Implementing an Evidence Based Hospital Discharge Process

Learning from the experience of
Project Re-Engineered Discharge (RED)
Webinar – January 14, 2013

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Outline

a) RED review

b) RED implementation

RED Review

1. Rationale for RED – Post discharge events
2. Principles of RED - Checklist
3. RED Intervention – Two key components
4. Evidence for RED – Results of RED Randomized Controlled Trial (RCT)
5. Role of Health Information Technology

RED Implementation

- Steps
- Successes
- Strategies

Rationale for RED
Post discharge events

Problems → Consequences

Discharges are dangerous!

Annals of Internal Medicine | ARTICLE

The Incidence and Severity of Adverse Events Affecting Patients after Discharge from the Hospital

Alan J. Forster, MD, FRCPC, MSc; Harvey J. Murff, MD; Josh F. Peterson, MD; Tejal K. Gandhi, MD, MPH; and David W. Bates, MD, MSc

Ann Intern Med 2003;138

- 19% of patients had a post discharge adverse event
  - 1/3 preventable and 1/3 ameliorable

Adverse events among medical patients after discharge from hospital

Alan J. Forster, Heather D. Clark, Alex Menard, Natalie Dupuis, Robert Chernish, Natasha Chandok, Asmat Khan, Carl van Walraven

CMAJ 2004;170(3)

- 23% of patients had a post discharge adverse event
  - 28% preventable and 22% ameliorable

Problems

1. Communication
2. Documentation
3. Medications
4. Outstanding issues
5. Post hospital follow up
6. Patient preparation for care transition

Problem - 1 Communication

1. What is the standard?
   a. Is there a protocol?
   b. Is it being tracked?
2. Who knows about this?
   a. Medical home
   b. Hospitalists
   c. Patients
3. How is this impacting outcome?
   a. Patient safety
   b. Provider satisfaction

Problem - 2 Documentation

1. What is being documented?
   a. Is there a standard?
   b. Is it being monitored?
2. Who's responsible?
   a. Initiation
   b. Finalization
   c. Review
3. How is this transmitted?
   a. Method?
   b. Measure?

Problem - 3 Medications

1. Reconciliation – "It's more than generating an updated list."
2. Reasons for errors
   a. Prescribing
   b. Accessing
   c. Dispensing
   d. Administering

Problem – 'And More'

1. Outstanding issues
   a. What are they?
   b. Whose responsible?
2. Post hospital follow up
   a. Availability, Awareness and accessibility
   b. Compliance
3. Patient preparation for care transition
   a. Awareness ?
   b. Understanding ?

Consequences

- Increase rates of hospital utilization

- Increase costs

- Increase potential for post hospital adverse events

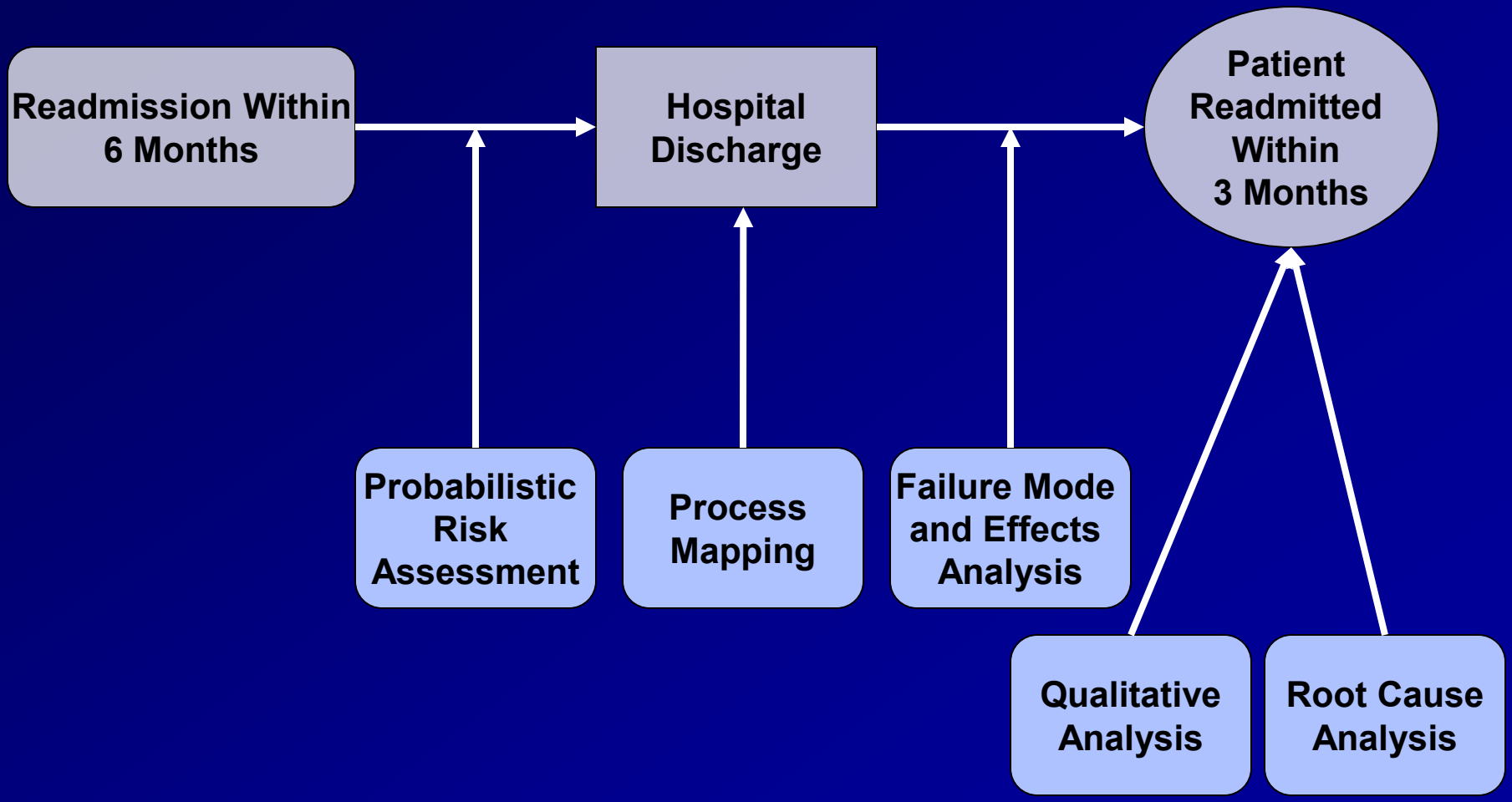
- Decrease patient satisfaction

The Solution

Can improving the discharge process reduce unplanned hospital utilization and post discharge adverse events?

