Anatomy of Readmissions

What this means for hospitals
How long have we been talking about readmissions?

“Utilization and quality control (groups) are required to randomly select specific potential problematic cases for review (for example, readmissions within 15 days)”

What year was this published in the federal register?
Recent SG2 Survey

Over the next year, how important will it be for your organization to reduce 30-day readmissions?

- 94% - Very important
- 6% - Moderately important
- 0% - Not important
Readmissions are linked to total Medicare spend, with wide variation by state.

Cost per Medicare Enrollee not per readmission

Higher readmissions lead to higher Medicare spend – and create a large target for CMS

Large variation across states suggests opportunities for improvement

Avg. $6,400

Avg. 18%

Source: Commonwealth Fund; Lit search
What we’ve learned about Readmissions

- Readmission rates and spending are significant
  - ~18% of patients readmitted within 30 days of discharge = $15B in 2005

- Reducing readmission rates is both important and feasible
  - Wide variation: ~12% to ~22% by city in 2005
  - Medicare estimated savings > $100B over 10 years if high-cost areas brought to national average

- Many readmissions are preventable
  - 75% of all 30-day Medicare readmissions were potentially preventable, with potential savings of $12B to Medicare, according to Medicare Payment Advisory Commission

- CMS is targeting readmissions for three diagnoses:
  - Congestive heart failure (CHF), Pneumonia, and Acute Myocardial Infarction (AMI):
    - In the top 10 diagnoses for Medicare hospital discharges (CHF #1, Pne. #2, AMI #8)
    - These 3 makeup ~13% of total Medicare hospitalizations in 2006
    - 2008 CMS began collecting information on these readmissions
    - 2009 CMS began reporting back readmission data to selected hospitals
    - 2010 CMS plans to expand readmission data collection and reporting
    - CMS is tasked with accomplishing the $$$ billion in savings earmarked in the Healthcare legislation

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Associates
CMS targeting readmissions in three diagnoses

- Congestive heart failure (CHF), Pneumonia, and Acute Myocardial Infarction (AMI) are targeted under recently published CMS proposed rules
  - In 2010 three readmission measures may be calculated using Medicare administrative claims data: Heart failure (HF) 30-day risk standardized readmission measure, Pneumonia (PN) 30-day risk standardized readmission measure, Heart Attack (AMI) 30-day risk standardized readmission measure (for Medicare patients) (pg 23648)
  - CMS has suggested 2 payment penalties and 1 public reporting option for reducing readmissions and is currently taking public comment. (pg 23674)

- These diagnoses represent substantial volume and financial significance in the Medicare system
  - These 3 DRGs are in the top 10 of Medicare hospital discharges (CHF #1, Pneumonia #2, AMI #8)
  - These 3 DRGs made up ~13% of total Medicare hospitalizations in 2006
  - These 3 DRGs had 15-day readmission rates of 10-13% in 2005
    - 2005 Medicare spending on 15-day readmissions*: CHF #1, Pneumonia #3, AMI #4

*Rank order refers to medical, not surgical conditions

### Potential Losses from CHF in a Typical Hospital

<table>
<thead>
<tr>
<th>Metric</th>
<th>Assumptions</th>
<th>Volume</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admits per year</td>
<td>250 bed hospital at 90% occupancy</td>
<td>21,000/yr</td>
<td></td>
</tr>
<tr>
<td>CHF admits per year</td>
<td>5.7% of admissions are for CHF</td>
<td>1,150/year</td>
<td>$575,000</td>
</tr>
<tr>
<td></td>
<td>The average reimbursement for CHF is -$500-$1000/admission average loss to</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>cost of care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHF 30-day readmissions per year</td>
<td>CHF DRG-specific 23% readmission rate</td>
<td>265/year</td>
<td>$1,590,000</td>
</tr>
<tr>
<td></td>
<td>Median CMS reimbursement for CHF is $6,000/discharge</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-with more than a 3 fold variation not attributable to clinical condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Annual Loss</td>
<td></td>
<td></td>
<td>$2,165,000</td>
</tr>
</tbody>
</table>
**The Buzz around 30-Day**

- AHRQ/HCUP report suggests that in 2006, hospitals spent $30.8 billion on 4.4 million hospital admissions that might have been avoidable. The report used its prevention quality indicators to decide when a hospital stay might have been preventable with good enough outpatient care. Medicare patients accounted for $20.1 billion of the full amount spent on possibly preventable admissions, while privately-insured patients were responsible for $4.7 billion of the $30.8 billion total. The report concluded that congestive heart failure and bacterial pneumonia were the two most common reasons for inpatient stays, mounting up $15.6 billion in costs.

