Innovations and Technologies for Managing Readmissions:

The Promise of Improved Quality and Functionality

Barbara Harvath

Senior Advisor

Health Technology Center

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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 but 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.
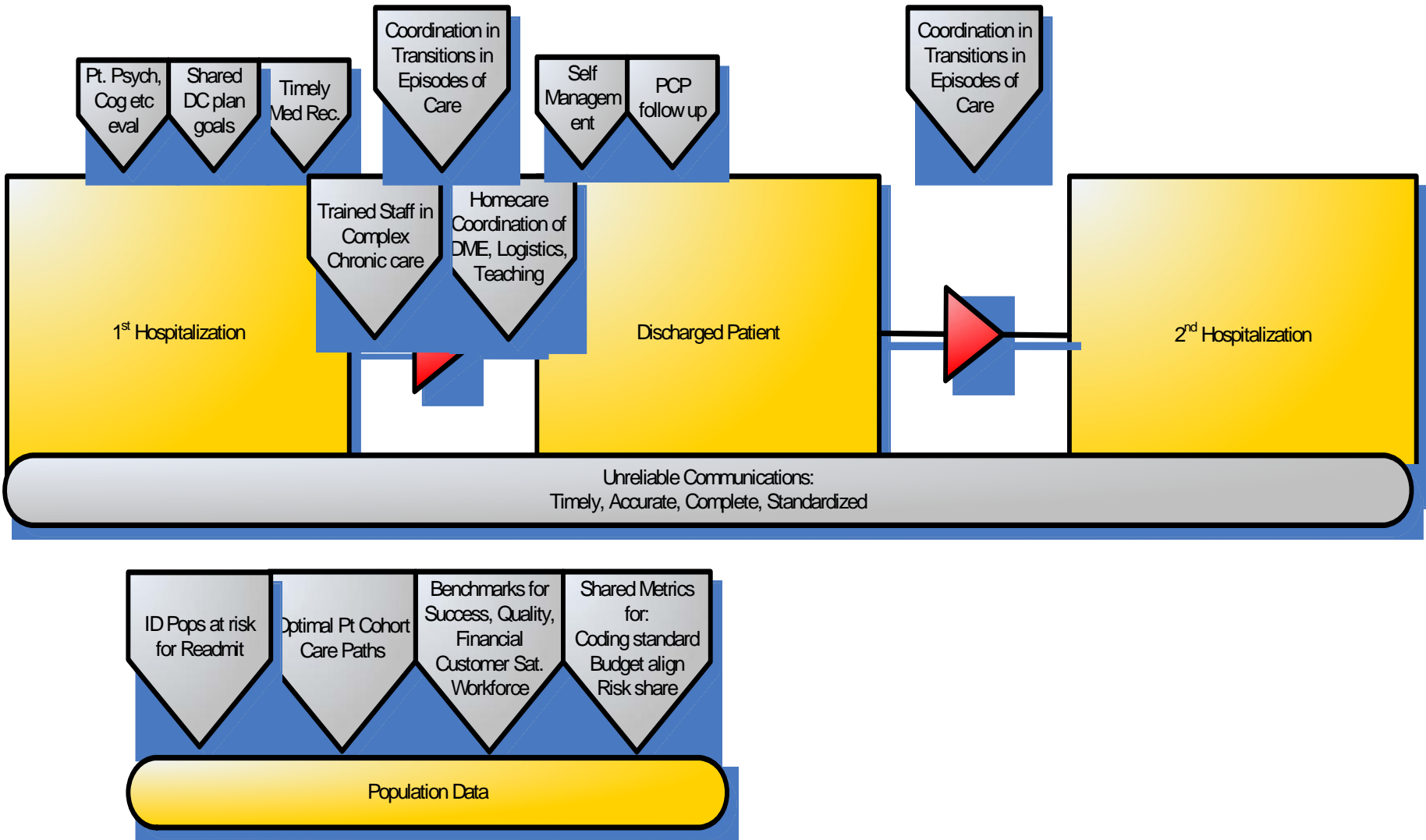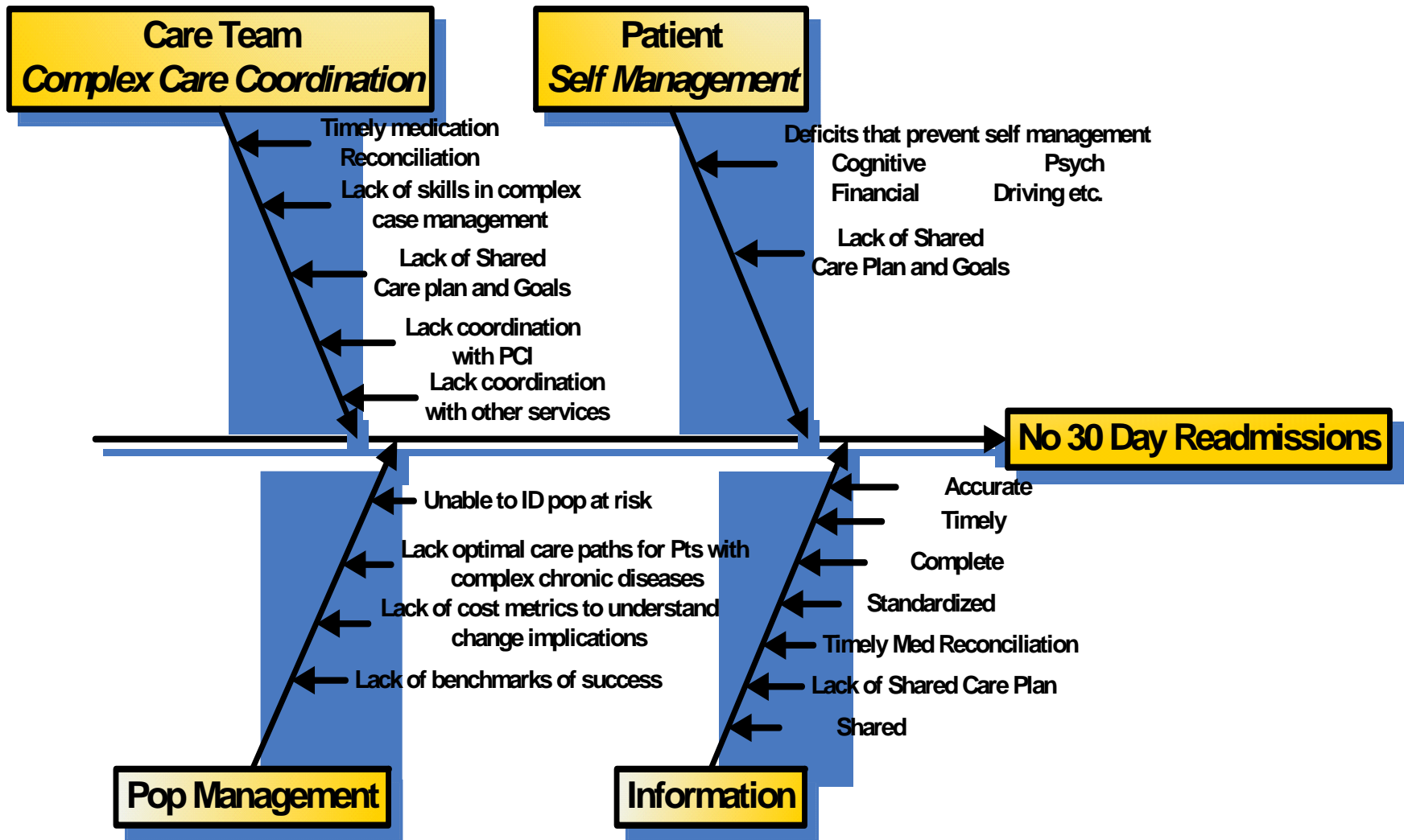
The 30-Day Activity

