Translating Cardiovascular & Diabetes Disease Quality Metrics into Improved Clinical Outcomes, Reduced health disparities, and other best practices.

Michael H Kanter MD
Professor and Chair, Clinical Sciences
Is treatment for different conditions (e.g., colon cancer and diabetes) fundamentally the same?

Yes

No
Organizational Change and Learning

Complete Care at Kaiser Permanente: Transforming Chronic and Preventive Care

Michael H. Kanter, MD; Gail Lindsay, RN, MA; Jim Bellows, PhD; Alide Chase, MS

The Chronic Care Model (CCM) aims to transform care for patients with chronic illnesses through six interrelated system changes: health system, delivery system design, decision support, clinical information systems, self-management support, and community resources. It has stimulated innovative models

Article-at-a-Glance

Background: In 2004 Kaiser Permanente Southern California (KPSC) recognized the potential to improve the quality of care. Healthcare Effectiveness Data and Information
Complete Care is...

The overarching philosophy that supports the culture of how we deliver care at kaiser permanente.

It creates a standardized infrastructure and approach to disease management and preventive care services comprised of integrated systems, programs, and people which come together to help us focus on each person as a whole; with a goal of aligning the patients’ needs with those of the organization.
SCAL Complete Care: Person Focused Total Health

- Proactive, team approach, culturally responsive

- Focuses on person, not just the presenting problem or the primary health concern
In the beginning, there were some conditions…
In the beginning, there were some conditions…

- Heart Failure
- Diabetes
- Coronary Artery Disease
- Asthma
As time went by, we added more conditions...

- Alcohol
- Asthma
- Bariatric Surgery
- Breast Cancer
- Cervical Cancer
- Coronary Artery Disease
- Chronic Kidney Disease
- Colorectal Cancer

- COPD
- Cardiovascular Disease
- Depression
- Diabetes
- Exercise
- Geriatrics
- Healthy Bones (Osteoporosis)
- Heart Failure

- HIV
- Hypertension
- Immunizations
- Pain Management
- Rare Diseases
- Tobacco Cessation
- Weight Management
In the beginning, there were some functions…

Wenger 1893 “Heritage” Swiss Army Knife
Source: www.wenger.ch
In the beginning, there were some functions…

- Disease Management
- Clinical Practice Guidelines
- Decision Support
- Registries

Wenger 1893 “Heritage” Swiss Army Knife
Source: www.wenger.ch
As time went by, we added more functions…

Wenger “Giant” Swiss Army Knife
Source: www.wenger.ch
Putting Conditions and Functions Together
“The Whiskey Barrel”
“The Whiskey Barrel” / Complete Care
### HEDIS Results

<table>
<thead>
<tr>
<th>Results</th>
<th>Commercial</th>
<th>Medicare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total measures</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>Above US 90(^{th}) percentile at baseline</td>
<td>10 (40%)</td>
<td>11 (42%)</td>
</tr>
<tr>
<td>Above US 90(^{th}) percentile by 2012</td>
<td>19 (76%)</td>
<td>22 (85%)</td>
</tr>
<tr>
<td>Average KPSC improvement, baseline to 2012</td>
<td>13.3%</td>
<td>12.8%</td>
</tr>
<tr>
<td>Average improvement in US median, baseline to 2012</td>
<td>5.6%</td>
<td>5.4%</td>
</tr>
</tbody>
</table>

KPSC improvement was 2-3 times greater than median US health plans.
“The IHS[Kaiser Permanente] approach to care is associated with higher levels of evidence-based medicine, and ...”
Measuring quality

- Structure
- Process
- Outcomes
Clinical Strategic Goals
Benefits Achieved 2004 – Nov 2013

