

The **B-SMART** Medication Adherence Checklist

*A Tool to make it easier for Physicians and Providers to do the right thing when addressing America's other drug problem – **Medication Non Adherence***

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“Drugs don’t work in patients who don’t take them.” – C. Everett Koop, MD

Case #1: Mr. MT

- 62 yr old man with a Hx of Diabetes, CAD, uncontrolled HTN, smokes up to 1 pack of cigarettes daily, 25 pounds overweight
 - Drove to ER with chest pains
 - Dx: Mild heart attack
 - Admitted to the hospital
 - **Discharged 3 days later**
 - Scheduled for a 5 day follow up with his PCP
 - Labs: HgA1c = 9.2, LDL = 162, BP = 146/92



Follow-up Visit with MD



At medication review

–Diabetes medication:

- Metformin 1000mg twice daily

- **Problems:**

- **Morning dose:** stomach ache and diarrhea
→ **reduced to half the dose**
- **Evening dose:** → **generally forgets to take**

–HTN medications -- feels dizzy and nauseous

–Beta Blocker medication: Feels tired → **stopped taking it**

–MT felt he was on too many medications (11)

–Not unique

Some FACTS about medication taking behaviors in our patients....

1 out of 8 heart attack patients stops taking life saving drugs after just 1 month

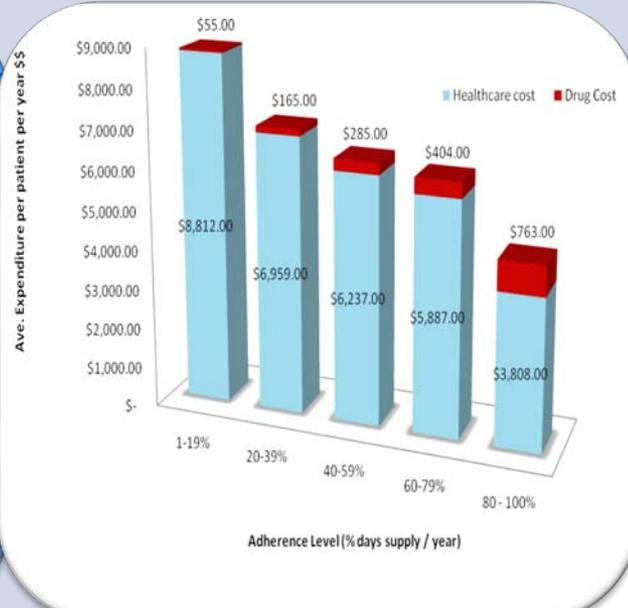
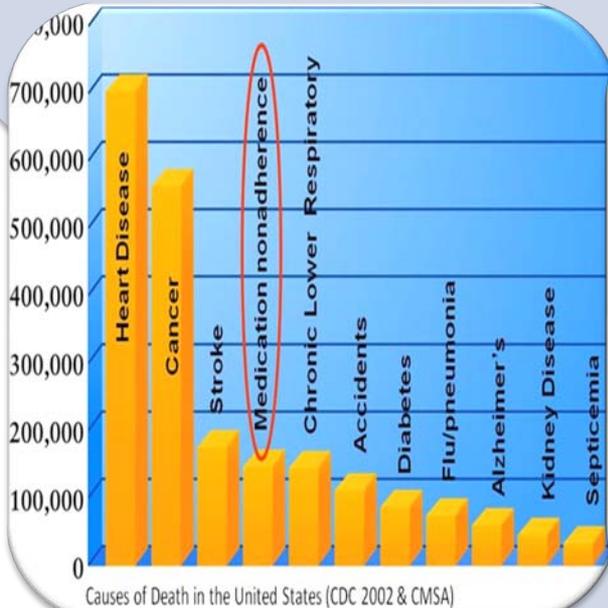
15 - 31% of all prescriptions are not filled the first time

1 out of 2 prescriptions are not taken as directed: over 3.8 billion prescriptions were dispensed in 2005 = 1.9 BILLION RX not taken as directed

Non-Adherence by **Disease Condition** over 12 months

Adherence Challenges in the following conditions:	3 months	6 months	12 months
Cholesterol / Dyslipidemia	40%	40 – 55%	50 – 67%
Depression	70%	80%	90%
Diabetes Type 2	47%	59%	62%
Erectile Dysfunction			55%
Hypertension	53%	51 – 63%	65%
Obesity	52%	76%	92%
Osteoporosis (HRT)			50%
Ave. Reported <small>ATKearney / Medco 2010 presentation</small>	52%	55%	65%

The Impact

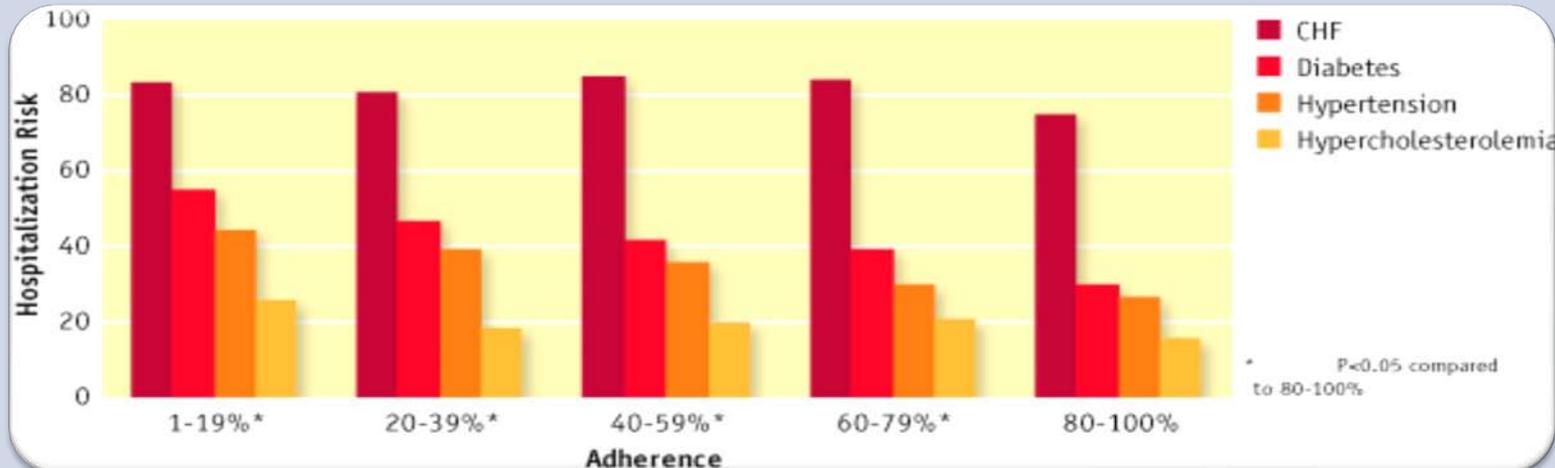


Decrease in Population Health

By **Increased Hospitalizations & Nursing Home admits**

Preventable Hospital Readmissions (10 - 15%)

Nursing Home 1 out of 5 patients (23%)