Boost	ARHQ	CMS	NC3
Better **O**utcomes for **O**lder adults through **S**afe **T**ransitions	**HCUP – 2009 Report**	**Proposed Rules** **4/08**	**The Promise of Care Coordination Report 2009**
Select Sites to pilot and mentor for 1 year	**Report using 2006 CMS claims data** **$4.4 mil preventable** **2 DRGs = 50%**	**14 regions selected using care coordination to reduce Readmissions Project through 2011**	<u>**Transitional Care**</u> **Eric Coleman& Mary Naylor** **(Chad Boult)**
Education and Tool kit	**RED** **Toolkit and Education**	**Test Runs of Reporting measures occurred in 2008 and 2009**	<u>**Self-Management**</u> **Kate Lorig& Wheeler** <u>**Coordinated Care**</u> **CMS demos 2002**
lvalentino@hospitalmedicine.org (267-702-2672). **http://www.hospitalmedicine.org/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** **http://www.cfmc.org/caretransitions/**	**http://www.socialworkleadership.org/nsw/Brown_Full_Report.pdf**

Issues surrounding readmissions by process steps

Pt. Psych, Cog etc eval

Shared DC plan goals

Timely Med Rec.

Coordination in Transitions in Episodes of Care

Self Management

PCP follow up

Coordination in Transitions in Episodes of Care

Trained Staff in Complex Chronic care

Homecare Coordination of DME, Logistics, Teaching

1st Hospitalization

Discharged Patient

2nd Hospitalization

Unreliable Communications:
Timely, Accurate, Complete, Standardized

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

Population Data

Issues surrounding 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.
- Lack of Shared Care Plan and Goals

No 30 Day Readmissions

- Accurate
- Timely
- Complete
- Standardized
- Timely Med Reconciliation
- Lack of Shared Care Plan
- Shared

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

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   *Top 3 issues for patient medication compliance failure*
- Mental (ie. depression)
- Cognitive (ie. memory)
- Physical (ie. seeing, hearing)
- Language (non-English speaking, illiterate)
- Social supports   *Most DC Planners would target this issue as being top (It's the patient's lack of a stable network)*

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

Example Page

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.

Yes & No filled out for all metrics

Manual/Elec/Both filled out for "Yes" metrics only

Degree of difficulty filled out for "No" metrics only

A Wealth of Technologies

Smart Sensors

Home Meds Management

Wireless Networks

Shared Care Plan

Video-Based Education
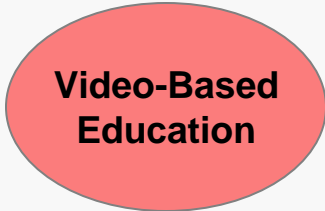
Home Monitoring

Telemedicine

Which technologies will have the biggest impact on 30 day readmissions?

How do high-impact technologies get disseminated quickly, efficiently and effectively?

Connecting Technology & Innovation to Healthcare Challenges

Our approach is based on a specific view of innovation and technology
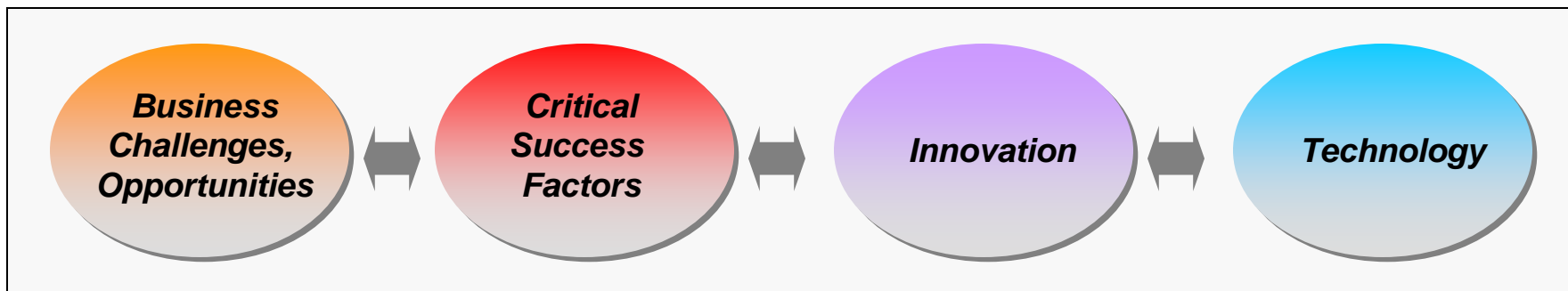
Innovations are strategic, technology is tactical