<table>
<thead>
<tr>
<th>Metric</th>
<th>Increase</th>
<th>Savings Per Decade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol control</td>
<td>34.9%</td>
<td>2,738 Lives</td>
</tr>
<tr>
<td>Blood pressure control</td>
<td>44.1%</td>
<td>6,054 Lives</td>
</tr>
<tr>
<td>HbA1C &lt; 9.0</td>
<td>14.6%</td>
<td>1,379 Lives</td>
</tr>
<tr>
<td>Smoking cessation</td>
<td>17.0%</td>
<td>1,011 Lives</td>
</tr>
<tr>
<td>Breast cancer screening</td>
<td>10.3%</td>
<td>515 Lives</td>
</tr>
<tr>
<td>Cervical cancer screening</td>
<td>11.6%</td>
<td>116 Lives</td>
</tr>
<tr>
<td>Colon cancer screening</td>
<td>38.9%</td>
<td>6,166 Lives</td>
</tr>
</tbody>
</table>

Total: 17,979 Lives
Overall incidence for acute myocardial infarction (AMI), non-ST-segment-elevation myocardial infarction (NSTEMI), and ST-segment-elevation myocardial infarction (STEMI) hospitalizations per 100,000 person-years by race-ethnicity, standardized by age and sex, Kaiser Permanente Southern California, 2000-2014.

“The Whiskey Barrel” / Complete Care
Regional Outreach

- A centrally coordinated system
- Targets populations through batch mechanisms outside of the patient encounter
  - letters, e-letters, calls
- Engage members in actions that improve health outcomes
- Accounts for over 10 million “touches” a year
Regional Outreach - Online Personal Action Plan

- The Online Personal Action Plan is a fully featured and integrated personal care gap monitoring system.
- It explains clearly what is needed to take action on, why it is important and how to take the necessary action.
- The system monitors care gaps and automatically notifies the patient when a new gap arises.
Outreach – Online Personal Action Plan

• The patient becomes an element in the system
• This element (patient) communicates and interacts with the rest of the delivery system via secure communications
• Regardless of the condition, the basic elements of communication and notification when care is due and how to get the care is the same. Skill is involved in the creation of this communication
Regional Outreach – Online Personal Action Plan

All Gaps - Closure rates

- Group A - PAP Visitors: 36.99%
- Group B - kp.org Registered: 28.59%
- Group C - Not registered on kp.org: 19.31%
“The Whiskey Barrel” / Complete Care

Complete Care Conditions, Functions & Systems

Clinical Information Systems & Decision Support
- Practice Guidelines
- Regional Outreach
- Proactive Care
- Safety Net
- Health Education & Wellness
- Medication Management

Alcohol
- Asthma
- Bariatric Surgery
- Breast/Cervical Cancer
- CHF
- Colon Cancer
- COPD
- CVX
- Depression
- Diabetes
- Geriatrics
- Healthy Bones
- HF
- HIV
- Hypertension
- Immunizations
- Pain Management
- Rare Diseases
- Smoking Cessation
- VTE
- Weight Management
Proactive Care
## Successful Opportunities Target Met <30 Days