Decrease in Population Health

By **increased** Disease Progression

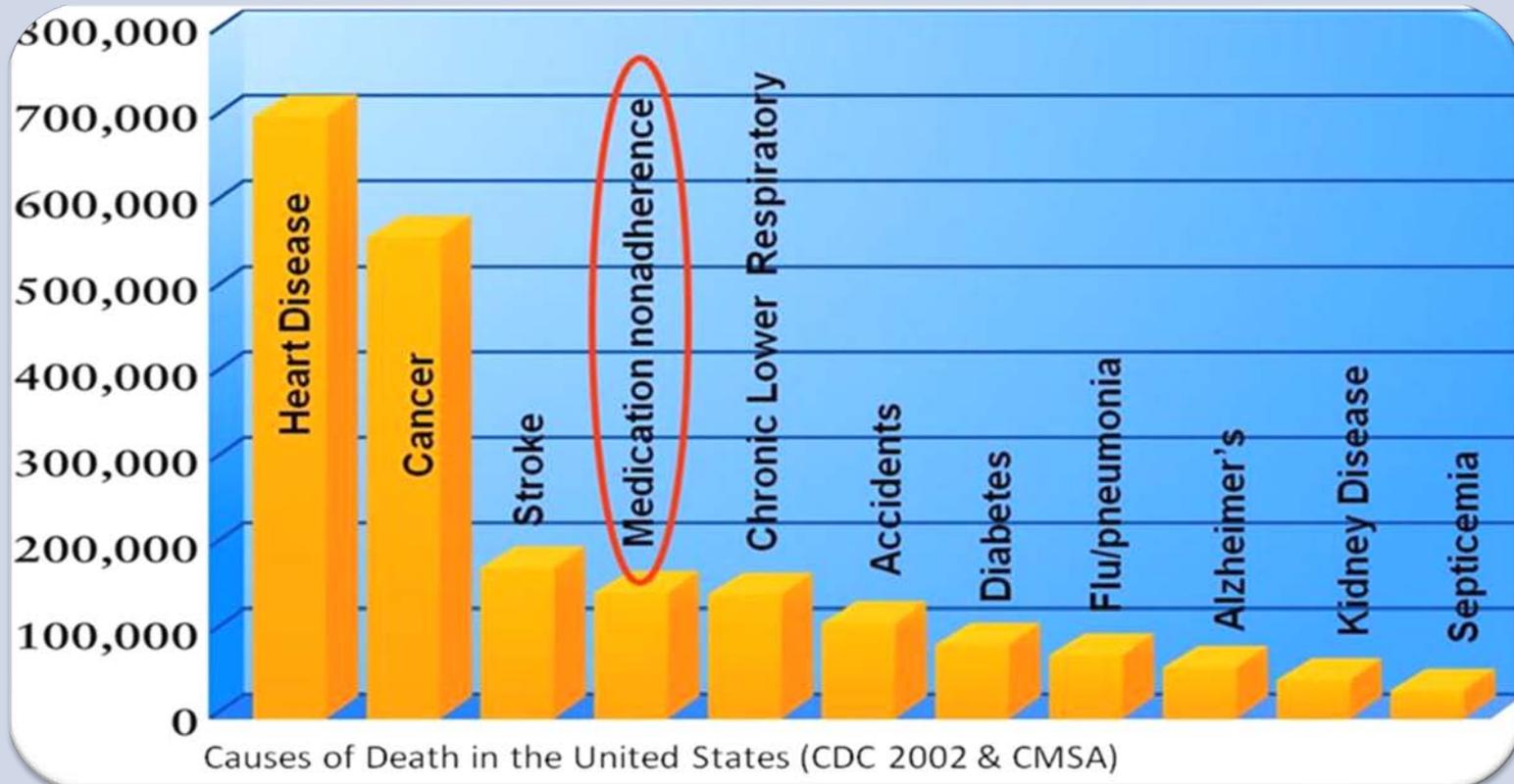
Non-adherence to **Beta Blocker therapy** in post MI patients – 4.5x increase in mortality

Poor adherence to **Tamoxifen** → increased risk of death from breast cancer (Thompson et al., 2007).

Poor adherence to **hypertensive medications** → heart disease, kidney disease and other complications

Decrease in Population Health

By having unnecessary deaths



Increased Cost Per Capita

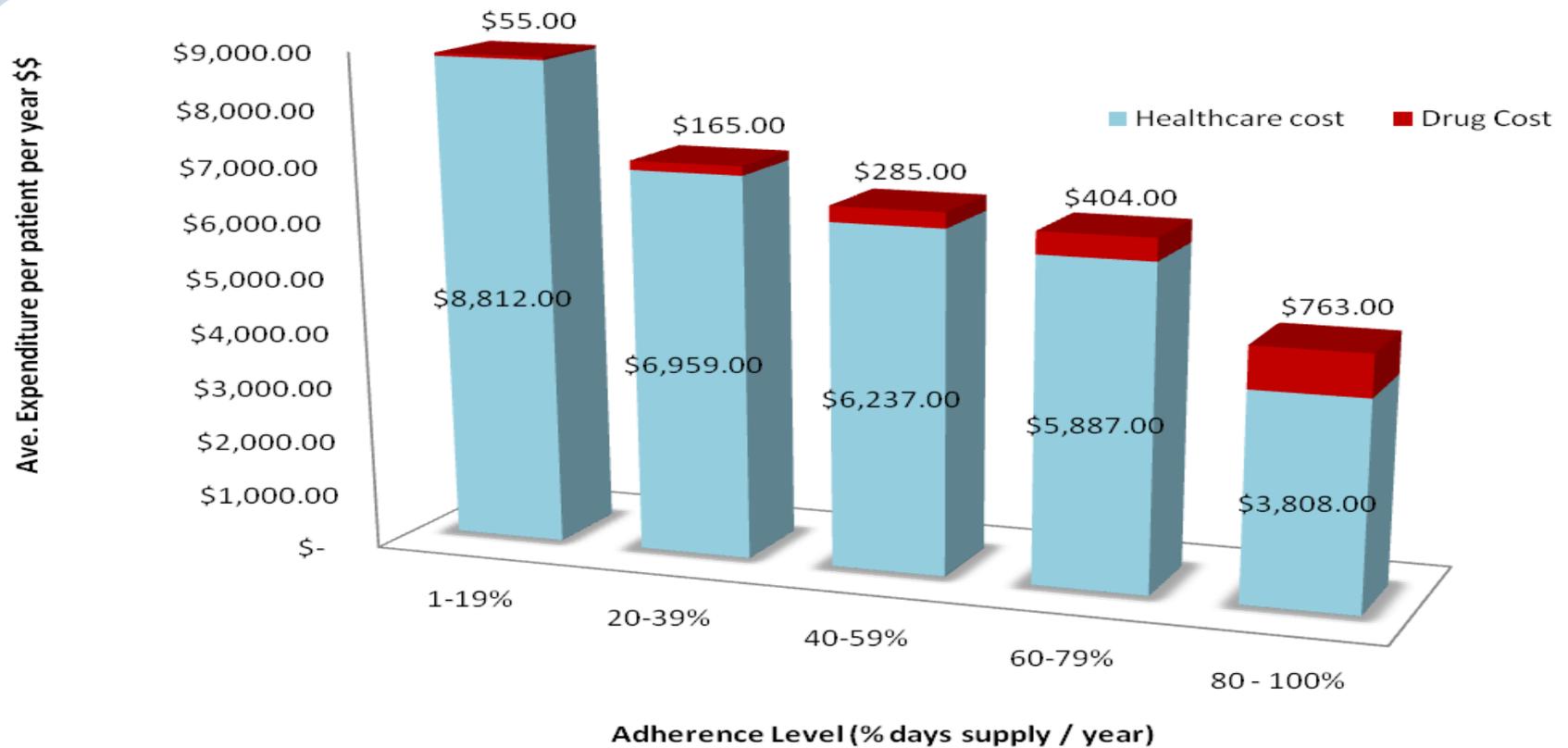
Cost / patient with CAD episode due to non adherence :
Before CAD episode: \$2.8K/yr **After CAD episode: \$10.4K / yr**

A typical mid-sized employer with \$10 million in annual claims might be **wasting over \$1 million due to non-adherence**

\$177 - 290 billion in **direct** and **indirect** healthcare costs

Increase in Total Healthcare Costs per Patient per Year

Sokol MC, McGuigan KA, Verbrugge RR, Epstein RS. Impact of medication adherence on hospitalization risk and healthcare cost. *Medical Care*. 2005;43:521-530.



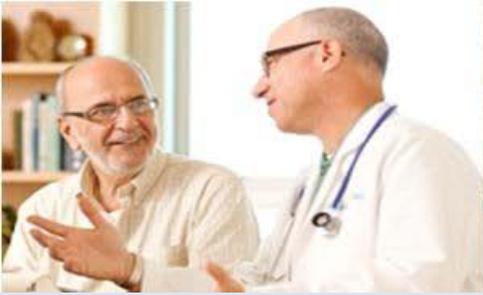
The Evidence when medication is used **effectively...**

40% improvement in mortality when medications are used appropriately (HOPE & S4) * Heart outcome prevention evaluation & Scandinavian simvastatin survival study

J Dudl et al: A.L.L. **Simplified Bundle** of Cardioprotective Medications- **60% reduction** in hospitalizations for MI and stroke

The average benefit-cost ratios from adherence for the four conditions were: **CHF=8.4:1; HTN=10.1:1; DIABETES=6.7:1; DYSLIPIDEMIA=3.1:1**

Higher adherence = lower Medicare spending: A 10% point **increase** in statin MPR = **\$832 lower** Medicare spending per capita.
A 10% point increase in MPR = **\$285 lower** Medicare costs



With this level of impact on our healthcare system – what can we do to make it easier for physicians & providers to help patients use their medications effectively and safely to achieve the best health outcomes

- **Better Health for our Population**

- Break down the problem into manageable components
- Proactive Solution: what can we do proactively 100% of the time `