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?

Connecting the Dots?

Business Challenges, Opportunities → Critical Success Factors → Innovation → Technology

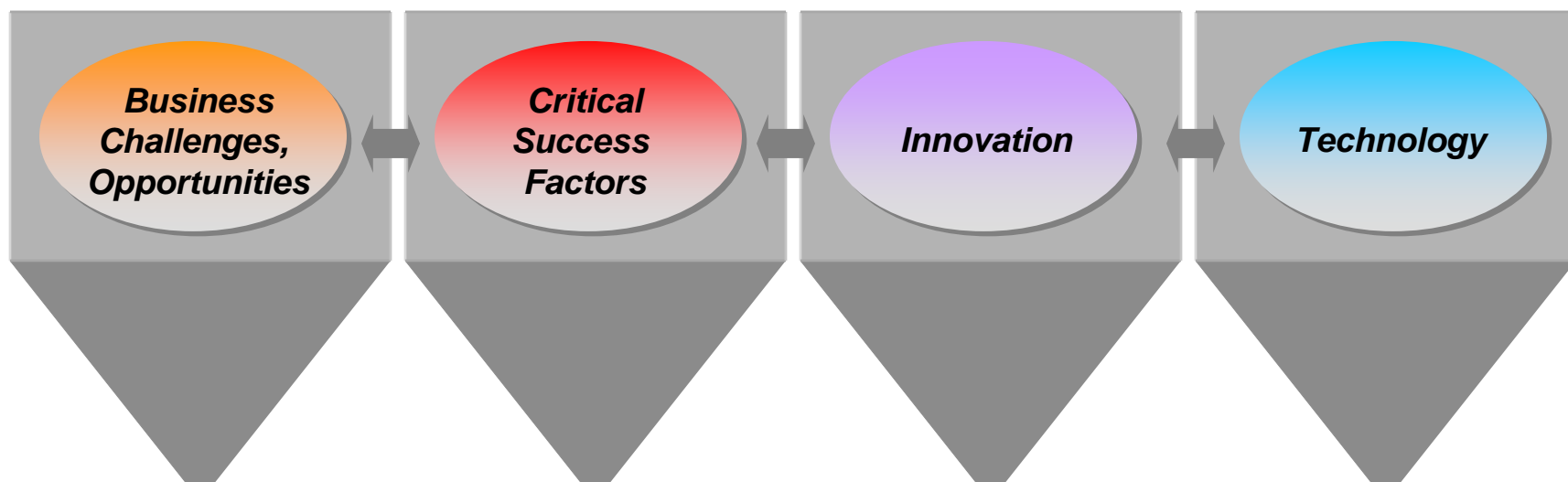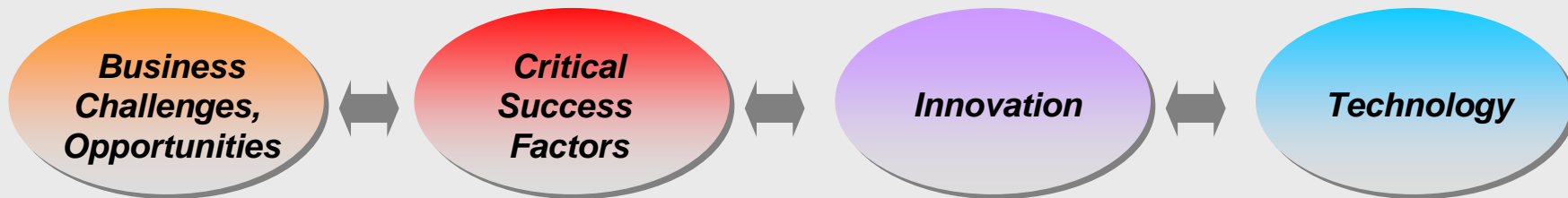| Healthcare Challenges & Business Problems	Critical Success Factors & Metrics	Innovations	Technologies
Home care visits labor intensive (rural visits-travel, time, weather, cost)	Number of in person visits needed for appropriate care per episode	Use of telecommunications and remote monitoring to substitute 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