- In 2006, hospital costs for potentially preventable conditions totaled nearly $30.8 billion—one of every 10 dollars of total hospital expenditures. As many as 4.4 million hospital stays could possibly have been prevented with better ambulatory care, improved access to effective treatment, or patient adoption of healthy behaviors.

- Congestive heart failure and bacterial pneumonia were the two most common reasons for potentially preventable hospitalizations, accounting for half of the total hospital costs ($8.4 billion and $7.2 billion, respectively) for all preventable hospitalizations.

- One in five (18 percent) Medicare admissions was for a potentially preventable condition. In fact, Medicare patients contributed to $20.1 billion (67 percent) of total hospital costs for potentially preventable hospitalizations among adults.

- Hospitalization rates for potentially preventable conditions were highest among residents in poorer communities and lowest among residents from wealthier communities. This disparity was particularly evident for diabetes without complications, where the admission rate in the poorest communities was more than 400 percent higher than the rate in the wealthiest communities.
<table>
<thead>
<tr>
<th>Boost</th>
<th>ARHQ</th>
<th>CMS</th>
<th>NC3</th>
</tr>
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<tbody>
<tr>
<td>Select Sites to pilot and mentor for 1 year</td>
<td>Report using 2006 CMS claims data $4.4 mil preventable 2 DRGs = 50%</td>
<td>14 regions selected using care coordination to reduce Readmissions Project through 2011</td>
<td>Transitional Care Eric Coleman &amp; Mary Naylor (Chad Boult)</td>
</tr>
<tr>
<td>Education and Tool Kit</td>
<td>RED Toolkit and Education</td>
<td>Test Runs of Reporting measures occurred in 2008 and 2009, 2010 legislation requires several $bil in savings</td>
<td>Self-Management Kate Lorig &amp; Ed Waggener Coordinated Care CMS demos 2002 Brown Report</td>
</tr>
</tbody>
</table>

lvalentine@hospitalmedicine.org (267-702-2672).
[ResourceRoomRedesign/RR_CareTransitions/html_CC/project_boost_background.cfm](http://www.hcup-us.ahrq.gov/reports/statbriefs/sb72.jsp)
Federal Register Vol. 73 No. 84 04/30/08
[caretransitions/](http://www.cfmc.org/)
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<tr>
<td>Better Outcomes for Older adults through Safe Transitions</td>
<td>HCUP – 2009 Report</td>
<td>14 regions selected using care coordination to reduce Readmissions Project through 2011</td>
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</tr>
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<tr>
<td></td>
<td>Update: Brian Jack</td>
<td></td>
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</tbody>
</table>

Update: Robyn Golden

Update: Barry Straube

Update: Carolyn Clancy

Commonwealth Fund/IHI: STAAR Amy Boutwell

Commonwealth Fund/PHI: Barbara Harvath

VHA: 6 Leading Practices Blueprint to Reduce Readmissions

VNA Transitional Care: Robert Rosati

Payor Reform: Humana, Aetna, BCBS CIGNA’s Douglas Hadley

Reform Advocates: AMA, AHA,
Anatomy of a Readmission

- Needed 1st Admission
- Readmission Planned/Unplanned
- Preventable Readmission
- $ Implicated Readmission
ISSUES SURROUNDING READMISSIONS BY PROCESS STEPS

1st Hospitalization
- Pt. Psych, Cog etc eval
- Shared DC plan goals
- Timely Med Rec.

Coordination in Transitions in Episodes of Care
- ID Pops at risk for Readmit
- Optimal Pt. Cohort Care Paths
- Benchmarks for Success, Quality, Financial
- Customer Sat., Workforce
- Shared Metrics for Coding standard, Budget align, Risk share

Discharged Patient
- Homecare Coordination of DME, Logistics, Teaching
- Self Management
- PCP follow up

2nd Hospitalization
- Trained Staff in Complex Chronic care

Unreliable Communications: Timely, Accurate, Complete, Standardized

Population Data

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Understanding readmissions starts before the first admission

- 19% of 30-day readmissions are from admissions that didn’t need to happen in the first place.” AHRQ

- Severity and complexity of underlying chronic problems contribute significantly to preventable readmissions.

