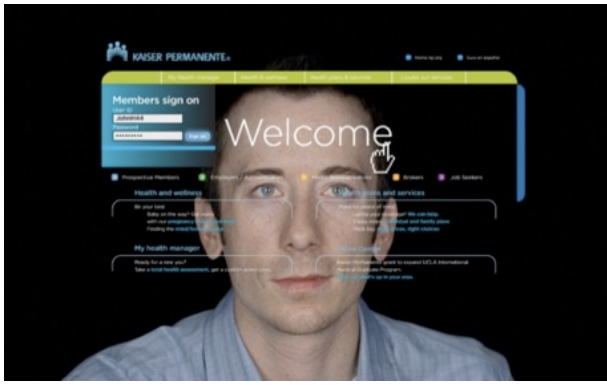
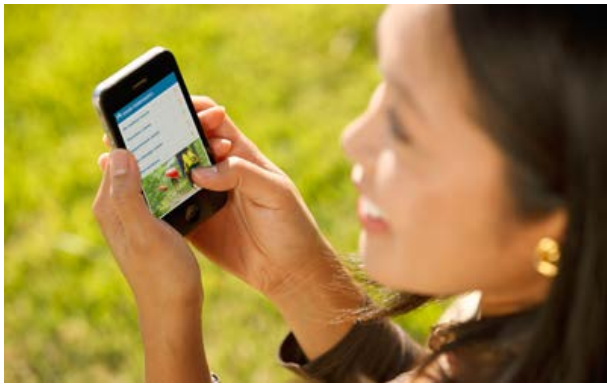
Beyond an Integrated Organization: Best Care with Integrated Data at Kaiser





Terhilda Garrido, MPH
Vice President, Health Information Technology Transformation & Analytics
Kaiser Permanente
Madrid - June 2015
Health System Integration in Spain and Globally: New Evidence

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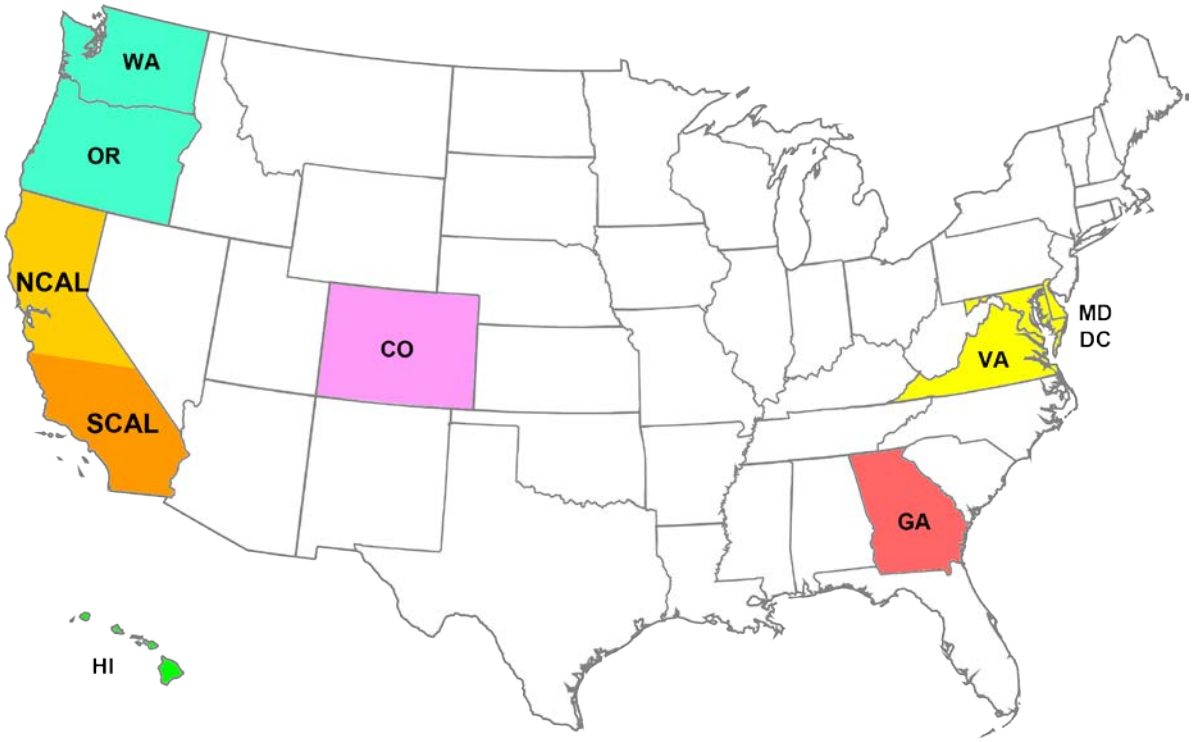
Integrated Data Impact on Health Care at Kaiser

Introduction to Kaiser	• KP's Performance • Our Data Systems
The Value of Integrated Data	• Transparency of Data • Big Q • Tackling Care Gaps with Population Management • Risk Adjustment
'Integrating the Patient'	• Redefining Access/Empowering Patients • Data for the Patient

About Kaiser Permanente

- Nation's largest **nonprofit** health plan
- Integrated health care delivery

3 Organizations in one: Health insurer, hospital system, physician partnerships



- 10 Million Members
- 17K Physicians
- 185K Employees
- 8 States + DC
- 38 Hospitals
- 611 Medical Offices
- $57 Billion-Revenue

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Leading Quality in the USA

- KP has 37 Stage 7 Hospitals of 200 nationwide

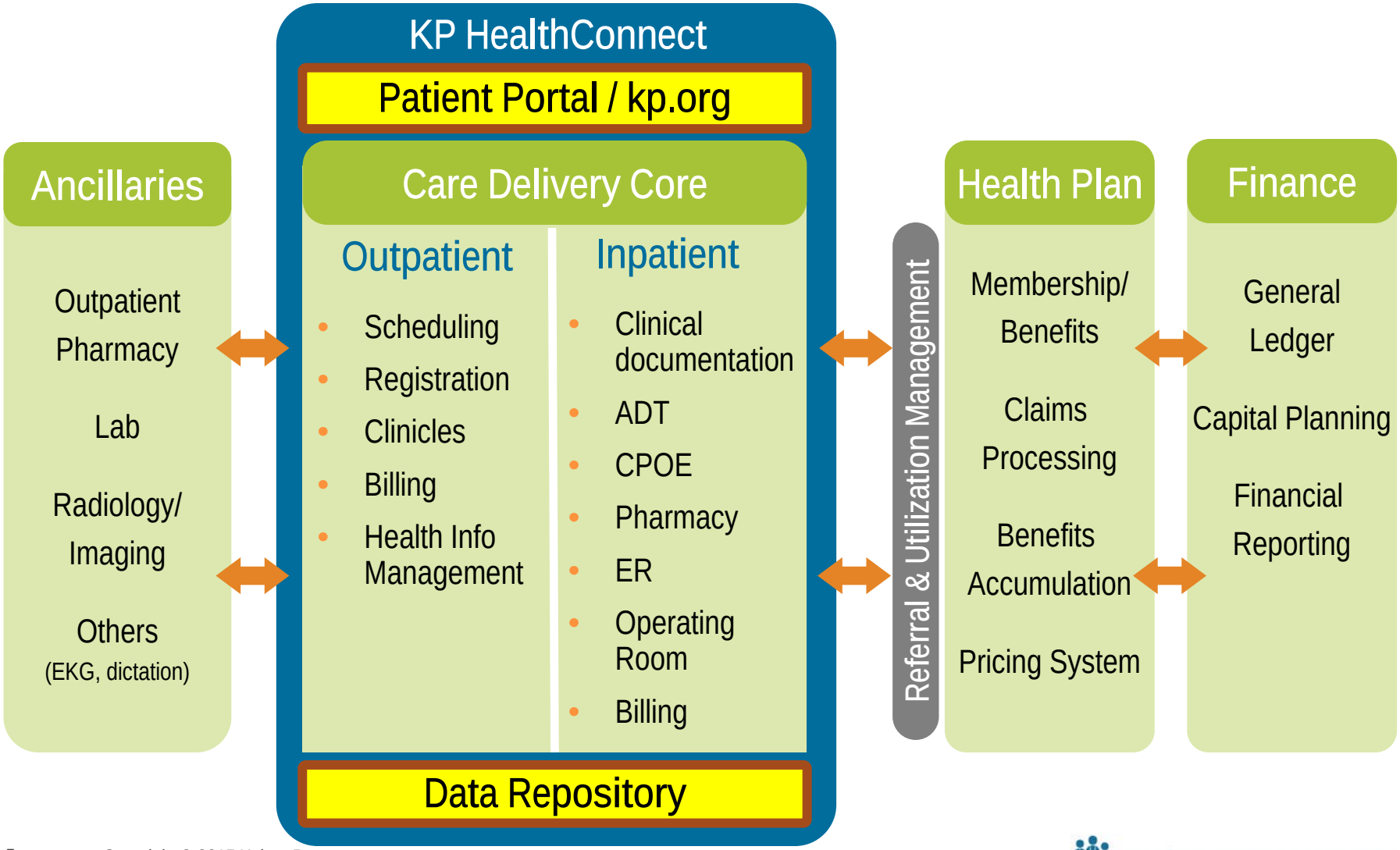
- 32 KP Hospitals were given an "A" grade for patient safety vs. 31% nationwide
- 12 KP hospitals were among the 60 Top Urban Hospitals nationwide

- All KP Plans in Top 9 (of 408) Medicare Plans
- KP in top 5% of Commercial plans
- Most #1's in Effectiveness of Care measures

