Challenges And Learning
In The New Era of Health IT
Session Agenda

- About Kaiser Permanente And Health IT
- Why Health IT? Selected Results
- About Implementing Electronic Health Records and Health IT
- Barriers To Health IT Implementation
- New Challenges and New Opportunities
- Vision For Patient-Centered HIT In A Reformed Health System
Kaiser Permanente’s Model

- Largest not-for-profit, integrated delivery system
- 178 thousand employees and physicians
- 8.6 million active members
- $40 billion annual revenue
About Kaiser Permanente

- Why We Are Here
  To provide high quality affordable health care services to improve the health of our members and the communities we serve.

- What Is The Value Of Our Integration
  At Kaiser Permanente, we stand for total health. Because we offer our members both health care and health insurance, we are uniquely qualified to provide high-quality health care that’s integrated, convenient, and affordable. Our philosophy of preventive care empowers our members to maximize their health—mind, body, and spirit—in both sickness and wellness.
“Continuing total health care requires a continuing life record for each individual... The content of that life record, now made possible by computer information technology, will chart the course to be taken by each individual for optimal health.”

Sidney Garfield, MD

*Scientific American*, 1970

*Hospital Computer Systems*, 1974
Kaiser Permanente HealthConnect

- More than just an electronic medical record

- The development and deployment of a highly sophisticated information management and delivery system for health and health care

- A system across the entire Kaiser Permanente medical care program that integrates the clinical record with appointments, registration and billing

- A complete health care business system that will enhance the quality of patient care
KP HealthConnect Improves Access to Information and Communications

Instant and continuous real-time access to medical records for physicians, patients and their designated family members:

- Review medical records
- Check lab results
- Referrals
- Immunization records
- History of medical visits
- Direct ordering of prescriptions, labs, and referrals from a single system
- Best practice adoption
Our Personal Health Record:
My Health Manager on kp.org

- A shared record for the patient, their family, and all members of their care team

- Linked directly to KP HealthConnect, My Health Manager provides the patient’s view into their medical record

- Provides information and the ability to act on that information online in real time
  - Self-service appointment scheduling
  - Self-service medication e-refills
  - Secure messaging with your physician
1. Identify Target Population
   - Member care management, chronic condition, Rx data
   - Risk stratification

2. Proactively Reach Out to Patients
   - Multi-channel reminders & prompts for screening, testing

3. Test Patients, Provide Care & Monitor
   - Self-care & condition management
   - Patient surveys
   - Mobile phone integration

4. Measure & Report Performance
   - Physician performance reporting
   - Radiology & laboratory utilization

Achieving Results: Proactive, Preventive Population Care
Health Results: Regional Population Care Pilots (Preventing Life-threatening Crises)

Our Smart Tools scan KP HealthConnect for at-risk populations

KP HealthConnect

Cancer Screening (breast)
11 percent increase in screening
550 lives
Source: Kaiser Permanente, Southern California Region Dr. Michael Kanter SCPMG

Cancer Screening (colon)
23 percent increase in screening
3,664 lives
Source: Kaiser Permanente, Southern California Region Dr. Michael Kanter SCPMG

Heart Disease
73 percent reduction in cardiac mortality
135 lives
Source: Kaiser Permanente, Colorado Region, Reforming the Health Care Delivery System, 2009
Benefits Realized to Date: Improved Cost and Satisfaction

Cost

• Increasingly rational application systems environment
  – Retirement of multiple legacy systems = $ millions in savings
  – Lower complexity = higher reliability
• Reduction in redundant imaging and laboratory testing

Satisfaction

• Clinicians enjoy 24 x 7 x 365 access to health information
  – “All the data, about all the patients, all the time.”
• Dramatic increases in patient satisfaction correlated with the use of the After Visit Summary
• Over 40% of Kaiser Permanente members (over 60% of those eligible, age 13 or over) are currently using the password-protected features of our Web site, “My Health Manager” to fully engage in their health and health care
More Benefits Realized to Date
Improved Care and Care Processes

Improved Care, Improved Outcomes
- Improved pharmacologic intervention in coronary disease (Aspirin-Lovastatin-Lisinopril="ALL")
  - Heart attacks declined by 24% in Northern California since 2000
  - Serious heart attacks that do permanent damage declined by 62%
- Reduction in progression of diabetic nephropathy