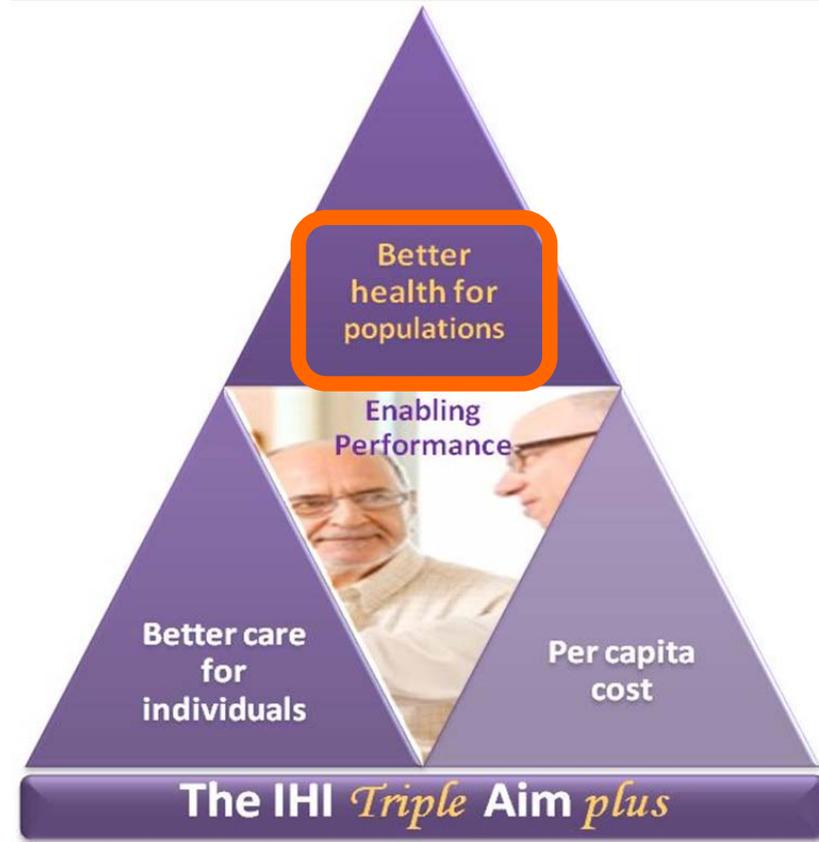
- **Better Care & Medication Use Experience**

- Reactive Solution: What can we do consistently (standardized way) to address medication non adherence at every point of patient contact – **The BSMART Checklist**

- **Better Cost**

- **Enabling Performance through People**

- **Summary**

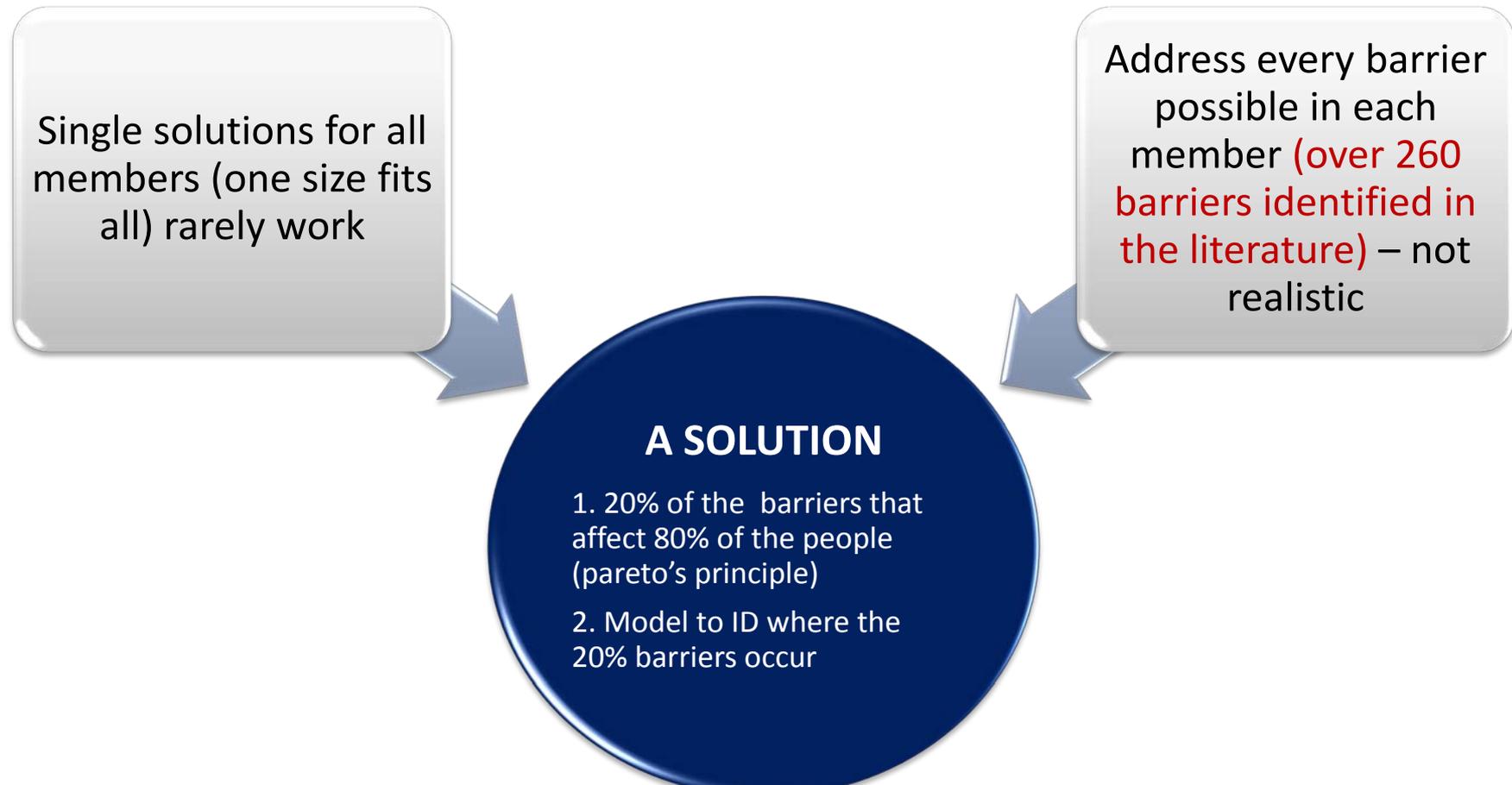


Better health for our population

Barriers . Where Medication Adherence breaks down . Proactive solutions

Barriers and Solutions...

- Because there are many reasons why patients are not taking their medications (MT had at least 3), the solutions have to be multi-faceted