Principles of RED
Creating the checklist

Employing Engineering Methodologies



RED Checklist

Adopted by National Quality Forum as Safe Practice-15

PROJECT RED
Re-Engineered Discharge

Eleven mutually reinforcing components:

1. Patient education throughout hospital course
2. Schedule follow-up appointments – physician visits & tests
3. Follow up on outstanding test results
4. Organize post-discharge services
5. Confirm medication plan – reconcile discharge medications
6. Reconcile discharge plan with national guidelines
7. Review steps for what to do if problem arises
8. Transmission of discharge summary to primary care physician
9. Assess patient understanding of discharge plan
10. Give written discharge plan
11. Provide telephone reinforcement

RED Intervention
Two key components

The RED Intervention
Two key components

- In Hospital – Preparation & Education of written plan
  - Developing the After Hospital Care Plan (AHCP)
    - Daily input from the care team
  - Teaching the AHCP
- After Discharge – Reinforcement of the plan
  - Phone call within 72 hours after discharge
    - Assess clinical status
    - Review medications and appointments

After Hospital Care Plan

- Patient-centered discharge instruction booklet
- Designed to reach patients with limited health literacy
- Individualized to each patient and hospital

Cover Page

** Bring this Plan to ALL Appointments**

BOSTON MEDICAL CENTER

PROJECT RED Re-Engineered Discharge

After Hospital Care Plan for:

John Doe

Discharge Date: October 20, 2006

Question or Problem about this Packet? Call your Discharge Advocate: (617) 414-6822

Serious health problem? Call Dr. Brian Jack: (617) 414-2080

Medication Page (1 of 3)

EACH DAY follow this schedule:

MEDICINES

What time of day do I take this medicine?	Why am I taking this medicine?	Medication name Amount	How much do I take?	How do I take this medicine?
 Morning	blood pressure	PROCARDIA XL NIFEDIPINE 90 mg	1 pill	By mouth
	blood pressure	HYDROCHLOROTHIAZIDE 25 mg	1 pill	By mouth
	blood pressure	CLONIDINE HCl 0.1 mg	3 pills	By mouth
	cholesterol	LIPITOR ATORVASTATIN CALCIUM 20 mg	1 pill	By mouth
	stomach	PROTONIX PANTOPRAZOLE SODIUM 40 mg	1 pill	By mouth

Medication Page (2 of 3)

 Morning	heart	ASPIRIN EC 325 mg	1 pill	By mouth
	to stop smoking	NICOTINE 14 mg/24 hr	1 patch (for 4 weeks)	On skin
	Then, after 4 weeks use →	NICOTINE 7 mg/24 hr	1 patch	On skin
	Blood pressure	COZAAR LOSARTAN POTASSIUM 50 mg	1 pill	By mouth
	Infection in eye	VIGAMOX MOXIFLOXACIN HCl 0.5 % soln	1 drop	In your left eye
 Noon	Blood pressure	ATENOLOL 75 mg	1 pill	By mouth
	Blood pressure	LISINOPRIL 40 mg	1 pill	By mouth
	Infection in eye	VIGAMOX MOXIFLOXACIN HCl 0.5 % soln	1 drop	In your left eye

Medication Page (3 of 3)

 Evening	Infection in eye	VIGAMOX MOXIFLOXACIN HCl 0.5 % soln	1 drop	In your left eye
 Bedtime	Blood pressure	CLONIDINE HCl 0.1 mg	3 pills	By mouth
If you need it for headache	headache	TRAMADOL HCl 50 mg	1-2 pills Every 6 hours If you need it	By mouth
If you need it for chest pain	Chest pain	NITROGLYCERIN 0.4 mg	1 pill every 5 minutes (if need more than 3 pills, call 911)	Under your tongue
If you need it to stop smoking	To stop smoking	NICORELIEF NICOTINE POLACRILEX 4 mg gum	Gum	chew
If you need it for headaches	headache	PERCOCET OXYCODONE-ACETAMINOPHEN 5-325 mg	1 pill 3 times each day If you need it	By mouth

Appointment Page

** Bring this Plan to ALL Appointments**

John Doe

What is my main medical problem?

Chest Pain

When are my appointments?

Tuesday, October 24th at 11:30 am	Thursday, October 26th at 3:20 pm	Wednesday November 1st at 9:00 am
Dr. Brian Jack Primary Care Physician (Doctor)	Dr. Jones Rheumatologist	Dr. Smith Cardiologist
at Boston Medical Center ACC – 2nd floor	at Boston Medical Center Doctor's Office Building 4th floor	at Boston Medical Center Doctor's Office Building 4th floor
For a Follow-up appointment	For your arthritis	to check your heart
Office Phone #: (617) 414-2080	Office Phone #: (617) 638-7460	Office Phone #: (617) 555-1234

Appointment Calendar

October 2006

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20 Left hospital	21
22	23 Pharmacist will call today or tomorrow	24 Dr. Jack at 11:30 am at Boston Medical Center ACC – 2nd floor	25	26 Dr. Jones at 3:20 pm at Boston Medical Center Doctor's Office Building – 4th floor	27	28
29	30	31				

Patient Activation Page

Questions for
Dr. Jack
For my appointment on
Tuesday, October 24th at 11:30 am

Check the box and write notes to remember what to talk about with Dr. Jack

I have questions about:

- ☐ my medicines _____
- ☐ my pain _____
- ☐ feeling stressed _____

What other questions do you have? _____

_____

_____

_____

Dr. Jack: These tests were outstanding at discharge:
Stress Test done on October 24th and Blood Cultures done on October 20th.

Primary Diagnosis Page

Congestive Heart Failure.

Heart failure, also called Congestive Heart Failure is a serious condition in which the heart can no longer pump enough blood to the rest of the body.

<u>Things you need to do:</u>

Fill all of your medicine prescriptions, finish your medicine and take as directed.

