The Kaiser Permanente Story:
Implementation of Electronic Health Records Nationwide

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Quality and Clinical Systems Support
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The Nation’s Largest HMO

- Integrated health care delivery system
- 8.2 million members
- 11,000+ physicians
- 130,000 employees
- 8 regions serving 9 states and D.C.
- 30 hospitals and medical centers
- 431 medical offices
- *$25 billion annual revenues

* 2003 revenues
About Kaiser Permanente

- Founded in 1945, Kaiser Permanente is a nonprofit health plan, with headquarters in Oakland, California.
- Organization encompasses:
  - Kaiser Foundation Health Plan, Inc.
  - Kaiser Foundation Hospitals
  - The Permanente Medical Groups
Kaiser Permanente IT Principles

- **Common Systems** - Adopt common application platforms and processes wherever cost beneficial across all regions to maximize scale benefits
- **Buy v. Build** - Show preference for purchased over custom developed solutions to leverage vendors resources and develop in-house talent for systems integration; limit modifications to purchased solutions to preserve vendor leverage
- **Suites v. Best of Breed** - Show preference for application suites over individual best of breed solutions to capitalize on integration benefits
- **80/20 Rule** - Prefer 80% solutions that deliver good ROI quickly over 100% solutions that delay and/or diminish achievement of benefits
- **No IT Projects** - There are business projects with a significant IT component. Partnership between IT and business is essential and is enforced by the use of the Comprehensive Delivery Framework; even IT infrastructure projects will be tied to business initiatives and/or strategies that they support
Clinical Information Systems (CIS) History

- In 1999 the decision was made to develop and deploy a nationwide CIS for Kaiser Permanente
  - Based on a decade of research and experience with regional CIS initiatives
  - Vendor offerings not functionally strong and scalability not demonstrated
- Expensive and not totally successful
- Strategic review ensued based on our IT principles
The Make vs. Buy Decision (2002)

- Enhancing CIS was judged to be risky and high-cost
- Vendor-based suite solution selected
  - Much broader integrated applications portfolio including outpatient, inpatient and practice management
- Total involvement converted a regional push strategy to a pull strategy
- Ten-year costs substantially less than a build and maintain strategy
More than just an electronic medical record
The development and deployment of a highly-sophisticated information management and delivery system
A program-wide system that will integrate the clinical record with appointments, registration and billing
A complete health care business system that will enhance the quality of patient care
# KP HealthConnect Goals

## Quality Our Patients Can Trust

**High Quality**
- We have clinical information available 24/7.
- Our clinical outcomes are unsurpassed.
- Our clinicians know in real-time the recommended best practices.
- We are the national leaders in patient safety.
- We enhance our research to support evidence-based care.

## Personal & Convenient Service

**Personal**
- We have and use up-to-date clinical, social and patient preference information.
- We provide patients information for shared decision making.
- We enhance personalized care.

**Convenient**
- Our patients access information via telephone, Web and email.
- We actively support our patients’ participation in their own care.
- We minimize wait times and out-of-pocket costs with efficient access to care.
- We achieve superior integration and continuity of care.

## Affordable Health Care

**Affordable**
- We reduce the cost of care and improve visit experiences.
- We decrease the cost of paper medical records.
- We maximize appropriate revenue capture.
- Our pricing matches our risk.
- We administer benefits and new products both correctly and efficiently.
- We continually improve operations.
Scope of KP HealthConnect

Scope of KP HealthConnect 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)

Care Delivery Core

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

Finance
- General Ledger
- Capital Planning
- Financial Reporting

Data Warehouse / EDR Enterprise Data Repository

Web Access Portal

Referral & Utilization Management
System Enhanced with KP Clinical Content

- Access to library of KP knowledge and best medical practices at the point of care
- Tools and templates that facilitate the delivery of evidence-based medicine
- Dynamic decision-support tools that enhance quality and patient safety
  - Drug-Drug Interactions Alerts
  - Drug Allergy Alerts
  - Best Practice Alerts
  - Health Maintenance Reminders
  - Alternative Order and Medication Alerts
- Patient education and tools to support self-care
Example of Physician View
Members Can Actively Participate in Care

Expanded Online Access for Members

- Access medical record
- Make/change appointments
- Send messages to doctor
- Check lab results
- Access health Information
- Review eligibility & benefits
- Account summary