Where medication adherence breaks down

Breaking Medication Non-Adherence up into manageable components

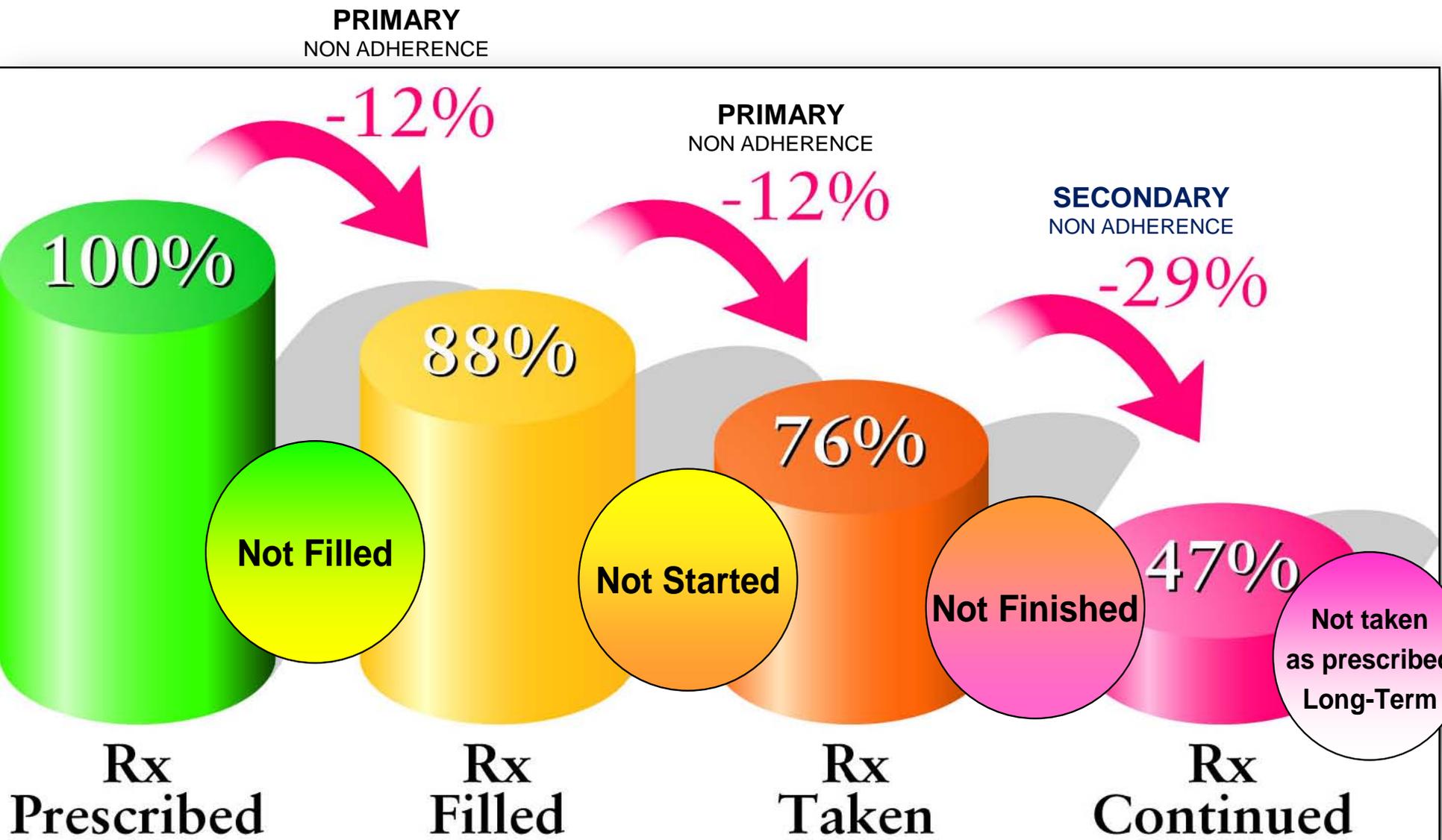
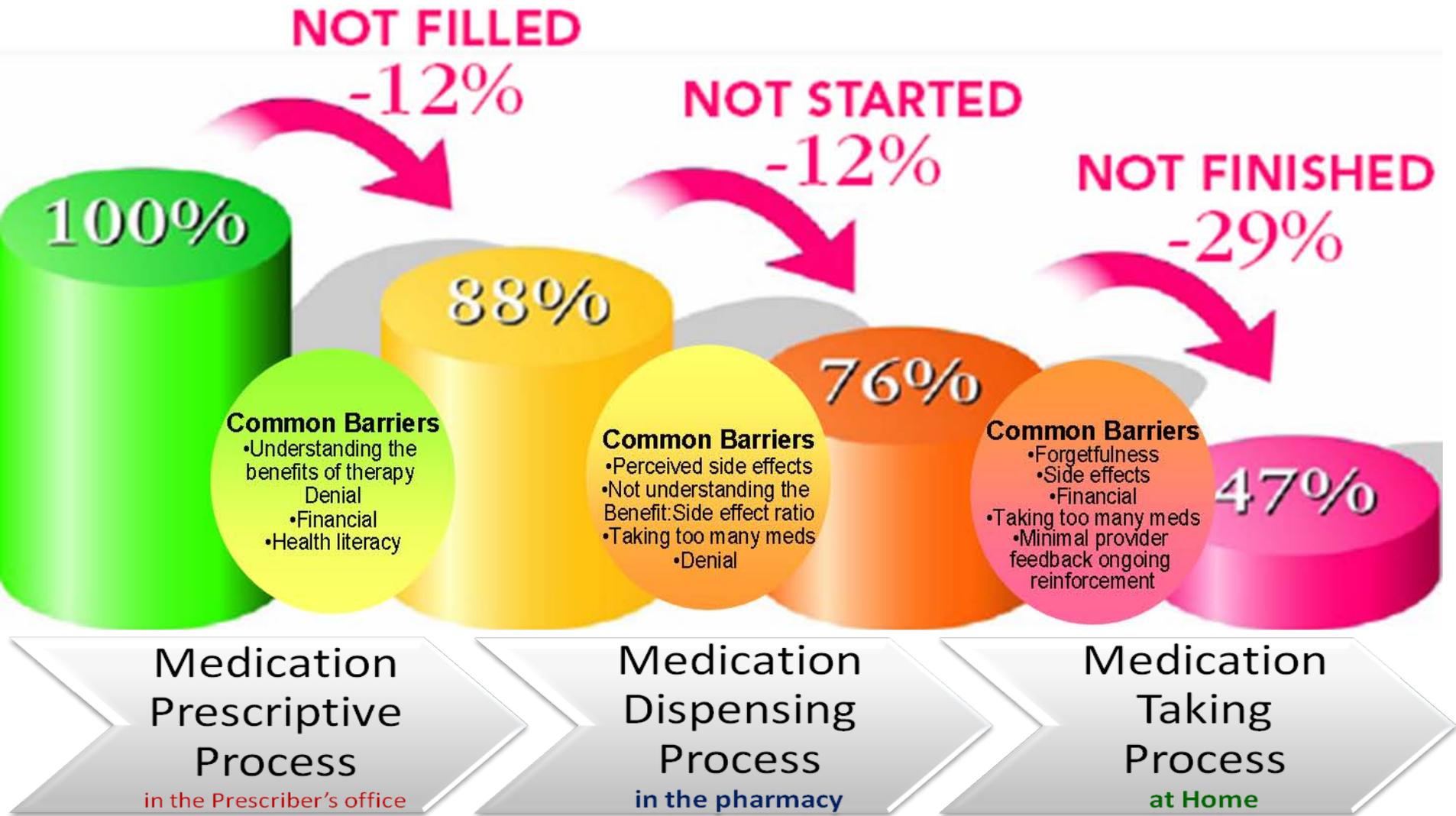


Figure 1. Medication-taking behavior over the MEDICATION USE CONTINUUM (AHA, American Heart Association 2009).

Where medication adherence breaks down

Breaking Medication Non-Adherence up into manageable components



Source: Adapted from American Heart Association, 2009 Statistics You Should Know. www.americanheart.org/presenter.jhtml?identifier=107

Proactive: what
can we do
proactively
100% of the
time to **improve
Medication
Adherence in
our
population?**





Physician and Provider's Office:

Reduce Primary Non Adherence at every point of clinical contact & **improve population health**

Value and Benefit of Therapy: Physician & provider emphasis and reinforcement – in Physician and Provider's office

Educate to focus on the **markers of the disease** (LDL, BP, etc) instead of **symptoms of the disease** as predictors for how well they are doing (many diseases have no symptoms) & set goals

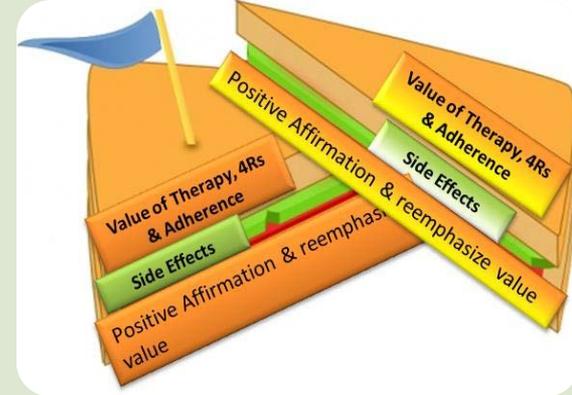
Cost / Financial issues

Adherence Tools

Triage to other health care services



In the Pharmacy:



