MHSPHP Metrics Forum

ACG and Health Services
Overview

• What is ACG
• ACG RUB and ACG IBI
• Understanding PHDR reports
• How to use the PHDR reports with population management
• How to use the Health Services report to interpret PHDR data
• Questions
What is this ACG stuff anyway?
• Grew out of Dr. Barbara Starfield’s research hypothesis:
  Clustering of morbidity is a better predictor of health services resource use than the presence of specific disease
• Conceptual Basis:
  Assessing the appropriateness of care needs to be based on patterns of morbidity rather than on specific diagnoses
    – Developed by the Johns Hopkins School of Public Health
    – A ‘person-focused’ comprehensive family of measurement tools
    – Adopted by 200+ healthcare organizations world-wide
    – Case-mix adjust more than 20 million covered lives
    – Most widely used & tested population-based risk-adjustment system
Components

Input → Data Analysis → Output

- Patient Data
- Medical Services
- Pharmacy Data

ACG Tools

- Diagnosis-based markers
- Pharmacy-based markers
- Hospital dominant conditions
- Frailty markers
- Predictive modeling
- Care coordination markers
- Pharmacy adherence markers

MHSPHP
Military Health System Population Health Portal
Management applications for population-based case-mix adjustment require that patients be grouped into single, mutually exclusive categories. The ACG methodology uses a branching algorithm to place people into one of 93 discrete categories based on their assigned ADGs, their age and their sex. The result is that individuals within a given ACG have experienced a similar pattern of morbidity and resource consumption over the course of a given year.
Diagnosis-based markers: Morbidity view

Based on:
- Duration
- Severity
- Diagnostic Certainty
- Etiology
- Specialty Care

High expected resource use ADGs:
- Pediatric
- Adult

Collapsed based on:
- Likelihood of persistence/recurrence
- Severity
- Types of healthcare services required

- Frequently occurring combinations of CADGs
  - Based on patterns of CADG

Based on:
- Age
- Sex
- Specific ADG
- # of major ADG
- # of ADG

Individuals with similar:
- Needs for healthcare resources
- Clinical characteristics
  One value per person

<table>
<thead>
<tr>
<th>ADG</th>
<th>ICD-9</th>
<th>Major ADG (Adult)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time limited: major</td>
<td>Appendicitis</td>
<td>Time limited: major</td>
</tr>
<tr>
<td>Likely to recur: discrete</td>
<td>Gout, Backache</td>
<td>Likely to recur: progressive</td>
</tr>
<tr>
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<td>Chronic medical: unstable</td>
</tr>
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</tr>
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</tr>
<tr>
<td>Injuries/adverse effects: major</td>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>ACG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute minor / likely to recur, age 6+, w/o allergy</td>
</tr>
<tr>
<td>Pregnancy, 2-3 ADGs, no major ADGs</td>
</tr>
<tr>
<td>4-5 other ADG combinations, age 45+, 2+ major ADGs</td>
</tr>
<tr>
<td>6-9 other ADG combinations, male, age , no major ADGs</td>
</tr>
<tr>
<td>Infants: 0-5 ADGs, no major ADGs, low birth weight</td>
</tr>
<tr>
<td>Chronic specialty: stable</td>
</tr>
</tbody>
</table>
### Table 1: ADGs and Common ICD10 Codes Assigned to Them

