

# Care Management Plus: reorganizing people and technology in primary care settings for chronic illness care

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OHSU, *HealthInsight*, and Intermountain

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<http://www.intermountainhealthcare.org/cmt/>

# Background

- Hartford grant to Intermountain to use care managers in outpatient clinics
  - ◆ *HealthInsight* contracted for analysis
- Carefully constructed and executed program
- Impressive results
- How can we apply this to appropriate DOQ-IT clinics throughout the state (and farther)?

# Case study

Ms. Viera

a 75-year-old woman  
with diabetes,  
systolic hypertension,  
mild congestive heart failure,  
arthritis and  
recently diagnosed dementia.



Ms. Viera and her caregiver come to clinic with several problems, including

1. hip and knee pain,
2. trouble taking all of her current 12 medicines,
3. dizziness when she gets up at night,
4. low blood sugars in the morning, and
5. a recent fall.

# Ms. Viera's office visit

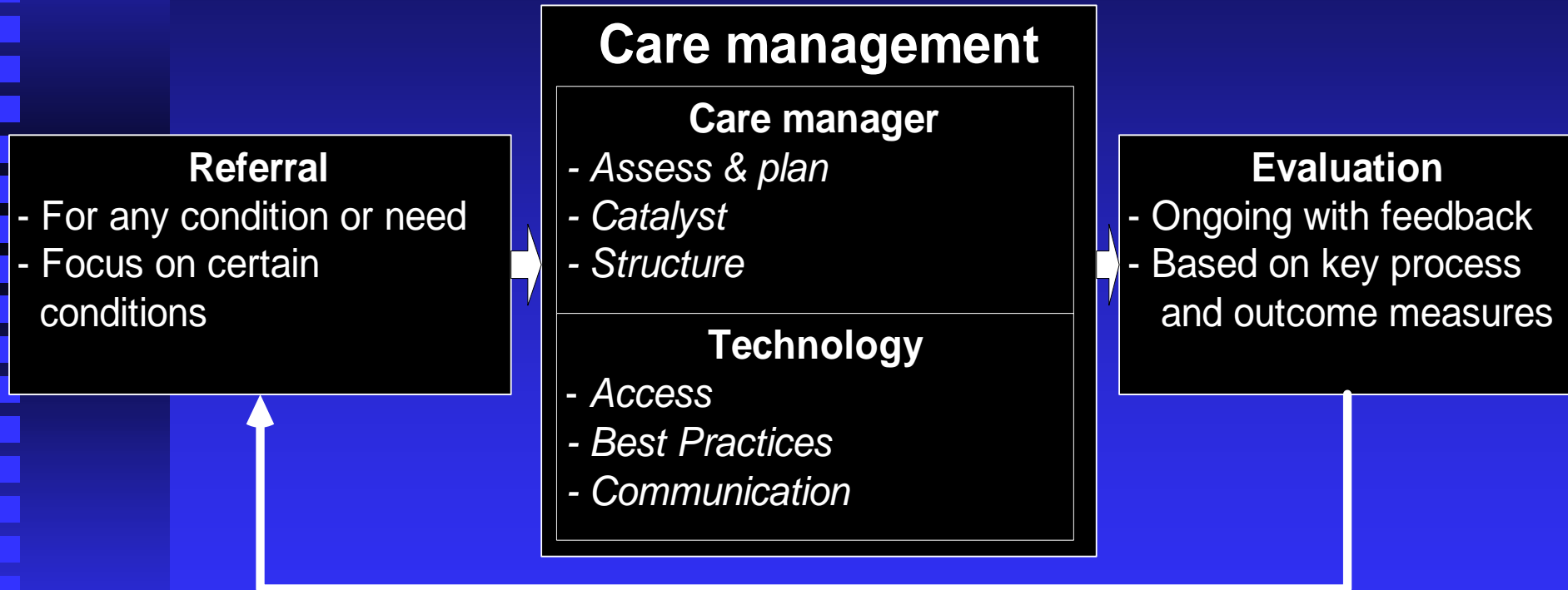
And Out in the hall:

6. The caregiver confidentially notes she is exhausted
7. money is running low for additional medications.

How can Dr. Smith and the primary care team handle these issues?

# Care Management Plus

*In primary care clinics*



# The physician refers Ms. Viera to a Care Manager

- The care manager starts:
  - ◆ building rapport with the patient
  - ◆ understanding the patient's concerns
  - ◆ coaching them to work through the barriers that keep them from self-management.
    - ◆ Why do you think that the doctor sent you to see me?
    - ◆ What is your biggest concern or fear?

# Case help: care manager and Ms. Viera

The care manager then

- **assesses** – readiness to change, disease states, cognitive status, safety
- **prioritizes** – cognition / depression, social issues then disease states
- **co-creates** a care plan
- **facilitates** that care plan
- **documents** success ...

CARE MANAGEMENT PLUS helps provide training and tools to make this happen!

The right **people** on the team with the right training is a core principle.

**Patients** are taught to self-manage and have a **guide** through the system.

**Care managers** receive special training in

- Education, motivation/coaching
- Disease specific protocols (**all staff included**)
- Care for seniors / Caregiver support
- Connection to community resources

Our care managers are currently all RNs; other models are possible.\*

**Technology** helps the team plan and enact high quality care.


- Care management tracking database
  - ◆ Available free of charge (requires MS Access)
  - ◆ *Training manuals*
- Patient worksheet (summary sheet)
- Dosage expertise / specification

[www.intermountainhealthcare.org/cmt/](http://www.intermountainhealthcare.org/cmt/)

# Why not use EHR to do this?

- You could! But,
- The vast majority of EHRs don't include these functions; and
- Adoption of these functions is slow.
- This system will help show the benefit and use of care management.