Standardization of Care
- Orthopedics, anesthesia, obstetrics, oncology, inpatient nursing care planning
- “Longitudinal care” is increasing

Modalities of Care
- Reduction in phone and letter traffic related to results notification
- Study of KP HealthConnect implementation in Hawaii:
  - Office visits per member decreased 26.2%
  - Telephone visits per member increased nearly 900%
  - Secure messaging increased almost 600% in 2 years
Three Major Mechanisms For Health Data Sharing

1. Standardized: Nationwide Health Information Network (NHIN)
   - NHIN Exchange: Standardized transport specifications and standardized clinical content: sharing structured, codified data in HL7 Clinical Document Architecture XML and creating HL7 Continuity of Care Documents in real time for clinical care
   - NHIN Direct: Standardized transport specifications only: like a computerized “fax machine” using secure email technology for direct unstructured data communications among small offices such as those with <3 physicians

2. Proprietary: Vendor-Specific Data Exchange Mechanisms
   - Example: Care Epic

3. Personal Health Records and Related Modalities
   - Examples: Microsoft, Google, Media including USB drives
Extending EHR Benefits: KP Health Information Exchange Results

Nationwide Health Information Network (NHIN), KP-VA Production Implementation, now at work in California

- Sharing HL7 Continuity of Care Documents (starting with patient problems, medications, allergies) in real time for clinical care

Microsoft Health Vault Pilot Project with My Health Manager

- PHR transfer of longitudinal summary records at member’s request

Colorado Regional Health Information Organization (CORHIO)

- Transferring medical records among providers for clinical care

NHIN Expansion Is Underway, as are multiple State and Local data sharing projects

- Special focus on safety net providers – enabling improved care in disadvantaged communities and rural areas
KP HealthConnect Implementation
Key Success Factors

■ Shared Leadership – Physician and IT Collaboration
  • Flexible project organization structure with consistent leadership

■ Involved Stakeholders and Labor-Management Partnership:
  Interest-based Problem Solving and Consensus Decisions
  • Based on common interests, everyone “can live with” the decision
  • All parties agree to measures that demonstrate commitment

■ Collaborative Data Governance
  • Establish broad communities of interest in each information domain to determine the degree of data standardization

■ Shared, Aligned Goals and Objectives:
  “All The Data, About All The Patients, All The Time”
An end-to-end SOA architecture is being used by the SOA team

We have built out an infrastructure and a number of services

Some parts of the organization are more committed than others

Slow progress, like others who have gone before us

We have a SOA governance body in place and functioning

Internal ≠ External
  • Complexity of SLAs with consumers of services
  • End-to-end monitoring
  • Problem prediction, detection, and root cause analysis

Found we can only go so far as an IT-led initiative
  • Formed SOA sponsors group with top business executives
Lessons Learned In EHR Implementation

- Long-term funding is essential to success. The funding commitment must endure:
  - Minor to moderate political pressure
  - Budget cycles and alignment with financial realities

- Clarity about operational goals must be achieved before beginning an implementation project

- Interfaces to legacy systems are more numerous, more complex, and more expensive than you think

- Proprietary system maintenance is expensive and complex, and it cannot be amortized across a larger base

- A comprehensive business case must include total costs, hard benefits, and soft benefits such as quality and safety
RESULTS
Four percent of physicians reported having an extensive, fully functional electronic-records system, and 13% reported having a basic system. In multivariate analyses, primary care physicians and those practicing in large groups, in hospitals or medical centers, and in the western region of the United States were more likely to use electronic health records. Physicians reported positive effects of these systems on several dimensions of quality of care and high levels of satisfaction. Financial barriers were viewed as having the greatest effect on decisions about the adoption of electronic health records.

CONCLUSIONS
Physicians who use electronic health records believe such systems improve the quality of care and are generally satisfied with the systems. However, as of early 2008, electronic systems had been adopted by only a small minority of U.S. physicians, who may differ from later adopters of these systems.