<table>
<thead>
<tr>
<th>Metric</th>
<th>AV</th>
<th>Bel</th>
<th>BPK</th>
<th>FON</th>
<th>KC</th>
<th>LA</th>
<th>OC</th>
<th>PC</th>
<th>RVS</th>
<th>SB</th>
<th>SD</th>
<th>WH</th>
<th>WLA</th>
</tr>
</thead>
<tbody>
<tr>
<td>% A1c</td>
<td>55</td>
<td>58</td>
<td>58</td>
<td>61</td>
<td>70</td>
<td>64</td>
<td>56</td>
<td>55</td>
<td>57</td>
<td>57</td>
<td>56</td>
<td>57</td>
<td>56</td>
</tr>
<tr>
<td>% Microalbumin</td>
<td>36</td>
<td>45</td>
<td>50</td>
<td>46</td>
<td>44</td>
<td>55</td>
<td>45</td>
<td>46</td>
<td>47</td>
<td>48</td>
<td>45</td>
<td>48</td>
<td>44</td>
</tr>
<tr>
<td>% LDL</td>
<td>41</td>
<td>54</td>
<td>57</td>
<td>51</td>
<td>69</td>
<td>58</td>
<td>51</td>
<td>47</td>
<td>55</td>
<td>50</td>
<td>50</td>
<td>48</td>
<td>48</td>
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<tr>
<td>% Mammo</td>
<td>36</td>
<td>38</td>
<td>37</td>
<td>36</td>
<td>34</td>
<td>39</td>
<td>38</td>
<td>34</td>
<td>40</td>
<td>37</td>
<td>28</td>
<td>31</td>
<td>41</td>
</tr>
<tr>
<td>% Pap</td>
<td>43</td>
<td>46</td>
<td>49</td>
<td>43</td>
<td>39</td>
<td>48</td>
<td>46</td>
<td>46</td>
<td>55</td>
<td>40</td>
<td>46</td>
<td>46</td>
<td>41</td>
</tr>
<tr>
<td>% Dexa</td>
<td>14</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>21</td>
<td>22</td>
<td>20</td>
<td>25</td>
<td>14</td>
<td>24</td>
<td>16</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>% Pneumovax</td>
<td>12</td>
<td>19</td>
<td>19</td>
<td>17</td>
<td>16</td>
<td>21</td>
<td>20</td>
<td>19</td>
<td>14</td>
<td>17</td>
<td>16</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>% Flu</td>
<td>4</td>
<td>3</td>
<td>14</td>
<td>9</td>
<td>9</td>
<td>14</td>
<td>13</td>
<td>12</td>
<td>10</td>
<td>12</td>
<td>8</td>
<td>13</td>
<td>15</td>
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<tr>
<td>% Retinal screening</td>
<td>28</td>
<td>20</td>
<td>29</td>
<td>21</td>
<td>15</td>
<td>33</td>
<td>30</td>
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<td>23</td>
<td>21</td>
<td>15</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>% BMI</td>
<td>85</td>
<td>80</td>
<td>83</td>
<td>70</td>
<td>84</td>
<td>85</td>
<td>80</td>
<td>76</td>
<td>76</td>
<td>76</td>
<td>82</td>
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<td>76</td>
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<td>% Smoking</td>
<td>88</td>
<td>86</td>
<td>88</td>
<td>87</td>
<td>84</td>
<td>88</td>
<td>91</td>
<td>84</td>
<td>85</td>
<td>88</td>
<td>83</td>
<td>85</td>
<td>88</td>
</tr>
<tr>
<td>% Chlamydia</td>
<td>41</td>
<td>41</td>
<td>42</td>
<td>38</td>
<td>52</td>
<td>46</td>
<td>40</td>
<td>38</td>
<td>37</td>
<td>43</td>
<td>40</td>
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<td>38</td>
</tr>
<tr>
<td>% DM Health</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>12</td>
<td>14</td>
<td>13</td>
<td>11</td>
<td>12</td>
<td>15</td>
<td>16</td>
<td>13</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>% Lead</td>
<td>22</td>
<td>12</td>
<td>15</td>
<td>14</td>
<td>0</td>
<td>14</td>
<td>18</td>
<td>13</td>
<td>17</td>
<td>12</td>
<td>13</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>% Asthma Quesr</td>
<td>58</td>
<td>59</td>
<td>68</td>
<td>64</td>
<td>77</td>
<td>74</td>
<td>60</td>
<td>55</td>
<td>45</td>
<td>64</td>
<td>65</td>
<td>61</td>
<td>39</td>
</tr>
</tbody>
</table>
What is primary care?
Medical Home?
Opportunities for Breast Cancer and Diabetes Management in Adult Primary Care

Approximately 60% of members seen in Specialty Care

<table>
<thead>
<tr>
<th>Test</th>
<th>Total</th>
<th>Seen in Primary Care</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needing Mammogram</td>
<td>47,294</td>
<td>18,222</td>
<td>38%</td>
</tr>
<tr>
<td>Needing A1c test</td>
<td>10,530</td>
<td>3,911</td>
<td>37%</td>
</tr>
</tbody>
</table>
Specialty care POE and HTN

• Does anyone care about the identification of HTN as much as the control rate?