<table>
<thead>
<tr>
<th>ADG</th>
<th>ICD9-CM</th>
<th>ICD-10</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Time Limited: Minor</td>
<td>558.9</td>
<td>K52.9</td>
<td>Noninfectious Gastroenteritis Diaper or Napkin Rash</td>
</tr>
<tr>
<td>2. Time Limited: Minor-Primary Infections</td>
<td>679.9</td>
<td>B09</td>
<td>Unspecified Viral Infection Group</td>
</tr>
<tr>
<td>3. Time Limited: Major</td>
<td>451.2</td>
<td>B80.3</td>
<td>Phlebitis of Lower Extremities</td>
</tr>
<tr>
<td>4. Time Limited: Major-Major Infections</td>
<td>573.3</td>
<td>K75.9</td>
<td>Hepatitis, Unspecified Progenic Arthritis</td>
</tr>
<tr>
<td>5. Allergies</td>
<td>477.9</td>
<td>J30.0</td>
<td>Allergic Rhinitis, Cause Unspecified Unspecified Urticaria</td>
</tr>
<tr>
<td>6. Asthma</td>
<td>493.0</td>
<td>J45.0</td>
<td>Extrinsic Asthma Intrinsic Asthma</td>
</tr>
<tr>
<td>7. Likely to Recur: Discrete</td>
<td>274.9</td>
<td>M10.9</td>
<td>Gout, Unspecified Backache, Unspecified</td>
</tr>
<tr>
<td>8. Likely to Recur: Discrete-Infections</td>
<td>274.9</td>
<td>M54.9</td>
<td>Chronic Tomalitus Urinary Tract Infection</td>
</tr>
<tr>
<td>9. Likely to Recur: Progressive</td>
<td>475.10</td>
<td>E11.1</td>
<td>Adult Onset Type II Diabetes w/ Ketosidosis Cerebral Thrombosis</td>
</tr>
<tr>
<td>10. Chronic Medical: Stable</td>
<td>250.00</td>
<td>E10.9</td>
<td>Adult-Onset Type 1 Diabetes Essential Hypertension</td>
</tr>
<tr>
<td>11. Chronic Medical: Unstable</td>
<td>282.9</td>
<td>D57.1</td>
<td>Sickle-Cell Anemia Cystic Fibrosis</td>
</tr>
<tr>
<td>12. Chronic Specialty: Stable-Orthopedic</td>
<td>721.8</td>
<td>M48.9</td>
<td>Cervical Spondylosis Without Myelopathy Other Joint Disentanglement</td>
</tr>
<tr>
<td>13. Chronic Specialty: Stable-Ear, Nose, Throat</td>
<td>389.14</td>
<td>E90.5</td>
<td>Central Hearing Loss Cholesteatoma</td>
</tr>
<tr>
<td>14. Chronic Specialty: Stable-Eye</td>
<td>357.1</td>
<td>H12.1</td>
<td>Myopia Unspecified Disorder of Conjunctiva</td>
</tr>
<tr>
<td>16. Chronic Specialty: Unstable-Orthopedic</td>
<td>724.02</td>
<td>M48.0</td>
<td>Spinal Stenosis of Lumbar Region</td>
</tr>
<tr>
<td>17. Chronic Specialty: Unstable-Ear, Nose, Throat</td>
<td>386.0</td>
<td>H81.0</td>
<td>Meninge’s Disease Chronic Mastoiditis</td>
</tr>
<tr>
<td>18. Chronic Specialty: Unstable-Eye</td>
<td>365.9</td>
<td>H40.9</td>
<td>Unspecified Glaucoma Scleritis / Episcleritis</td>
</tr>
<tr>
<td>20. Dermatologic</td>
<td>247.1</td>
<td>A63.0</td>
<td>Viral Warts Nevi, Non-Neoplastic</td>
</tr>
<tr>
<td>21. Injuries/Adverse Effects: Minor</td>
<td>847.0</td>
<td>S13.4</td>
<td>Neck Sprain Injury to Trunk</td>
</tr>
</tbody>
</table>
Diagnosis-based markers: Morbidity view

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High expected resource use ADGs:
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One value per person

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</table>

16 12 26
Major ADGs

<table>
<thead>
<tr>
<th>Pediatric Major ADGs (ages 0-17 years)</th>
<th>Adult Major ADGs (ages 18 and up)</th>
</tr>
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<tbody>
<tr>
<td>3 Time Limited: Major</td>
<td>3 Time Limited: Major</td>
</tr>
<tr>
<td>9 Likely to Recur: Progressive</td>
<td>4 Time Limited: Major-Primary Infections</td>
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<td>9 Likely to Recur: Progressive</td>
</tr>
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<td>12 Chronic Specialty: Stable-Orthopedic</td>
<td>11 Chronic Medical: Unstable</td>
</tr>
<tr>
<td>13 Chronic Specialty: Stable-Ear, Nose, Throat</td>
<td>16 Chronic Specialty: Unstable-Orthopedic</td>
</tr>
<tr>
<td>18 Chronic Specialty: Unstable-Eye</td>
<td>22 Injuries/Adverse Effects: Major</td>
</tr>
<tr>
<td>25 Psychosocial: Recurrent or Persistent, Unstable</td>
<td>25 Psychosocial: Recurrent or Persistent, Unstable</td>
</tr>
<tr>
<td>32 Malignancy</td>
<td>32 Malignancy</td>
</tr>
</tbody>
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- Identify ADGs that have very high expected resource use
**Diagnosis-based markers: Morbidity view**

- **ICD-9** (~20,000)
  - **ADG** (32)
    - **CADG** (12)
      - **Major ADG** (16)
        - **ACG** (~100)
          - **MAC** (26)

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<td>Intracranial injury</td>
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</tbody>
</table>

