Data to Drive Decisions Webinar Series: Using Data to Understand Physician Practices and Optimize Patient Outcomes

June 23, 2022
Agenda

• AHRQ’s initiative to address gaps in current physician and physician practice data through the development of a research database.

• Investigate the complexities of health care and the opportunity to implement value stream mapping in order to improve patients outcomes and experiences.

• Questions/Feedback from Participants

• Housekeeping: Session is being recorded, questions via the chat box
Presenters

Herbert S. Wong, Ph.D.
Agency for Healthcare Research and Quality (AHRQ)
Director of Statistical Research and Methods

Jennifer Smith, Ph.D.
NORC at the University of Chicago
Principal Data Scientist

Duncan Sibson, MBA
Icon Health
CO-Founder and COO
Our Mission

We strive to empower individuals, communities, and organizations through collaborative support services and health care information to advance the Triple Aim: Better Health, Better Care, Lower Cost

We are:

• Non-profit
• Independent
• Objective
Who We Serve

Change Agents

Individuals, communities, or organizations working to lower costs, improve care, and make Colorado healthier.
What’s in the CO APCD?

How We Inform

Public CO APCD Data
Identify opportunities for improvement and to advance health care through public reports and publications

Non-Public CO APCD Data
Datasets and reports to address specific project needs aimed at better health, better care and lower costs
Physician and Physician Practice Research Database (3P-RD)

Herbert S. Wong, Ph.D.
Agency for Healthcare Research and Quality

Jennifer Smith, Ph.D.
NORC at the University of Chicago

CIVHC Webinar ♦ June 23, 2022
AHRQ Mission

• “… to produce evidence to make healthcare safer, higher quality, more accessible, equitable, and affordable, and to work within the U.S. Department of Health and Human Services and with other partners to make sure that the evidence is understood and used…”

• Fund and conduct healthcare research

• Database Development and Dissemination
  ▶ Long history
  ▶ Medical Expenditure Panel Survey (MEPS), Healthcare Cost and Utilization Project (HCUP)
Motivation

• **March 2020:** COVID-19 National Emergency

• The Coronavirus Aid, Relief, and Economic Security Act (CARES Act) signed into law on March 27, 2020.
  ► Federal response to economic consequences of COVID-19
  ► Growing recognition of health care disparities issue

• How best to implement components of the CARES Act?
  ► Lack of data on medical professionals and organizations to make informed decisions.

• AHRQ Response -- Physician and Physician Practice Database (3P-RD)
Planning Stage: Evaluate Data

• Data Sources Common to States
  ► Three (3) physician datasets (NPPES, FSMB, AMA Masterfile)
  ► Four (4) physician practice datasets (MD-PPAS, PECOS, HCRIS, IQVIA OneKey)

• Data Sources Unique to States
  ► Claims Databases (APCD and other claims sources)
  ► State Medical Boards (SMB)

• Nine (9) other data sources considered
  ► Association of American Medical Colleges
  ► AHRQ’s Compendium of U.S. Health Systems
Data Acquisition Stage

- Obtained SMB data for 21 states
- Conducted outreach to 7 states for APCD data
- Obtained APCD data from four (4) states
- Obtained publicly available data
  - NPPES, PECOS, Compendium
Process Stage

• Data Cleaning and Validation
  ► Name, date, and full address clean-up

• Data Assessment and Harmonization
  ► Specialty harmonization
  ► Provider Adjudication

• Linking files to create the Core Physician File
  ► Three linking variants created to link SMB and NPPES
  ► Match status evaluated on first and last name using Jaro-Winkler
Process Stage

Core Physician File

- NPPES
  - State Medical License Number
- SMB
  - State Medical License Number
- Linked SMB-NPPES
  - NPI
- PECOS

Un adjudicated Core Physician File

- NPI
Physician characteristics in the Core Physician file are dependent on the SMB data

- Global 3P-RD Provider ID
- License status: AR and MN only contain information for physicians with active licenses
- License dates
- Physician name and sex
- Military affiliation: CA, FL, TX, WA
- Board certifications: MA, MD, MN, MT
- Medical school location: AZ, CA, FL, MA, MN, NY, TX
- Harmonized specialty information
Build Stage

• Finalizing the 13 3P-RD States
  ► Name, date, and full address clean-up

• Develop Physician characteristics from claims data

• Identify Physician Practice sites
  ► TIN-ORG NPI-Servicing Zip Code
  ► Not all APCD had TIN

• Develop Physician Practice characteristics from claims data
Build Stage: Final 13 States