# Patient Worksheet

11 July 2003		 <b>Patient Worksheet</b>			v1.0.21
<b>PATIENT NAME</b> TEST, A A		<b>SEX</b> F	<b>DOB</b> 09/01/1964	<b>MMI#</b> 545073664	<b>MRN#</b> 545073664
<b>Problems</b>					
Hyperthyroidism status post appendectomy Diabetes mellitus type 2, insulin treated		Hypertension Chronic conditions			
<b>Active Medications</b>					
1. - Digitoxin, 0.1mg, Tablet; 3 TABLET 2. - Entex LA (Guaifenesin/PPA HCl), 400-75mg, Tablet; 1 TABLET (2)					
<b>Preventive Care</b>					
<b>CV Risk</b> 5%*(1.4x)**		<b>Pap smear</b> No Data			
<b>Clinical Laboratory Data</b>					
<b>HgbA1c (&lt;=7.0)</b> No Data		<b>UA Protein</b> 06/01/2001 - Negative 12/18/2000 - Positive 11/06/2000 - Negative		<b>uAlb/Cr (&lt;30)</b> No Data	
<b>24 Urine Albumin (&lt;30)</b> No Data					
<b>Serum Cr</b> 04/26/2003 1.1 10/25/2002 2.0 02/27/2002 1.6 10/03/2001 2.3		<b>Serum K</b> 04/26/2003 4.2 02/05/2003 3.9 10/25/2002 4.5 01/29/2002 6.1		<b>Lipid Profile</b> <b>LDL (&lt;100)</b> 04/26/2003 107 <b>Trig (&lt;200)</b> 04/26/2003 93 <b>HDL (&gt;35)</b> 04/26/2003 50 <b>CHOL (&lt;200)</b> 04/26/2003 176 10/25/2002 154 02/27/2002 151 10/03/2001 239	
<b>TC/HDL Ratio</b> 04/26/2003 3.5 04/06/2003 5.2 02/24/2003 5.4 02/06/2003 7.2		<b>HCT</b> 02/05/2003 35.9 % 10/02/2002 37.7 % 08/23/2002 45.0 % 07/19/2002 29.9 %		<b>hsCRP</b> 04/06/2003 0.6 mg/l 02/24/2003 1.2 mg/l	
		<b>Homocysteine</b> 04/06/2003 6 mcmol/l		<b>Fasting Glucose</b> 02/25/2003 127 12/19/2002 127 01/02/2002 127 12/20/2001 127	
<b>Clinic Data</b>					
<b>Date</b> No Data		<b>Weight</b> -	<b>BMI (&lt;25)</b> -	<b>Weight Class</b> -	<b>Blood Pressure (&lt;130/80)</b> 01/25/2001 145/74 mmHg
<b>Last foot exam:</b>		No Data			
<b>Last dilated retinal exam:</b>		No Data			
<b>Reminders</b>					
<b>Preventive</b>					
* Predicted % Risk over 10 years of a cardiovascular event (MI, revascularization, CVA, death). ** Relative Risk over 10 years of a cardiovascular event compared to lowest risk category. Pap and pelvic suggested every 3 years after three normal yearly Pap tests. For Patients with known Cardiovascular Disease, target LDL < 100. Blood Pressure measurement is suggested for adults every two years. Suggested follow-up for missing data: - Pap Smear Pneumovax suggested for all patients age 65 and older. In all patients to change 23 to 23/11 every 5 years if no contraindications.					
<b>Diabetes</b>					
Suggest repeat Urine Albumin Test monthly if on insulin treatment. Last ALT = 28 on 4/26/2003 & AST = 66 on 10/25/2002 Suggested follow-up for missing data: - HgbA1c - Dilated Retinal Exam - Foot Exam - Weight					
<b>Hypertension</b>					
ACE Inhibitors (ACEI) or if ACEI intolerant, Angiotensin II Receptor Blockers (ARBs) or the combination of ACEI or ARBS and Diuretics are the recommended initial drug therapy for patients who are diagnosed with hypertension in conjunction with Diabetes.					
Page 1 of 2					

Chronic conditions

Medications

Preventive care summary

Pertinent labs

Pertinent exams

Passive reminders

Organized by illness

Call

### Care Manager Encounter Tickler List

Care Manager: Ann Larsen

Sched. Dt. and Time	Encounter Type	Enc. Reason	MMI	First Name	Last Name	Phone Number	Pri
2/17/04	Telephone Contact	DM F/U				(801)	Wo
2/17/04	Telephone Contact	DM F/U				(801)	Wo
2/17/04	Telephone Contact	DM F/U				(801)	Wo
2/17/04	Telephone Contact	DM F/U				(801)	Wo
2/17/04	Telephone Contact	Depression F/U				(801)	Obi
2/17/04	Telephone Contact	Dep F/u				(801)	Sm
2/17/04	Telephone Contact	DM F/U				(801)	Wo
2/17/04 8:30 AM	CM Office Visit					(801)	Wo
2/17/04 9:00 AM	Class					(801)	Smt
2/17/04 9:00 AM	Class					(801)	Met
2/17/04 9:00 AM	Class					(801)	Obi
2/17/04 9:00 AM	Class					(801)	Wo
2/17/04 10:40 AM	MD Office Visit	DM F/U				(801)	Wo
2/17/04 1:50 PM	MD Office Visit	DM F/U				(801)	Rur
2/17/04 3:00 PM	CM Office Visit					(801)	Wa
2/17/04 3:50 PM	MD Office Visit					(801)	Wo