• 18% of newly identified HTN cases occurred in specialty care

• 14% of pts with a BP > 180/110 were identified in specialty care

A person with diabetes comes to the gastroenterologist for GERD. They are overdue for their A1c test. Of the 6 elements of quality, which are not satisfied if the patient is not reminded to go to the lab?

<table>
<thead>
<tr>
<th>Safe</th>
<th>Timely</th>
<th>Efficient</th>
<th>Effective</th>
<th>Equitable</th>
<th>Patient Centered</th>
</tr>
</thead>
</table>
“The Whiskey Barrel” / Complete Care
Case study

- A 40 male comes to urgent care with symptoms of fever and cough of 2 days duration. You order a Covid test and then routine labs (electrolytes, CBC, liver enzymes, and LDL).
- The Covid tests comes back positive and the patient is treated supportively and quarantined. The LDL comes back at 200.
- The patient becomes asymptomatic in 5 days and eventually returns to his normal routine but the high LDL is not followed up on.
SureNet

• Diagnostic errors are a leading cause of mortality/morbidity in the US.
• Misdiagnosis of cardiovascular disease is one of the most common types of misdiagnosis leading to harm.
• Abnormal tests are often not followed up (5-10% of the time)
• Regardless of specialty, all physicians have difficulty tracking follow up of test results and the solutions can be applied to basically all specialties.
SureNet

A regional program that systematically identifies members who have inadvertent lapses in care

Using a small, centralized team with limited clinical scope capacity to intervene before harm reaches the patient

As well as several automated electronic tools, consistently used by accountable frontline staff, to track certain abnormal results for all members
Cholesterol Tip Sheet
KPSC 9/14/2020    Ronald D Scott, MD

Cholesterol Management Groups

1. Clinical ASCVD, age ≤75, start rosuvastatin 20 mg daily. If LDL remains ≥70 mg/dL, consider change to rosuvastatin 40 mg and/or add ezetimibe 10 mg.

2. LDL > 190, age 20-75, workup below, then start rosuvastatin 20 mg daily. If LDL reduced <50%, and/or LDL remains ≥100 mg/dL, consider change to rosuvastatin 40 mg and/or add ezetimibe 10 mg.

3. Diabetes Mellitus age 40-75:

<table>
<thead>
<tr>
<th>KPARE, LDL</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;=7.5 and LDL ≥70</td>
<td>Start rosuvastatin 20 mg daily</td>
</tr>
<tr>
<td>&lt; 7.5 or LDL &lt;70</td>
<td>Start rosuvastatin 10 mg daily</td>
</tr>
</tbody>
</table>

4. By Risk, age 40-75, LDL 70-189

<table>
<thead>
<tr>
<th>KPARE</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;=10</td>
<td>Start rosuvastatin 20 mg</td>
</tr>
<tr>
<td>7.5-9.9</td>
<td>Consider rosuvastatin 20 mg</td>
</tr>
<tr>
<td>5-7.4</td>
<td>Consider discussing rosuvastatin 10 mg</td>
</tr>
</tbody>
</table>
* 1 LDL $\geq 190$, Statin Start

SureNet LVN will pend a Statin order and a future Lipid panel for cosign by the PCP. Letter notification will be sent to the member.

Start date: April 2019
Last LDL > 190

SureNet

- Diagnosis exclusions: Cirrhosis, pregnancy, nephrotic syndrome, anorexia nervosa, rhabdomyolysis.
- Medication exclusions: Accutane (isotretinoin), prednisone, cyclosporine, amiodarone, testosterone.
- Lab workup (<2 yrs): alk phos, ALT, TSH, creatinine, urine microalbumin (albumin or UA may satisfy).
- If last LDL + wu done → start rosuvastatin 20 mg daily.
- No recent LDL (wu done): order lipid panel.
- If no lab workup, facilitate that step.