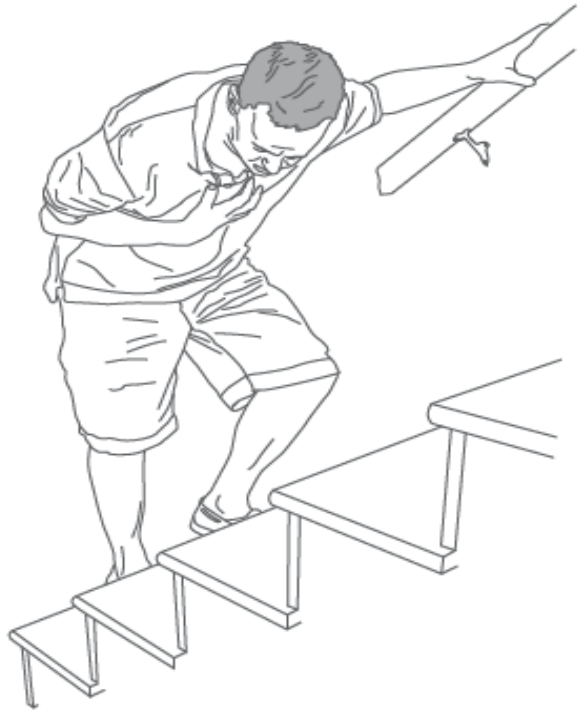
Rest as needed.

Weigh yourself daily and write it down.

Call your doctor right away if you have:
-Weight change by ___ pounds for ___ days
-Sudden weakness
-Trouble breathing
-Serious cough

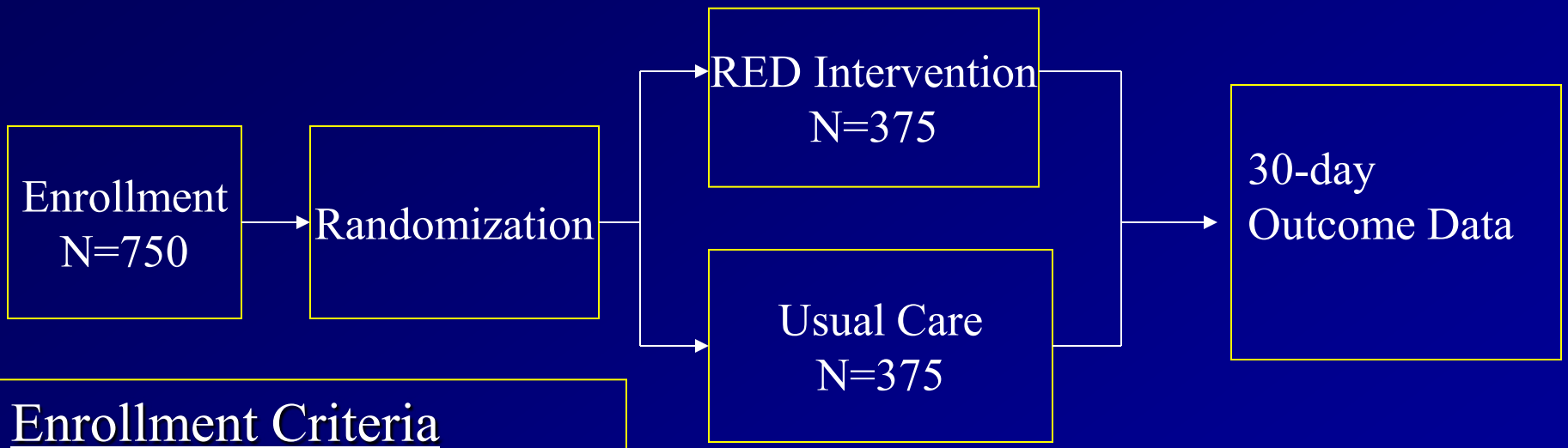
Do not smoke. Avoid other's smoke.

Keep all of your follow-up appointments.



Evidence for RED – Results of RCT
Primary & Secondary outcomes

Testing the RED Intervention Randomized Controlled Trial



Enrollment Criteria

- English speaking
- Have telephone
- Able to independently consent
- Not admitted from institutionalized setting

Enrollment Criteria

- Adult medical patients admitted to Boston Medical Center (urban academic safety-net hospital)

Delivering the intervention How well did we perform

RED Component	Intervention Group (No,%) (N=370) *
Appointment scheduled with Primary Care Physician (PCP)	346 (94%)
AHCP given to patient	306 (83%)
AHCP/Discharge Summary faxed to PCP	336 (91%)
Pharmacy telephone call completed	228 (62%)

* 3 subjects excluded from outcome analysis: subject request (n=2), died before index discharge (n=1)

Primary Outcome:
Hospital Utilization within 30 days after Discharge

	Usual Care (n=368)	Intervention (n=370)	P-value
Hospital Utilization *			
Total # of visits	166	116	
Rate (visits/patient/month)	0.451	0.314	0.009
Emergency Department (ED) Visits			
Total # of visits	90	61	
Rate (visits/patient/month)	0.245	0.165	0.014
Readmissions			
Total # of visits	76	55	
Rate (visits/patient/month)	0.207	0.149	0.090

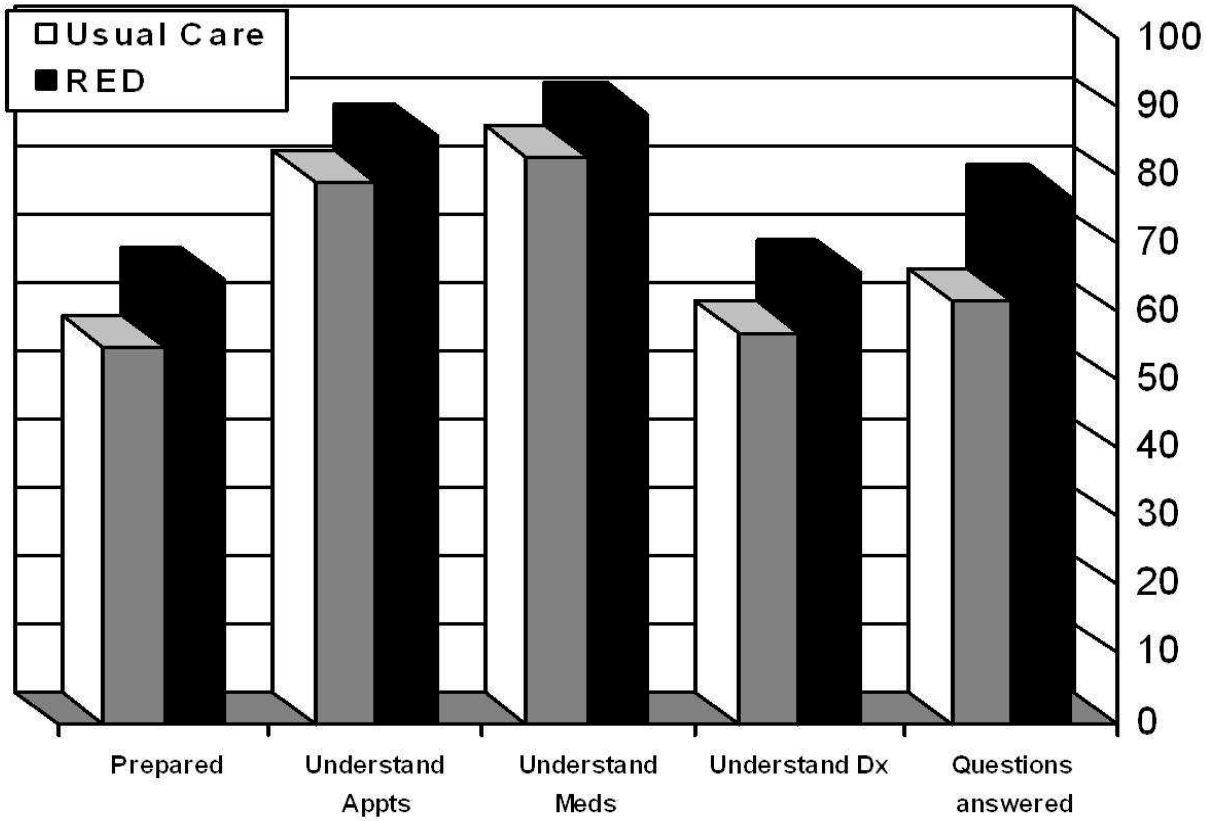
* Hospital utilization refers to ED + Readmissions