# Encounter Tickler

Before 3/10

IHC. Also recall  
do. want pay est. sent  
pm from 810-33-003

5 people  
 PCP Approve Test  
 who if process - do  
 Clean out - do  
 Home - head  
 Back 2-3 who - gen news  
 Turn on 5' -  
 7-10 days -  
 3<sup>rd</sup> day

If from cat office

# Patient Information

ID Number:  Last Name:  First Name:  DOB:  \* Age:   Sex:

Phone:  Cell Phone:  Email:  PCP:  PCP Phone:

Insurance:  Facility:   Diab Collaboration FPP:

Date of Referral:  \* Care Mgr:  Status:

### Patient Search

ID Number:

Last Name:

First Name:

Care Mgr:

Diag. Date	Diagnosis	Status
<input type="button" value="Edit"/> 2/28/2005	HF	Active
<input type="button" value="Edit"/> [redacted]	[redacted]	Active
<input type="button" value="Edit"/> 3/30/2004	Depression	Active

Sched Date	Sched Time	Encounter Type	Status
<input type="button" value="Edit"/> 4/30/2005		Telephone Contact	Pending
<input type="button" value="Edit"/> 1/30/2005		Home	[redacted]
<input type="button" value="Edit"/> 1/26/2005		Telephone Contact	Resolved
<input type="button" value="Edit"/> 10/18/2004		Telephone Contact	Resolved

MH Packet Date	Symp	Severity	Fctnal	Diff	Dysth.	Q9	Suicide State	Suicide Risk	[Mood 1 2 3]	MoodImp	MoodSx	AnxImp	AnxSx
<input type="button" value="Edit"/> 1/26/2005	1	3	Somewhat	<input checked="" type="checkbox"/>	0		No Risk						
<input type="button" value="Edit"/> [redacted]							No Risk		16	45	14	52	
<input type="button" value="Edit"/> [redacted]							Low Risk						

Diab Assess Date

Diagnosis Encounter Meds MH Instruments Pediatric Assess

Diabetes History Diab Pre/Post Knowledge Assess Patient Goals HF Follow-Up

\*

CMT database - example

# What was the effect of Care Management?

- We know because
  - ◆ The CMT has tools to track what the care managers did; and
  - ◆ Process measures (adherence, workflow)
- Outcomes are obtained from claims and other data sources (but can be added to CMT)

**In all, 4,735 patients (1,582 seniors) were seen in 2004-05, receiving 22,899 services (9,434 for seniors).**

<b>Service category</b>	<b>All patients</b>	<b>Seniors</b>
ALL	22,899	9,434
Following evidence-based protocols	12,955 (56.6%)	4,421 (46.9%)
General education	6,808 (29.7%)	2,252 (23.9%)
Communication	6,789 (29.7%)	4,199 (44.5%)
Motivating patients	6,243 (27.3%)	2,247 (23.8%)
Social issues / barriers	8,221 (35.9%)	3,608 (38.2%)

# Impact of Care Management

## Effectiveness and timeliness

### ■ Diabetes

- ◆ Dorr et al. 2005. Impact of Generalist Care Managers on Patients with Diabetes. *Health Services Research*, 40(5): 1400 – 21
- ◆ new data for seniors

## Efficiency and satisfaction

- Physician and patient experience
- Productivity

# Study Design

- Retrospective cohort
- Comparison of care managed (CM) patients (7 clinics) with patients from similar clinics w/out care managers (n=4)
- CM patients matched to controls on key characteristics

# Diabetes Guideline Adherence

- 1,185 CM patients matched to 4,740 control patients (1:4)
- Outcomes:
  - ◆ Overdue for HbA1c testing
  - ◆ HbA1c tested
  - ◆ HbA1c level  $<7.0$
  - ◆ Mean HbA1c level