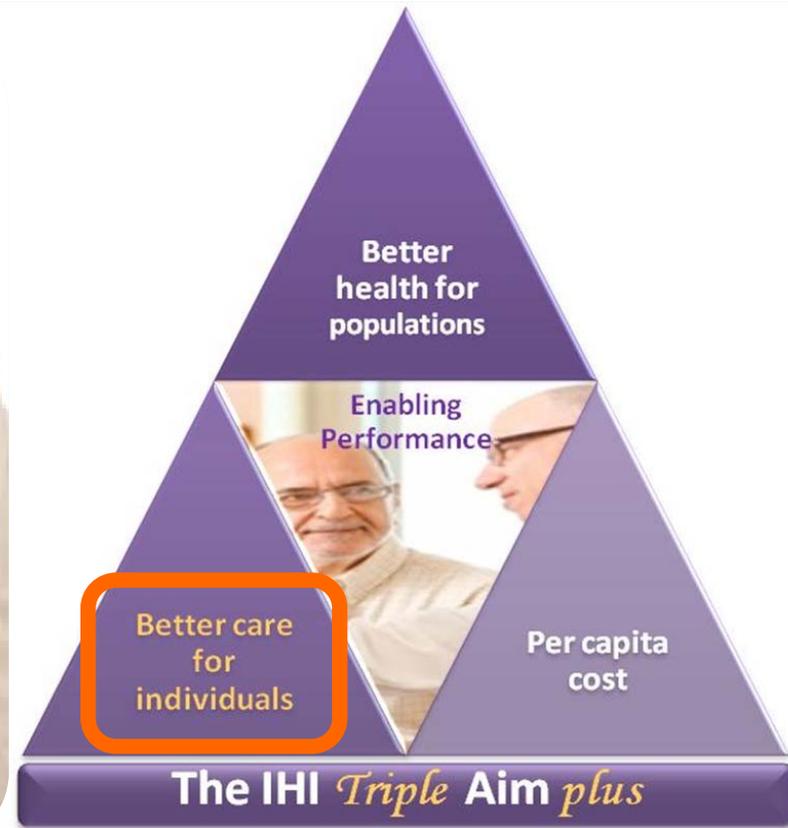
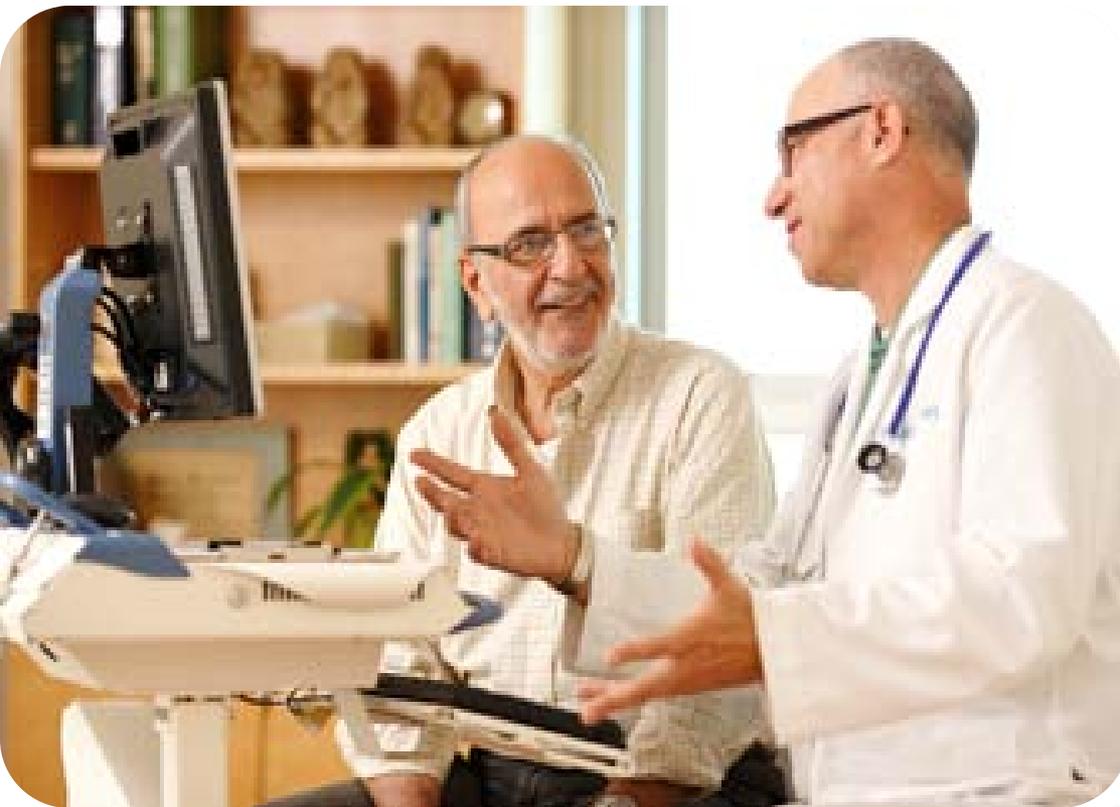
Value and Benefit of Therapy: pharmacist emphasis and reinforcement

Ensure **4Rs** - Right patient, Right medication, Right indication & Right duration of therapy

Provide **Adherence Tools**

The Sandwich Consult

Focus on the importance of adherence – add 1 – 2 pharmaceutical pearls
Address the most common side effects and close with a positive affirmation



Better Care for Individuals

EMR . The BSMART Checklist . Patient Cases

Identify Poor Adherence - Ask or Use EMR Indicators

- Flowsheets
- Problem List
- History
- Letters
- Demographics
- Proactive Care**
- Order Entry
- Imm/Injections
- Allergies
- Medications
- Activity Rx/Forms
- Forms
- Enter/Edit Results
- Doc Flowsheet
- Visit Navigator
- [Hotkey List](#)
- Exit Workspace

Primary Encounter Checklist Specialty Encounter Checklist Regional Outreach S... Che...

Medication Refill Adherence Ratio

Days Supply Remaining

All Meds (Last 20 dispenses in 12 mo)

Date	Drug	Mrar %	Dsr	Qty	Rfd
08/17/09	KPHC SELF-REPORTED ASPIRIN			0	0
07/07/09	NIFEDIPINE ER 90MG TAB "XL"	65	38	100	2
07/07/09	ATENOLOL TAB 50MG	100	53	100	4
07/02/09	METFORMIN HCL TAB 500MG	100	33	300	1
07/02/09	SIMVASTATIN TAB 80MG	67	23	90	3
06/25/09	POTASSIUM CL ER TAB 10MEQ			200	3
06/24/09	AMLODIPINE 10MG TABS	100	25	100	1
06/24/09	ENALAPRIL MALEATE TAB 5MG	81	40	100	3
06/17/09	FEXOFENADINE HCL TAB 180MG			30	1
06/17/09	CLOBETASOL PROPIONATE CRE 0.05%			120	1
06/16/09	HYDROXYZINE HCL TAB 25MG			30	2
05/29/09	HYDROCHLOROTHIAZIDE TAB 25MG	100	3	100	3

05/29/09	HYDROCHLOROTHIAZIDE TAB 25MG	100	3	100	3	03/18/09	211	46	134
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Case #1: Mr. MT – multiple barriers



Barriers

- Lack of understanding of the benefit vs. risk
- Forgetfulness
- Side effects
- Financial
- Belief system

Solutions - multifaceted

- **Value and Benefit of Therapy:** Physician & provider emphasis and reinforcement – in provider office
- **Educate** to focus on the **markers of the disease** (LDL, BP, etc) instead of **symptoms of the disease** to predict how well they are doing (many diseases have no symptoms) & set goals
- **Cost / Financial issues**

Motivate / Adherence Tools / Triage to other health care services

The BSMART Checklist

Barriers * Solutions * Motivation * Adherence Tools * Relationships & Roles * Triage

- Is a Systematic Mental Adherence **Checklist** for Physician and Provider's to improve concordance at the beginning of therapy, compliance to the regimen, and persistence over time
- **Consistent (standardized way)** to address medication non adherence at every point of patient contact – **Secondary Non Adherence**



CHECKLIST

The B-SMART Checklist



- ☑ **Barriers:** Identify barriers and assess readiness to change
- ☑ **Solutions:** Provide targeted solutions to adherence challenges
- ☑ **Motivation:** Help patients to help themselves – goal setting and self management

CORE

- ☑ **Adherence Tools:** Provide tools, including pill boxes, reminder calls, kp.org refill reminders, alarm systems, etc
- ☑ **Relationships:** Establish / maintain positive patient-provider relationships
- ☑ **Triage:** Direct patients to other resources in the broader health care system for support, education, and monitoring (health education, care management, etc)

Augment
the
CORE

Case #2: Mr. GS



Identify **Barrier**: ASK

“Based on your prescription refill pattern, it appears that you are not taking your high cholesterol medication as prescribed. **What gets in the way of you taking your medication?**”

- **Answer (from patient):** “My family says I don’t need it” or “I don’t believe in taking medication.”

Barrier – Cultural biases

Solution: Value & EDUCATION Using the L.E.A.R.N framework to explore and understand patients’ beliefs

- L – Listen with empathy and understanding to the patient’s perception of the problem.
- E – Explore and understand the patient’s beliefs (utilize an interpreter when needed) and explain your perceptions of the problem.
- A – Acknowledge and discuss the similarities and differences between the provider and patient’s beliefs.
- Be respectful of the patient’s beliefs; do not discount what the patient is saying, especially if he or she believes it’s working.
- R – Recommend treatment. Based on these insights, develop a medication plan that will minimize these conflicts. Whenever possible, offer patients the counsel and information necessary to maintain both their faith and their health.
- N – Negotiate an agreement. When appropriate, include family members in medication discussions and stress the importance of family support in long-term chronic conditions.

Motivate: at EVERY point of contact – Encourage / Empathize / Congratulate

ART: Adherence tools / Relationship / Triage to health education and other programs as needed

The B-SMART Checklist

Barriers * Solutions * **Motivation** * Adherence Tools * Relationships & Roles * Triage

- **Support** – a marathon not a sprint

- **Motivate** at every point of contact:
 - Encourage,
 - Congratulate,
 - Empathize

- Set Goals

Encouraging letter

Dear Mr. ,

Your cholesterol is much improved! Congratulations! Continue your cholesterol medicine to help keep your arteries open.