11
• 4.3 billion possible combinations of ADGs
• So to make it more manageable to get to that unique grouping for a patient, grouped ADGs into collapsed ADGs based on
  – Likelihood of persistence or recurrence
  – Severity
  – Types of healthcare services required
• Pts can still be assigned to more than 1
<table>
<thead>
<tr>
<th>Collapsed ADG (CADG)</th>
<th>ADGs in Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Acute Minor</td>
<td>1 Time Limited: Minor</td>
</tr>
<tr>
<td></td>
<td>2 Time Limited: Minor-Primary Infections</td>
</tr>
<tr>
<td></td>
<td>21 Injuries / Adverse Events: Minor</td>
</tr>
<tr>
<td></td>
<td>26 Signs / Symptoms: Minor</td>
</tr>
<tr>
<td>2. Acute Major</td>
<td>3 Time Limited: Major</td>
</tr>
<tr>
<td></td>
<td>4 Time Limited: Major-Primary Infections</td>
</tr>
<tr>
<td></td>
<td>22 Injuries / Adverse Events: Major</td>
</tr>
<tr>
<td></td>
<td>27 Signs / Symptoms: Uncertain</td>
</tr>
<tr>
<td></td>
<td>28 Signs / Symptoms: Major</td>
</tr>
<tr>
<td>3. Likely to Recur</td>
<td>5 Allergies</td>
</tr>
<tr>
<td></td>
<td>7 Likely to Recur: Discrete</td>
</tr>
<tr>
<td></td>
<td>8 Likely to Recur: Discrete-Infections</td>
</tr>
<tr>
<td></td>
<td>20 Dermatologic</td>
</tr>
<tr>
<td></td>
<td>29 Discretionary</td>
</tr>
<tr>
<td>4. Asthma</td>
<td>6 Asthma</td>
</tr>
<tr>
<td>5. Chronic Medical: Unstable</td>
<td>9 Likely to Recur: Progressive</td>
</tr>
<tr>
<td></td>
<td>11 Chronic Medical: Unstable</td>
</tr>
<tr>
<td></td>
<td>32 Malignancy</td>
</tr>
<tr>
<td>6. Chronic Medical: Stable</td>
<td>10 Chronic Medical: Stable</td>
</tr>
<tr>
<td></td>
<td>30 See and Reassure</td>
</tr>
<tr>
<td>7. Chronic Specialty: Stable</td>
<td>12 Chronic Specialty: Stable-Orthopedic</td>
</tr>
<tr>
<td></td>
<td>13 Chronic Specialty: Stable-Ear, Nose, Throat</td>
</tr>
<tr>
<td>8. Eye/Dental</td>
<td>14 Chronic Specialty: Stable-Eye</td>
</tr>
<tr>
<td></td>
<td>34 Dental</td>
</tr>
<tr>
<td></td>
<td>17 Chronic Specialty: Unstable-Ear, Nose, Throat</td>
</tr>
<tr>
<td></td>
<td>18 Chronic Specialty: Unstable-Eye</td>
</tr>
<tr>
<td>10. Psychosocial</td>
<td>23 Psycho-social: Time Limited, Minor</td>
</tr>
<tr>
<td></td>
<td>24 Psycho-social: Recurrent or Persistent, Stable</td>
</tr>
<tr>
<td></td>
<td>25 Psycho-social: Recurrent or Persistent, Unstable</td>
</tr>
<tr>
<td>11. Preventive/Administrative</td>
<td>31 Prevention / Administrative</td>
</tr>
<tr>
<td>12. Pregnancy</td>
<td>33 Pregnancy</td>
</tr>
</tbody>
</table>
Diagnosis-based markers:
Morbidity view

MACs are mutually exclusive grouping so of CADGs
The MACs are then split into ACGs to identify groups of individuals with similar needs for healthcare resources who also share similar clinical characteristics.
The variables taken into consideration include: age, sex, presence of specific ADGs, number of major ADGs, and total number of ADGs.
<table>
<thead>
<tr>
<th>MACs</th>
<th>CADGs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Acute: Minor</td>
<td>1</td>
</tr>
<tr>
<td>2. Acute: Major</td>
<td>2</td>
</tr>
<tr>
<td>3. Likely to Recur</td>
<td>3</td>
</tr>
<tr>
<td>4. Asthma</td>
<td>4</td>
</tr>
<tr>
<td>5. Chronic Medical: Unstable</td>
<td>5</td>
</tr>
<tr>
<td>6. Chronic Medical: Stable</td>
<td>6</td>
</tr>
<tr>
<td>7. Chronic Specialty: Stable</td>
<td>7</td>
</tr>
<tr>
<td>8. Eye/Dental</td>
<td>8</td>
</tr>
<tr>
<td>9. Chronic Specialty: Unstable</td>
<td>9</td>
</tr>
<tr>
<td>10. Psychosocial</td>
<td>10</td>
</tr>
<tr>
<td>11. Prevention / Administrative</td>
<td>11</td>
</tr>
<tr>
<td>12. Pregnancy</td>
<td>All CADG combinations that include CADG 12</td>
</tr>
<tr>
<td>13. Acute: Minor and Acute: Major</td>
<td>1 and 2</td>
</tr>
<tr>
<td>14. Acute: Minor and Likely to Recur</td>
<td>1 and 3</td>
</tr>
<tr>
<td>15. Acute: Minor and Chronic Medical: Stable</td>
<td>1 and 6</td>
</tr>
<tr>
<td>16. Acute: Minor and Eye/Dental</td>
<td>1 and 8</td>
</tr>
<tr>
<td>17. Acute: Minor and Psychosocial</td>
<td>1 and 10</td>
</tr>
<tr>
<td>18. Acute: Major and Likely to Recur</td>
<td>2 and 3</td>
</tr>
<tr>
<td>19. Acute: Minor and Acute: Major and Likely to Recur</td>
<td>1, 2 and 3</td>
</tr>
<tr>
<td>20. Acute: Minor and Likely to Recur and Eye and Dental</td>
<td>1, 3 and 8</td>
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<td>1, 3, and 10</td>
</tr>
<tr>
<td>22. Acute: Minor and Major and Likely to Recur and Chronic Medical: Stable</td>
<td>1, 2, 3, and 6</td>
</tr>
<tr>
<td>23. Acute: Minor and Major and Likely to Recur</td>
<td>1, 2, 3, and 10</td>
</tr>
</tbody>
</table>
Diagnosis-based markers: ACG - Concurrent Weight - RUB

**Adjusted Clinical Group (ACG)**
- **Categorical**
- **Numerical**

**ACG Description**

**Concurrent ACG-weights**
- Assessment of relative resource use
  - Mean cost of all pt in an ACG divided by mean cost of all pt in the population
  - ACG with higher weight uses more healthcare resource

**Local ACG-weights**
- Compared to local population

**Reference ACG-weights “IBI”**
- Compared to US population

**RUB (Resource Utilization)**
- One value per ACG

- 0 = Non-User
- 1 = Healthy User
- 2 = Low
- 3 = Moderate
- 4 = High
- 5 = Very High
“No Data” means the pt was not enrolled for the full measurement year.

