Approach – Primary Care Panel Size

- Obtained lists of primary care providers from two medical groups
  - Physicians—Family Medicine, General Internal Medicine, Pediatrics
  - Advanced Practice Providers (APPs)

- Tested four attribution methods
  - To whom?
    - Physicians and APPs treated similarly—attribute based on plurality of clinical activity
    - Attributed to a physician, if the patient saw a physician
  - What clinical activity?
    - E&M office visits
    - All E&M visits and procedures

- Explored proportion of provider’s workload due to non-attributed patients

- Identified differences between groups in use of APPs

- Labeled patients by preliminary measures of risk/severity/complexity
**Berenson-Eggers Type of Service (BETOS) Codes**

**M – EVALUATION AND MANAGEMENT**
- M1A/B OFFICE VISITS – NEW/ESTABLISHED
- M2A/B/C HOSPITAL VISIT – INITIAL/SUBSEQUENT/CRITICAL CARE
- M3 EMERGENCY ROOM VISIT
- M4A/B HOME VISIT/NURSING HOME VISIT
- M5A/B/C/D SPECIALIST – PATHOLOGY/PSYCHIATRY/OPHTHALMOLOGY/OTHER
- M6 CONSULTATIONS

**P – PROCEDURES**
- P0 ANESTHESIA
- P1 MAJOR PROCEDURE – BREAST, COLECTOMY, CHOLECYSTECTOMY, TURP, H YSTERECTOMY
- P2 MAJOR PROCEDURE – CARDIOVASCULAR (CABG, ANEURYSM, THROMBOENDARTERECTOMY)
- P3 MAJOR PROCEDURE – ORTHOPEDIC (HIP FRACTURE, HIP REPLACEMENT, KNEE REPLACEMENT)
- P4 EYE PROCEDURE – CORNEAL TRANSPLANT, CATARACT+LEN S INSERTION, RETINAL DETACHMENT
- P5 AMBULATORY PROCEDURES – SKIN, MUSCULOSKELETAL, INGUINAL HERNIA, LITHOTRIPSY
- P6 MINOR PROCEDURES – SKIN, MUSCULOSKELETAL, OTHER
- P7 ONCOLOGY
- P8 ENDOSCOPY
- P9 DIALYSIS SERVICES

**I – IMAGING, T – TESTS; D – DURABLE MEDICAL EQUIPMENT**

**O – OTHER – AMBULANCE, CHIROPRACTIC, ENTERAL/PARENTERAL NUTRITION, VISION, HEARING AND SPEECH SERVICES, CHEMOTHERAPY, OTHER DRUGS, IMMUNIZATION**

**Clinical Activity and FTE**

**Determine provider activity: July 2012 – December 2013**
- BM1 – BETOS M1 only – Evaluation & management office visits, new and established patients
- BMP – All BETOS M and P – All E&M services and procedures

**Compute – over 18 month period**
- span of activity – first & last dates of patient service
- number of days patients were seen
- average number of encounters per day worked → distinguish full-time from part-time

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Providers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providers on list provided by the Group and in Humedica data</td>
<td>77</td>
<td>255</td>
</tr>
<tr>
<td><strong>Providers by category</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td>51</td>
<td>142</td>
</tr>
<tr>
<td>APPs</td>
<td>26</td>
<td>73</td>
</tr>
<tr>
<td>Physicians</td>
<td>48</td>
<td>116</td>
</tr>
<tr>
<td>APPs</td>
<td>26</td>
<td>53</td>
</tr>
<tr>
<td>Providers with activity in 18 mo. (7/1/2012 – 12/31/2013)</td>
<td>45</td>
<td>103</td>
</tr>
<tr>
<td>Providers with ≥ 240 days of activity over 18 mo.</td>
<td>38</td>
<td>101</td>
</tr>
<tr>
<td>Providers with ≥ 6 encounters/day worked = Full-Time</td>
<td>68%</td>
<td>71%</td>
</tr>
<tr>
<td></td>
<td>32%</td>
<td>29%</td>
</tr>
</tbody>
</table>
Attributing a Patient to a PCP

- PCP Attribution Method Considering APPs?
  - Method 1 – Physicians and APPs treated similarly
  - Method 2 – Assigned to physician, if a physician was ever seen (to APP only if physician never seen)
  - “Full-time” status (average encounters/work day ≥ 6)

- Over what period?
  - 18 months

- For each patient, rank PCPs by...
  - BM1 encounters – E&M office visits
  - BMP encounters – All E&M and procedure activity

- What metric?
  - Raw count of encounters/procedures
  - Total work RVUs

- In case of ties
  - Physicians rank ahead of APPs (in Method1; always assigned to physician in Method 2)
  - Total number of other Procedures, Tests, Imaging, DME performed/ordered