Component	Latest Ref Rng	1/11/2011	3/17/2011
CHOL	<200	338 (H)	179
TRIG	<150	268 (H)	184 (A)
HDL	>=40	49	48
LDL CALC	<100	235 (H)	94
CHOL/HDL	<5.0	6.9 (H)	3.7
ALT	17-63 units/L	64 (H)	46

Be well,
Ron Scott, MD

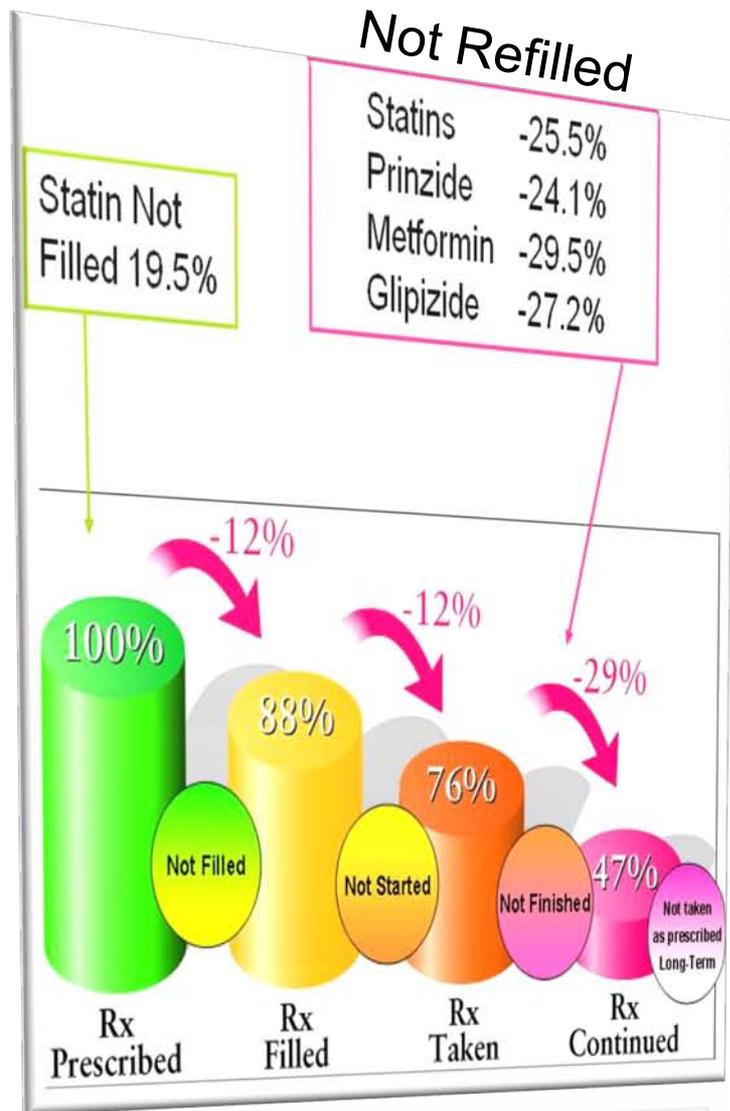
kp.org
800-954-8000

The B-SMART Checklist

Barriers * Solutions * Motivation * **Adherence Reminders & Tools** * Relationships & Roles * Triage

Reminder Outreach:

- **Primary Non-Adherence Call:** within 1-2 weeks:
16% improvement in Rx fills
 - **Secondary Non-Adherence:** for refills overdue by 2 – 6 weeks
41% improved refill rate; improved A1c and LDL
- +
- **Medication adherence reminder messages and health education classes**



The B-SMART Checklist

Barriers * Solutions * Motivation * Adherence Tools * Relationships & Roles *

Triage

- **Denial**
- **Health Literacy issues**
- **Difficult Patients**
- **Financial**
- **Others**

Triage/Referral Resources

- Care / Case Management
- Behavioral and Social Medicine
- Health Education Classes
- Patient's Physician and Provider (for Care Managers and pharmacists)
- Pharmacist (for Care Managers and Providers)
- Community Programs
- Financial Assistance Programs
- Website Tools & Coaching
- KP.org: Drug encyclopedia and health encyclopedia
- <http://kphealtheducation.org>

**Outpatient
Pharmacy
Clinical
Services
(OPCS)
PILOTS using
BSMART
Methodology**

**CAD / DM
Medication
Adherence pilots in
13 pharmacies
N = 3800+ pts**

- Outpatient Pharmacists intervening on diabetic patients and/or CAD with HbA1c > 8 and/ or LDL >100 and MRAR is <80

**Persistent use of
beta-blocker
treatment after
heart attack pilot**

- Medication Adherence pilot - Patients (age 18 and older) who were hospitalized and discharged after an acute MI who received treatment with beta-blockers for six months after discharge

RESULTS: OPCS Regional Diabetes and CAD medication adherence pilots

In 13 pharmacies (n=3800+ patients touched and 7000+ interventions):

Clinical Outcomes

Over **3800+** non adherent patients interventions

Consultation by OPCS pharmacist yielded **67% improvement in meds restarts**

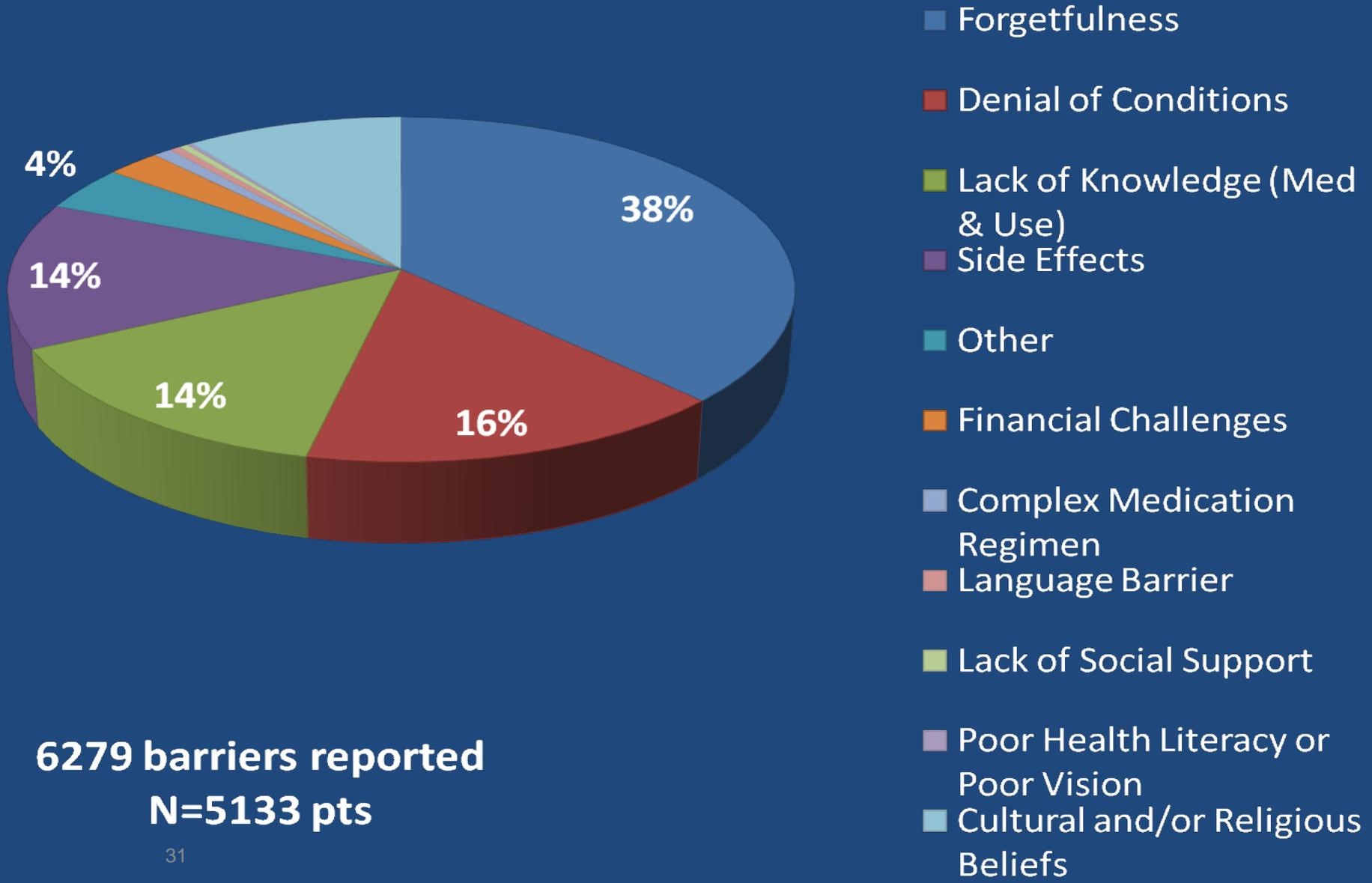
41% improvement in subsequent refill rate