Measurement year ended 3 months prior to MHSPHP metrics date; about 4.5 months prior to ACG run date to allow maturity of claims data.

Metrics as of date: 30 Oct 14

ACG date: mid Dec 14 (date ACG data was run)

ACG data range: 1-Sep-2013 thru 31 Jul-2014

- 0 = Non-User
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### Examples of IBI and RUB

<table>
<thead>
<tr>
<th>ACG</th>
<th>Reference Concurrent Weight</th>
<th></th>
<th></th>
<th>RUB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Commercial (0-64)</td>
<td>Medicare (&gt;=65)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Minor, Age 6+</td>
<td>0.16</td>
<td>0.10</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Chronic medical: stable</td>
<td>0.35</td>
<td>0.15</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2-3 Other ADG combinations, age 1-17</td>
<td>0.50</td>
<td>0.15</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Acute major/Likely to recur</td>
<td>0.53</td>
<td>0.24</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>10+ Other ADG combinations, age 18+, 0-1 major ADG</td>
<td>3.32</td>
<td>1.06</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>6-9 Other ADG combinations, age 35+, 3 major ADGs</td>
<td>6.89</td>
<td>1.87</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
What can ACG do for you?

ACG

- Population Profiling
- Provider Profiling
- Resource Allocation
- Disease Management
- Case Management
Population profiling

Resource Utilization Band by MTF

<table>
<thead>
<tr>
<th>Category</th>
<th>AFMS</th>
<th>Lackland</th>
<th>Keesler</th>
<th>Whiteman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non user</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy user</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
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<td></td>
<td></td>
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</tr>
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<td></td>
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</tr>
<tr>
<td>Very high</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
• On top of Announcements page are other reports
• Click on Adjusted Clinical Group Report
### Adjusted Clinical Groups (ACG) 2012 – 2013 Data

Resource Utilization Band (RUB) Legend: (0 – Non User) (1 – Healthy) (2 – Low Risk) (3 – Moderate) (4 – High) (5 – Very High)

Additional reports by RUB category are available from the Table of Contents drop-down menu on the left side of the window.

#### ACG Documentation

**Applied filters: None**

<table>
<thead>
<tr>
<th>Service</th>
<th>Patient Count Total</th>
<th>IBI (AVG)</th>
<th>RUB with Non-Users (AVG)</th>
<th>RUB without Non-Users (AVG)</th>
<th>Pharmacy Cost Band (AVG)</th>
<th>Chronic Condition Count (AVG)</th>
<th>Majority Source Of Care % (AVG)</th>
<th>Hospital Dominant Morbidity Types (% &gt;=1)</th>
<th>Generic Drug Count (AVG)</th>
<th>Probability High Total Cost (AVG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR FORCE</td>
<td>1,040,445</td>
<td>1.0</td>
<td><strong>2 – Low Risk</strong></td>
<td><strong>3 – Moderate</strong></td>
<td>3</td>
<td>1</td>
<td>27</td>
<td>2.36%</td>
<td>5</td>
<td>4.99%</td>
</tr>
<tr>
<td>ARMY</td>
<td>1,311,674</td>
<td>1.0</td>
<td><strong>2 – Low Risk</strong></td>
<td><strong>3 – Moderate</strong></td>
<td>3</td>
<td>1</td>
<td>19</td>
<td>2.36%</td>
<td>6</td>
<td>4.99%</td>
</tr>
<tr>
<td>NAVY</td>
<td>887,568</td>
<td>1.0</td>
<td><strong>2 – Low Risk</strong></td>
<td><strong>2 – Low Risk</strong></td>
<td>3</td>
<td>1</td>
<td>15</td>
<td>1.88%</td>
<td>5</td>
<td>4.96%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Probability Injury Hosp (AVG)</th>
<th>Probability Inpatient Hosp (AVG)</th>
<th>Outpatient Visit Count (Total)</th>
<th>Inpatient Hospitalization Count (Total)</th>
<th>Emergency Visit Count (Total)</th>
<th>Specialty Count (Total)</th>
<th>Total Cost (Total)</th>
<th>Pharmacy Cost (Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20%</td>
<td>3.14%</td>
<td>9,526,354</td>
<td>46,829</td>
<td>218,008</td>
<td>583,373</td>
<td>$4,408,331,680.70</td>
<td>$683,028,164.42</td>
</tr>
<tr>
<td>0.20%</td>
<td>2.97%</td>
<td>14,306,915</td>
<td>68,217</td>
<td>201,162</td>
<td>470,845</td>
<td>$5,539,397,029.61</td>
<td>$776,878,556.64</td>
</tr>
<tr>
<td>0.17%</td>
<td>2.52%</td>
<td>7,891,070</td>
<td>34,170</td>
<td>133,032</td>
<td>235,040</td>
<td>$3,368,999,412.63</td>
<td>$431,131,960.12</td>
</tr>
</tbody>
</table>
PCM Provider Type Filter