Secondary Outcomes *

	Usual Care (n=308)	**Intervention** (n=307)	**P-Value**
	No. (%)	No. (%)	
PCP follow-up rate	135 (44%)	190 (62%)	<0.001
Identified dc diagnosis	217 (70%)	242 (79%)	0.017
Identified PCP name	275 (89%)	292 (95%)	0.007

* Self-reported 30 days post-discharge

Self-Perceived Readiness for Discharge 30 days post-discharge



AHCP Evaluation

Question	N (%) *
In the past 4 weeks, how often did you refer to your AHCP?	
Daily or Frequently	29%
How useful was the AHCP booklet?	
Extremely or Very useful	58%
How helpful was the RED medication calendar?	
Extremely or Very helpful	72%

* Patient-reported 30 days after discharge

Outcome Cost Analysis

Cost (dollars)	Usual Care (n=368)	Intervention (n=370)	Difference
Hospital visits	412,544	268,942	+143,602
ED visits	21,389	11,285	+10,104
PCP visits	8,906	12,617	-3,711
Total cost/group	442,839	292,844	+149,995
Total cost/subject	1,203	791	+412

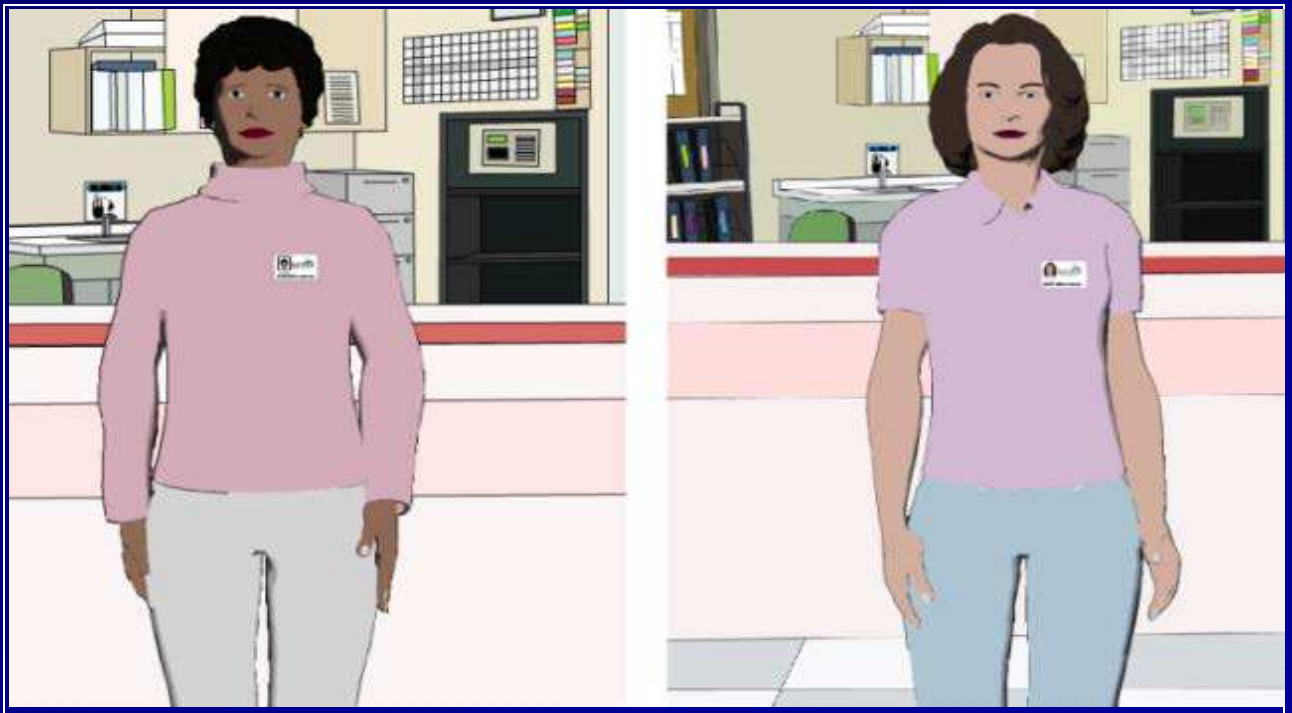
We saved $412 for each patient given RED

The Role of Health Information Technology (IT) 'Virtual Discharge educator'