NEJM 2008;359:50-60
Barriers To Health IT Implementation

People
- Culture of Health Care
- Clinical Leadership
- IT Leadership
- Skills/Education

Process
- Increasing complexity of health care
- Complexity of workflows
- End-to-end patient-centered view is often missing
- Little use of system-engineering tools for health care design, analysis and monitoring
Barriers To Implementation, Continued

Technology

• Lack of integrated clinical information systems:
  – Data is “locked away” in various applications (or paper) and databases
• Lack of common data standards
• Lack of interoperability standards for data sharing
• Usability issues for clinicians
• Privacy and security concerns

Health care system and environment

• Structure of health care in the U.S.
• Health care financing and reimbursement system
• System level view missing
• Cost
Unintended Consequences Of EHR Implementation

Errors in the process of entering and retrieving information
  • Human/computer interface issues
  • Cognitive overload: overemphasis on structured and complete information entry or retrieval

Errors in the communication and coordination processes
  • Misrepresenting collective, interactive work as a linear, clear-cut, and predictable workflow
  • Misrepresenting communication as information transfer
  • Decision support overload
  • Loss of prior mechanisms for catching errors
The simple stuff can bite you
  • Examples:
    – Data center power limitations
    – Software and server capacity limitations
    – Inadequate project management training and discipline

The perfect is always the enemy of the good

Physician and nurse resistance was not an issue

Patients love it, have high expectations of it, and are not excessively worried about privacy
Health Information Laws and Regulations
- HIPAA Law
- Federal and State Privacy and Security Regulations for Health Information
- Accounting of Disclosures
- Secure Electronic Prescribing of Controlled Substances
- Genetic Information Non-Discrimination

Patient Safety Regulation of Electronic Health Records
- Medical Device Data Systems Regulation

Regulation of Electronic Health Record System Functions
- Meaningful Use of EHR Technology
- EHR Standards and Certification

Other Policies
- National Broadband Plan
EHR-Related Policy Challenges And Opportunities In Health Reform

Changes to HIPAA Law
- Health Plan Identifiers
- New Administrative Transactions:
  - Funds Transfer, Attachments
- New Operating Rules For All Administrative Transactions

Enrollment Processes and Patient Identification
- Matching Of Tax, Employment, Other Records To Identify Eligible Individuals
- Affects Publicly-subsidized Benefit Plans

Essential Community Providers
- Medicaid Provider Expansion
- New Primary Care Relationships
- New EHR Challenges For Integration
Addressing Health IT Standards And Policy Challenges At The National Level

Federal Government
- 2009 Economic Stimulus (ARRA) and 2010 Health Reform (PPACA) created many new government agencies, committees, programs, and funding for Health IT, including standards and EHR adoption

State Government
- Patchwork of conflicting State laws and regulations, such as:
  - 12 States regulate security of personal health information (PHI)
  - 19 States regulate disposal/destruction of PHI
  - 42 States regulate security breaches
- High degree of variation in State implementation of Federal programs
  - Health information exchanges for physician-physician data sharing

Standards Development Organizations
- National and international health data standards: HL7, SNOMED, Others

Private Industry Sector
- National and international industry groups and alliances: opportunities for collective innovation, and to give “one voice” for interest groups
U.S. Spends Over $2.4 Trillion, Inconsistently, On Siloed, Piece-work Health Care

Source: CMS/HHS National Health Expenditure Projections 2007
A Reformed System Of Integrated, Coordinated Care

- Primary Care $502
- Research $152
- Government Overhead $223
- Hospitals $747
- Medical Equipment $63
- Nursing Home $137
- Rx Drugs $247
- Specialists $139
- Dental $100
- Home Care $62

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Our Vision for Person-Centered Health
“Blue Sky Vision,” 2003

Integration & leveraging

Secure and seamless transitions

Customization

Home as the hub
Core Design Principles
Guiding the Future State Model

- Evidence-Based Medicine
- Team-Based Care “Medical Home”
- Remote Consultation, Care, Monitoring & Technology
- Value-Based Design
- Patient Focus
- Patient Stratification and Personal Plans
- Infrastructure and Support

PATIENT CENTERED CARE
Improved coordination of care will help patients contact the appropriate team for assistance
- Decreases rework
- Clarity about who to contact when primary care physician is not available

Improved availability of access to primary care
- Impacts overflow into specialty care
- Improved patient satisfaction with both primary care and specialty care

Opportunities to improve and streamline communications between primary care and specialists
Our Vision for Data-Centered Care Delivery: Real-time, Personalized Health Care

Smart

Networked

Collaborative

Affordable

Preventive
Discussion

Questions?