- Drag Provider type to Left of Service on table
- Right click on data area and select Filter and Rank
- Set provider type filter on and select provider type the click arrow. When done click ok
Service Comparison of Provider types

- Result of previous slide filter
- Next, right click in the data and filter on your MTF
Drilling into your ACG data

- Click on the drill down arrow to display provider groups
- Drag PROVIDER TYPE to right of MTF name to compare provider types within a prov group
- Look for outliers
  - Do panels need balancing?
1.0 is average across DoD, but it is higher than all the family physicians at this MTF
Drill down to name level

- Don’t compare (TOTALS) without considering patient count and IBI

Can get more details in the RUB tables
RUB tables
• On this team, internist has same IBI as FP and PA is close behind. PA has high percentage of RUB5 compared to service peers and MTF

• Consider moving RUB5 pts to Internist and some RUB 1-2 pts to PA.

• Of course must consider uniqueness of site/providers (ie new provider, internal med specialty PA)
### Drill further

- Click & drag in Age band to table. Depending on PA skill level, consider moving RUB 5 over 65 to internist and RUB 1-2 35-54 yr olds to PA.
What can ACG do for you?

ACG

Resource Allocation

Disease Management

Population Profiling

Provider Profiling

Case Management
<table>
<thead>
<tr>
<th>PCM Name</th>
<th>Note Details</th>
<th>ACG RUE</th>
<th>ACG IBH</th>
<th>ACG Date</th>
<th>DOB</th>
<th>Age</th>
<th>Age In Months</th>
<th>EbenCat</th>
<th>Overdue</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Moderate</td>
<td>1.86</td>
<td>7/18/2013</td>
<td>6/15/1961</td>
<td>52</td>
<td>623</td>
<td>RTN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>No Data</td>
<td>No Data</td>
<td>7/18/2013</td>
<td>8/23/1963</td>
<td>49</td>
<td>599</td>
<td>RTN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Low Risk</td>
<td>0.37</td>
<td>7/18/2013</td>
<td>8/2/1972</td>
<td>41</td>
<td>492</td>
<td>ADN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Very High</td>
<td>7.04</td>
<td>7/18/2013</td>
<td>7/25/1955</td>
<td>58</td>
<td>696</td>
<td>RTF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Moderate</td>
<td>1.86</td>
<td>7/18/2013</td>
<td>8/4/1955</td>
<td>58</td>
<td>696</td>
<td>RTN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Moderate</td>
<td>0.51</td>
<td>7/18/2013</td>
<td>1/5/1955</td>
<td>58</td>
<td>703</td>
<td>ADF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>High</td>
<td>2.93</td>
<td>7/18/2013</td>
<td>1/28/1960</td>
<td>53</td>
<td>642</td>
<td>RTF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>No Data</td>
<td>No Data</td>
<td>7/18/2013</td>
<td>6/20/1991</td>
<td>22</td>
<td>265</td>
<td>ADF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>No Data</td>
<td>No Data</td>
<td>7/18/2013</td>
<td>6/20/1991</td>
<td>22</td>
<td>265</td>
<td>ADF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>No Data</td>
<td>No Data</td>
<td>7/18/2013</td>
<td>6/20/1991</td>
<td>22</td>
<td>265</td>
<td>ADF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Moderate</td>
<td>1.21</td>
<td>7/18/2013</td>
<td>6/12/1969</td>
<td>44</td>
<td>529</td>
<td>ADF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Moderate</td>
<td>1.03</td>
<td>7/18/2013</td>
<td>2/27/1987</td>
<td>26</td>
<td>317</td>
<td>ADF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Healthy</td>
<td>0.15</td>
<td>7/18/2013</td>
<td>1/28/1958</td>
<td>55</td>
<td>666</td>
<td>RTF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Moderate</td>
<td>1.86</td>
<td>7/18/2013</td>
<td>8/13/1975</td>
<td>37</td>
<td>455</td>
<td>ADN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Non User</td>
<td>0.00</td>
<td>7/18/2013</td>
<td>2/10/1957</td>
<td>56</td>
<td>677</td>
<td>RTF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Very High</td>
<td>7.44</td>
<td>7/18/2013</td>
<td>1/23/1955</td>
<td>58</td>
<td>702</td>
<td>ADF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>High</td>
<td>3.55</td>
<td>7/18/2013</td>
<td>10/22/1948</td>
<td>64</td>
<td>777</td>
<td>RTF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>No Data</td>
<td>No Data</td>
<td>7/18/2013</td>
<td>2/8/1931</td>
<td>62</td>
<td>750</td>
<td>RTF/MLY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>High</td>
<td>2.82</td>
<td>7/18/2013</td>
<td>8/13/1962</td>
<td>50</td>
<td>611</td>
<td>RTA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAVIS, BRADLEY H</td>
<td>Moderate</td>
<td>1.86</td>
<td>7/18/2013</td>
<td>5/22/1974</td>
<td>39</td>
<td>470</td>
<td>ADF/MLY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ACG and Appt List