- At home deaths from medication mistakes saw a 7 fold increase between 1984 and 2004

- Known deficits that impair a patient’s ability to follow through on a discharge plan
  - Economics
  - Transportation
  - Mental (ie. depression)
  - Cognitive (ie. memory)
  - Physical (ie. seeing, hearing)
  - Language (non-English speaking, illiterate)
  - Social supports

  \[ \text{Top 3 issues for patient medication compliance failure} \]

- A recent study looking at 150,000 patients with diabetes on medications found that 50% of patients had medication issues but of those:
  - 20% were patient issues (Economics and transportation issues, and depression accounting for the most)
  - 80% were provider issues (failure to intensify treatment to optimal range being the largest issue)

- This changes how we need to start looking at compliance failure and what solutions we might implement

\[ \text{Most DC Planners would target lack of social support as the top issue in readmissions} \]
Issues surrounding readmissions Research

- No 30 Day Readmissions
- Care Team
  - Complex Care Coordination
  - Timely medication Reconciliation
  - Lack of skills in complex case management
  - Lack of Shared Care Plan and Goals
  - Lack coordination with PCI
  - Lack coordination with other services
- Patient
  - Self Management
  - Deficits that prevent self management
    - Cognitive
    - Psych
    - Financial
    - Driving etc.
- Pop Management
  - Unable to ID pop at risk
  - Lack optimal care paths for Pts with complex chronic diseases
  - Lack of cost metrics to understand change implications
  - Lack of benchmarks of success
- Information
  - Accurate
  - Timely
  - Complete
  - Standardized
  - Timely Med Reconciliation
  - Lack of Shared Care Plan
  - Shared

MD followup
Pharm followup?
Minding the Gap

Age
Polypharmacy
Social Economic
Psych & Depression

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The tool includes an Example page that allows a user to see a properly filled out Evaluation page. The inputs will vary by organization, but the example page shows correct input logic.

### Readmission Understanding Evaluation (EXAMPLE)

**Patient Psychographics**

<table>
<thead>
<tr>
<th>Item</th>
<th>Mental</th>
<th>Social</th>
<th>Economic</th>
<th>Trans.</th>
<th>Physical</th>
<th>Psychiatric</th>
<th>Admin</th>
<th>1st Adm</th>
<th>Discharge</th>
<th>LOS</th>
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<tbody>
<tr>
<td>Yes/No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes/No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes/No</td>
</tr>
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</table>

**1st Hospitalization**

<table>
<thead>
<tr>
<th>Category</th>
<th>Yes &amp; No</th>
<th>Manual/Elec/Both filled out for “Yes” metrics only</th>
<th>Degree of difficulty filled out for “No” metrics only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently Collect</td>
<td>Yes/No</td>
<td>Yes &amp; No filled out for all metrics</td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Manual/Elec/Both</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If No, how difficult?</td>
<td>Manual/Elec/Both</td>
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</table>

**Manual/Elec/Both**

<table>
<thead>
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<th>1st Adm</th>
<th>2nd Adm</th>
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<tbody>
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<td>1</td>
<td>1</td>
<td>2</td>
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**Home Episode**

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<th>Category</th>
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<th>Degree of difficulty filled out for “No” metrics only</th>
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<td></td>
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</tbody>
</table>

**Manual/Elec/Both**

<table>
<thead>
<tr>
<th>2nd Adm</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**30-day Readmissions/RA Yearly Lost $ per DRG**

<table>
<thead>
<tr>
<th>Category</th>
<th>Yes &amp; No</th>
<th>Manual/Elec/Both filled out for “Yes” metrics only</th>
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</tbody>
</table>

**Manual/Elec/Both**

<table>
<thead>
<tr>
<th>Total</th>
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<tbody>
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</table>

**Long**

<table>
<thead>
<tr>
<th>Total</th>
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<tbody>
<tr>
<td>1</td>
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</table>

**Other**

<table>
<thead>
<tr>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tbody>
</table>
Connecting Technology & Innovation to Healthcare Challenges

Innovations are strategic, technology is tactical

Which innovations and technologies will be truly disruptive?

How can these be leveraged to accomplish our strategy and mission?

How will they affect care processes, quality and sustainability?

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A Wealth of Technologies

Which technologies will have the biggest impact on 30 day readmissions?
How do high-impact technologies get disseminated quickly, efficiently and effectively?
## The Transitions of Care Matrix

The Transitions of Care Matrix map connects challenges to metrics to innovations to technologies.