0.7% decrease in A1c and improved screening rates

18.5 mg/dL decrease in LDL-C and improved screening rates

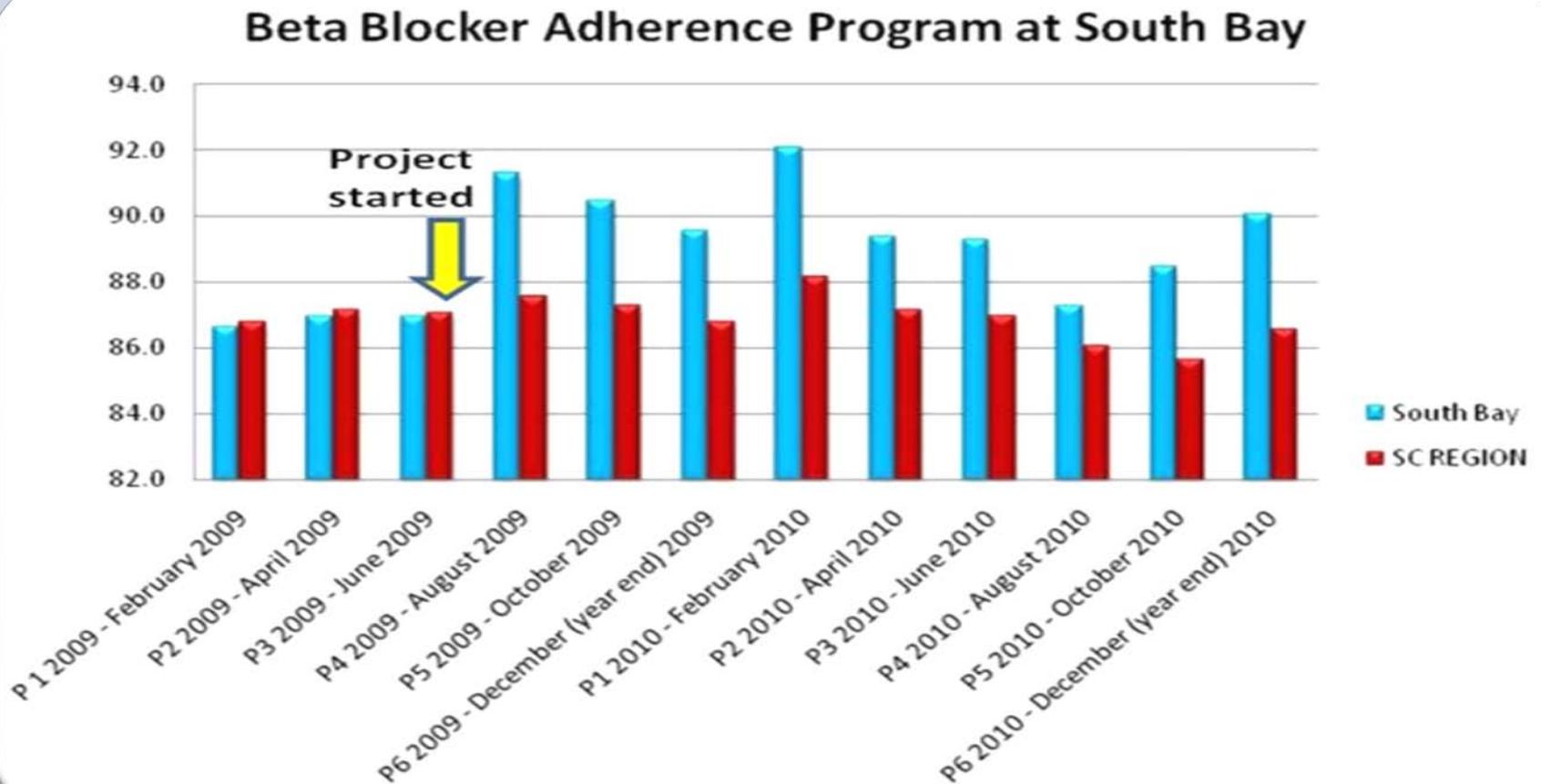
Medication Adherence Barriers

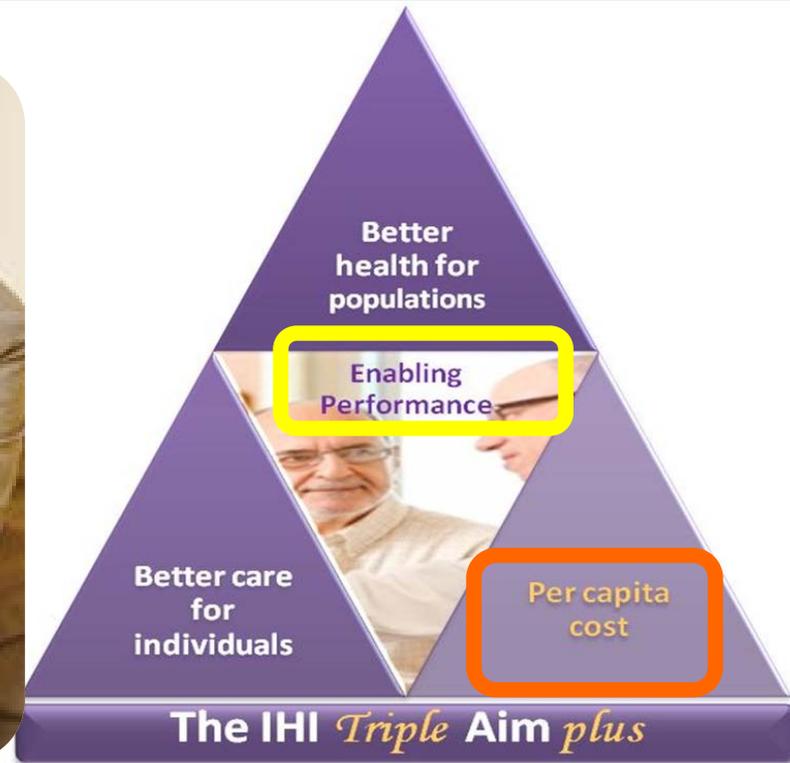
Among OPCS DM and Hyperlipidemia pts



6279 barriers reported
N=5133 pts

RESULTS: Post MI Beta Blocker Pilot Project:





Improved Cost Per Capita

By addressing drug costs and total overall health care costs

Enabling Performance Through People

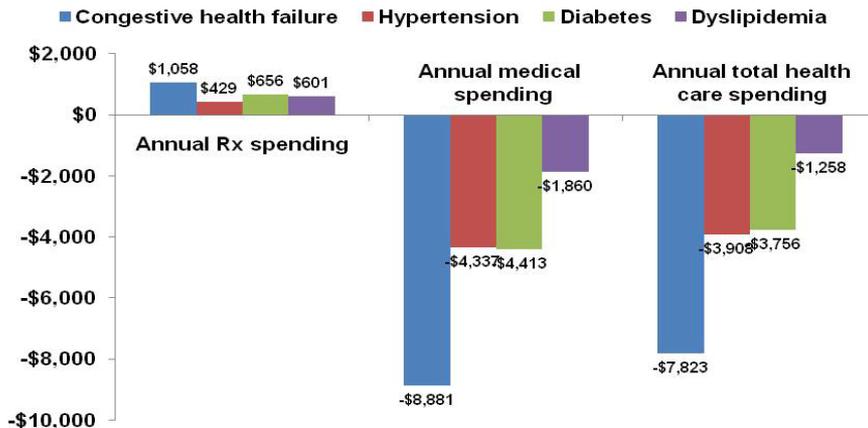
Regional and local leadership, accountabilities, and collaborations across entities and organizations

Better Cost Per Capita

- There's evidence that by spending a bit more on medication and bolstering prescription drug adherence among patients, total health spending can be lowered for vascular medical conditions. The study and data which leads to this conclusion is published in [Medication Adherence Leads to Lower Health Care Use And Costs Despite Increased Drug Spending](#) appears in the January 2011 issue of *Health Affairs*

Impact of Medication Adherence in Chronic Vascular Disease
On Health Services Spending, 2005-2008

Targeted, Higher Pharmacy Spending Can Bend the Health Cost Curve



Source: Medication Adherence Leads To Lower Health Care Use And Costs Despite Increased Drug Spending, Health Affairs, January 2011.

- The average benefit-cost ratios from adherence for the four conditions were:
 - 8.4:1 for CHF,
 - 10.1:1 for hypertension,
 - 6.7:1 for diabetes,
 - 3.1:1 for dyslipidemia
- Furthermore, **improving medication adherence** as described in this study would **avert hospital admissions for patients with vascular conditions**, which would enhance millions of Americans' quality of life and productivity
- **Higher adherence = lower Medicare spending:** A 10% point increase in statin MPR = \$832 lower Medicare spending per capita. A 10% point increase in MPR = \$285 lower Medicare costs (HSR: Health Services Research 46:4 August 2011)

Enabling Performance through People: **PACE**



- **P**artnership & Allies

- A sense of urgency / Leadership / Regional and Local Sponsorship / Physician & Non-Physician Champions

- **A**ccountability: Quarterly Reports to track performance

- **C**ommunication

- Presentations / Newsletters / Emails / All modes of communication

- **E**xternal collaborations

- National Consumer's League, Institute of Healthcare Improvement, Pharmacy Quality Alliance, National Coalition for Patient Involvement in Education (NCPIE), NEHI, others

Case #1: Mr. MT after 6 months...