Using Health IT to Overcome Challenge of Clinician Time

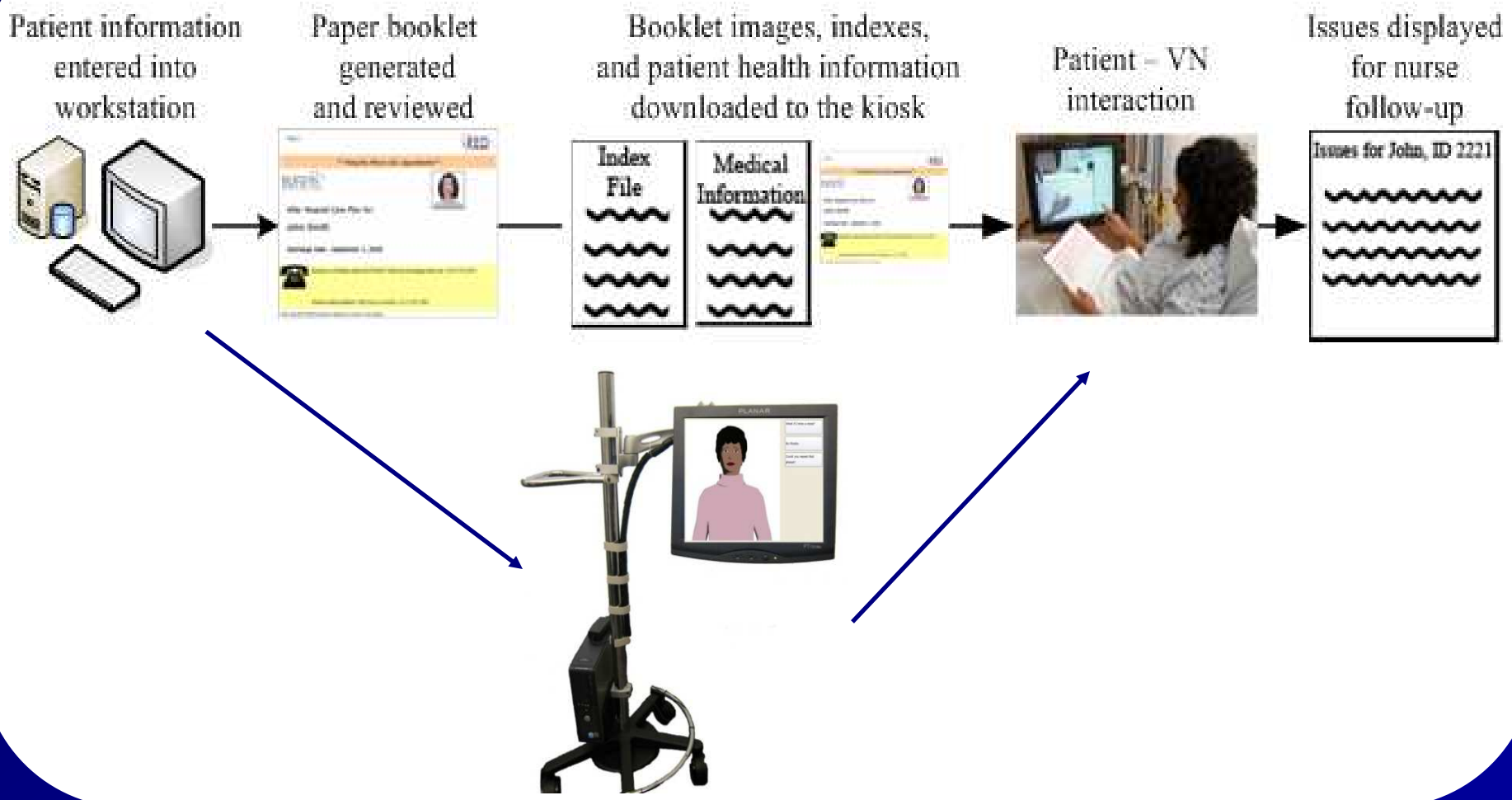
Virtual Patient Advocates

- Emulate face-to-face communication
- Develop therapeutic alliance-empathy, gaze, posture, gesture
- Teach AHCP
- Do "Teach Back"