- KP given Medicare 5 Star Rating in 6 regions

- KP Health Plan ranked highest in consumer satisfaction in all regions

Scope of Kaiser Permanente HealthConnect®



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KPHC Usage

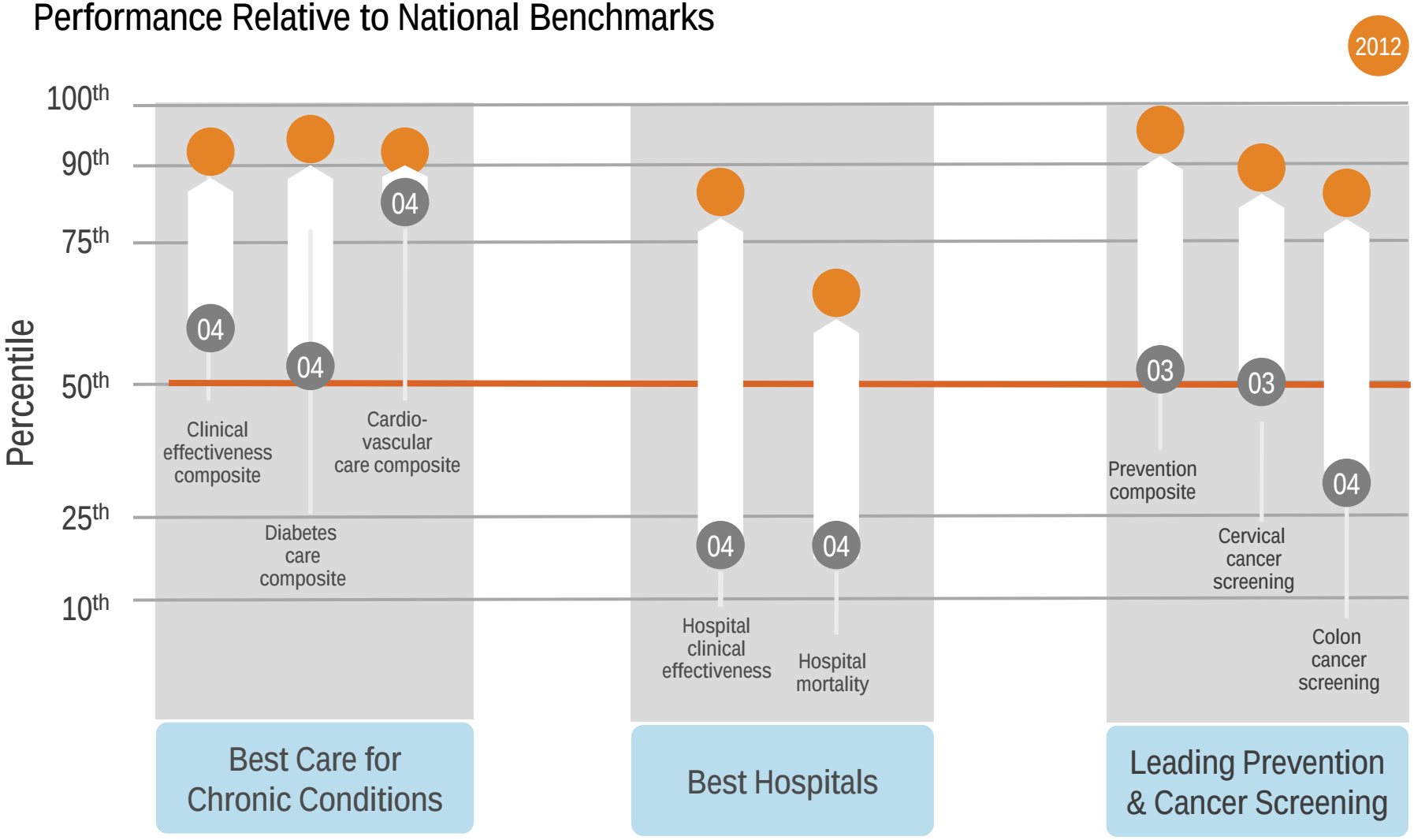
10 Petabytes (PB)

352K	70K	105K	99.96%
Visits Per Day	Concurrent Users	MyChart Log-On's/Day	System Availability

7M	21M	12M	36M
Online Rx Refills/Year	Online Lab Results/Year	Secure Emails/Year	Medical Records

And Our Quality of Care Is Up

Performance Relative to National Benchmarks



Note: Placement of current status and starting points approximate

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Data Story: ‘Big Q’ – Big Quality

1 Organization Level
Strategic Decisions From Data & Performance Transparency

Context	Action	Outcome
Other kinds of companies have a single metric for success: profit. In health care, we seek a balanced scorecard that is widely available.	Kaiser ensures success via a dashboard of 6 dimensions that make up the Big Q.	Monitoring outcomes gives us clear strategic focus for creating value for KP and our patients

Transparency is a Game Changer

"Serious improvement beings with understanding reality. Transparency and honesty are not just assets for better health care, they are preconditions"

- Don Berwick, MD, 2009, Co-Founder of the institute for Healthcare Improvement in 1991, not-for-profit organization "helping to lead the improvement of healthcare throughout the World'"

The Benefits of Transparency

- Allows demonstration of “best”
- Motivates improvement
- Raises the bar on accountability
- Enables learning
- Increases recognition of risk
- Provides information for decision-making

“The Solution”

A balanced set of measures of national performance for KP leadership and regional & hospital operations that:

- Presents a top-level, “big dot” view of overall quality performance
- Enables drill-down by geography and measures
- Shows trends for processes and outcomes over time
- Provides comparative metrics for benchmarking across organizations
- Serves as input to strategic quality improvement planning

Measure What Is Important

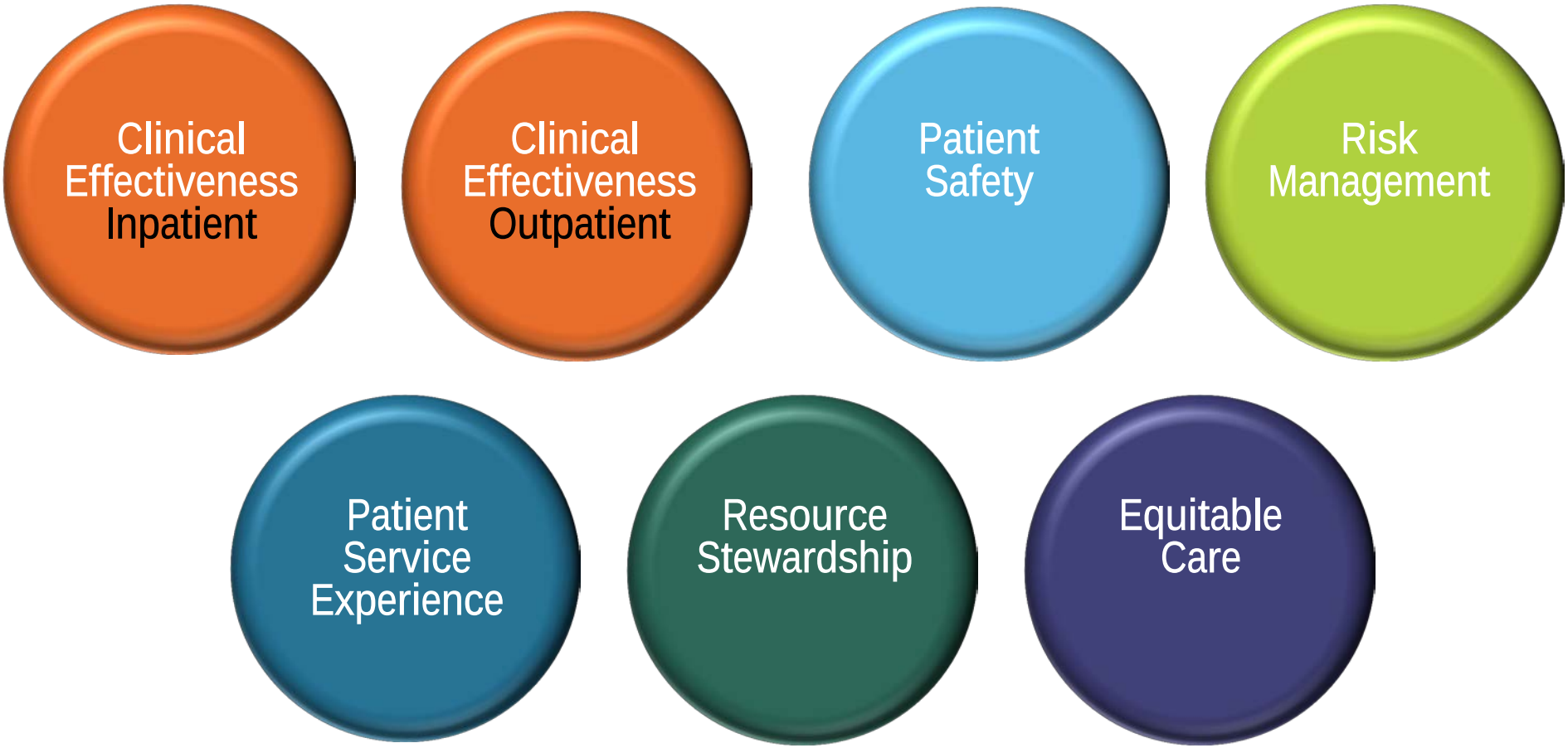
Ideally, Kaiser would measure:

$$\text{Value} = \frac{\text{(Quality of Care x Patient Experience)}}{\$ \text{ Cost of care}}$$

From a patient's perspective.

But this is too difficult. Instead we use a "Balanced Score Card" approach.

Big Q - Big Areas of Focus



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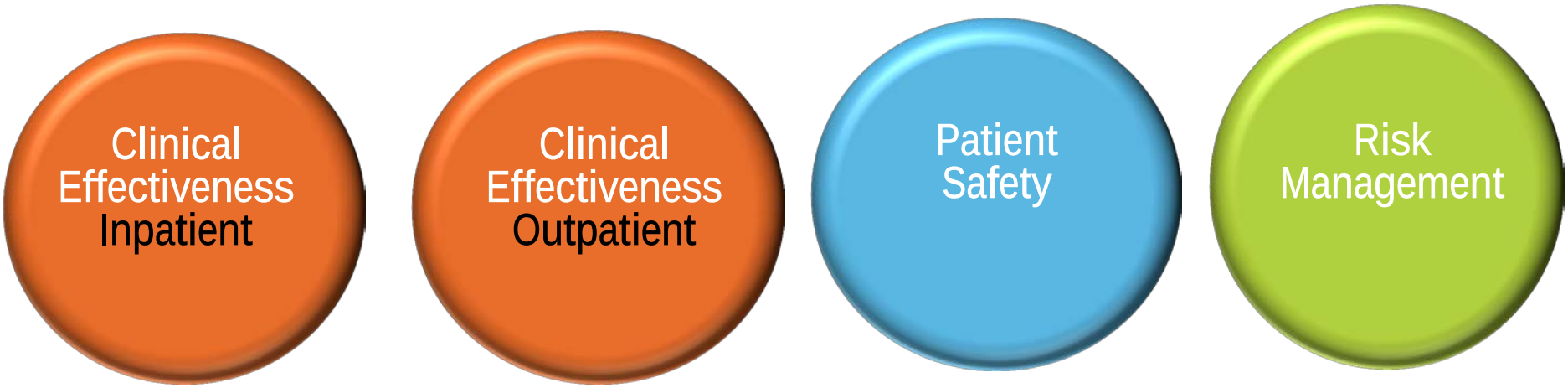
Big Q - Big Areas of Focus in 2006



- Hospital Mortality Rate
- The Joint Commission measures

- HEDIS Composite

- Count of 'Never Events'
- Hospital Acquired Infections

- Malpractice Claims

- Hospital patient survey (HCAHPS)
- Clinic patient survey (CAHPS)