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>(Sample) Home care visits labor intensive (rural visits-travel, time, weather, cost)</td>
<td>Number of in-person visits needed for appropriate care per episode</td>
<td>Use of telecommunications and remote monitoring to substitute for in-person home visits</td>
<td><em>Two-way video</em></td>
<td>Decrease number of in-person visits and add virtual visits with similar or better outcomes for episode of care</td>
</tr>
<tr>
<td>Unable to identify populations at greatest risk for readmit</td>
<td>Decrease in readmissions rates</td>
<td>Automation of risk profiling and readmission analysis</td>
<td><em>Computer algorithms</em></td>
<td>Risk stratification for specificity and sensitivity for populations at greatest risk for readmission</td>
</tr>
<tr>
<td>Lack of shared care plan and structures to advance self management *Clarity of Provider goals *Clarity of Patient goals *Progression to shared decision making *Monitoring</td>
<td>*Patient compliance with care plan *Decreased readmissions *Fewer calls to management team</td>
<td>Customized discharge care plan protocols for complex home care management</td>
<td><em>PHR</em></td>
<td>Patients and caregivers know optimal care plan after discharge and capable of effective follow through</td>
</tr>
<tr>
<td>Lack of Pt psychological, cognitive and social needs integrated into discharge plan and assessment *accountability *robust assessment *inclusive DC/Transition plan</td>
<td>*Reduction in non-adherence to care plans *Higher level of patient compliance *Decrease in home medical errors</td>
<td>Simple, easy to use, accessible evaluation tools for pt psychosocial needs</td>
<td>*Patient assessment tools *Integrative case plan *Deficit reducing technologies (i.e. medication reminders, appointment pick ups etc.)</td>
<td>More comprehensive care plans and higher patient compliance</td>
</tr>
<tr>
<td>Lack of timely medication reconciliation</td>
<td>*Fevers ADEs *Fewer admissions due to ADEs *Better medication adherence</td>
<td>Timely team coordination and documentation</td>
<td>*PHR with medication administration software (i.e KPHC) *Telemedicine conferencing esp. pharma</td>
<td>Improved disease management due to medication adherence. Better coordination of team care</td>
</tr>
</tbody>
</table>
Connecting the Dots?

**Business Challenges, Opportunities**

**Critical Success Factors**

**Innovation**

**Technology**

<table>
<thead>
<tr>
<th>Healthcare Challenges &amp; Business Problems</th>
<th>Critical Success Factors &amp; Metrics</th>
<th>Innovations</th>
<th>Technologies</th>
</tr>
</thead>
</table>
| Home care visits labor intensive (rural visits, travel, time, weather, cost) | Number of in person visits needed for appropriate care per episode | Use of telecommunications and remote monitoring to substitute for in-person home visits | *Two-way video  
*Remote sensor devices  
*Remote disease monitoring |
| Unable to identify populations at greatest risk for readmit | Decrease in readmissions rates | Automation of risk profiling and readmission analysis | *Computer algorithms  
*Data integration/mining software  
*Predictive Modeling |
| Lack of shared care plan and structures to advance self management  
*Clarity of Provider goals | *Patient compliance with care plan  
*Decreased readmissions  
*Fewer calls to management team | Customized discharge care plan protocols for complex home care management | *PHR  
*Provider and patient teleconferencing  
*Shared care plan |
### Assessing Readmissions and a Technology Solution Example: Mercy Laredo

<table>
<thead>
<tr>
<th><strong>Business Challenges, Opportunities</strong></th>
<th><strong>Critical Success Factors</strong></th>
<th><strong>Innovation</strong></th>
<th><strong>Technology</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of shared care plan and structures to advance self management: Clarity of Provider &amp; Patient goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Patient medication compliance</td>
<td>Use of telecommunications and remote monitoring to create shared care plan and monitor individual</td>
<td>Remote disease monitoring</td>
</tr>
<tr>
<td></td>
<td>• Physician participation in goal setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Patient satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Patient connecting to caregivers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Help highest utilizers with no insurance coverage and little or no continuity of care to better manage self-care, prevent hospitalizations and ED visits

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Success Factor</th>
<th>Innovation</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>↑ Patient satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>↑ Patients' perceived connection to care team</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>↑ Ability for patient to manage meds</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>↑ SF-12 scores</td>
<td></td>
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<tr>
<td></td>
<td>↓ 34% ED visits</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>↓ 32% Inpatient admissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>↓ 49% Outpatient visits</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>↓ $747 per patient/ year</td>
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</tbody>
</table>

Use telecommunications and remote disease monitoring to manage high resource intensive diabetic patients for better self care

Used Health Buddy home monitoring tool and HealthHero case management software
The Opportunity: RPM of patients with congestive heart failure

The New England Healthcare Institute’s Research Update: Remote Physiological Monitoring reports the following cost savings for all Class III and Class IV heart failure patients, assuming that 80% of the 1.59 million patients in these two classes, or 1.27 million patients, will be hospitalized in a year, at an annual cost of $2,052 per patient for the monitoring technology ($2,802 with DM software):

- 60% reduction in hospital readmissions compared to standard care and a 50 percent reduction in hospital readmissions compared to disease management programs without remote monitoring.
- Based on the potential to prevent between 460,000 and 627,000 heart failure-related hospital readmissions each year, NEHI estimates an annual national cost savings of up to $6.4 billion dollars.