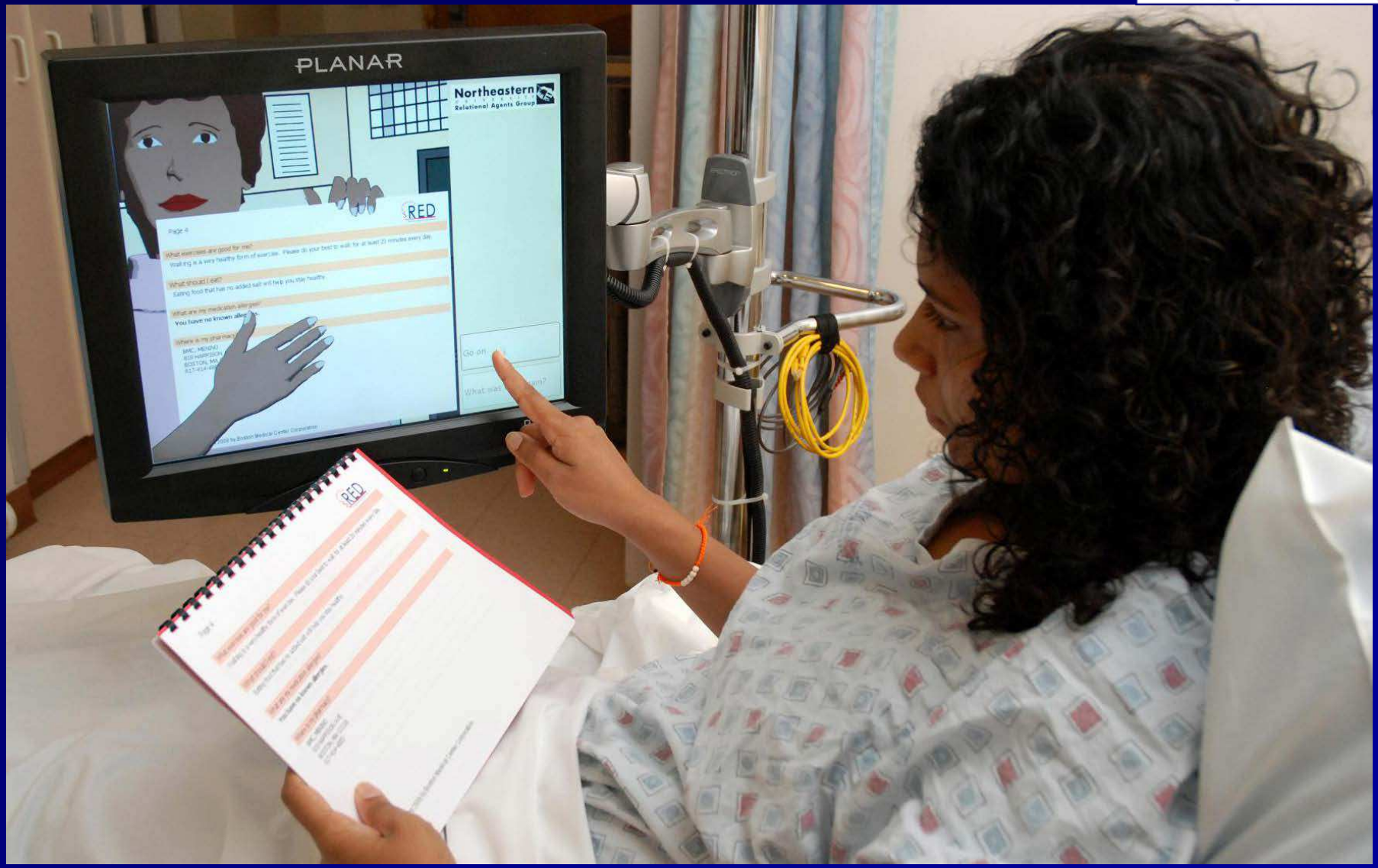


Characters: Louise (L) and Elizabeth (R)

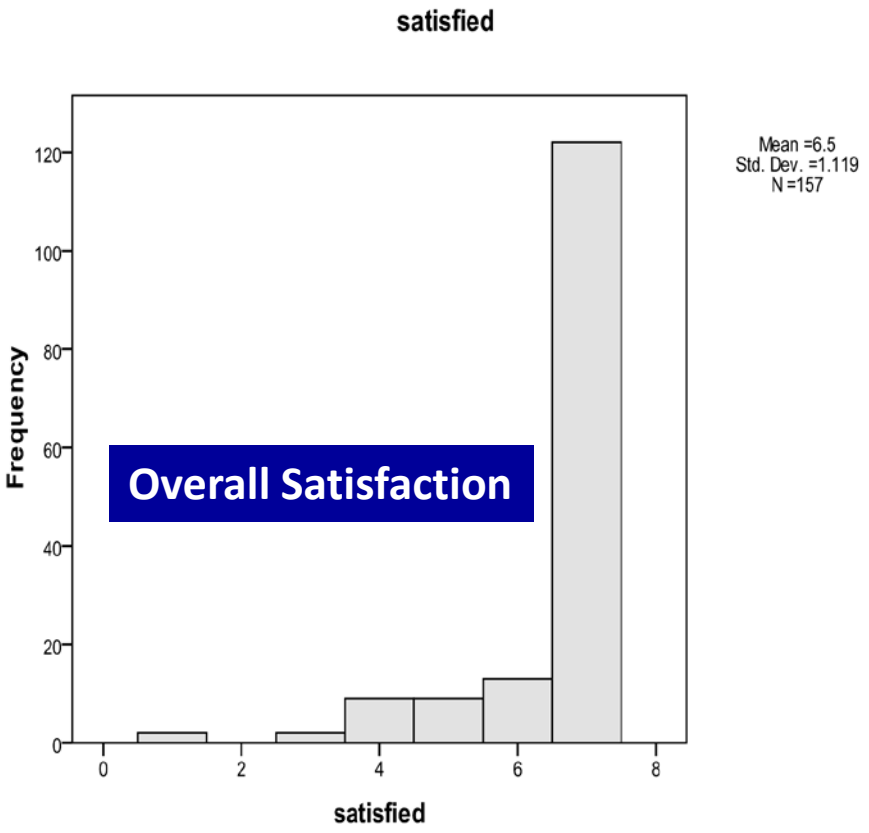
Automated Discharge Workflow

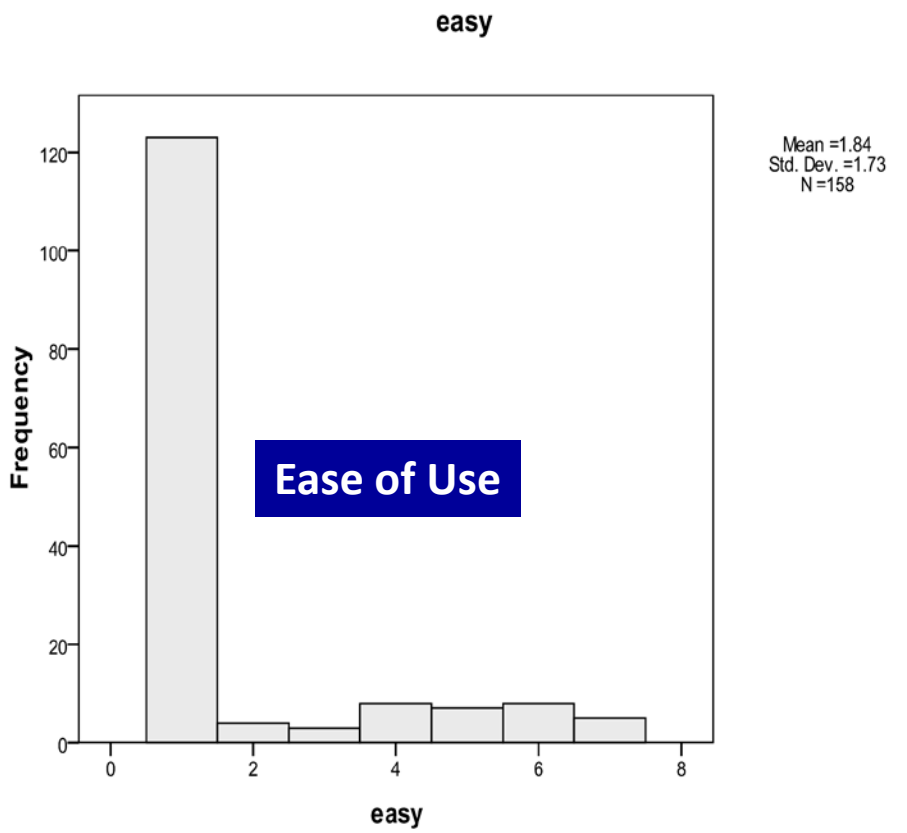


Patient interacting with Louise



Overall Usability





Online Louise

- Post-discharge web-based system designed to emulate the post-hospital phone call
  - Enhance adherence
    - Medications
    - Appointments
  - Monitor for adverse events
- Posts “alerts” to nurse who follow-up each morning