# Guideline Adherence: Results

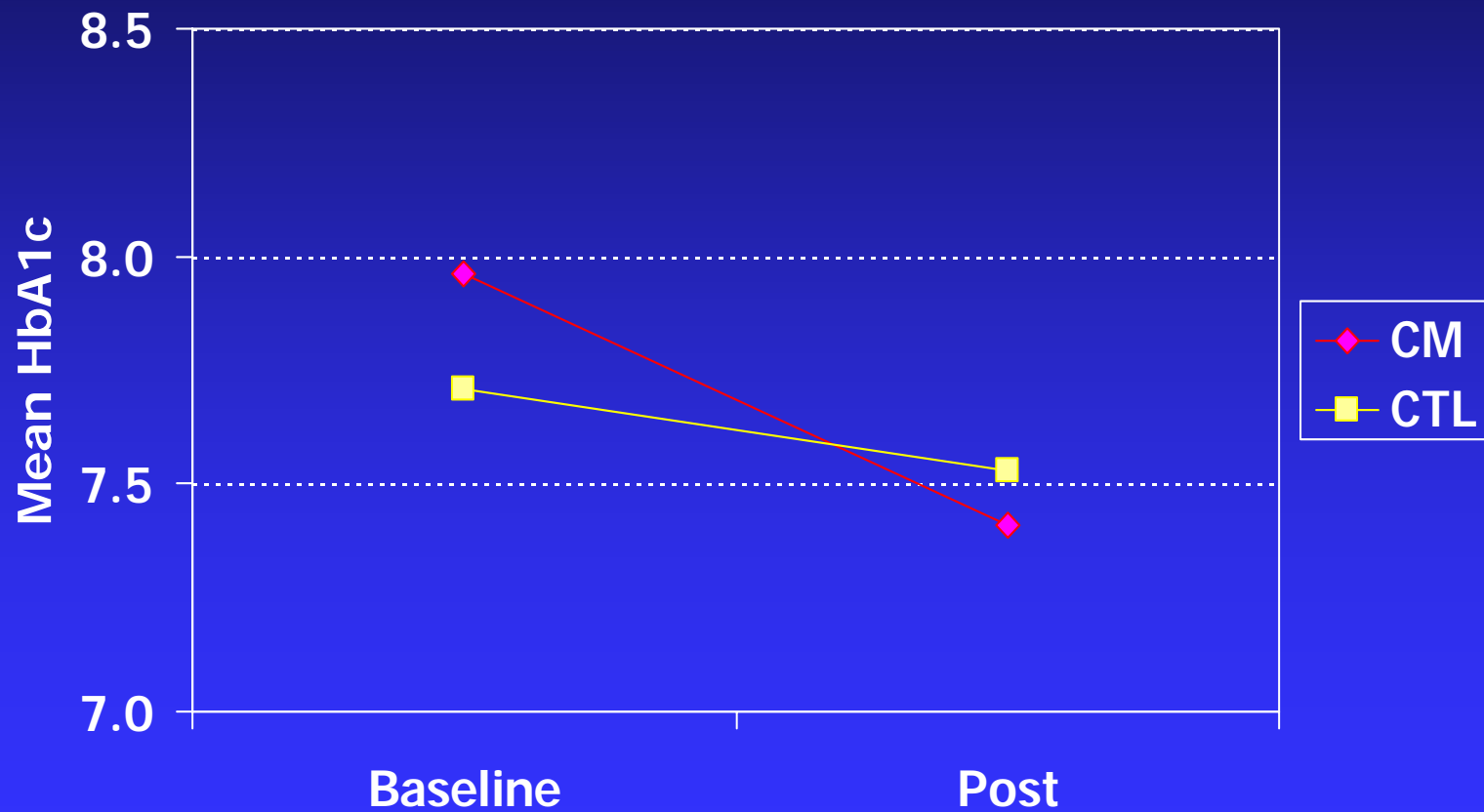
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Outcome	Odds Ratio
Overdue for HbA1c test	0.79*
HbA1c Tested	1.42*
HbA1c in control (<7.0)	1.24*