The annual cost of a heart-failure related hospitalization per patient ranged from $5,632 for RPM patients to $11,387 for disease management without RPM patients to $13,468 for standard care patients.

The net savings of RPM technology (i.e. savings after the costs associated with interventions) were $3,703 per patient per year for those with disease management programs and $5,034 for those with standard care.
Analyzing data from the remote monitoring program at the VA, as well as other smaller programs, Better Health Care Together finds the US health care system could reduce costs by nearly $200 billion during the next 25 years if remote monitoring tools were utilized much more widely and supported by specific policy adjustments that include reimbursing health care organizations for remote care and encouraging continued investment in broadband infrastructure.

### Estimated Savings and Gain from Policy Implementation, by Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Net Present Value of Savings – Baseline Case</th>
<th>Net Present Value of Savings – Policy Case</th>
<th>Gain From Policy Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHF Patients</td>
<td>$79.7 Billion</td>
<td>$102.5 Billion</td>
<td>$22.8 Billion</td>
</tr>
<tr>
<td>Diabetes Patients</td>
<td>$42.3 Billion</td>
<td>$54.4 Billion</td>
<td>$12.1 Billion</td>
</tr>
<tr>
<td>COPD Patients</td>
<td>$18.7 Billion</td>
<td>$24.1 Billion</td>
<td>$5.4 Billion</td>
</tr>
<tr>
<td>Chronic Skin Ulcer Patients</td>
<td>$12.5 Billion</td>
<td>$16.0 Billion</td>
<td>$3.5 Billion</td>
</tr>
<tr>
<td>Total</td>
<td>$153.2 Billion</td>
<td>$197 Billion</td>
<td>$43.8 Billion</td>
</tr>
</tbody>
</table>

Source: *Vital Signs via Broadband: Remote Health Monitoring Transmits Savings, Enhances Lives*
### Integrated System use of Telemedicine to Reduce Readmissions

#### Veteran’s Administration:
- Aging veterans
- Lifetime care commitment
- Chronic disease burden increasing
- Shrinking resources

#### Plans to increase use of RDM by 66% in 3 years
- Goal of up to 60% of chronic illness will be managed by RDM
- (Small group outcomes)
  - 15%-70% ED visits
  - 13%-68% admits
  - 13%-71% LOS

#### Use telecommunications and remote disease monitoring (RDM) to manage chronic illness at home

#### Use remote disease home monitoring equipment to manage 30 chronic conditions

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**Business Challenges, Opportunities**

**Critical Success Factors**

**Innovation**

**Technology**

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**HealthBuddy by HealthHero**
Remote Chronic Disease Management System

**Harvath Health Associates**
The Early Adopter Experience: Veterans Health Administration

- The cost of the program is $1,600 per patient per annum. This compares with direct cost of VHA’s home-based primary care services of $13,121 per patient per annum, and market nursing home care rates that average $77,745 per patient per annum.

- Since VHA implemented CCHT, a total of 43,430 patients have been enrolled in the program. CCHT patients increased from 2,000 to 31,570 from 2003 to 2007. VHA plans to increase its NIC services 100% above 2007 levels to provide care for 110,000 patients by 2011, or 50% of its projected NIC needs.

- VHA attributes the rapidity and robustness of its CCHT implementation to the “systems approach” taken to integrate the elements of the program. Wherever possible, CCHT incorporated existing business processes to reduce the program’s overhead costs and increase efficiency.

Age Distribution of all CCHT Patients

Harvath Health Associates
WHAT YOU ARE GOING TO GET FROM THIS MORNING

Readmissions Tools – Project BOOST and the Enhanced Discharge Planning Program at Rush University Medical Center
Robyn Golden, LCSW, Director of Older Adult Programs

Break

Readmissions Tools - Use of Telemedicine in Preventing Readmissions
Patricia Ryan MS RN, Director, VISN 8 Community Care Coordination Service Associate Chief Consultant, VHA Office of Telehealth Services U.S. Department of Veterans Affairs Washington, DC

Technology's Promise and Failure in Preventing Readmissions
Ravi Nemana, Former CITRIS Director UC Berkeley and Senior Advisor at HealthTech

Wrap-up
Thank You

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