• Teams: Find High and Very High RUB patients with appts today and next week
• If appt in primary care, is it with PCM?
  – These pts benefit most from continuity
• Do they need a longer appt time?
• Can you rearrange schedule to accommodate?
• As a PCM, where are your high RUB pts being seen? Would they benefit from case manager or PCM RN contact with that appt? Do they need follow-up from an ER visit?
Appt List High Filter

Available Data Sources: dsAppointmentData (Primary)

Available Fields:
- dsAppointmentData.ACG RUB

AND/OR
- Selected Field: dsAppointmentData.ACG RUB
- Operator: Contains
- Value: high

Search
Clear

Provider Group | Reason for Apt | Canceled
--- | --- | ---
BNH EMERGENCY | | |
BNH PHY THERAPY | | |
BNH PHY THERAPY | | |
BNH MENTAL HEALTH SVCS | initial/cadien | |
BNH PCMH TEAM 2 | Medication renewal | |
BNH PCMH TEAM 1 | f/u shortness of breath from er | P
BNH PHY THERAPY | | |
BNH PCMH TEAM 1 | I need a mandatory immunization form signed for college, I have my records. | P
BNH PHY THERAPY | Pas entered the order | |
BNH PCMH TEAM 1 | MEDS: Pt request partial refill for Adderall until appointment, 8/19/13 bmw | |
BNH PCMH TEAM 2 | cyst in groin & possible yeast infection | |
BNH PCMH TEAM 1 | LABS: apt today | |
BNH MENTAL HEALTH SVCS | Per f/u | |
BNH PHY THERAPY | | |

ACG RUB | ACG IBI | ACG Date
--- | --- | ---
Very High | 7.44 | 7/18/2013
High | 4.61 | 7/18/2013
High | 4.61 | 7/18/2013
Very High | 7.44 | 7/18/2013
Very High | 7.44 | 7/18/2013
Very High | 7.44 | 7/18/2013
High | 5.50 | 7/18/2013
Very High | 7.44 | 7/18/2013
Very High | 7.44 | 7/18/2013
High | 3.21 | 7/19/2013
Very High | 7.44 | 7/18/2013
Very High | 12.82 | 7/18/2013
Very High | 7.44 | 7/18/2013
High | 2.93 | 7/18/2013
High | 4.61 | 7/18/2013
High | 2.93 | 7/18/2013
• Look for patients with RUB healthy or low
  – Why are they such high utilizers if disease complexity not there
    • Isolated acute injury or illness with lots of follow-up
    • Behavioral/social support referral for “needy” pt

• Patients with high IBI
  – Try to ensure PCM continuity
  – May need Case management referral either with TRICARE contractor or MTF depending on majority of care
Health Services Registry (HSR)

- ACG report data at the patient level
- Contains entire list of patients who were enrolled at least 11 of the 12 month ACG measurement period
VARIABLES OF INTEREST – USE CASES

- Frailty Flag
- Pharmacy / Total Cost
- Hospital Dominant Condition
- Coordination of Care

Most data in examples are MHS FY 2012
Frailty

Frailty Flag

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Not Frail n=3,104,864</th>
<th>Frail n=121,801</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outpt Visits</td>
<td>8.8</td>
<td>26.4</td>
</tr>
<tr>
<td>Inpt Stays</td>
<td>0.03</td>
<td>0.30</td>
</tr>
<tr>
<td>ER visits</td>
<td>0.4</td>
<td>1.14</td>
</tr>
<tr>
<td>Pharmacy Cost</td>
<td>518</td>
<td>1,790</td>
</tr>
<tr>
<td>Total Cost</td>
<td>3,472</td>
<td>18,055</td>
</tr>
</tbody>
</table>
Frailty and Risk of Injury Hospitalization

Identify Frail patients with Risk of Injury-related Hospitalization

Number of Frail Patients with more than 20% risk of injury-related hospitalization

Sample Patient Profile

<table>
<thead>
<tr>
<th>Sex</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>87</td>
</tr>
<tr>
<td># Chronic Condition</td>
<td>9</td>
</tr>
<tr>
<td># Hosp Dominant Condition</td>
<td>3</td>
</tr>
<tr>
<td># ER visits</td>
<td>2</td>
</tr>
<tr>
<td># IP admissions</td>
<td>2</td>
</tr>
<tr>
<td># OP visits</td>
<td>65</td>
</tr>
</tbody>
</table>
Cancer Patient
*BMT
*Sepsis
*Long Hosp Stay

10 of 13 had EDC HEM07 – which is code for Hemophilia. No doubt Factor 8.
Coordination of Care Markers

Example:

<table>
<thead>
<tr>
<th>Rx-MG</th>
<th>Number of visits</th>
<th>Marker</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endocrinologist</td>
<td>4</td>
<td>Majority source of care</td>
<td>40%</td>
</tr>
<tr>
<td>Cardiologist</td>
<td>3</td>
<td>Generalist seen</td>
<td>No</td>
</tr>
<tr>
<td>Pulmonologist</td>
<td>2</td>
<td>Unique provider count</td>
<td>4</td>
</tr>
<tr>
<td>Neurologist</td>
<td>1</td>
<td>Unique specialty count</td>
<td>4</td>
</tr>
</tbody>
</table>
Hospital Dominant Conditions (Samples)