- Four APCD states
  - Arkansas, Colorado, Maryland, Washington

- States with APCD programs or developing programs
  - California, Florida, Massachusetts, Minnesota, New York, Texas

- States for geographical representativeness
  - Arizona (southwest), Missouri (borders AR), Montana (frontier)
Build Stage: Claims Variables

- All variables standardized across all states regardless of claims data source

- All states include
  - CMS Medicare FFS data
  - Medicaid data; data sources vary
    - CO 3P-RD uses the Medicaid data from the APCD

- Only states with APCD data include
  - Medicare Advantage data
  - Commercial data
Build Stage: Physician Variables

Core Physician File

State APCD or CMS Claims
- NPI
- Encrypted patient ID
- Dates of Service
- Encrypted Claim ID
- Diagnosis Codes
- Procedure Codes
- Place of Service
- Type of Bill

Revenue Code
Provider Specialty Code
Provider Type
Provider Taxonomy
Provider Zip Code
Place of Service Zip Code

3P-RD Physician Research File

Variables Imported/Derived from Core Physician File
- NPI
- Physician Name
- State License Number
- License Issue Date
- License Expiration Date
- License Status (Active, Suspended, Probation, Retired)
- License Type (MD, DO)
- Physician Year of Birth
- Disciplinary Action Taken
- Medical school
- Physician specialty
- Physician board certification

Variables Derived from CLAIMS
- Actively practicing (physician provide a service during CY)
- Bills to Medicare, Medicaid, APCD
- Minimum, average, and maximum patients seen in a month
- Minimum, average, and maximum unique claims submitted in a month
- Top five diagnosis of Patients Served during CY
- Top five most provided service/procedure during CY
- Top five practice sites (practice ID for linking)
Build Stage: Physician Variables

- NPI
- Actively practicing flag
- Types of insurance billed: Medicare, Medicaid, Commercial
- Patient panel age variables
- Claims per month (total and by payor)
- Patients per month (total and by payor)
- Claims per patient per month (total and by payor)
- Percentage of claims by payor
- Top procedures performed (code and category)
- Top diagnoses observed (code and category)
Build Stage: Physician Variables

Core Physician File

State APCD or CMS Claims

NPI
- Revenue Code
- Provider Specialty Code
- Provider Type
- Provider Taxonomy
- Provider Zip Code
- Place of Service Zip Code

Encrypted patient ID
- Dates of Service
- Encrypted Claim ID
- Diagnosis Codes
- Procedure Codes
- Place of Service
- Type of Bill

Linkage

Physician Practice Research File

Variables Imported/Derived from Core Physician File
- Organizational NPI
- State, Zip Code
- Number of 3P-RD physicians associated with the practice
- Most common specialty
- Top physician specialties
- Single or multi-specialty practice indicator

Variables Derived from APCD
- Practice ID: Claims will be used to define a physician practice based on patterns found using TIN, billing NPI, zip code.
- Number of non-3PRD practitioners in the practice
- Median and average patients served during in a month
- Median and average unique claims submitted in a month
- Percent of claims submitted to Medicare, Medicaid, commercial payors
- Primary and secondary RUCA scores
- Indicator for hospital-based practice
- Percent of patients by age category
- Percent of patients female/non-white/Hispanic
Build Stage: Practice Variables

- Organizational NPI
- Number of 3P-RD physicians associated with practice
- Number of other providers associated with practice
- Total number of providers associated with practice
- Demographics of patient panel (% of patients in age groups, % female, % non-White, % Hispanic)
- Claims and patients per month
- Most common specialty
- PCP, Medical, Surgical focus for practice
- Hospitalist and Hospital based indicators
- Zip code of practice
Test Stage

• Benchmark against the Association of American Medical Colleges Workforce Survey

<table>
<thead>
<tr>
<th>State</th>
<th>3P-RD Physicians</th>
<th>Workforce Survey Physicians</th>
<th>Difference (3PRD – AAMC)</th>
<th>% Difference from AAMC (Difference/AAMC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorado</td>
<td>22,743</td>
<td>16,956</td>
<td>5,787</td>
<td>34.13%</td>
</tr>
</tbody>
</table>

• Assess impact of cell suppression
Test Stage: Analysis of Outlier Data

• **Potential issue:** After visual inspection, there are excessively large values in the claims per month variables. When compared to the global average and median, these maximum values are outliers and should be further explored. Further, graphical representation shows the severity of the outlier when compared to other physicians in the file.
The top offender has 46,195 max claims per month with the next closest three physicians having 8,005, 5,436, and 4,595 respectively.