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\*  $p < 0.01$

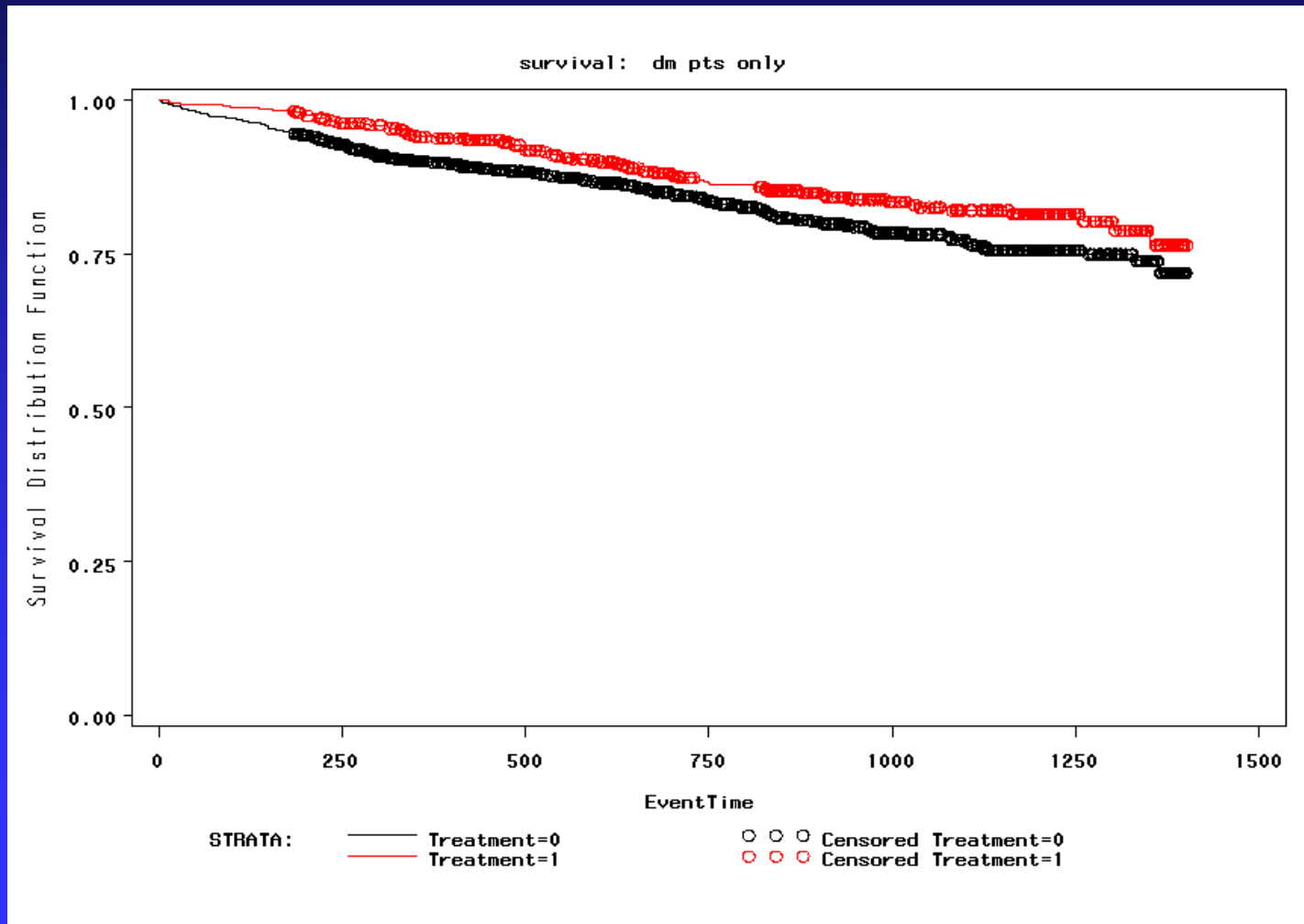
# Mean HbA1c Levels



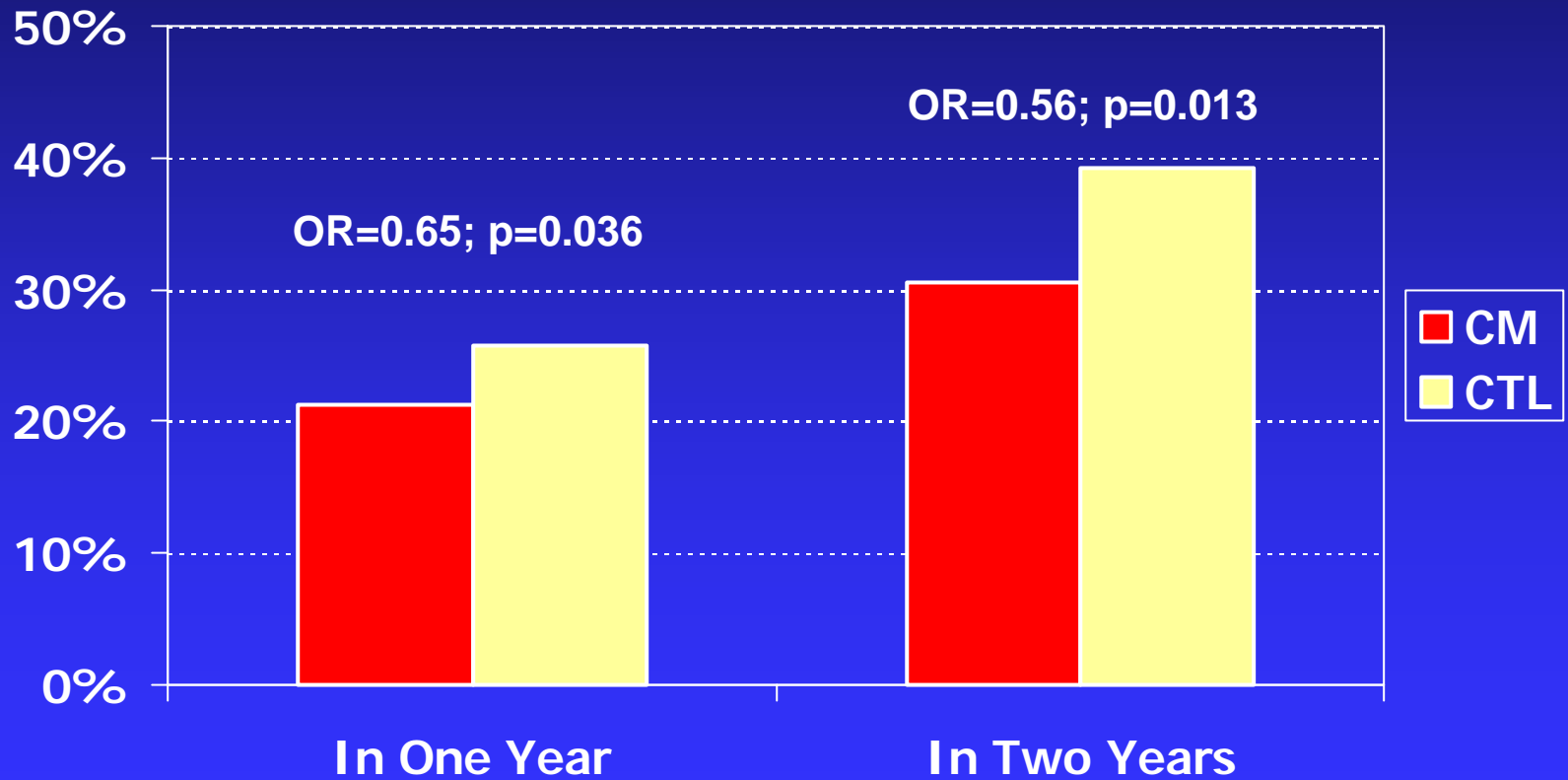
# Retrospective Analysis

- Seniors enrolled in Medicare
- 1,144 CM patients with diabetes matched to 2,288 control patients (1:2)
- Outcomes:
  - ◆ Death
  - ◆ Hospital admission
  - ◆ Admission for ambulatory care sensitive conditions