RED Implementation

Steps, Successes & Strategies

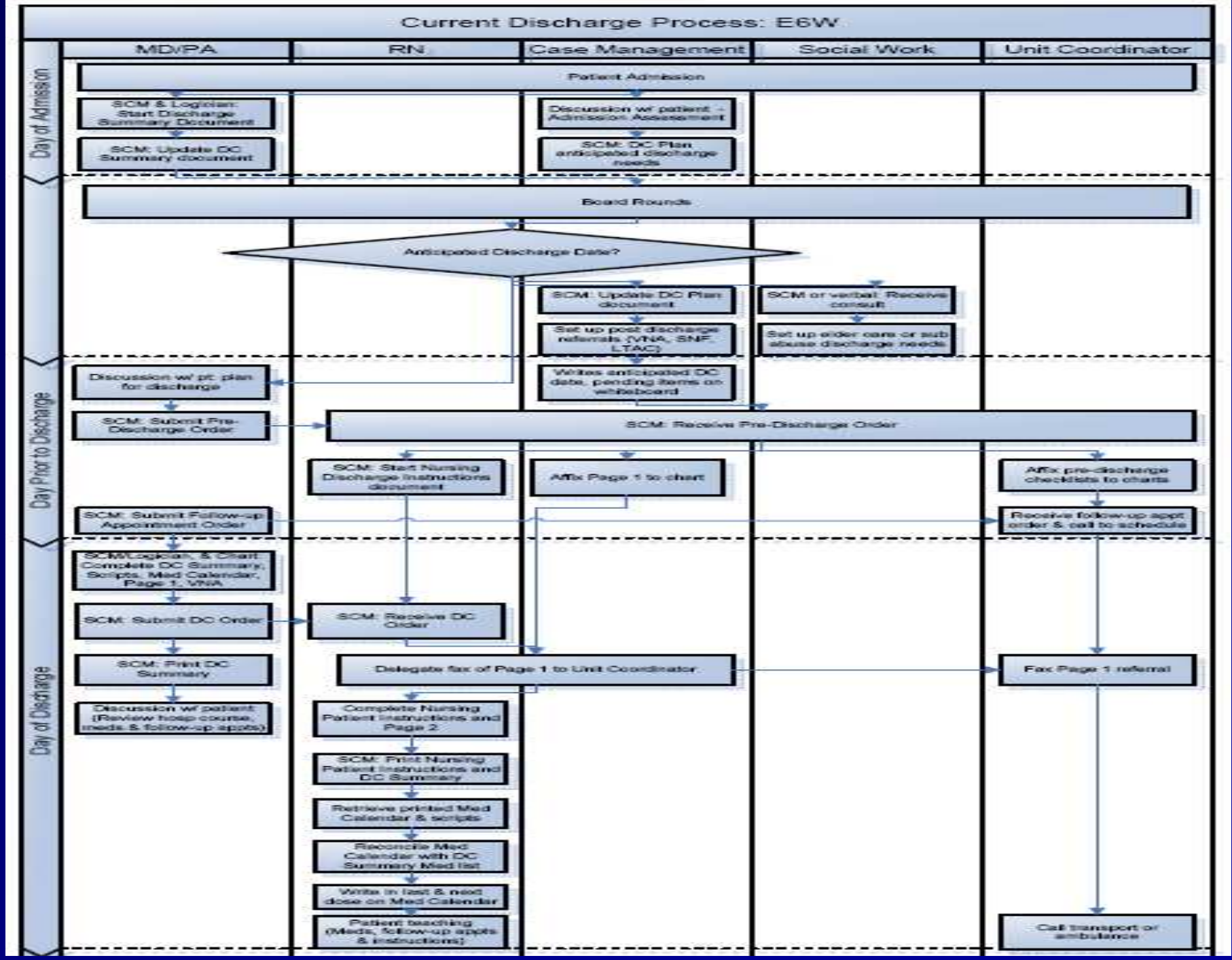
12 Steps to Implement the ReEngineered Discharge

Step 1 - Make a clear and decisive statement and get buy in

Step 2 - Appoint team leader

Step 3 - Constitute implementation team

Step 4 - Analyze current discharge process and rehospitalization rate


Current Discharge Process: E6W
MD/PA
RN
Case Management
Social Work
Unit Coordinator
Day of Admission
Day Prior to Discharge
Day of Discharge
Patient Admission
SCM & Logician: Start Discharge Summary Document
SCM: Update DC Summary document
Discussion w/ patient - Admission Assessment
SCM: DC Plan anticipated discharge needs
Board Rounds
Anticipated Discharge Date?
SCM: Update DC Plan document
Set up post discharge referrals (VNA, SNF, LTAC)
SCM or verbal: Receive consult
Set up order care or sub abuse discharge needs
Discussion w/ pt: plan for discharge
SCM: Submit Pre-Discharge Order
Writes anticipated DC date, pending items on whiteboard
SCM: Receive Pre-Discharge Order
SCM: Start Nursing Discharge Instructions document
Affix Page 1 to chart
Affix pre-discharge checklists to charts
SCM: Submit Follow-up Appointment Order
Receive follow-up appt order & call to schedule
SCM/Logician: & Chart: Complete DC Summary, Scripts, Med Calendar, Page 1, VNA
SCM: Submit DC Order
SCM: Receive DC Order
SCM: Print DC Summary
Delegate fax of Page 1 to Unit Coordinator
Fax Page 1 referral
Discussion w/ patient (Review hosp course, meds & follow-up appts)
Complete Nursing Patient Instructions and Page 2
SCM: Print Nursing Patient Instructions and DC Summary
Retrieve printed Med Calendar & scripts
Reconcile Med Calendar with DC Summary Med list
Write in last & next dose on Med Calendar
Patient teaching (Meds, follow-up appts & instructions)
Call transport or ambulance

12 Steps to Implement the ReEngineered Discharge

Step 5 - Establish goals

What is the target rehospitalization rate?