- **GI**
  - Hepatic Coma
  - Malnutrition

- **Infectious**
  - Streptococcal Septicemia
  - Pseudomonal Pneumonia

- **Hem/Onc**
  - Malignant Neoplasm, Lung
  - Hypersplenism

- **Pulmonary**
  - COPD w/ acute exacerbation
  - Acute Respiratory Failure

- **Cardiac**
  - Acute Cor Pulmonale

- **Psychological**
  - Bipolar Disorder
  - Alcohol Withdrawal
<table>
<thead>
<tr>
<th>Column Name</th>
<th>Definition</th>
<th>Methodology</th>
</tr>
</thead>
</table>
| RUB (Resource Utilization Band) | Aggregations of ACGs based upon estimates of concurrent resource that is used to provide a way of separating the population into broad co-morbidity groupings.                                             | Resource Utilization Band (RUB)  
[BLANK] - NO DATA  
0. NON USER  
1. HEALTHY  
2. LOW RISK  
3. MODERATE  
4. HIGH  
5. VERY HIGH                                                                 | This variable was renamed by HID because the original ACG name would be confusing to clinicians (‘rescaled reference concurrent weight’). |
| IBI (Illness Burden Index)   | Mean cost of all patients in an Adjusted Clinical Group divided by the mean cost of the patients in the total population                                                                             |                                                                                               |
| Frailty                     | A flag for any one of the 11 diagnostic clusters that represent discrete conditions consistent with frailty (e.g., malnutrition, dementia, incontinence, difficulty in walking).                                      |                                                                                               |
|                             | • [BLANK] - Frailty Flag = "N"  
• FRAIL - Frailty Flag = “Y”                                                                                                                   |                                                                                               |
<p>| Probability Injury Hosp     | The probability that a patient will have an inpatient hospitalization due to an injury in the next year.                                                                                              |                                                                                               |</p>
<table>
<thead>
<tr>
<th>Column Name</th>
<th>Definition</th>
<th>Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Dominant Count</td>
<td>A count of Aggregated Diagnostic Groups (ADGs) containing trigger diagnoses which are consistent with a high probability (typically greater than 50%) of future admission.</td>
<td>Diagnostic examples include but are not limited to: Hepatic Coma, Malnutrition, Streptococcal Septicemia, Pulmonary Malignancy, COPD, Bipolar Disorder, Alcohol Withdrawal, etc.</td>
</tr>
<tr>
<td>Chronic Condition Count</td>
<td>A count of Expanded Diagnosis Clusters (EDCs) containing trigger diagnoses indicating a chronic condition of significant duration and resource requirements.</td>
<td></td>
</tr>
<tr>
<td>Unique Provider Count</td>
<td>The number of providers involved in face-to-face outpatient visits for the patient.</td>
<td></td>
</tr>
<tr>
<td>Specialty Count</td>
<td>The number of different specialties involved in face-to-face outpatient visits for the patient.</td>
<td></td>
</tr>
<tr>
<td>Generalist Seen</td>
<td>[BLANK] - Generalist Seen Flag = “N”</td>
<td>This flag answers the question of whether the patient has seen a generalist in the past year.</td>
</tr>
<tr>
<td>Majority Source of Care Percent (MSOC)</td>
<td>The percentage of care that was provided by one individual provider.</td>
<td>For example, if one provider saw the patient 5 out of 10 visits – the MSOC would be 50%.</td>
</tr>
<tr>
<td>Coordination Risk</td>
<td>This variable is determined by an algorithm that utilizes four other ACG variables: unique provider count, specialty count, majority source of care, and generalist seen. The three possible categories are as follows:</td>
<td>Direct Care: MEPR1 = 'B' or MEPR3 in (DDA, DDD, DDE, DGB, DGD, ELA, FBI, FBN). Excludes inferred records and t-cons</td>
</tr>
<tr>
<td>Outpatient Visit Count</td>
<td>Count of ambulatory and hospital outpatient visits.</td>
<td></td>
</tr>
<tr>
<td>Emergency Visit Count</td>
<td>Count of emergency room visits that did not lead to a subsequent acute care inpatient hospitalization.</td>
<td></td>
</tr>
<tr>
<td>Column Name</td>
<td>Definition</td>
<td>Methodology</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Inpatient Hospitalization Count</td>
<td>Count of acute care inpatient stays for causes that are not related to</td>
<td>PDTS cost variables: ingredient cost + dispensing fee + sales tax (if applicable)</td>
</tr>
<tr>
<td></td>
<td>child-birth and injury.</td>
<td></td>
</tr>
<tr>
<td>Probability Inpatient Hosp</td>
<td>The probability that this patient will have an inpatient hospitalization</td>
<td>Full_Cost (minus FullCost_Lab, FullCost_Rad, FullCost_Pharm) + Network NonInst Amount Allow + Network Inst Allow + PDTS Cost + DirOP_Lab_FullCost + DirOp_Rad_FullCost.</td>
</tr>
<tr>
<td></td>
<td>in the year following the observation period.</td>
<td></td>
</tr>
<tr>
<td>Pharmacy Cost</td>
<td>The total pharmacy costs for this patient during the observation period.</td>
<td></td>
</tr>
<tr>
<td>Total Cost</td>
<td>The total medical and pharmacy costs for this patient during the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>observation period.</td>
<td></td>
</tr>
<tr>
<td>Probability of High Pharmacy Cost</td>
<td>ACG Predictive Model (ACG-PM) probability Score for future pharmacy cost</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-- the probability that this patient will have high pharmacy costs in the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>next year.</td>
<td></td>
</tr>
<tr>
<td>Probability High Total Cost</td>
<td>ACG Predictive Model (ACG-PM) probability Score for total cost -- the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>probability that this patient will have high total costs (including</td>
<td></td>
</tr>
<tr>
<td></td>
<td>pharmacy costs) in the next year.</td>
<td></td>
</tr>
<tr>
<td>Pseudo SPONSSN</td>
<td>This variable is not an ACG variable, but is a random unique number that</td>
<td>This is required due to the mandatory elimination of SSN from health information systems.</td>
</tr>
<tr>
<td></td>
<td>can be used to identify family members much the way Sponsor SSN was used</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in past systems. Each family will retain their Pseudo SPONSSN.</td>
<td></td>
</tr>
<tr>
<td>Has Duplicate PCMs</td>
<td>This variable is not an ACG variable. It is a marker to identify</td>
<td></td>
</tr>
<tr>
<td></td>
<td>individual patients that have numerous ‘open’ PCM assignments.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There is a ‘Duplicate PCMs’ registry that gives you specific information,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>which will allow you to correct your underlying data via CHCS data input.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Finally, if an individual has multiple PCMS, their text will be turned to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a blue color, and the PCM name will be highlighted by red text.</td>
<td></td>
</tr>
</tbody>
</table>
• Review at risk patients for referral to case management or care coordination
  – Frailty Flag
  – Probability of injury
  – Probability of hospitalization
  – Care Coordination risk
  – Hospital dominant conditions
  – Have they seen their PCM? Do they have the best level provider for their level of complexity?
Utilization Management