The Transitions of Care Matrix

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

Transitions of Care Matrix

HealthTech

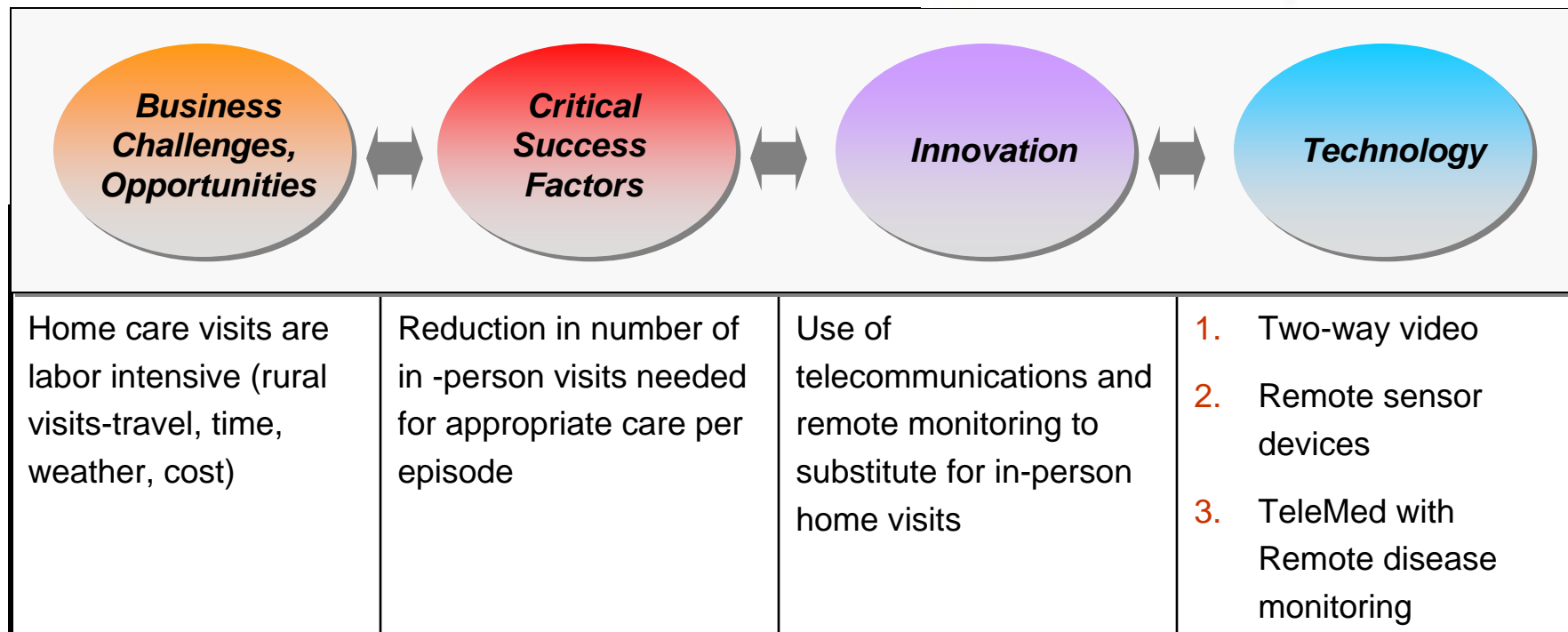| Healthcare Challenges & Business Problems	Critical Success Factors & Metrics	Innovations	Technologies	Expected Impact
(Sample) Home care visits labor intensive (rural visits-travel, time, weather, cost)	Number of in person visits needed for appropriate care per episode	Use of telecommunications and remote monitoring to substitute for in-person home visits	*Two-way video *Remote sensor devices *Remote disease monitoring	Decrease number of inperson visits and add virtual visits with similar or better outcomes for episode of care
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	Risk stratification for specificity and sensitivity for populations at greatest risk for readmission
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	*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	Patients and caregivers know optimal care plan after discharge and capable of effective follow through
Lack of Pt psychological, cognitive and social needs integrated into discharge plan and assessment *accountability *robust assessment *inclusive DC/Transition plan	*Reduction in non-adherence to care plans *Higher level of patient compliance *Decrease in home medical errors	Simple, easy to use, accessible evaluation tools for pt psychosocial needs	*Patient assessment tools *Integrative case plan *Deficit reducing technologies (i.e. medication reminders, appointment pick ups etc.)	More comprehensive care plans and higher patient compliance
Lack of timely medication reconciliation	*Fewer ADEs *Fewer admissions due to ADEs *Better medication adherence	Timely team coordination and documentation	*PHR with medication administration software (ie KPHC) *Telemedicine conferencing esp. pharma	Improved disease management due to medication adherence. Better coordination of team care