- Operating PMPM$
- Hospital Patient Days

- To Be Determined

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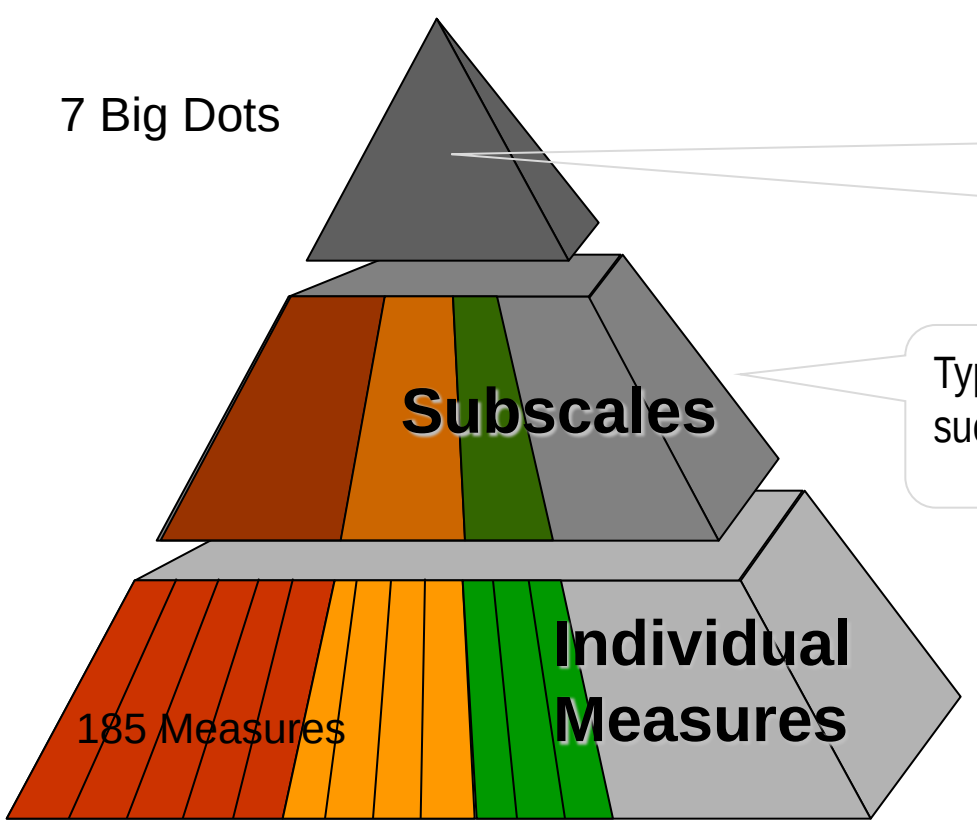
The Initial Version* (2006)

The First 7 Measures:

1. Hospitalized Standardized Mortality Ratio,
2. HEDIS Composite Index,
3. Joint Commission Composite Index,
4. Days elapsed between Never Events,
5. Medical Malpractice Claims Rate
6. Overall Rating of HealthCare by the patient (CAHPS & HCAHPS)
7. Unadjusted Operating Cost Per member per month

* Based upon joint work with the Institute for Healthcare Improvement. Reference: Martin LA, Nelson EC, Lloyd RC, Nolan TW. *Whole System Measures. IHI Innovation Series white* paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2007.

A Hierarchy of Measures



The top-level Index is typically a 'Big Dot' such as the TJC or HEDIS Composite.

Typically, a natural grouping of measures such as diabetes, CHF or asthma.

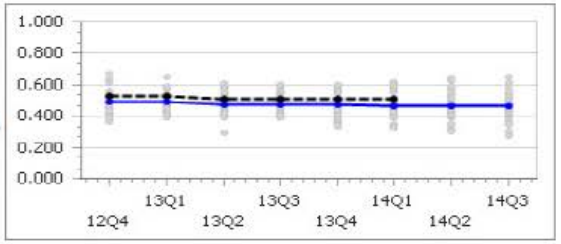
Increasing level of detail

*The user chooses the best match for their reporting purpose

Clinical Effectiveness

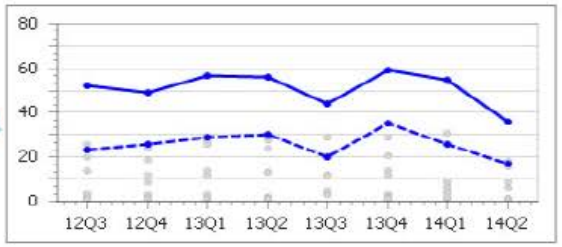
Hospital Standardized Mortality Ratio

Period	Low	KP	High	USMED
2014 - Q3	BPK: 0.274	0.463	SAC: 0.613	n/a



Safety

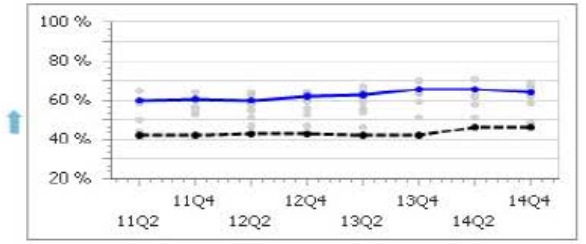
SRAE Composite (Counts)



Service

Health Plan Rating(%9-10)

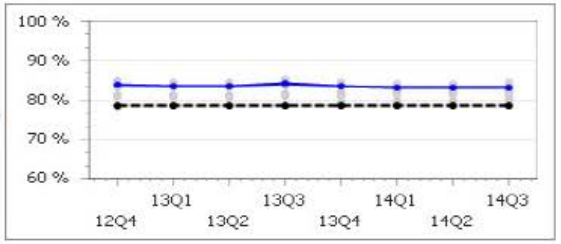
Period	Low	KP	High	NAT75
2014 - Q4	CO: 48.8%	64.1%	SCAL: 68.4%	46.2%



Clinical Effectiveness

HEDIS Composite

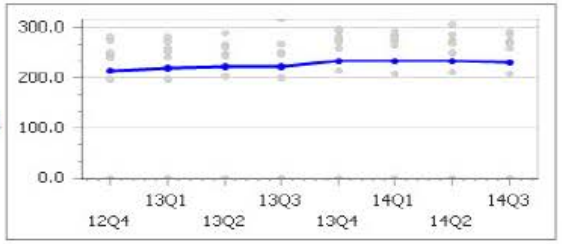
Period	Low	KP	High	HEDIS90
2014 - Q3	GA-AD: 78.6%	83.4%	SCAL: 84.7%	78.5%



Resource Stewardship

Selected Services Cost PMPM, Comm-HMO, Risk-Adj

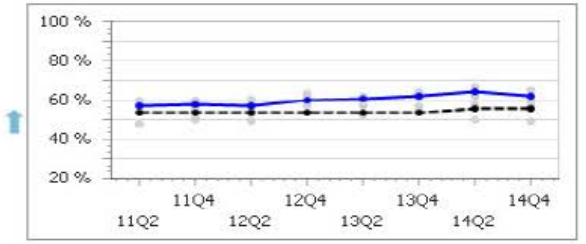
Period	Low	KP	High	Target
2014 - Q3	SCAL: 207.9	232.4	GA: 292.4	n/a



Service

Health Care Rating(%9-10)

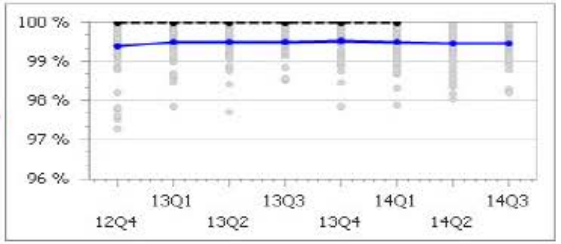
Period	Low	KP	High	NAT75
2014 - Q4	CO: 49.5%	62.0%	MA: 65.0%	55.8%



Clinical Effectiveness

TJC Composite

Period	Low	KP	High	TJC90,TJCNAT
2014 - Q3	FRE: 98.2%	99.5%	PC: 100.0%	n/a

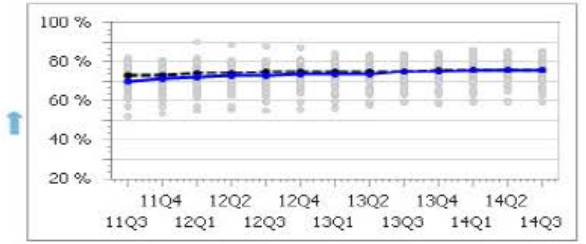


Big Q

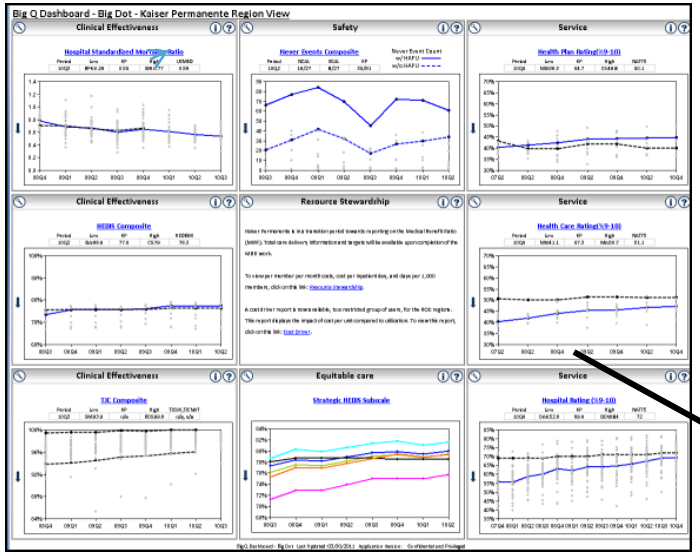
Service

Hospital Rating (%9-10)

Period	Low	KP	High	NAT75
2014 - Q3	OAK: 63.2%	75.8%	WMC: 85.0%	76.0%

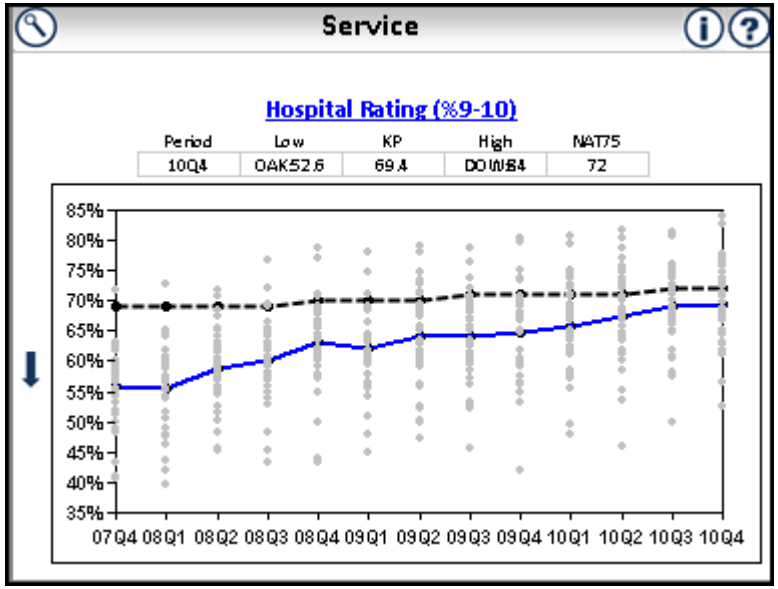


Two Levels of Reporting: (1) Top Level & (2) Detail



A balanced set of measures to denote system performance on one easy to read/interpret dashboard.

One frame to show trend, variation, target and benchmark for a key performance measure.