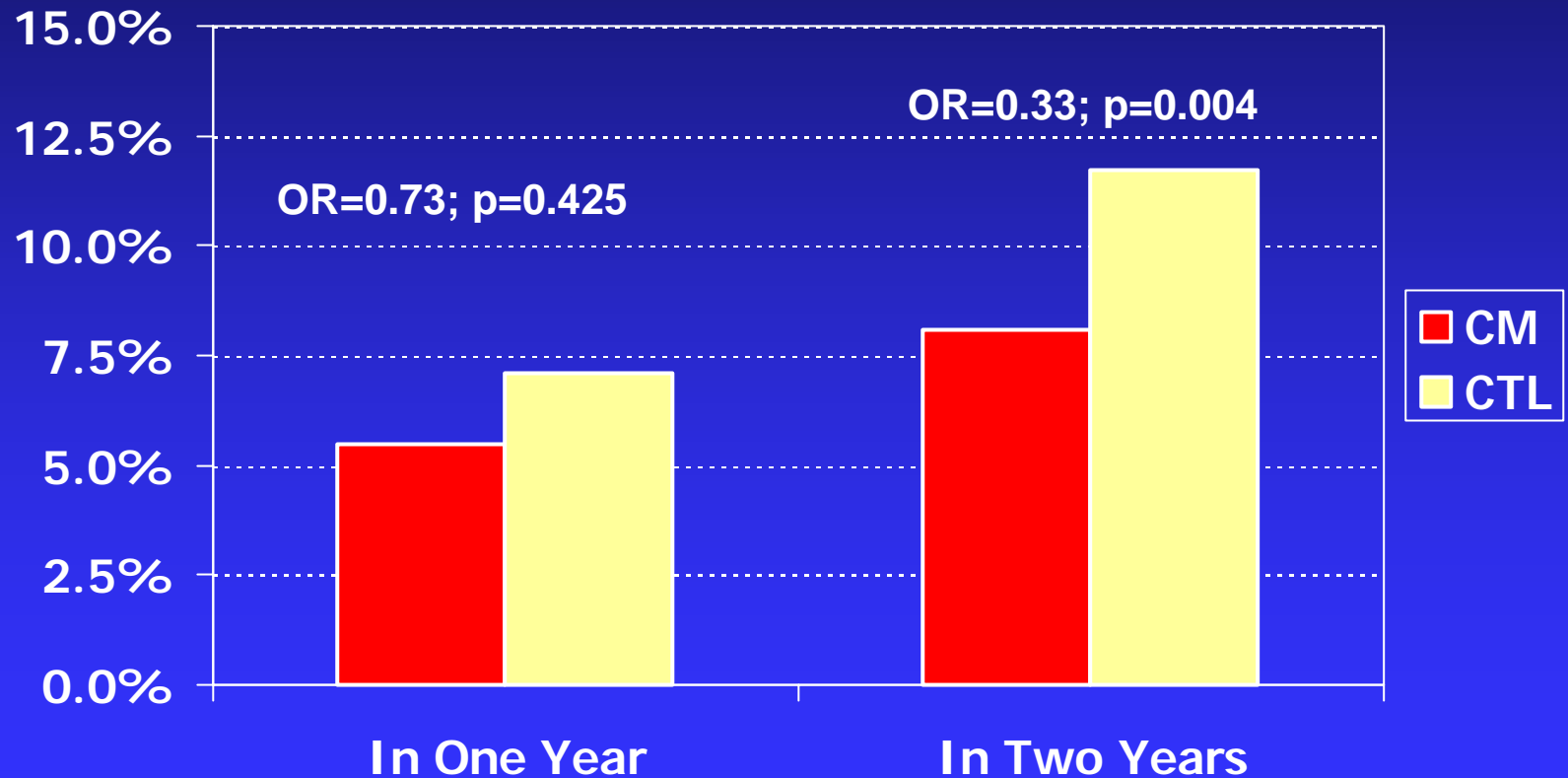
# Deaths:



# Admissions:



# ACS Admissions:

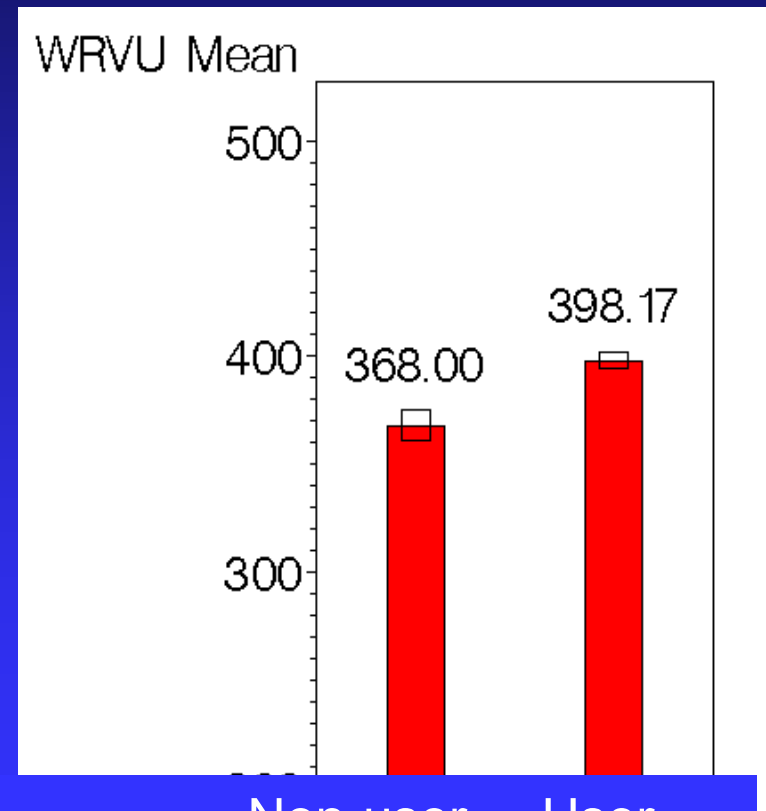


# Productivity – same clinic

- Physicians who referred to care managers:

*8% more productive*

- Than peers in same clinic



↑ 8%

# Benefit/Cost Analysis

<b>Costs/Clinic</b>	
Salary + training + admin	\$90,000
<b>Benefits/Clinic</b>	
Productivity (7 MD's)	\$88,200
Hospitalizations ↓ *	\$0
Total (benefits – cost)	-\$1,800

\* Society would save, per clinic, \$79,092 in reduced hospitalizations.

Note: overhead costs, IS costs are assumed to be constant.  
Equipment costs included.