- Before and after implementation of FH treatment in the Netherlands. BMJ 2008; 337:a2423
LDL > 190 Sure Net

- At this time SureNet has found 2,583 patients with an LDL greater than 190, not on a statin.
- Of those patients about 700 have retested their LDL levels after statin orders were places.
- We are still working on updating our outcomes for this project.
“The Whiskey Barrel” / Complete Care
Prevention and Lifestyle Change

- Alcohol
- Immunizations
- Physical Activity
- Smoking Cessation
- Weight Management
Cardiac rehab

• Shown to improve outcomes in selected patients
• Highly underutilized
• Would remote/virtual/home based cardiac rehab be more widely utilized?
Knowledge-to-Action Gap: Real Life Example

- **251,135** registered clinical studies worldwide (2017)<sup>1</sup>
- **~50,000** randomized controlled trials expected to be published annually by 2018-2019<sup>2</sup>
- **~8,000** systematic evidence reviews published annually<sup>3</sup>

Challenging for Chiefs-of-Service groups, frontline clinicians, health plan and hospital administrators, QI staff to keep pace with new evidence and identify effective healthcare practices that warrant implementation

- **Estimated 17-year time** lag between publication of new research evidence and implementation into practice<sup>4,5</sup>

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5. [http://www.ihi.org/resources/Pages/Publications/Managingclinicalknowledgeforhealthcareimprovement.aspx](http://www.ihi.org/resources/Pages/Publications/Managingclinicalknowledgeforhealthcareimprovement.aspx)
E-SCOPE

• Started in 2014
• Collaboration key groups to overcome barriers to identification and implementation of effective practices
• 30 projects in various stages of implementation
Virtual Cardiac Rehabilitation

• E-SCOPE found moderate evidence that virtual cardiac rehab was about as effective as face-to-face cardiac rehab.

• This information was given to the KP Innovations team who started a pilot at one medical center and then expanded to the SCAL region and eventually other regions.

• Steps included:
  - Leadership buy-in
  - Human-centered design
  - Prototyping
  - Pilot
  - Evaluation of pilot
  - Training
  - Regional deployment

QUESTION: How Many of These Steps Did You Learn in Medical School?
Home Based Cardiac Rehab

Inclusion criteria CMS

- Acute myocardial infarction within the preceding 12 months
- An acute myocardial infarction within the preceding 12 months;
- A coronary artery bypass surgery;
- Current stable angina pectoris;
- Heart valve repair or replacement;
- Percutaneous transluminal coronary angioplasty (PTCA) or coronary stenting; and
- A heart or heart-lung transplant.

Heart Failure

Exclusion Criteria for home based (not hospital/clinic based)

- Decompensated congestive heart failure
- Unstable angina
- Complex ventricular arrhythmias
- CABG surgery redo
- Ejection fraction (EF)<35%
- History of arrhythmia with syncope
- Severe symptomatic valvular disease
- Resting systolic blood pressure >200 mm Hg or DBP >100 mm Hg
- Dementia or other cognitive impairment
- Life expectancy less than one year due to advanced medical illness
- Other medical illness precluding participation (screened by RN Case Manager confirmed by MD)
Home-Based Cardiac Rehabilitation. A Scientific Statement From the American Association of Cardiovascular and Pulmonary Rehabilitation, the American Heart Association, and the American College of Cardiology

Circulation 2019; 140:e69-e89.
• Case/control study comparing home based program graduates to patients with no program
  • “Cases” are members who graduated from the home based program and have at least 12 months of run-out of data following their program start date (237 patients starting HBCR April–October 2018)
  • “Controls” are members on the opportunity report (have a qualifying inpatient diagnosis), who have at least 12 months of run-out following a comparable period of time
    • These members can’t have ever enrolled in a home based or site-based rehab program

• Outcome metrics from month of program start
  • Total cost
  • Inpatient Days
  • ED visits

• Used the same structure to compare HBCR graduates to patients referred to site based rehab (136 patients starting Cardiac Rehab April-October 2018)
• Each member with a referral is matched to the IP stay that occurred prior to the referral entry.