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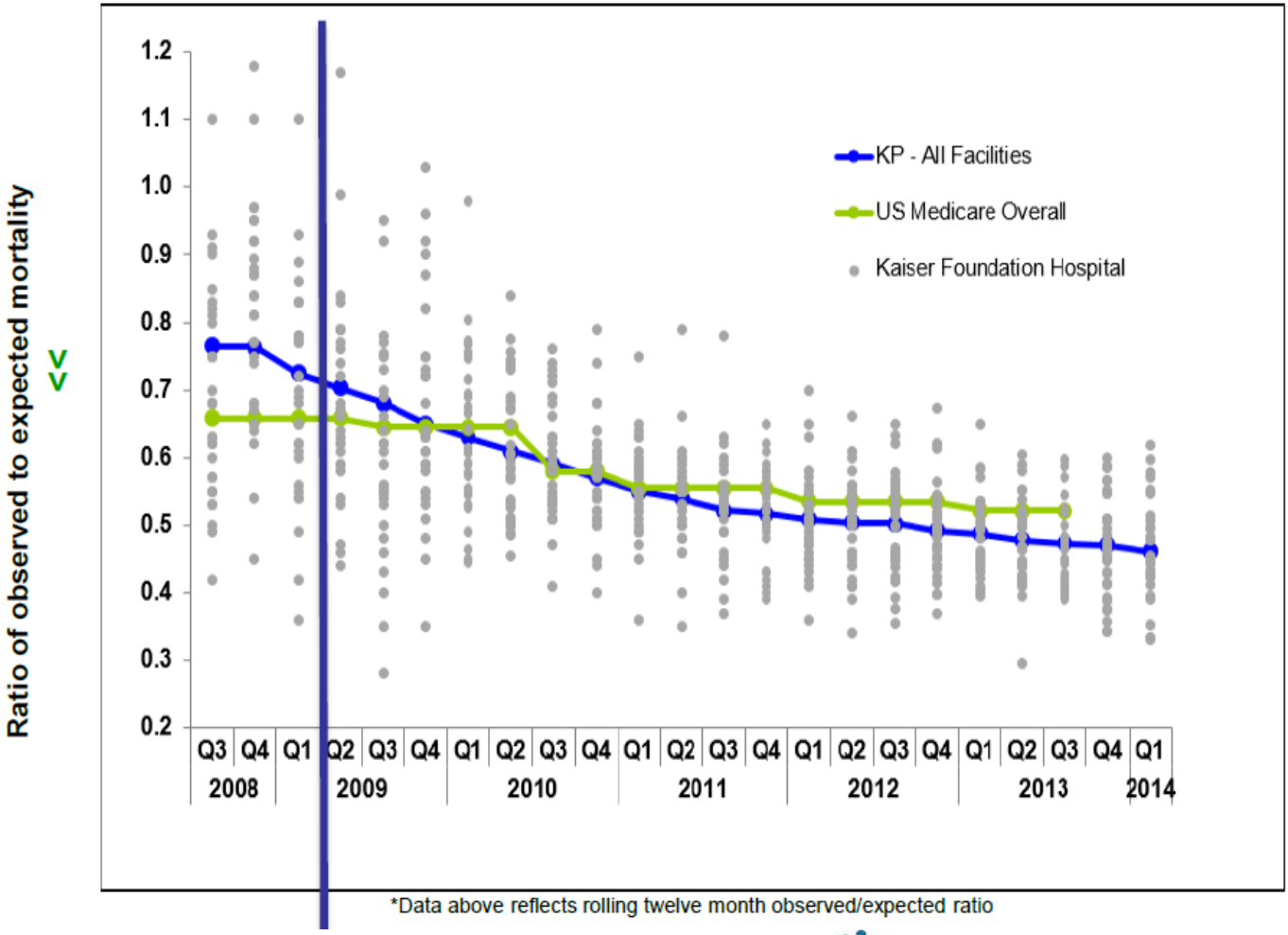
Impact Example 1: Hospital Standardized Mortality Ratio (HSMR)

- First presentation of HSMR to the National Quality Committee in 2006
- Program-wide HSMR Summit with Sir Brian Jarman in 2008
- Major sepsis process improvement and mortality reduction initiative kicked off in California in 2008-09
- Mortality "deep dive" conducted and presented to senior leaders in 2009
- Ongoing work since 2010 to assure adequate number of hospice contracts, and more widespread adoption of inpatient and ambulatory palliative care programs

Ratio of observed versus expected mortality among KP Medicare patients with diagnoses accounting for 80% of inpatient mortality after being adjusted for selected patient-mix and community variables. Algorithm created by Sir Brian Jarman, a British physician.



*Data above reflects rolling twelve month observed/expected ratio

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Spain's Opportunity

2 The advantage of geographically based care!
Spain can take care of ALL of the patient's needs and resolve care gaps

Kaiser is also geographically based and divides the care and the data reporting into many levels of aggregation:

- National
- Regional (7)
- Medical Center (38)
- Department
- MD or MD panel (19,000)

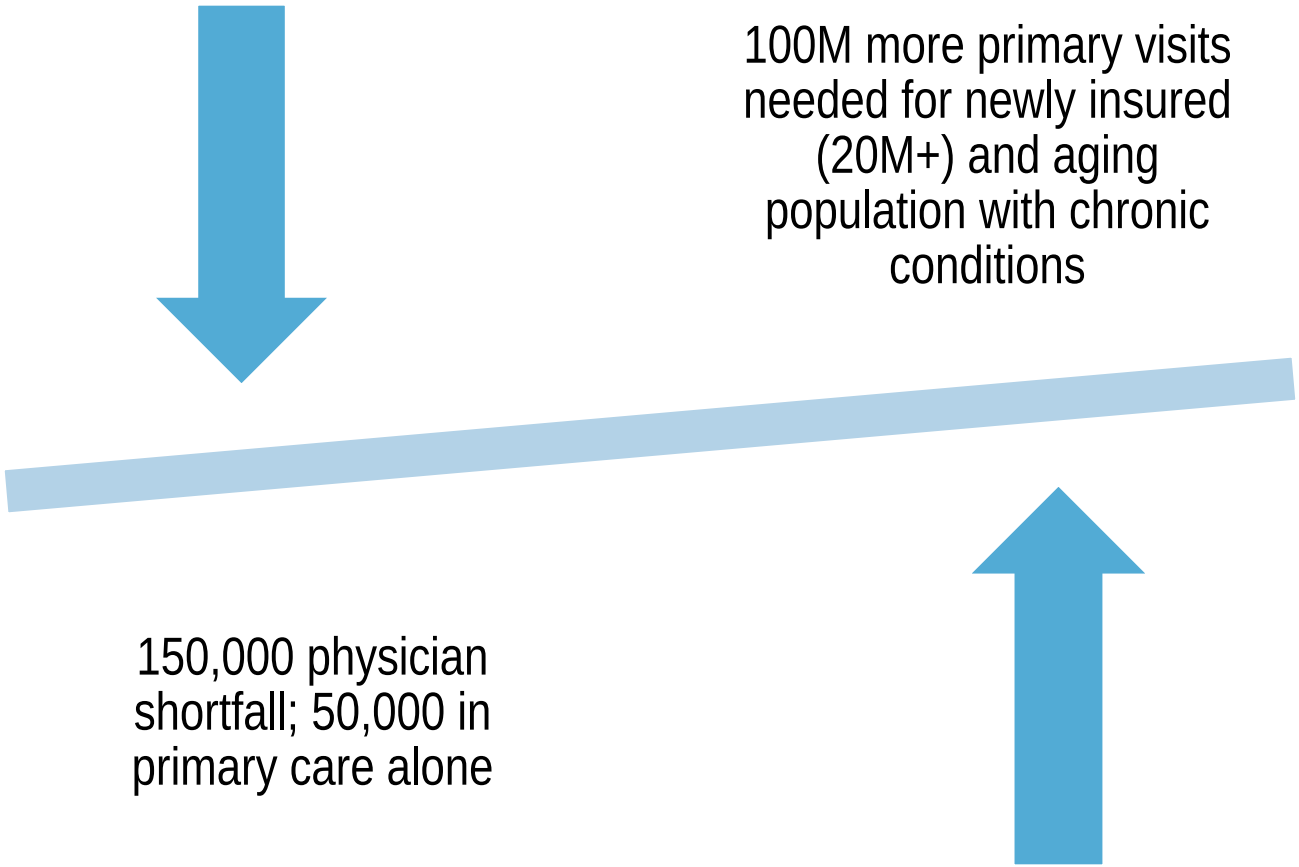
  For example, each primary care MD has about 2200 patients in their MD panel

Failings of a Visit-Centric System*

Cost	• $200B Avoidable chronic condition costs • $125B Routine and/or unnecessary visits • This does NOT include costs to patients
Quality	• Infrequent measurement • Sampling errors of measurement • No real incentives for improving quality
Engagement	• Little inter-visit engagement (on either side) • Hard to maintain behaviors & adhere to plan

*Daniel Sands, MD, MPH Harvard Medical School – 2014 Bio Medical Informatics Conference, May 2015

The Current Model is Unsustainable in the USA



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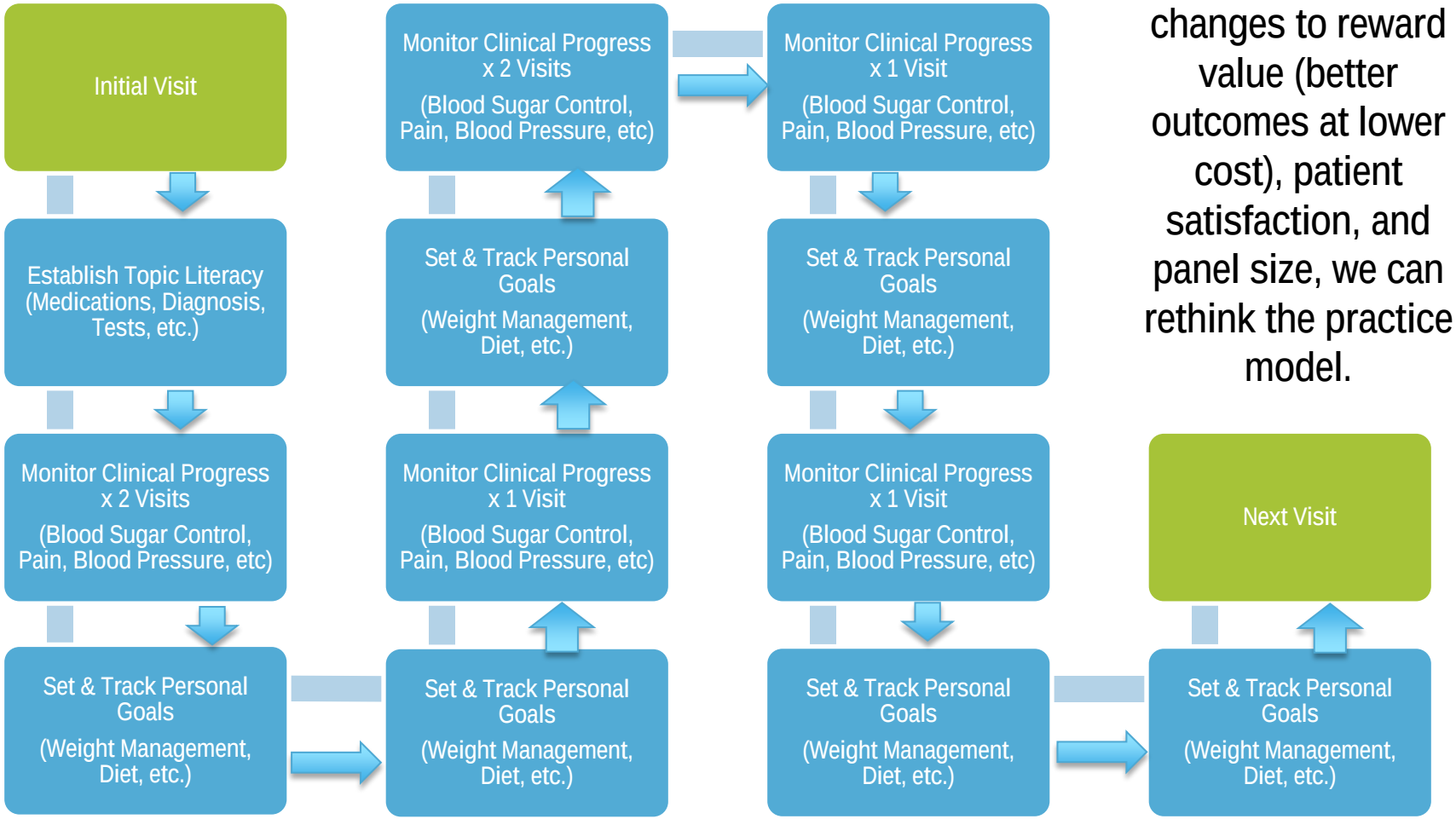
But Health Happens Between Visits