# Our framework for dosage: Drug therapy

Different services  
= breadth

Amount

Education 1 hr

Every 3 weeks x 6 mos

Duration

Dispense: CM

Frequency

Rx

Dispense: CM

Refills 1 2 3 4

No Refills: Final After

VALID FOR 30

# Dosage & adherence

## For Adherence to HbA1c testing

Higher dose:

**40%** relative increase

Increased face time

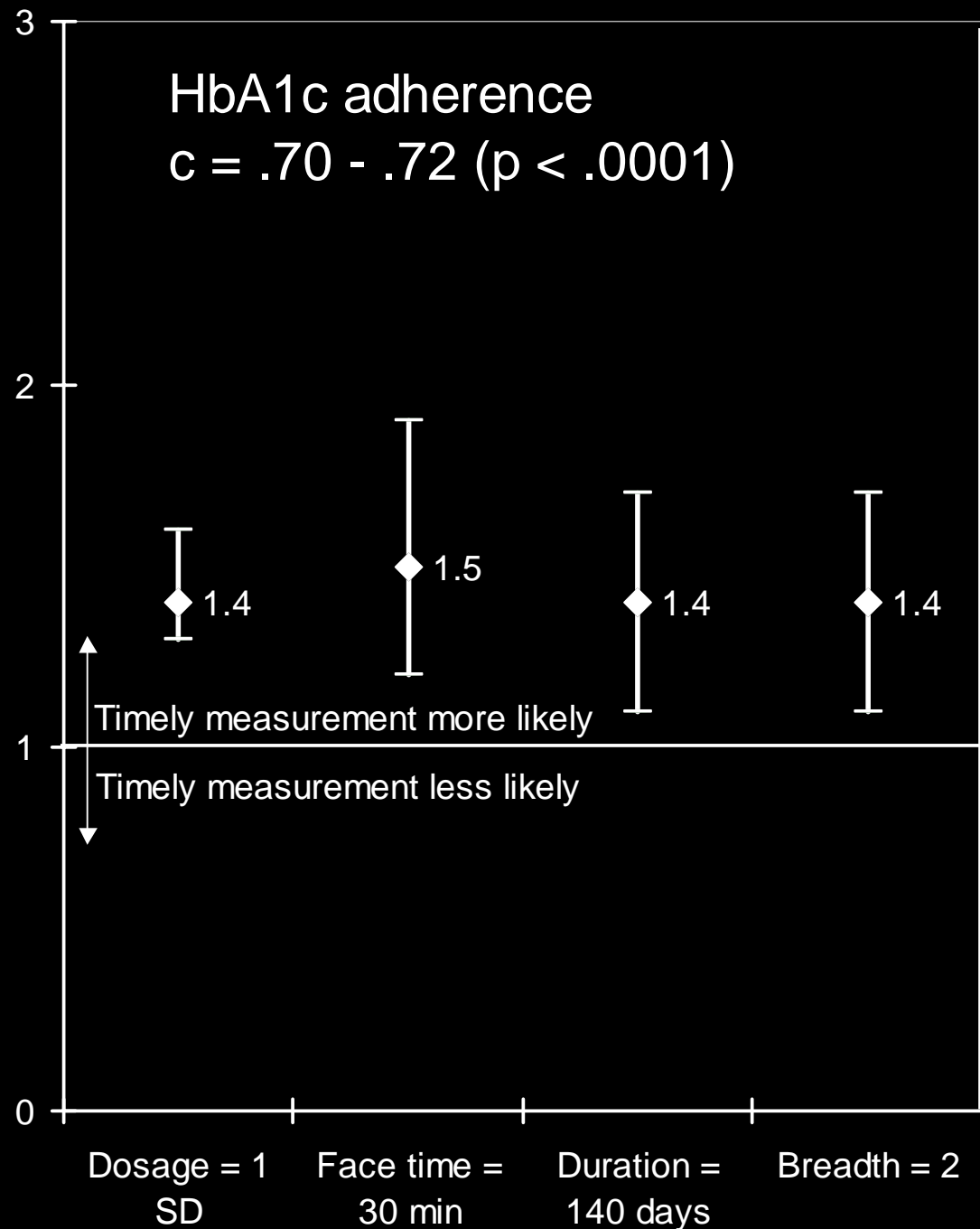
**50%** increase

Longer duration

**40%** increase

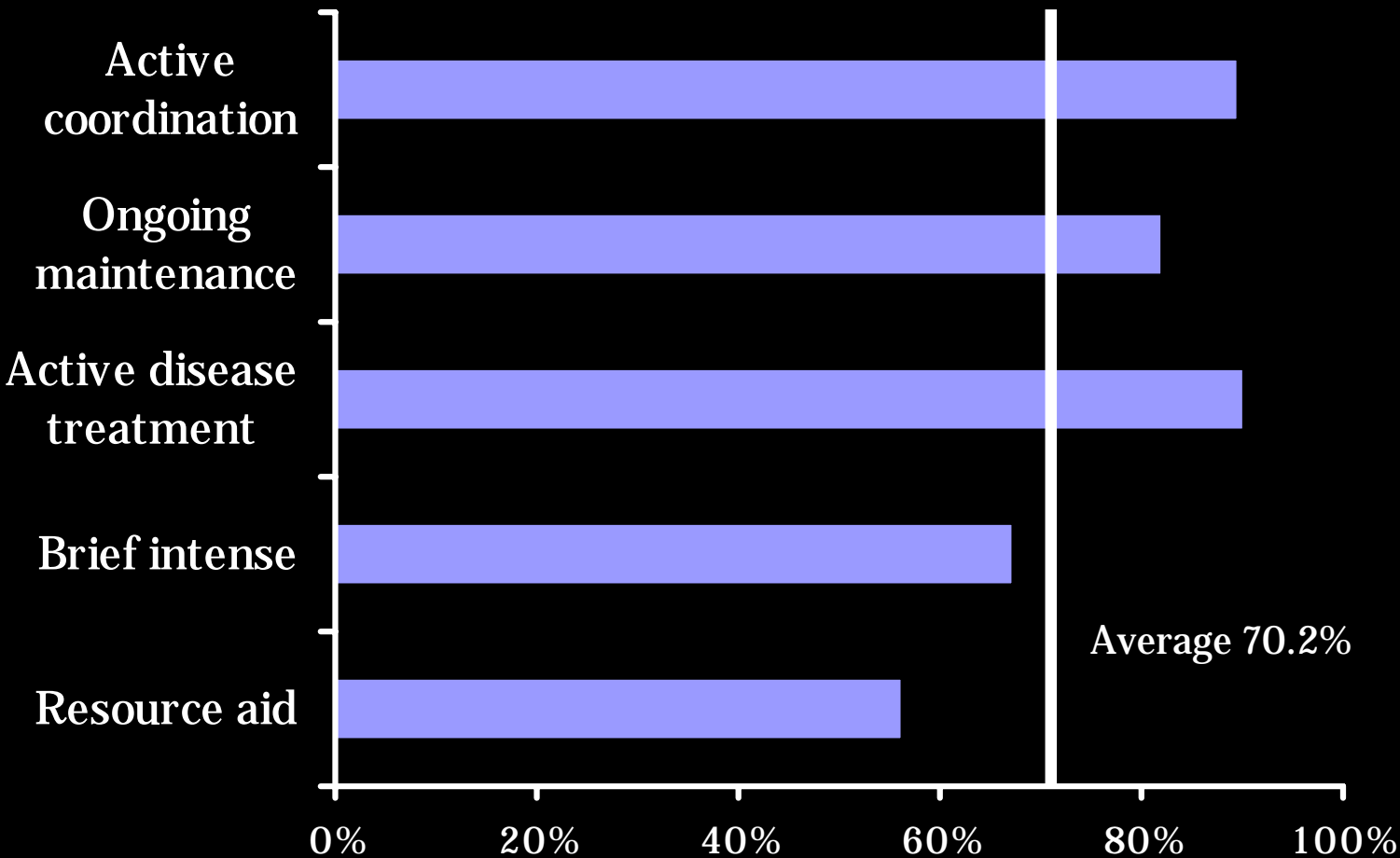
Increased # of services

**40%** increase



# Patterns of care: What works?

Percent adherent to HbA1c guideline



Active disease treatment associated with reductions in HbA1c.

Brief intense also associated with reductions in HbA1c and LDL.

# How can Care Management Plus help create better care?

The care managers can do their jobs better with

**summaries** of patient care plans

**scheduled follow-ups**

flexible **protocols** for care

**daily reminders** about tasks for populations

**reports** for all patients

**demonstration** of monthly activities

**ALL CAN LEAD TO IMPROVED PATIENT OUTCOMES  
and CLINIC PRODUCTIVITY!**

# What happens after “Phase 1”?

- Research team and Hartford interested in generalizability and expansion of the project
- Commission on Aging goal to link partners
- *HealthInsight* 1d1 care management targets
- Created a Phase 2 that’s just begun
- Phase 3? Other states?

# Supporters and Collaborators

- Intermountain Healthcare
- *HealthInsight*
- Utah Commission on Aging
- Univ of Utah Center on Aging & Nursing School
- Others: Area Aging Services, AARP, Medicaid
- John A. Hartford Foundation
- AHRQ
- Deseret Foundation's Roy W. Simmons  
Endowment for Geriatric Research and Education

# Endorsed by:

- Utah Medical Association
- Utah Academy of Family Practitioners