• Only members with an IP event within 60 days of program start in the study

• The study uses the primary diagnosis from the IP stay directly prior to referral. These diagnoses are grouped using the HCUP software, which groups them into Clinical Condition Category (CCS).

• We limit the study to those who were started the program within 60 days of discharge. The mean is 32 days.
• Total cost days in the 12 month follow-up period after the program starts is skewed toward lower costs, but costs are generally lower for cases than controls

• We Winsorize the cost data by setting cost outliers to the 95th percentile ($48,000) to reduce the effect of outliers

• Average post-period costs, IP days, and ED visits are lower for HBCR graduates than controls

<table>
<thead>
<tr>
<th></th>
<th>HBCR</th>
<th>No program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>$11,328</td>
<td>$13,645</td>
</tr>
<tr>
<td>Difference</td>
<td>-$2,317</td>
<td></td>
</tr>
</tbody>
</table>
• Match on program start date and look at costs directly before and after the program starts
• Costs are similar before the program, and we see the spike of the inpatient triggering event
• Costs are higher for HBCR participants while in the program, but lower in the long run (12 month costs post-program are highlighted in insert)

Average monthly total cost, HBCR graduates vs controls
Relative to month of program start (0 is month of program start)
• Total IP days and ED visits are skewed toward 0 for both cases and controls

• **9% of HBCR graduates** had at least one IP day, compared to **19% with no program**

• **32% of HBCR graduates** had at least one ED visit, compared to **46% with no program**

<table>
<thead>
<tr>
<th></th>
<th>Total IP days</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1-2</td>
<td>3-7</td>
<td>8+</td>
</tr>
<tr>
<td><strong>HBCR</strong></td>
<td>210 (90%)</td>
<td>11 (5%)</td>
<td>6 (3%)</td>
<td>5 (2%)</td>
</tr>
<tr>
<td><strong>No program</strong></td>
<td>187 (81%)</td>
<td>13 (6%)</td>
<td>16 (7%)</td>
<td>16 (7%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Total ED visits</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1-2</td>
<td>3-5</td>
<td>7+</td>
</tr>
<tr>
<td><strong>HBCR</strong></td>
<td>156 (67%)</td>
<td>62 (27%)</td>
<td>8 (3%)</td>
<td>6 (3%)</td>
</tr>
<tr>
<td><strong>No program</strong></td>
<td>124 (53%)</td>
<td>78 (34%)</td>
<td>21 (9%)</td>
<td>9 (4%)</td>
</tr>
</tbody>
</table>
• Total cost days in the 12 month follow-up period after the program starts is skewed toward lower costs, but costs are generally lower for cases than controls.

• We Winsorize the cost data by setting cost outliers to the 95th percentile ($48,000) to reduce the effect of outliers.

• Average post-period costs, IP days, and ED visits are lower for HBCR graduates than controls.

<table>
<thead>
<tr>
<th></th>
<th>Average Cost</th>
<th>Average IP days</th>
<th>Average ED visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBCR</td>
<td>$10,895</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site Based</td>
<td>$13,313</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>-$2,414</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- We match on the program start date and look at costs directly before and after the program starts.
- Costs are similar before the program, and we see the spike of the inpatient triggering event.
- Costs are higher for Site Based participants while in the program, and longer-term costs are more similar, but still higher for site-based participants.
• Total IP days and ED visits are skewed toward 0 for both cases and controls

• 11% of HBCR graduates had at least one IP day, compared to 10% with site based referrals

• 28% of HBCR graduates had at least one ED visit, compared to 35% with site based referrals