As Payment changes to reward value (better outcomes at lower cost), patient satisfaction, and panel size, we can rethink the practice model.

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KP's Population Care

Focus

Chronic Conditions

- Asthma
- Coronary Artery Disease
- Hypertension
- Diabetes
- Congestive Heart Failure
- Chronic Kidney Disease

Systems

Team-Based Care

- Proactive Office Encounter
- Panel Management
- Medication Adherence
- Health Education

Technology

Electronic Health Record

- Clinical Decision Support
- Secure Messaging
- Registries
- Outreach by IVR, Text, etc.
- KP.org Member Portal

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The Old Way	The New Way
• Disease focused – individual care for each disease	• Shift to population health
• 100% care delivered in hospitals/clinics • Intensive care management programs expensive	• Increased percentage of care delivered virtually • Care management programs customized
• Paper dependent tracking systems	• Electronic tracking
• No transparency of performance	• Full transparency
• Patient/family passive role	• Full patient/family engagement
	• Predictive capability using Big Data

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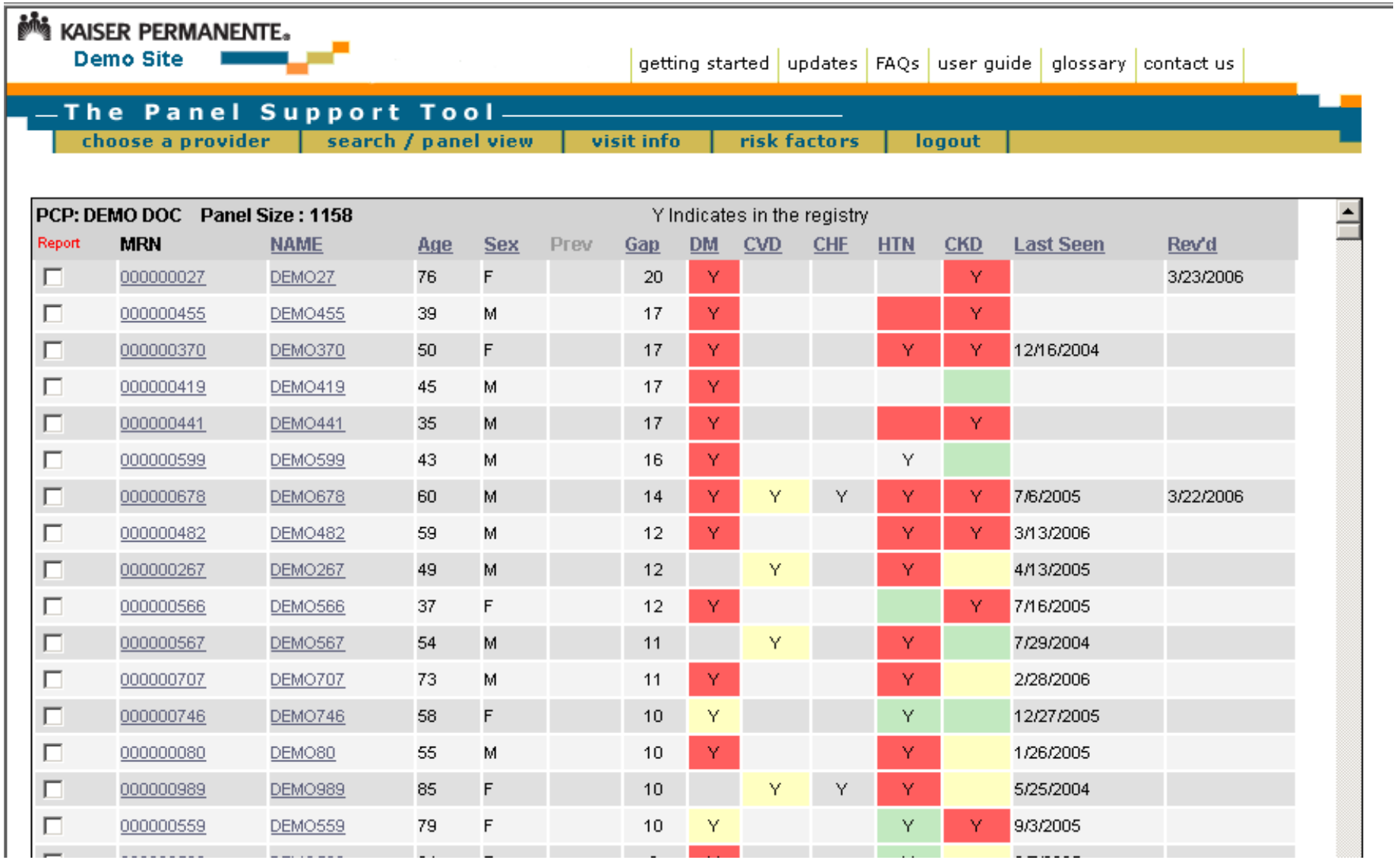
Patient Population Tools



Report	MRN	NAME	Age	Sex	Prev	Gap	DM	CVD	CHF	HTN	CKD	Last Seen	Rev'd
☐	000000027	DEMO27	76	F		20	Y				Y		3/23/2006
☐	000000455	DEMO455	39	M		17	Y				Y		
☐	000000370	DEMO370	50	F		17	Y			Y	Y	12/16/2004	
☐	000000419	DEMO419	45	M		17	Y						
☐	000000441	DEMO441	35	M		17	Y				Y		
☐	000000599	DEMO599	43	M		16	Y			Y			
☐	000000678	DEMO678	60	M		14	Y	Y	Y	Y	Y	7/6/2005	3/22/2006
☐	000000482	DEMO482	59	M		12	Y			Y	Y	3/13/2006	
☐	000000267	DEMO267	49	M		12		Y		Y		4/13/2005	
☐	000000566	DEMO566	37	F		12	Y				Y	7/16/2005	
☐	000000567	DEMO567	54	M		11		Y		Y		7/29/2004	
☐	000000707	DEMO707	73	M		11	Y			Y		2/28/2006	
☐	000000746	DEMO746	58	F		10	Y			Y		12/27/2005	
☐	000000080	DEMO80	55	M		10	Y			Y		1/26/2005	
☐	000000989	DEMO989	85	F		10		Y	Y	Y		5/25/2004	
☐	000000559	DEMO559	79	F		10	Y			Y	Y	9/3/2005	

Taking Accountability for Patient Populations

Clinical Outcomes in Southern California

Metric	Improvement	Lives Saved Per Decade[1]
Blood Pressure Control	38.9%	5,341 Lives
Colorectal cancer screening	30.2%	4,788 Lives
Cholesterol Control	21.8%	1,751 Lives
Blood sugar control	11.5%	1.088 Lives
Smoking Cessation	17.0%	955 Lives
Breast Cancer Screening	11.4%	570 Lives
Cervical Cancer Screening	5.9%	59 Lives

Over 14,000 Lives Saved[1]

1/ Based on NCQA Quality Dividend Calculator

Kaiser Permanente member Mary Gonzales talks about her experience with KP, and how a receptionist using KP HealthConnect prompted and scheduled her for a mammogram.

Population Care in a Fully Integrated System

- **Integration** – Medical Group, Hospital, and Insurance all in one system – develop the right systems and most efficient workflow
- Unified cost structure that creates **Incentives** allowing you to do the right thing – capitated payment for the system or population
- **Clinical Information systems** that allow for population management and the right thing to get done easily (EBM, reminders, monitoring, feedback)
- Culture of **Quality Improvement** – Collaborative, shared innovation, dissemination of best practices – find the right ways to do things
- Expertise in **Implementation** – Know how to diffuse and drive changes in the organization using our infrastructure and culture

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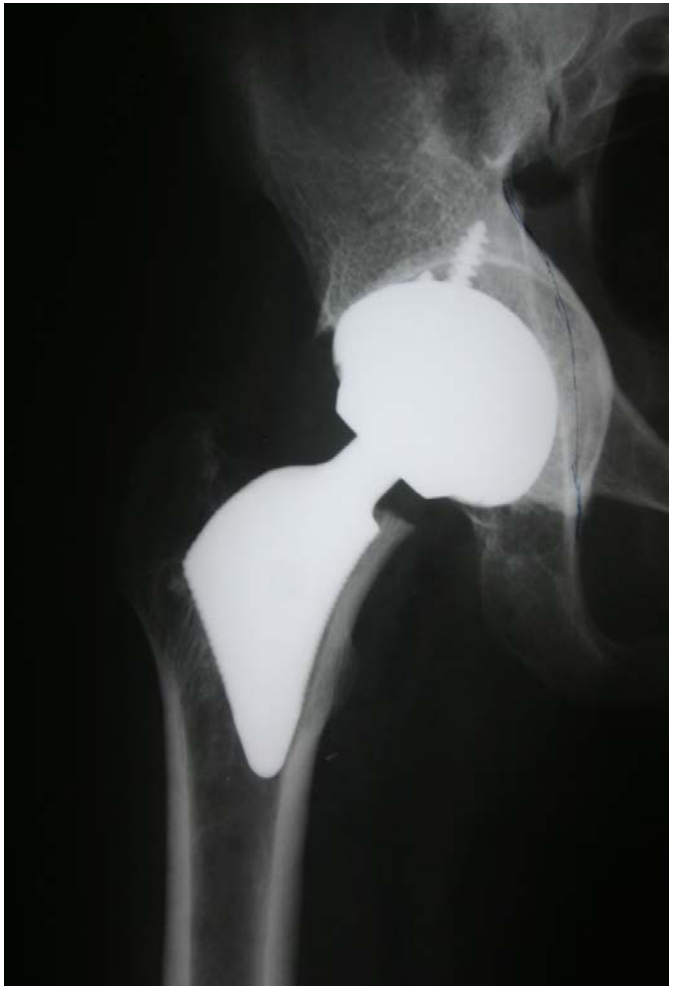
Risk Adjustment