- Attribute patient to panel of their highest-ranking provider

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Providers by Number of Unique Patients Seen

- BM1 encounters – E&M office visits  Use for remainder of analysis
- BMP encounters – All E&M and procedure activity

Darker colors – physicians
Lighter colors – APPs
Both medical groups combined
PCP Type – Physician vs. APP

- Attribution Method 2 is used for the remainder of this analysis:
  - If the patient saw a physician during the 18 months, attribute patient to the physician who provided the plurality of E&M services
  - If the patient did not see a physician during the 18 months, attribute patient to the APP who provided the plurality of E&M service

Count of Encounters vs. Total Work RVUs

- Use count of encounters for remainder of analysis

Both medical groups combined
Commonly, Groups A and B use Advanced Practice Providers differently.

- Similar median number of attributed patients seen in Groups A and B—Group B is 4.6% greater.

**Number of Attributed Patients Seen**

- **Group A** (56 PCPs)
- **Group B** (142 PCPs)

Each bar represents one provider:
- Darker colors – Physicians
- Lighter colors – APPs

**Total Number of Patients Seen**

- Providers still ordered by number of attributed patients, adding (green) the number of patients seen who are attributed to other providers.
- Note increase in median number of patients seen—**Group A**: 1,119 → 1,680, **Group B**: 1,170 → 2,240

- **Group A** (56 PCPs)
- **Group B** (142 PCPs)
Total Number of Patients Seen

- Providers re-ordered by total number of patients seen, rather than attributed patients
- Providers in Group B, especially APPs, see a larger proportion of patients not their “own”
- Median number of unique patients in Group B is 33% greater than in Group A

“Other” Patients Seen Often → Secondary Attribution

- Red shows additional patients added to PCP’s primary attributed panel (blue)—patients for whom total work RVUs exceed overall median work RVU for patients attributed to PCP panels
Number of 1° + 2° Attributed Patients Seen

- Medians more similar across groups—Group B is 5.6% greater

Number of Unique Patients

<table>
<thead>
<tr>
<th>Group</th>
<th>Median</th>
<th>90 Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A (56 PCPs)</td>
<td>1,566</td>
<td>3,093</td>
</tr>
<tr>
<td>Group B (142 PCPs)</td>
<td>1,630</td>
<td>3,077</td>
</tr>
</tbody>
</table>

Number of 1° + 2° Attributed + Other Patients Seen

- Red shows additional patients added PCP’s primary attributed panel (blue), where total patient work RVU exceeds overall median work RVU for patients attributed to PCP panels
- Median number of patients seen is 33% greater at Group B, but number attributed (1° + 2°) is only 4.6% greater

Number of Unique Patients

<table>
<thead>
<tr>
<th>Group</th>
<th>Median</th>
<th>90 Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A (56 PCPs)</td>
<td>1,400</td>
<td>2,743</td>
</tr>
<tr>
<td>Group B (142 PCPs)</td>
<td>1,343</td>
<td>2,721</td>
</tr>
</tbody>
</table>
Patients by Age

- In contrast to previous slide, red shows all patients seen other than 1° attributed panel (blue)
- For both colors, darker shades indicate older patients (in 20 year age bands)

Patients by HCC RAF Score

- Red shows all patients seen other than 1° attributed panel (blue)
- For both colors, darker shades indicate higher HCC RAF scores (in deciles)
Patients by Count of CCS Level 1 Categories

- Red shows all patients seen other than 1° attributed panel (blue)
- For both colors, darker shades indicate a larger number of CCS Level 1 categories (rough count of "body systems" coded)

Group A
(56 PCPs)

Group B
(142 PCPs)

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Counts of Unique Patients

APPs

Physicians

Group A + Group B

Total wRVUs
Challenges/Questions

- Full-time vs. part-time providers
- Length of time – 18 months or 36 months?
- Attribution method – to whom? based on what clinical activity?
  - Minimum amount of clinical activity for a patient to be assigned to a panel?
- Differences between groups in use of APPs – what’s group-specific? what’s common?
  - Equal or preferential attribution to physician vs. APP?
  - Some patients see only an APP
- Account for proportion of provider’s workload due to non-attributed patients
  - Allow a patient to be counted toward multiple providers’ panels?
  - Empirical “social network” analysis → groups of providers with many shared patients
    - Simulation studies have shown this model to have certain efficiencies
    - How do the providers and patients feel about this model?
- Account for differences in days worked during time period
- Then... compute severity adjustment
  - Combination of factors that best accounts for variation in panel size among similar providers
  - Empirical combination of measures → simplify, for clear understanding by providers