- High number of visits or high cost
- Sort HSR by clicking on the column
- How many specialties?
- How many ER visits?
- Has pt seen generalist (is PCM a source of continuity)?
- Probability of high pharmacy or total costs?
- Would pt benefit from CM referral?
- Review encounters in patient details
• Resource allocation—if can’t manage all patients with a specific condition, focus on the most complex:
  – ACG IBI
  – Risk of hospitalization
  – Number of hospital dominant conditions
  – Likely Coordination Issue
  – Projected costs
FAQ: Why do we have 9-10 outpt visits per provider?

- Export HSR without PII and made pivot table:
FAQ: How could the pt have 268 encounters in one year?

• Outpatient visits include network and MTF encounters
• No T-CONS
• Does include:
  – Primary care
  – Specialty care
  – Urgent care
  – Physical, Speech, Occupational, behavior therapies
  – Mental Health counseling
498 visits and not LCI?
## Health Services

### Patient Data

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<thead>
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<th>Frailty Flag</th>
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<tr>
<td>Hospital Dominant Count</td>
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<td>Chronic Condition Count</td>
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<td>Unique Provider Count</td>
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<tr>
<td>Specialty Count</td>
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<td>Generalist Seen</td>
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<tr>
<td>Majority Source of Care Percent</td>
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<tr>
<td>Coordination Risk</td>
<td>PCI</td>
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<tr>
<td>Outpatient Visit Count</td>
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<tr>
<td>Emergency Visit Count</td>
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<td>Inpatient Hospitalization Count</td>
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<td>Probability IP Hosp</td>
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<tr>
<td>Pharmacy Cost</td>
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<tr>
<td>Total Cost</td>
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<td>Probability High Pharmacy Cost</td>
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<td>Pseudo SPONSSN</td>
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### Encounters

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<th>Date</th>
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<th>Diagnosis/Reason</th>
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<td>12/03/2014</td>
<td>BAMC-SAMMC JBSA FSH--OP MTF</td>
<td>PEDIATRIC CARE NOT ELSEWHERE CLSF--SCHACHT JOHN P</td>
<td>ROUTINE INFANT OR CHILD HEALTH</td>
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<td>BAMC-SAMMC JBSA FSH--OP MTF</td>
<td>PEDIATRIC CLINIC--HOWARD LORRAINE</td>
<td>AUTISTIC DISORD,CURNT/ACT STATE</td>
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<td>10/17/2014</td>
<td>BAMC-SAMMC JBSA FSH--OP MTF</td>
<td>EMERGENCY MEDICAL CLINIC--GUERRA ALICE R</td>
<td>OBSERVATION FOR UNSPECIFIED SUSPECTED CONDITIONS, NOT FOUND</td>
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<tr>
<td>09/12/2014</td>
<td>OFFICE--OP NET</td>
<td>SPEECH-LANGUAGE PATHOLOGIST--DIRKMAAT REBECCA D</td>
<td>AUTISTIC DISORDER, CURRENT OR ACTIVE STATE</td>
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## Expanded Diagnostic Clusters

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<tr>
<th>MEDC Codes</th>
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<td>ADM EAR EYE NUR NUT REC</td>
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</table>
• Queries released to all to help begin your journey into this data

• Select My Filters at top of page and click RUN to load the query and search the data
Questions?

Contact: judith.rosen.1.ctr@us.af.mil