For any measurable factor that impacts utilization but is NOT determined by the health care system

- Age (0-64, 65+)
- Age (in finer increments)
- Gender
- Chronic Conditions
- Illness Burden (e.g. DxCG)



Risk Adjustment

Used For:

- Capitation payments to the medical groups
- Budgets for hospitals and clinics
- Quality comparisons
- Segmenting patients

Segmentation - Matching Care to 65+ Needs

1. Healthy	2. Chronic Conditions	3. Advanced Illness	4. Frailty & End of Life
			
15-20%	60-65%	10-15%	5-7%
Usual Care	*Population Care*	*Complex Care*	

Benefits:

- Services are aligned to needs of each Care Group
- Person-Centered care is based on individual needs and values
- Geriatrics services are utilized optimally
- Health care is more cost effective

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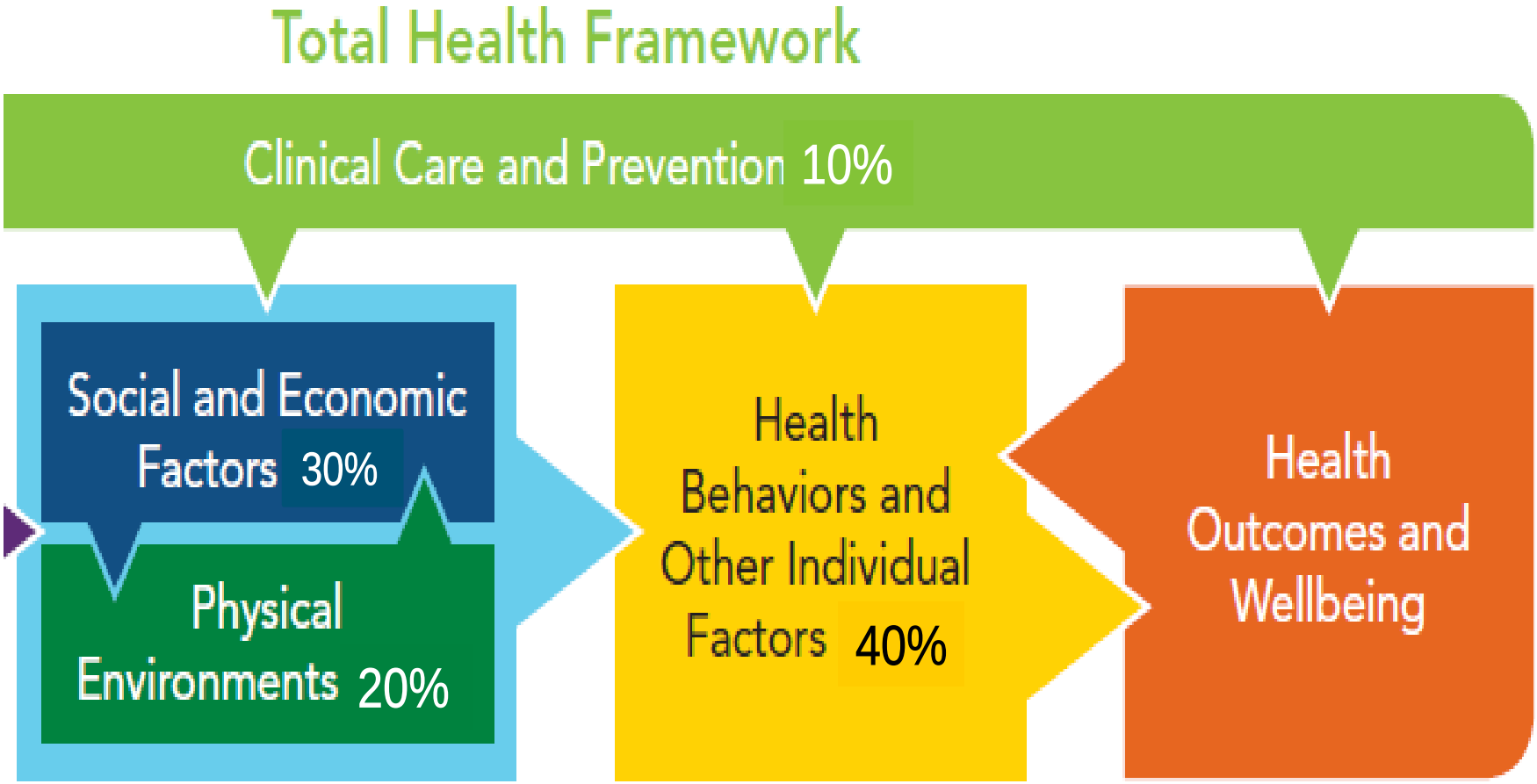
Health Behaviors Are The Largest Determinant of Health



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Engaging Patients as Partners

Improving Adherence, Health and Cost Outcomes

David S. Sobel, MD, MPH

Patient Behavior and Self-Management: A Major Driver of Quality and Cost

Lifestyle choices and health behaviors have significant impact on:

- ☑ Health status
- ☑ Medical utilization and costs
- ☑ Productivity
- ☑ Health disparities

Quality excellence and cost-efficient care depends on:

- ✓ patients deciding to obtain preventive services
- ✓ taking prescribed medications
- ✓ improving their health behaviors (from chronic conditions self-management to diet and exercise, from smoking cessation to stress management)

David Sobel, MD – sobeldavid@gmail.com

Health Behavior Change

"Changing behaviors represents the single biggest opportunity to improve health outcomes while bringing costs under control."

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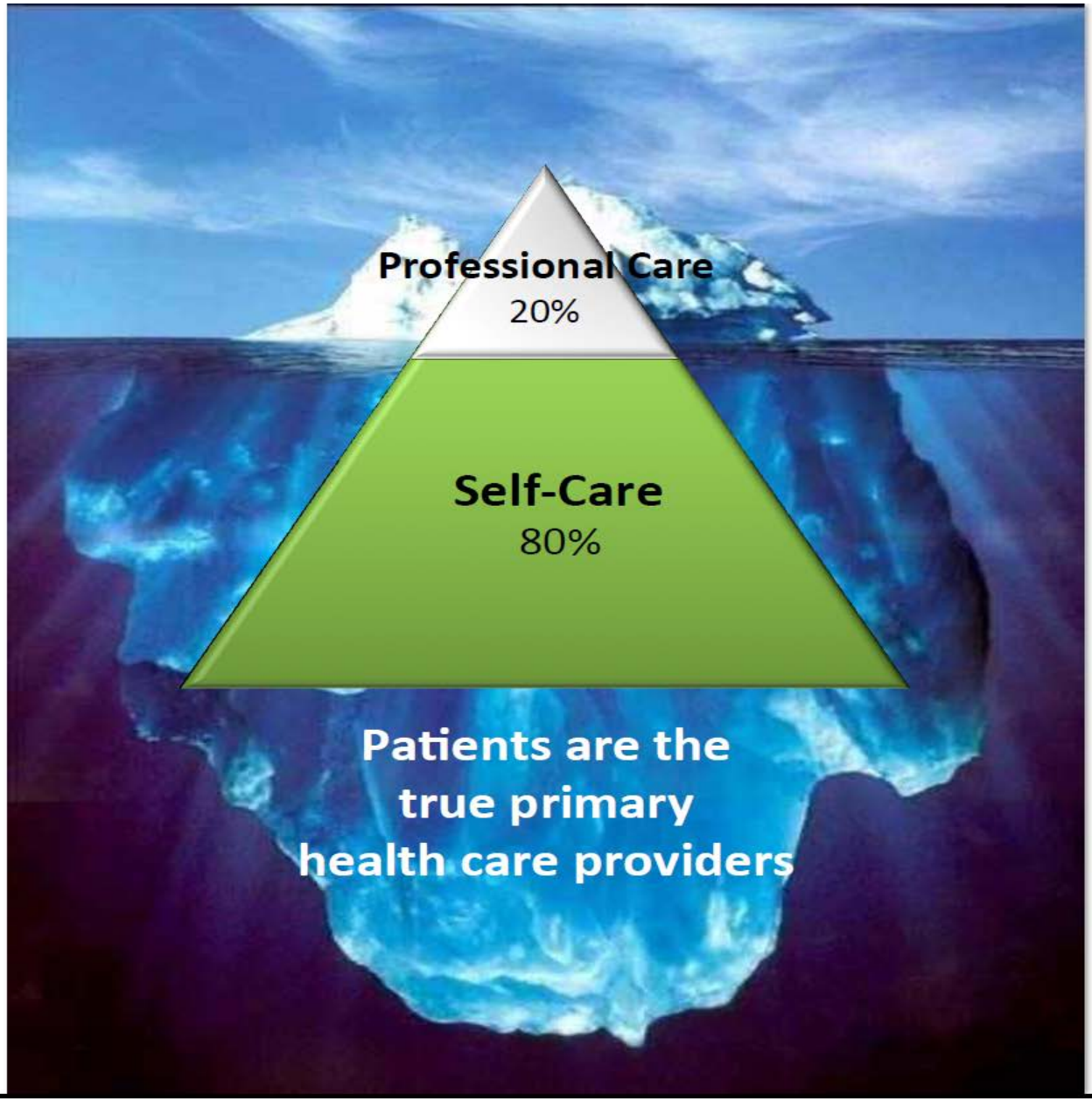


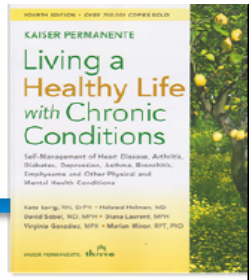
David Sobel, MD – sobeldavid@gmail.com

Self-Care: Patients as Providers

- Over 80% of all medical symptoms are self-diagnosed and self-treated without professional care.
- People are not passive consumers of health care, but the true primary care providers for themselves and their families.
- People are the most underutilized resource for quality improvement and cost containment.
- How can health care systems educate, equip, and empower patients as the true primary care providers?

David Sobel, MD – sobeldavid@gmail.com

Healthier Living:
What we learned about OUTCOMES



- Improves health behaviors, self-efficacy and health status (pain, fatigue, health distress, role function, etc.)
- Cost effective (estimated 5:1 to 10:1 ROI) from reductions in hospital days, ED and physician visits
- Outcomes are long-lasting and robust (2+yrs.)
- Replicable and dissemination can yield outcomes as good, or better.