HbA1c = 7.7, LDL = 101, BP = 124/80



• Barriers & Solutions

- Takes his Metformin with breakfast and dinner
- Takes his Beta blocker at night to reduce dizziness
- For Blood pressure: Changed to combo medication (prinzide)
- Uses a pill box to keep track
- Also on Glipizide once daily (& pill box)

• Motivation

- Has action plans with goals to improve his health:
 - Weight loss plan – has lost 15 pounds
 - Reduced smoking – now down to one cigarette a day
 - Tips to develop healthy eating habits and lifestyle

• Adherence Tools

- Uses pill boxes to stay on track
- Sometimes gets an IVR call to remind him to pick up his medications

• Relationship

- Is encouraged by his provider to keep him on track at every visit
- Very satisfied with care from his doctor and staff

• Triage

- Attended Health Education class where he learned to control his chronic conditions and better understand the disease process

But for every success, we still have challenges:

A real patient letter...

08-29-10

ExplainCoreg

Explain Limitation to Coreg to Dr.

In the past the list of prescription drugs I was taking got so long that I got confused and didn't know whether I had taken one or not. There was also a problem of constipation, whether from a particular drug or the combination.

I am trying radical solutions. One is to try Coreg in different strengths, either once or twice a day. I am doing this in combination with exercising for two 30-minute periods, for a total of 60 minutes per day.

I also tried Diovan, since it is supposed to need taking only once a day, and without food. It resulted in a severe nosebleed. When I read that it relaxes blood vessels and they enlarge, I immediately turned away, since I have had bad nosebleeds and necessary cauterizations all my life.

Could he have been switched to another med to help further reduce his BP AND still allow him an active lifestyle?

In recent times I have taken 6.25 mg Coreg pills, but in the beginning eight years ago I took only 3.125 mg, and I find that that is adequate now to bring blood pressure down to about 144/92. That permits me to lead an active life. A lower blood pressure might prolong my life longer, but it would be a life without meaningful activities.

What about a statin to improve his choles. Levels AND reduce plaque buildup?

For cholesterol, I am using Canola margarine. I use it on bread, and potatoes, and in soups.

Until traces of the nosebleed have disappeared, I am skipping the 81 mg enteric-coated aspirin. I do always have children's chewable 81 mg aspirin in my pocket, for if I should ever feel faint.

Our Challenge...Our Opportunity...



No Needless Harm or Deaths from Medication Use:

We will ensure that every patient we know who gets a prescription uses their medications effectively and appropriately to achieve optimal health outcomes



No Needless disease progression and adverse outcomes

related to medication non-adherence in members with chronic conditions by addressing adherence and appropriate medication use management **at every point of contact**



Right Utilization of Tools and Alignment of Resources - making it easier for us to do the right thing for our patients



Our commitment today...and moving forward

Each of us here today will contribute to the Local, Regional, & National efforts - looking for **solutions to improve** Medication Adherence and Appropriate Medication Use



A Call to Action: Improve Health by Improving Patient Adherence & Make the Triple AIM a Reality for All

Better Health * Better Medication Use Experience * Reduced Cost per Capita

“Increasing the effectiveness of interventions to improve adherence could have a far greater impact on population health than any other advancement in medical treatment.”

World Health Organization (WHO) & Haynes RB, Montague P, Oliver T, et al. *Interventions for Helping Patients Follow Prescriptions for Medications*. The Cochrane Library (Oxford); 2001.

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Questions for you to ponder on...

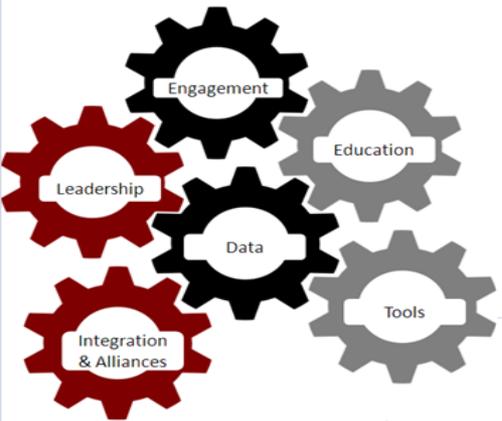
- What is your vision to improve medication adherence in your organization?
- What adherence tools are readily available to make it easier for the patient to do the right thing?
- Is it just a pharmacy initiative or an organization initiative?

Appendix



“Drugs don’t work in patients who don’t take them.” – C. Everett Koop, MD

Reinforcing Mechanisms & Framework to support the building
of a Successful Organizational Approach to Improve **Medication**
Adherence in Kaiser Permanente



Reinforcing Mechanisms

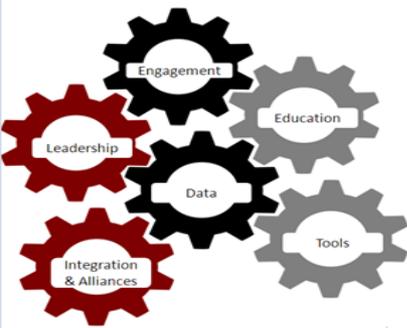
				<p>Phase 5: Integration & Alliances Fully Functional Medication Adherence Systemwide Infrastructure</p>
			<p>Phase 4: Data & Reports Systems & Infrastructure to assess interventions & performance</p>	Integrating Medication Adherence into the LARGER picture of Medication Management - MARTS (Medication Adherence, Reconciliation, Titration, and Safety)
<p>Reinforcing Mechanisms</p>		<p>Phase 3: Tools & Education to support Provider Engagement Addressing Adherence at the point of contact</p>	Target & Benchmarks	Tool to aggregate population data to identify MNA trends - National / Regional / Local
	<p>Phase 2: Tools To identify at Risk Populations</p>	Define Critical Points of Contact to Address MNA	Regional and National Patient Databases	Pay for Performance Practices
<p>Phase 1: Leadership</p>	Identifying Populations with potential medication non adherence (MNA)	Provider Education Programs	Tracking & Trending Cohorts Performance Reports in population cohort at various levels	Research & Demonstration Opportunities & Projects
<p>1. Multidisciplinary Leadership Infrastructure</p> <p>2. Committee / subcommittee / Local Champions</p>	Providers identifying individual patients with potential MNA	Tools to support adherence	Access to Reports timely	<p>1. Alignment Opportunities: Strengthen Internal collaborations</p> <p>2. External Opportunities</p>

Tools and Resources currently available to support the building

of a Successful Organizational Approach to Improve **Medication**

Adherence in Kaiser Permanente

**Phase 5:
Integration & Alliances**
Fully Functional Medication Adherence
Systemwide Infrastructure



Reinforcing Mechanisms

			<p>Phase 4: Data & Reports Systems & Infrastructure to assess Interventions & performance</p>	<p>Integrating Medication Adherence into the LARGER picture of Medication Management - MARTS (Medication Adherence, Reconciliation, Titration, and Safety</p>
		<p>Phase 3: Tools & Education to support Provider Engagement Addressing Adherence at the point of contact</p>	<p>Target & Benchmarks: 1. Medicare Stars 2. Pharmacy Quality Alliance & National Quality Forum 3. HEDIS</p>	<p>Tool to aggregate population data to identify MNA trends - National / Regional / Local</p>
	<p>Phase 2: Tools To identify at Risk Populations</p>	<p>Define Critical Points of Contact to Address MNA: 1. Physician or Provider office 2. Pharmacy 3. Care Management 4. Health Education 5. Others</p>	<p>Regional and National Patient Databases</p>	<p>Pay for Performance Practices</p>
<p>Phase 1: Leadership</p>	<p>Identifying Populations with potential MNA: 1. A Medication Adherence Tool that can capture patients' refill history and flag or run reports on this cohort of patients (this list can then be given to care managers or support staff to contact patients)</p>	<p>Provider Education Programs to make it easier for providers to do the right thing at each point of contact: 1. CMEs on medication non adherence - that focuses on Provider Tools to address and overcome barriers & tips 2. The AHA Medication Taking Behavior Model</p>	<p>Tracking & Trending Cohorts: System to track and assess changes in population adherence based on provider interventions Performance Reports in population cohort at various levels - national / regional / local / provider / pharmacy</p>	<p>Research & Demonstration Opportunities & Projects: to test and validate tools / assumptions / processes</p>
<p>1. Multidisciplinary Leadership Infrastructure 2. Committee / subcommittee / Local Champions</p>	<p>Providers identifying individual patients with potential MNA: 1. Tools to clean the EMR medication lists (eliminating Drug interactions & duplications) 2. MPR (medication possession ratio) and DSR (days supply remaining) available in the electronic medical record 3. Electronic Medical Record (EMR) & Summary Sheets: Integration of medication adherence database into</p>	<p>Tools to support adherence: 1. Clean Medication Lists 2. kp.org Pharmacy Center 3. Electronic Refill Reminders 4. Pharmacy & Care Management: Consultation & BSMART Tools 5. Mail Order</p>	<p>Access to Reports timely: Individual Providers and Pharmacies receive & have access to their own population data</p>	<p>1. Alignment Opportunities: Strengthen Internal collaborations - example IMARS (Interregional Medication Adherence, Reconciliation, & Safety) 2. External opportunities & collaborations: National Consumers League, Institute of Healthcare Improvement, Pharmacy Quality Alliance, Others</p>