Our Methodology:

- Brainstorm **business challenges**.

- Identify related **metrics**

- Catalogue potential **innovations** that can address the challenges

- Identify specific **technologies** that can support the innovations

- Define the **expected impact** of successful implementation

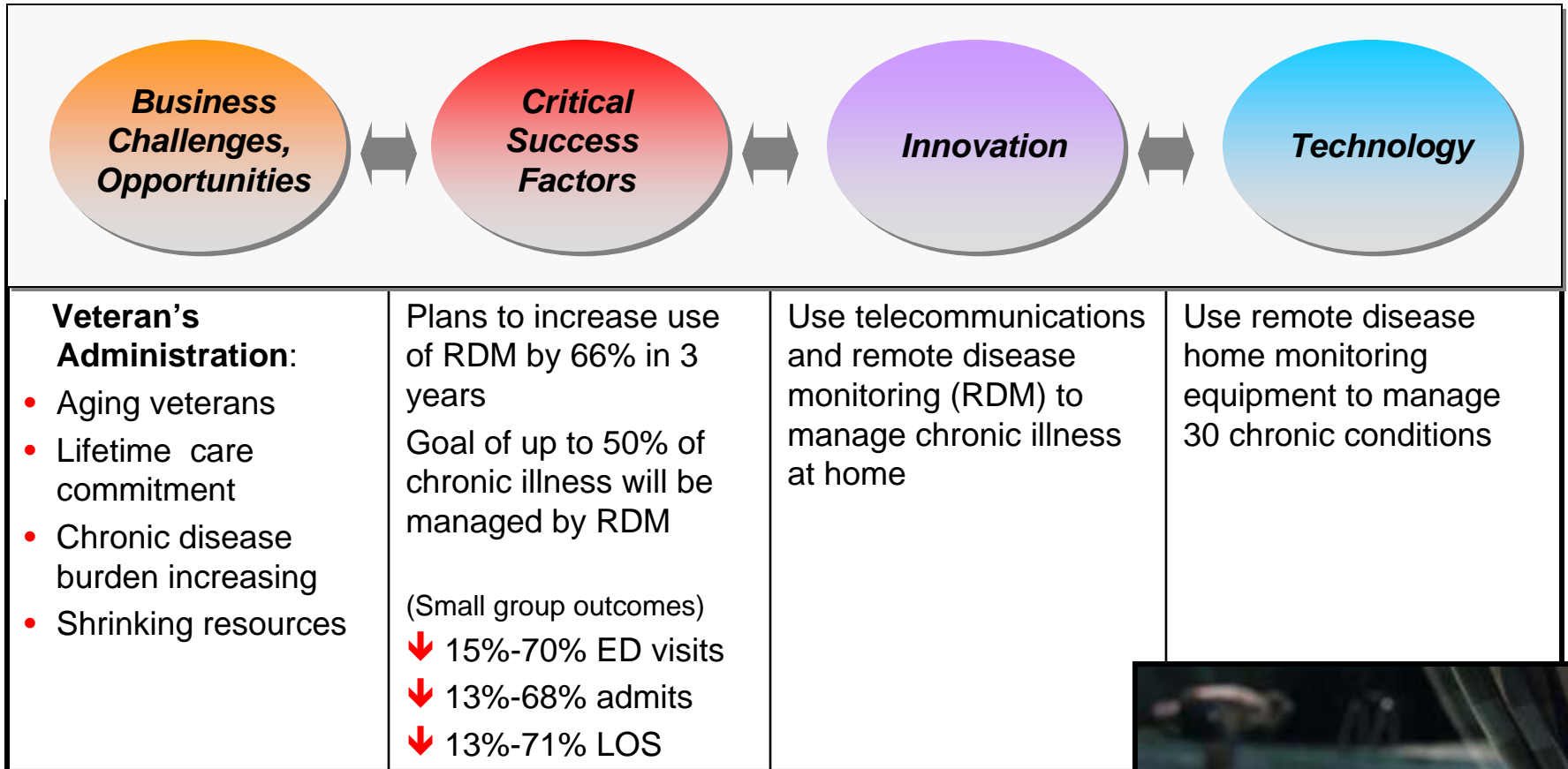# Assessing Readmissions and a technology solution example: Mercy Laredo

| Business Challenges, Opportunities | | Critical Success Factors | | Innovation | | Technology |

Challenge	Success Factor	Innovation	Technology
Lack of shared care plan and structures to advance self management: Clarity of Provider & Patient goals	• Patient medication compliance • Physician participation in goal setting • Patient satisfaction • Patient connecting to caregivers	Use of telecommunications and remote monitoring to create shared care plan and monitor individual	Remote disease monitoring
Help highest utilizers with no insurance coverage and little or no continuity of care to better manage self-care, prevent hospitalizations and ED visits	↑ Patient satisfaction ↑ Patients' perceived connection to care team ↑ Ability for patient to manage meds ↑ SF-12 scores ↓ 34% ED visits ↓ 32% Inpatient admissions ↓ 49% Outpatient visits ↓ $747 per patient/ year	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

Home Care use of Telemed to reduce readmissions:

Centura Health at Home

Business Challenges, Opportunities	Critical Success Factors	Innovation	Technology
Home care visits are labor intensive (rural visits-travel, time, weather, cost)	Reduction in number of in -person visits needed for appropriate care per episode	Use of telecommunications and remote monitoring to substitute for in-person home visits	1. Two-way video 2. Remote sensor devices 3. TeleMed with Remote disease monitoring

Integrated System use of Telemedicine to reduce readmissions

Business Challenges, Opportunities	Critical Success Factors	Innovation	Technology
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 50% 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

Source: http://www.liebertonline.com/doi/pdfplus/10.1089/tmj.2008.0021

HealthBuddy by HealthHero
Remote Chronic Disease
Management System

Translating Expert Research and Partner Networks Into Results

Barbara Harvath
Senior Advisor
415.537.6969 phone
415.537.6949 fax
bharvath@healthtech.org

Health Technology Center
524 Second Street, 2nd floor
San Francisco, CA 94107