- Utah Chapter of the American College of Physicians

Which helped in the recruitment

# What are the key elements?

- Framework to maintain from the original model
  - ◆ Care managers role in care team
  - ◆ Tools, knowledge and links to resources
  - ◆ HIT support/functionality
  - ◆ Rigorous evaluation
- What can be adapted?
  - ◆ Small/rural clinics? RN vs NP? Varied EHRs

# Project Description

- Application process
- Questions to answer
- Response
- Time line: last half of 2006
  - ◆ Curriculum development
  - ◆ Relationship and expectation setting
  - ◆ Assessment of HIT and team processes

# Eligible DOQ-IT Clinics

- Already have clinics recruited who have EHR in place and are motivated to improve care
- ~ 2 dozen of them large enough (6+ providers) to make it economically feasible
- 3-4 of them were smaller clinics with special needs or resources

# Curriculum

- Development
- Content
- Dissemination

# Curriculum Content

<b>Topical Area</b>	<b>Delivery Strategy</b>	<b>Methods</b>
Orientation, Role, Technology training	~10 hours in person (divided)	Power point presentation; Case examples, role playing
Managing Chronic Illnesses Mental Health Issues Senior Patient Management Patient Coaching	On-Line (~10 hours, divided) Case studies	Asynchronous and Synchronous faculty discussion. Posted power-point slides.
Community Resource Acquisition Final Case Study (See evaluation)	In-Person Seminar	Internet search activities Case Study Presentations

# Challenges and Barriers

- Nurse shortage
- Budget restraints
- Office practice redesign: collaborative
- Clinic size needed to sustain
  - ◆ What aspects can be used by smaller clinics
- QIO support required
- e-learning
- Other feedback – what's needed for a Phase 3?

# Thank you! & Questions?

- Sharon Donnelly – DOQ-IT  
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