- Is an internal medicine and geriatric medicine physician in Denver
- Has specialty in the aging process and skills in the diagnostic, therapeutic, and rehabilitative aspects of illness in the elderly. Specializes in care for geriatric patients in long-term care settings
- Has entity codes of only ‘practitioner’ (individual)
- Is a part of the Kaiser Colorado Permanente Medical Group where he/she is the Vice President and Chief Quality Officer and is responsible for the oversight of a 1,200+ physician group which gives care to 650,000+ members in the region
- His/her claims per months are as follows in ascending order: 7, 16, 41, 49, 62, 62, 93, 115, 2718, 4996, 27678, 46195, with an average of 6836
Test Stage: Analysis of Outlier Data

- **Final Findings:** Based on the above information, the patterns seen among physicians with high max claims per months are similar to those seen in other states. Uniquely, it appears that many of these physicians in CO are a part of the Kaiser Colorado Permanente Medical Group which may be contributing to their higher max claims per month values.
3P-RD Key Elements

• Physician and Physician Practice files are linkable

• Global 3P-RD Provider ID will allow the identification of providers across state lines

• Can be used to answer key policy questions
  ▶ Number of physicians have a license
  ▶ Number of physicians with an active license actively provide care
  ▶ Number of physicians with licenses that recently expired and can be re-called if necessary
Share Stage

• Public Use File (PUF)
  ▶ Directory of physicians and practices
  ▶ No variables from APCD data

• Restricted Use File (RUF)
  ▶ Limited variables from APCD data

• Geographic PUF
  ▶ Aggregated to the zip code level
Questions/Comments?
How Musculoskeletal (MSK) Navigation Can Help Solve the Cost & Outcomes Disconnect

CIVHC
Duncan Sibson
COO & Cofounder
June 23, 2022
Thank you to CIVHC
<table>
<thead>
<tr>
<th>Stock Exchange</th>
<th>NEW YORK TIMES WEDNESDAY OCTOBER 9 1932</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRANSACTIONS ON THE NEW YORK STOCK</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Opening</th>
<th>Closing</th>
<th>High</th>
<th>Low</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table continues with similar entries for each day until the end of the month.
Mia’s Journey

Orthopedic Surgeon
Injection
PT
DME
ASC
Second Opinion
Xray
MRI
PT
PCP
DME
Second Opinion
Personalized and Comprehensive Orthopedic Benefit Management
Right time. Right care. Right setting.

Engage

Virtual Consult & Ortho Expert Assignment

Assess

In-Person Care from Icon Providers of Excellence

Guide

or

Conservative/Remote & Treatments

Thrive

Guided Recovery

Engaged Member
Providers of Excellence

Provider Selection Criteria

- **Locations**
  - Denver-Area

- **Specialty**
  - Assessed at the procedure level

- **Fit**
  - 300+ patient profile metrics

- **Quality**
  - Readmissions, avoidable ED visits, adverse sequelae, and condition-specific quality measures

- **Cost**
  - Plan-specific pricing data
  - Resource utilization and post-acute care management

Total Hip Arthroplasty Surgeons at Denver-Area Facilities
MSK Population: Icon Impacted

The result is 40%-60% savings opportunity vs. the unmanaged population

Managed vs. Unmanaged MSK Diagnosis Cohorts

M17

M17 Impacted

M16

M16 Impacted

M50

M50 Impacted

48% savings

43% savings
Overall Opportunity

Across Colorado data, encompassing:

- **93M** Individual Medical Claims
- **5.6M** Covered Lives
- **38** Individual Payers
- **4 Years** of Claims History

**$1.4B** Total Spend

- **$359M** Savings Opportunity
- **$2.8M** DME Savings Opportunity
- **$30M** Imaging Savings Opportunity
- **$11.3M** Office Visits Savings Opportunity
- **$71M** Other (Implants, Surgery) Savings Opportunity
- **$41M** Anesthesiology Savings Opportunity
- **$22M** Urgent Care & Physical Therapy Savings Opportunity

**$55M** Savings Opportunity

**$55M** ($)

**$22M** ($)
Questions and Feedback

Reach out to info@civhc.org

Connect with CIVHC on Facebook, LinkedIn, and Twitter

Recording will be posted here: www.civhc.org/about-civhc/news-and-events/event-resources/
Next Webinar

• July 21, 12-1pm MT
• Shifting from Fee-for Service in Colorado: The Primary Care Collaborative and Alternative Payment Models
• **Presenters:** CIVHC and the Division of Insurance