Lorig K et al *Medical Care* 1999;37:5-14
Lorig K, Sobel DS, *Effective Clin Practice* 2001;4:256-262
Lorig K, et al *Medical Care* 2001;39:1217-1223

David Sobel, MD – sobeldavid@gmail.com

Activated, Engaged Patients: Incur Less Costs

EXHIBIT 2

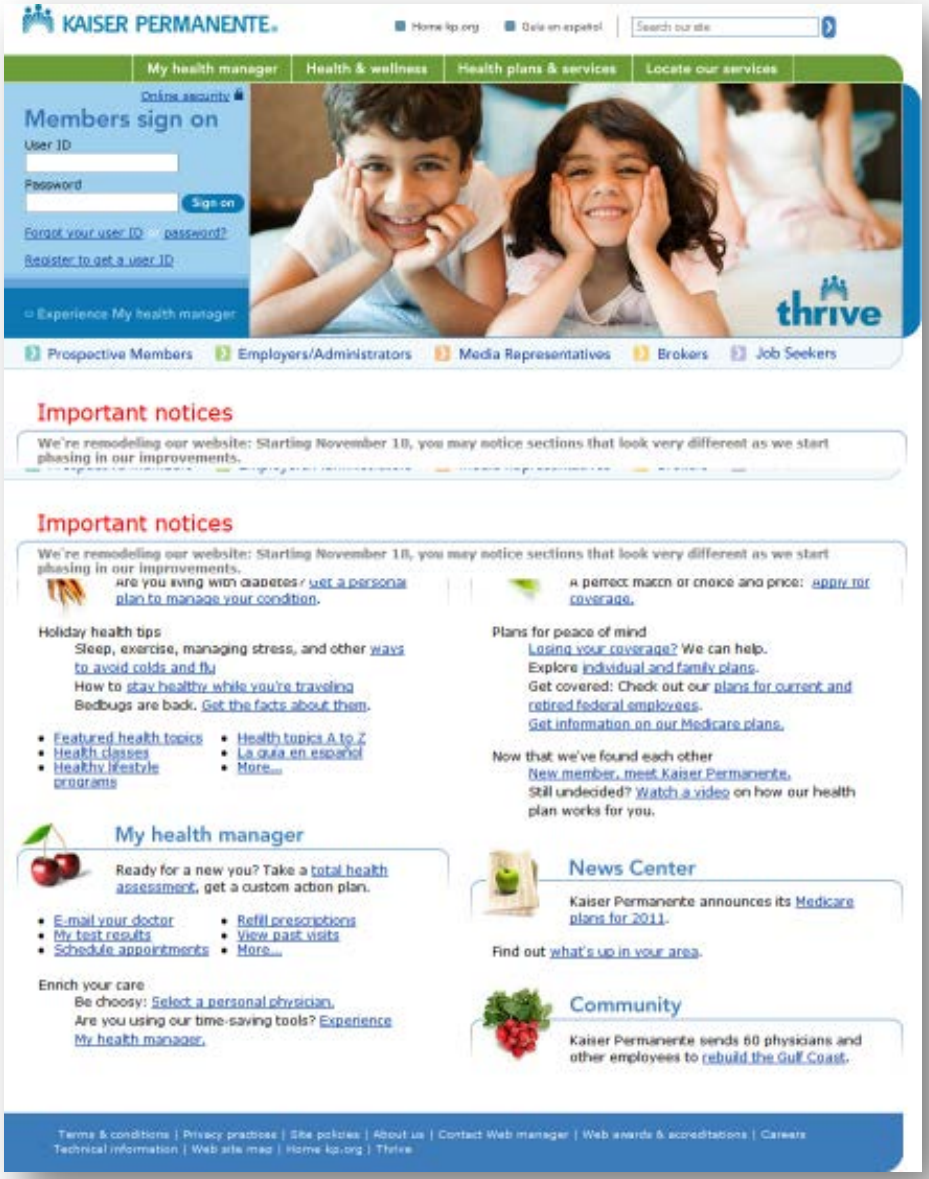
Predicted Per Capita Costs of Patients by Patient Activation Level

2010 patient activation level	Predicted per capita billed costs ($)	Ratio of predicted costs relative to level 4 PAM
Level 1 (lowest)	966**	1.21**
Level 2	840	1.05
Level 3	783	0.97
Level 4 (highest)	799	1.00

SOURCE Judith H. Hibbard, Jessica Greene, and Valerie Overton, "Patients with Lower Activation Associated with Higher Costs; Delivery Systems Should Know Their Patients' 'Scores,'" *Health Affairs* 32, no. 2 (2013): 216–22. **NOTES** Authors' analysis of Fairview Health Services billing and electronic health record data, January–June 2011. Inpatient and pharmacy costs were not included. PAM is Patient Activation Measure. **$p < 0.05$

"Health Policy Brief: Patient Engagement, "*Health Affairs*, February 14, 2013.
Http://www.healthaffairs.org/healthpolicybriefs/

Redefining Access – Empowering Patients



2014 KP.org

- Almost 5M Patients Online!
- 162M Visits to KP.org
- 20M Secure Emails
- 78M Lab Views
- 17M Refills

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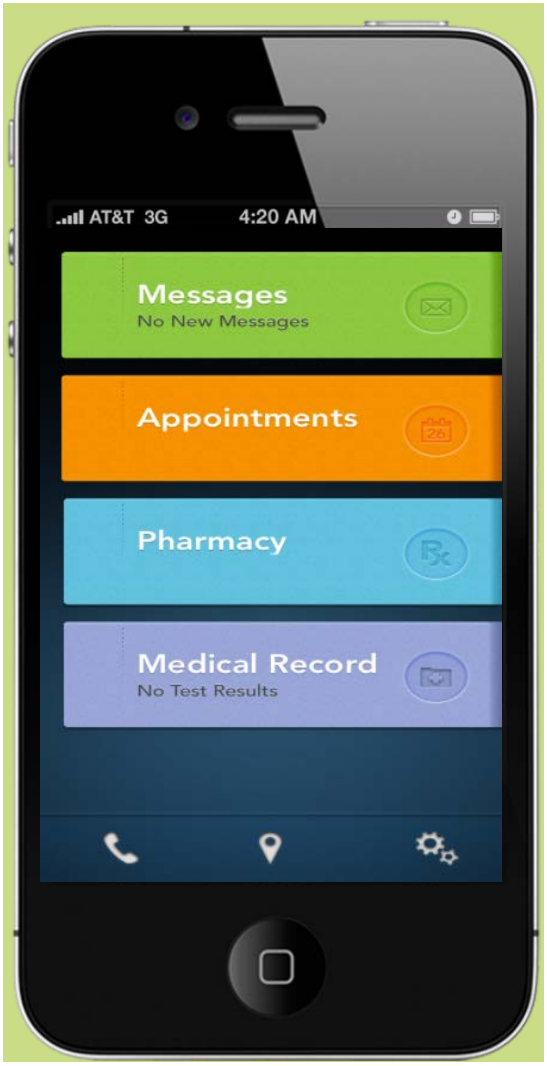
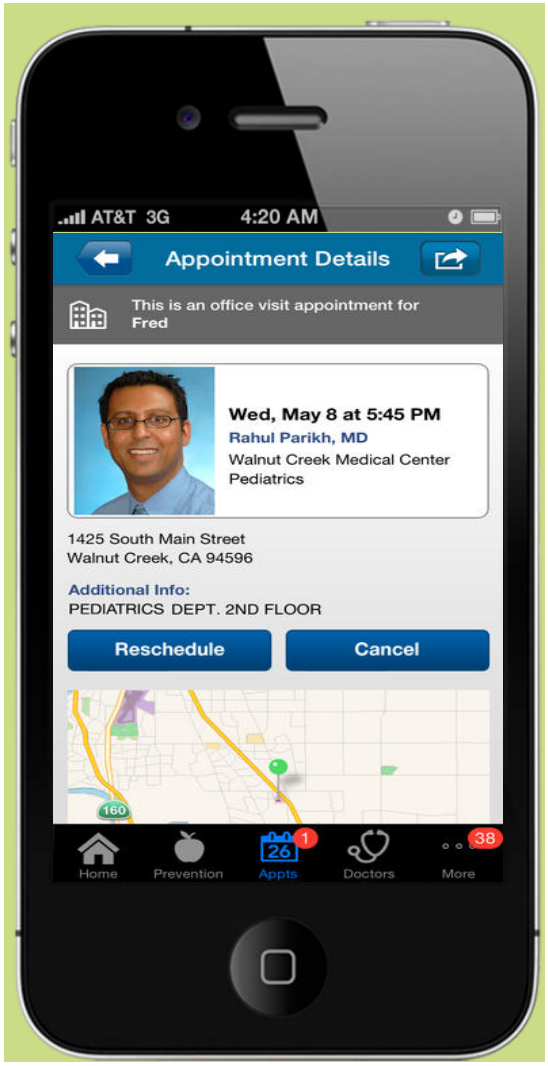
Redefining Access – Empowering Patients





2014 KP.org

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30% of Transactions Mobile

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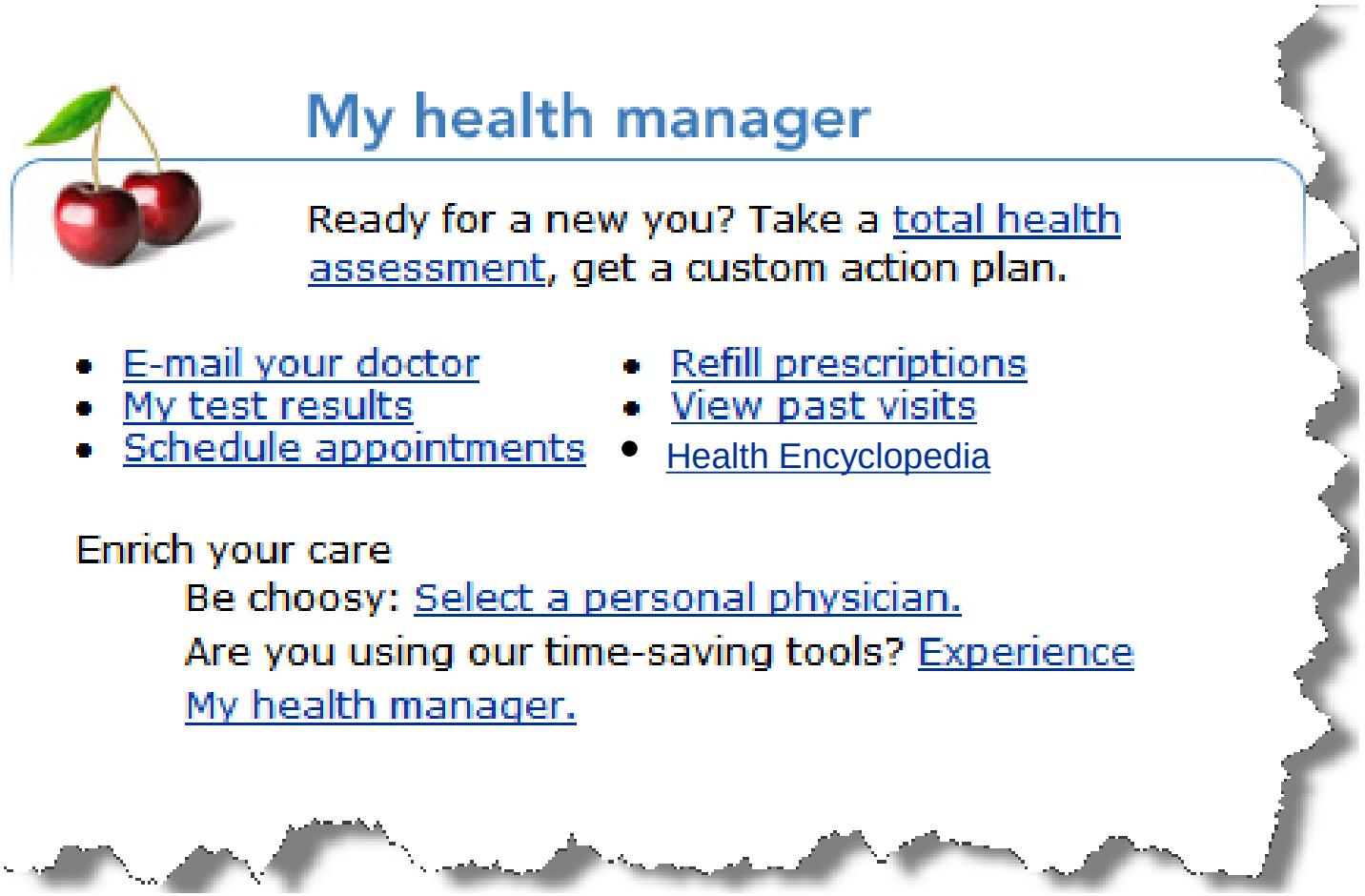


