Kaiser Permanente’s Journey
In The New Era Of Health IT

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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

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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.
Our Model

- Social purpose
- Quality-driven
- Shared accountability for program success
- Integration along multiple dimensions
- Prevention and care management focus

Kaiser Permanente defines the integrated model of health care financing and delivery through its unique partnership among three entities:

- Kaiser Foundation
- Hospitals
- Permanente Medical Groups
- Medical Groups
- Health Plan
- Members
- Kaiser Foundation
- Health Plan
- Members
“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
Scope of Kaiser Permanente HealthConnect™

Care Delivery Core

Scope of Epic Suite

- Outpatient
  - Scheduling
  - Registration
  - Clinicals
  - Billing

- Inpatient
  - Scheduling
  - Admission, Discharge, and Transfer
  - Clinicals
  - Pharmacy
  - Emergency Department
  - Operating Room
  - Billing

Ancillaries

- Outpatient Pharmacy
- Lab
- Radiology/Imaging
- Others (immunizations, EKG, dictation)

Health Plan

- Membership/Benefits
- Claims Processing
- Benefits Accumulation
- Pricing System

Finance

- General Ledger
- Capital Planning
- Financial Reporting

Data Warehouse / EDR Enterprise Data Repository

Referral & Utilization Management
About 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

- Patients love it, have high expectations as a result of it, and generally have not expressed any privacy concerns
Kaiser Permanente 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
Over 80% of all medical symptoms are self-diagnosed and self-treated without professional care.

Individuals are the true primary care providers of medical care for themselves and their families.

How can health care systems educate, equip, and empower the true primary care provider … the individual?
Our Personal Health Record:  
My Health Manager on kp.org

- A shared record for the patient, their family, and 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 in real time
  - Self-service appointment scheduling
  - Self-service medication e-refills
  - Secure messaging with your physician

- Connects KP members with their health and health care:
  - About 800,000 secure messages per month
  - Over 500,000 prescription refills per month
  - Over 100,000 appointments per month directly booked by patients
  - Over 1.2 million test results reviewed online by patients each month
  - Unlimited access to health information and healthy living programs
Selected Benefits Realized to Date
Improved Care and Care Processes

Improved Care, Improved Outcomes
- 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

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

Changing 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-DoD 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 a KP 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. Five years is good, ten years is better. The funding commitment must endure 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. Think, “configuration,” not “customization.”

- 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
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
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
Surprises

- 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
Questions?