<table>
<thead>
<tr>
<th></th>
<th>Total IP days</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1-2</td>
<td>3-7</td>
<td>8+</td>
</tr>
<tr>
<td>HBCR</td>
<td>140 (89%)</td>
<td>9 (6%)</td>
<td>3 (2%)</td>
<td>5 (3%)</td>
</tr>
<tr>
<td>Site Based</td>
<td>136 (89%)</td>
<td>7 (5%)</td>
<td>5 (3%)</td>
<td>5 (3%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Total ED visits</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1-2</td>
<td>3-5</td>
<td>7+</td>
</tr>
<tr>
<td>HBCR</td>
<td>112 (71%)</td>
<td>38 (24%)</td>
<td>3 (2%)</td>
<td>4 (3%)</td>
</tr>
<tr>
<td>Site Based</td>
<td>99 (65%)</td>
<td>37 (24%)</td>
<td>10 (7%)</td>
<td>7 (5%)</td>
</tr>
</tbody>
</table>
# Home Based Cardiac Rehab

## Program Summary

<table>
<thead>
<tr>
<th>Area</th>
<th>Referrals</th>
<th>Net Referrals</th>
<th>Enrollment Cnt</th>
<th>Enrollment %</th>
<th>Avg. Days to Enroll</th>
<th>Graduation Cnt</th>
<th>Graduation %</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV</td>
<td>421</td>
<td>416</td>
<td>310</td>
<td>75%</td>
<td>22</td>
<td>280</td>
<td>90%</td>
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<tr>
<td>BP</td>
<td>1,046</td>
<td>1,018</td>
<td>638</td>
<td>63%</td>
<td>34</td>
<td>443</td>
<td>69%</td>
</tr>
<tr>
<td>DO</td>
<td>859</td>
<td>824</td>
<td>514</td>
<td>62%</td>
<td>26</td>
<td>424</td>
<td>82%</td>
</tr>
<tr>
<td>KC</td>
<td>57</td>
<td>52</td>
<td>28</td>
<td>54%</td>
<td>18</td>
<td>21</td>
<td>75%</td>
</tr>
<tr>
<td>LA</td>
<td>752</td>
<td>729</td>
<td>498</td>
<td>68%</td>
<td>22</td>
<td>376</td>
<td>76%</td>
</tr>
<tr>
<td>OC</td>
<td>1,582</td>
<td>1,547</td>
<td>1,011</td>
<td>65%</td>
<td>23</td>
<td>840</td>
<td>83%</td>
</tr>
<tr>
<td>PC</td>
<td>741</td>
<td>735</td>
<td>561</td>
<td>76%</td>
<td>24</td>
<td>490</td>
<td>87%</td>
</tr>
<tr>
<td>RI</td>
<td>1,652</td>
<td>1,595</td>
<td>630</td>
<td>39%</td>
<td>33</td>
<td>385</td>
<td>61%</td>
</tr>
<tr>
<td>SB</td>
<td>789</td>
<td>744</td>
<td>450</td>
<td>60%</td>
<td>23</td>
<td>266</td>
<td>81%</td>
</tr>
<tr>
<td>SBC</td>
<td>1,681</td>
<td>1,644</td>
<td>1,060</td>
<td>64%</td>
<td>21</td>
<td>744</td>
<td>70%</td>
</tr>
<tr>
<td>SD</td>
<td>2,017</td>
<td>1,939</td>
<td>1,389</td>
<td>69%</td>
<td>34</td>
<td>1,203</td>
<td>87%</td>
</tr>
<tr>
<td>WH</td>
<td>733</td>
<td>720</td>
<td>539</td>
<td>75%</td>
<td>21</td>
<td>450</td>
<td>83%</td>
</tr>
<tr>
<td>WLA</td>
<td>947</td>
<td>925</td>
<td>521</td>
<td>56%</td>
<td>35</td>
<td>374</td>
<td>72%</td>
</tr>
<tr>
<td>REG</td>
<td>13,277</td>
<td>12,950</td>
<td>8,149</td>
<td>63%</td>
<td>27</td>
<td>6,396</td>
<td>78%</td>
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</tbody>
</table>