common Surgeries & Procedures
- Joint Surgery
- Cardiac

- Remove skin growth (premalignant/precancerous)
- Remove up to 14 skin growths (benign/noncancerous)
- Gallbladder removal
- Tonsillectomy & Adenoidectomy
- Endoscopy, upper GI, diagnostic
- Endoscopy, upper GI, with insertion guide wire
- Endoscopy, upper GI, with biopsy
- Colonoscopy, diagnostic
- Colonoscopy, with biopsy
- Colonoscopy, with lesion removal, by hot biopsy forceps or bipolar cautery
- Colonoscopy, with lesion removal, by snare technique
- Laparoscopic cholecystectomy
- Hernia repair, inguinal
- Lithotripsy
- Scope Of Bladder And Urethra, For Diagnosis
- Scope Bladder, Insert Tube For Injection
- Csto Calibration Dilat Urtl Strix/stenosis
- Scope Bladder, Simple Removal Stone, Stent
- Scope Bladder & Ureter, Insert Stent Into Ureter
- Scope Bladder & Ureter, Break Up Kidney Stone
- Prostate Needle Biopsy, Any Approach
- Laparoscopic Hysterectomy
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Inpatient Surgical Procedures

- Cesarean Section
- Hysterectomy
- Mastectomy
- Normal Birth
- Prostatectomy
- Weight Loss Surgery

- Hip Replacement Procedure
- Hip Prosthesis Revision
- Revision of Knee Replacement Procedure
- Knee Replacement Procedure
- Dorsal & Lumbar Fusion Procedure for Curvature of Back
- Dorsal & Lumbar Fusion Procedure Exec for Curvature of Back
- Lumbar Procedures for Disc Excisions and Related Procedures
- Total and Partial Shoulder Replacement
- Cervical Fusion for Spondylisis and Disc Disease
- Cervical Fusion for Stenosis

Cardiac
- Digestive
- Common Surgeries & Procedures
- Joint Surgeries

- Percutaneous Carotid Artery Procedures
- Mitral Valve Procedure
- Aortic Valve Procedures
- Coronary Bypass
- PTCA with or without Stent without AMI

- Laparoscopic Procedures for Large Bowel Malignancy
- Resections for Rectal Malignancy
- Bowel Resection Procedures for Non Malignancy
- Laparoscopic Large Bowel Procedures for Diverticula and Vascular Insufficiency
- Laparoscopic Large Bowel Procedures for Intestinal Obstructions and Adhesions
- Major Open Large and Small Bowels Procedures for Malignancy
- Major Open Large Bowel Procedures for Intestinal Obstructions and Adhesions
- Laparoscopic Abdominal Wall Hernia Repair
- Laparoscopic Procedure for Inguinal and Femoral Hernia Procedures
- Open Procedures for Inguinal and Femoral Hernia Repair
- Open Procedures for Cholecystectomy
- Laparoscopic Procedures for Cholecystectomy
Future Meetings

Access Health Analytics

All Payer Claims Database – 2016 Meetings Schedule

All meetings are held on the second Thursday of every third month from 9:00 – 11:00 a.m. ET (unless otherwise indicated)

<table>
<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
<td>August 11, 2016</td>
<td>9:00 - 11:00 AM</td>
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</tr>
<tr>
<td>November 10, 2016</td>
<td>9:00 - 11:00 AM</td>
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