Doris Taylor, a KP member, talks about contacting her doctor from the convenience of her home. She sends a secure message to her doctor via KP HealthConnect. Dr. Liu receives Doris's question and proceeds to reply almost instantaneously.

Transforming Access

Patient Voices

From Focus Groups

I feel much more confident, and I also feel closer to my physician that I had before. I **don't feel intimidated** anymore.

I was curious what they had to say. I have a heart condition, and the words they use are so big that I wanted to go back and be able to actually look at what it was. It was a good thing for me to look at it and to **get it to stick with me that I need to take better care of myself when I saw it in black and white.**

The website has improved my **relationship** with my doctors. It's so easy to communicate with them, and they are all willing to respond quickly. I am very impressed with this method and feel it has **made taking care of myself easier** and more palatable. I feel supported in this way because the computer is available 24/7.

I think it's **empowering**. As individuals we need to take care of ourselves, and **we have to assume responsibility and it gives us that.**

It's made it better because I feel there is a closer partnership. It's like **instead of not seeing him for six months, we have communicated in between.**

Improved Engagement, Quality, & Satisfaction

Patient Loyalty

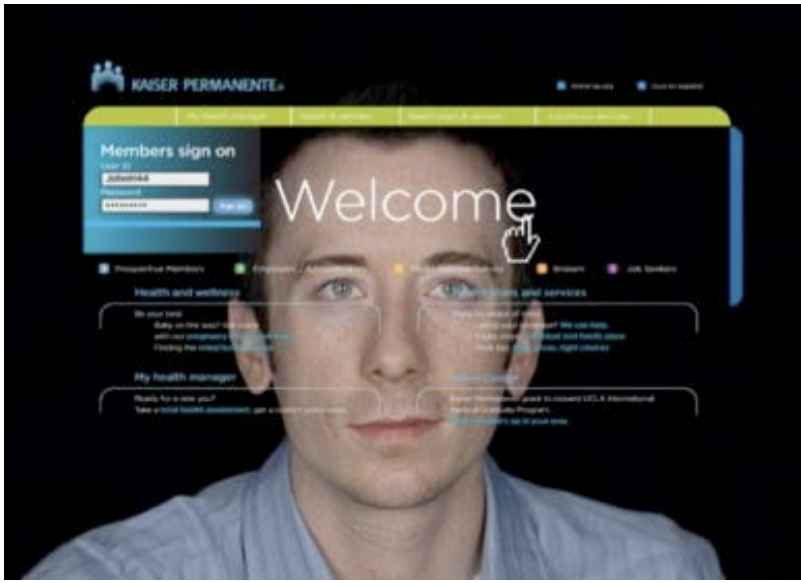
- My Health Manager users were 2.6 times more likely to remain members [1]

Quality of care improved

- 2.0 to 6.5% improvement - glycemic (HbA1c), cholesterol, and blood pressure screening and control[2]
- Refill improves outcomes (LDL)[3]

High patient satisfaction

- 85% rated encounters 8 or 9 on a 9 pt scale[4]



[1] Turley, Marianne; Garrido, Terhilda; Lowenthal, Alex; Zhou, Yi Yvonne, "Association Between Personal Health Record Enrollment and Patient Loyalty," Am J Manag Care. 2012;18(7):e248-e253 (web exclusive)

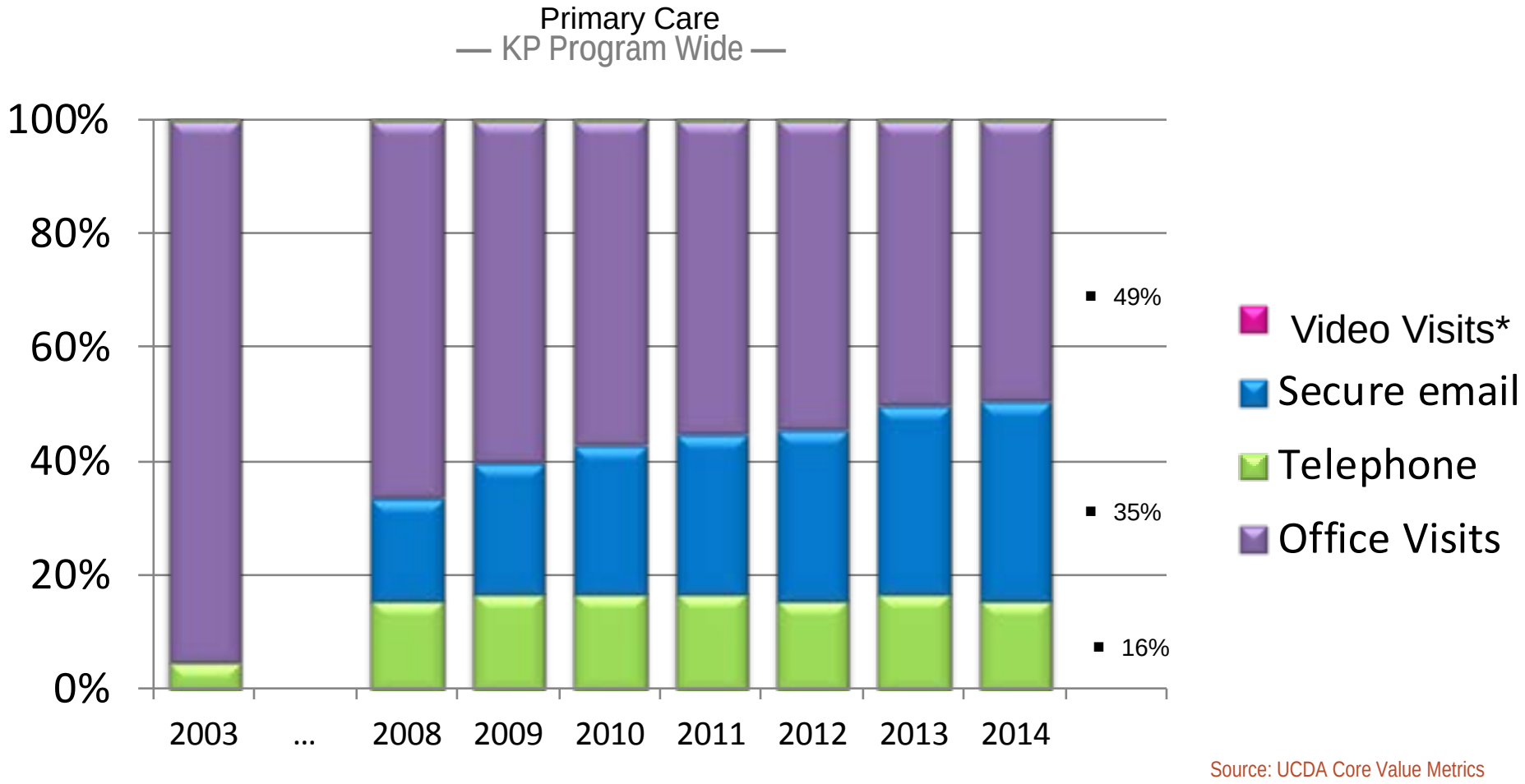
[2] Zhou, Yi Yvonne; Kanter, Michael H; Wang, Jian J; Garrido, Terhilda, "Improved Quality at Kaiser Permanente Through E-Mail Between Physicians and Patients," **Health Affairs**, Vol 29, No 7 (2010); 1370-1375.

[3] Sarkar, Urmimala, Lyles, Courtney; Parker, Melissa; Allen, Jill, et al., "Use of the Refill Function Through an Online Patient Portal is associated With Improved Adherence to Statins in an Integrated Health System," **Medical Care**, Vol 00, No 00 (2013)

[4] Internal KP study, "Harvesting Value: Early Findings from Kaiser Permanente HealthConnect™" presented to Center for Information Therapy by T Garrido, C Serrato, J Oldenburg (1/15/2008)

Transforming Primary Care Encounters

Care delivery has expanded beyond office visits. It is now also done via the phone and secure emails. In 2003, there were essentially 0% secure emails – Now SEs represent 35% of the primary care patient encounters. There were a total of 23 million secure emails in 2014.



Source: UCDA Core Value Metrics

*>3700 Jun-Dec 2014

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Some Kaiser Metrics

Kaiser Permanente	2013 Commercial	2013 Medicare	2013 Total
All 30-Day Re-Admissions[1] (all cause)	0.827	0.785	0.807

	Commercial	Medicare
ED Visit Rate (Emergency Department Visits per 1,000 Member/Year[2])	157.00	374.02
Patient Discharge Rate (per 1,000 Member/Year[2])	39.66	169.92
Patient Day Rate (per 1,000 Member/Year[2])	137.11	721.73

Hospital Standardized Mortality Ratio (HSMR)[3]	0.470

1. KP Quality Measures, BigDot- Clinical Effectiveness. Ratio of observed readmissions versus expected readmissions. The overall expected probability of readmission was calculated using weighted adjusted rates based on the total number of index discharges. Includes readmissions associated with all clinical conditions . KP Medicare total excludes MAS and OH.
2. KP HEDIS At-A-Glance Reports 2013-2014, for data reported in the years 2012-2013. 2014 data not yet available.
3. KP Quality Measures, BigDot- Clinical Effectiveness. Ratio of observed versus expected mortality among patients with diagnoses accounting for 80% of inpatient mortality after being adjusted for patient-mix and community variables.