Step 6 - Identify the target patient population

Step 7 - Decide who would assume the role of discharge advocate

Step 8 - Identify the person who will conduct follow-up phone calls

12 Steps to Implement the ReEngineered Discharge

Step 9 - Determine method to train discharge advocates & those who will conduct follow up phone call

Step 10 - Decide how to generate 'After Hospital Care Plan'

Step 11 - Adapt RED for the diverse patient population

Step 12 - Measure progress of RED implementation

- Process outcomes
- Patient outcomes

What to Expect

- Improved patient satisfaction
- Greater self-perceived 'Readiness for Discharge'
- 30% decrease in hospital utilization within 30 days of discharge
- Improved PCP follow-up rate

RED implementation
Success stories

- Boston HealthNet plan

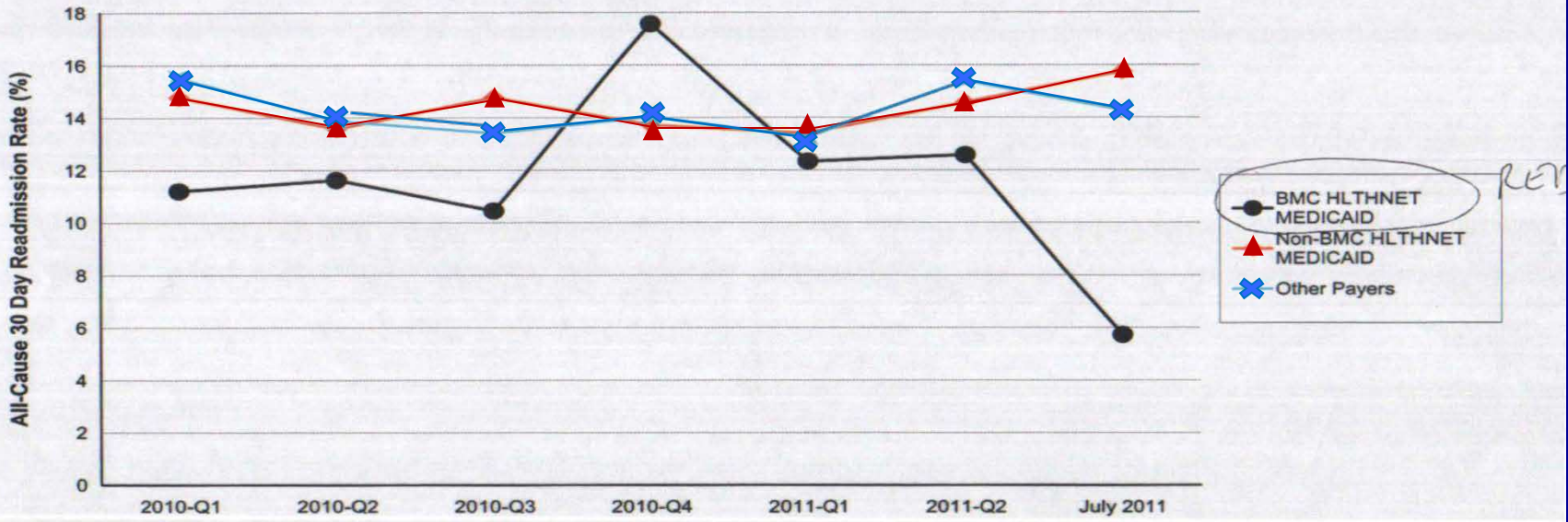
- Preventing Avoidable Episodes project (PAVE)

  -> Consortium of 18 hospitals/systems in southeastern Pennsylvania

Success stories
Boston HealthNet plan

- Period -> calendar year 2011
- Patients given RED -> 500
  - Discharge educator = dedicated registered nurse (RN)
  - Post discharge phone call = plan's care manager
- Results -> 30 day all cause readmission rate
- Cost savings -> well over $400k

Quarterly All-Cause 30 Day Readmission Rate Trend by Selected Payer (N=41,887) (January 2010 - July 2011)



Note: The above data is only for all-cause readmissions within 30 days to BMC only. The unit of analysis are inpatient discharges. The following discharges are excluded from the numerator: discharges in which the readmission is for (1) chemotherapy; (2) radiation therapy; (3) rehabilitation; (4) dialysis; and (5) delivery/birth.

The following are excluded from the denominator: index discharges with (1) nonviable neonates; (2) coming from hospice; and (3) deceased discharge disposition.

OB/GYN and neonatology MS-DRGs are excluded from the data.

BMC HLTHNET MEDICAID cases are discharges with a primary payer of BMC HLTHNET MEDICAID.

Non-BMC HLTHNET MEDICAID are discharges with one of the following primary payers: MEDICAID, MEDICAID LIMITED, MEDICAID MNGCARE, MEDICAID MNGCARE OTH, MEDICAID NOT MA, NETWK HLTH MEDICAID, NHP MEDICAID, or NHP OTHER MEDICAID.

Success stories
PAVE project

- Period -> 18 months from May 2010
- Mixed intervention -> all using 2 components of RED
- Results
  - Partnering with patients to make follow up appointments
    - Up from baseline of 68% to 96%
  - Coordinating follow up testing
    - Up from baseline of 67% to 77%
  - Improved process of patient education during hospitalization
    - Up from baseline of 18% to 45%
  - Improved coordination of care among providers -> 95%

RED Implementation – Strategies During hospitalization

- Formal screening tool to determine risk for readmission
- Process in place for patient education
  - Discharge educator
    - Developing and teaching after hospital care plan
  - Pharmacist
- Standardized communication
  - Primary care providers
  - Other providers
    - Home care
    - Nursing Home

RED Implementation – Strategies Prior to discharge

- Discharge Nurse Educator
  - Uses checklist
  - Assesses patient understanding of discharge plan (Teach back process used)
- Care Team
  - Discusses discharge plan **daily** at team huddle
- Patient
  - Receives written discharge plan (An AHCP is personalized for every patient leaving the hospital)

RED Implementation – Strategies At discharge

- Discharge is not rushed or late in the day
- AHCP and discharge summary are sent to PCP office
- Patient reminded about post discharge phone call
  - phone number for follow-up call confirmed

Practical application of RED

Utilizing team members to deliver RED components

MD team	RN team	Case Mgmt	Unit Coordinator/Rounding Asst
Educate patient	Confirm medication plan	Coordinate post discharge services	Arrange 7-10 days post discharge follow up visit
Discuss outstanding issues	Teach AHCP	Review steps to take when problems arise	Prepare and provide AHCP to be given to patient
Reconcile discharge plan with national guidelines	Assess degree of understanding – employ teach back	Reinforce AHCP 24-48 hours post hospital discharge with a phone call	Transmit AHCP & discharge summary within 24 hours post dc

Summary - 1

- Current hospital discharge process needs Re-engineering.
- Creating effective interventions require current processes to be well studied.
- Culture change begins with buy in from leadership and continues with dynamic multi-disciplinary implementation team.

Summary - 2

- Collaboration with IT, provides solutions in overcoming challenges of time and human resources.
- Customized written discharge plan to patients, optimizes self care post hospitalization
- Call to patients post discharge, reinforcing plan, enhances compliance.

Thank you!

- Chris.Manasseh@bmc.org
- Project RED Website
  http://www.bu.edu/fammed/projectred/