Scope of KP HealthConnect Suite

<table>
<thead>
<tr>
<th>Outpatient</th>
<th>Inpatient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduling</td>
<td>Scheduling</td>
</tr>
<tr>
<td>Registration</td>
<td>Admission, Discharge And Transfer</td>
</tr>
<tr>
<td>Clinicals</td>
<td>Clinicals</td>
</tr>
<tr>
<td>Billing</td>
<td>Pharmacy</td>
</tr>
<tr>
<td></td>
<td>Emergency Department</td>
</tr>
<tr>
<td></td>
<td>Operating Room</td>
</tr>
<tr>
<td></td>
<td>Billing</td>
</tr>
</tbody>
</table>

www.kp.org
Member Web Portal
Example of Member View

This page displays basic information about your recent medical office visits. If you need more information please contact your local Kaiser Permanente facility. If you have any questions about the information on this page, please call 1-800-123-4567.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Provider</th>
<th>Department</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>11/06/2003</td>
<td>10:30 AM</td>
<td>Grant Petersen, MD</td>
<td>West Family Medicine</td>
<td>Details</td>
</tr>
<tr>
<td>09/03/2003</td>
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<td>08/25/2003</td>
<td>2:15 PM</td>
<td>Grant Petersen, MD</td>
<td>West Family Medicine</td>
<td>Details</td>
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</tbody>
</table>

Related links:
- Health encyclopedia
- Drug encyclopedia
- Recommended tests and shots
- Facility directory
- Medical staff directory
Example of Member View

This page displays your lab test results and the provider who placed the order. A red "A" in the "flag" column means the result is outside the normal range. If you have any questions about this information, please call 1-800-123-4567.

**Test:** CBC  
**Order Number:** 777122  
**Quantity:** 1  
**Date Collected:** 08/28/2003  
**Resulted Date:** 08/29/2003

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Flag</th>
<th>Low</th>
<th>High</th>
<th>Unit</th>
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<tbody>
<tr>
<td>Hemoglobin</td>
<td>14</td>
<td>12</td>
<td>16</td>
<td></td>
<td>gm/dl</td>
</tr>
<tr>
<td>Hematocrit</td>
<td>39</td>
<td>37</td>
<td>47</td>
<td></td>
<td>ml/dl</td>
</tr>
<tr>
<td>MCV</td>
<td>90</td>
<td>80</td>
<td>100</td>
<td></td>
<td>fl/red cell</td>
</tr>
</tbody>
</table>
Benefits of KP HealthConnect

- Improves clinical outcomes because physicians have complete knowledge regarding co-morbidity, past visits and complaints, and recommendations the patient has received from other clinicians.
- Supports patient care through system alerts that catch abnormal results, negative trends, patient history, chronic problems, and drug/procedure combinations.
- Improves management of common/chronic conditions and provides recommended treatment guidelines for conditions (e.g. diabetes, hypertension).
- Improves call center/advice disposition and referral management through online access to references and evidence-based treatment guidelines.
Benefits of KP HealthConnect

- Enables provision of multiple services in a single visit, reducing the need for additional follow-up appointments
- Reduces duplicate and unnecessary tests/procedures through access to up-to-date patient information
- Provides decision support through embedded KP Care Management Institute protocols and standard test/screens
- Eliminates redundant entry -- physicians can prescribe medication, order lab work, radiology and provide referrals from single system at point-of-service
- Enhances clinical research because patient data will be available in unprecedented quantities, allowing for more complete research and reporting
KP HealthConnect Implementation

Objectives:
- Deploy the Epic suite of products across 8 regions in 3 years
- Develop common systems elements on a collaborative basis
- Allow some tailoring at a regional basis
- Strong emphasis on capturing benefits

Collaborative Build
- Fully Integrated System
- Integrated Workflow
- Common Data Definitions & Model
- Common Interfaces

Regional Deployment
- Business Process Redesign
- Regional Modifications and Mapping to Collaborative Build
- Order of application deployment based on regions’ priority and business case

9/30/03
The Collaborative Build Challenge

*Deploy the Epic suite of products in a multi-facility, multi-state system within 3 years*

System capability needed to:

- Share data and move information across 18 instances in 8 regions real-time
- Provide a consistent data model to populate a national data repository to support all reporting needs with the ability to sustain common data across all instances
- Reduce variation and provide evidenced-based clinical decision support and documentation
- Proliferate successful work practices across the country by streamlining internal processes and reducing work variation
Collaborative Build Design Sessions

- Intensive workshops to define clinical content, workflows, master files and decision support rules for Collaborative Build
- Collaborative decisions made by KP regional, KP national and Epic subject matter experts:
  - Physicians
  - Nurses
  - Content Experts
  - System Experts
  - Key Business Stakeholder
  - Epic Application Reps
  - Ancillary Personnel
  - Application configuration experts
  - Process Analysts
  - Program Testing Representatives
  - Project/Program Managers
  - Others
Challenges

**Get Value from KP HealthConnect**

**Formidable**
- Leadership & Regions’ Responsibility

**Demanding**
- Regions’ Responsibility with help from National Project Team

**Difficult**
- Vendor / Project Team / Regions Responsibility

**Success is...**
- A clear plan for change and operationalized use of KP HealthConnect
- Business goals enabled by KP HealthConnect
- Higher quality, more efficient, effective operations
- Sponsorship / leadership

- Effectively trained users
- Consistent and complete system use
- Ease of use

- Program-wide system
- Reliable, consistent and maintainable
- Robust functionality

March 2005
Percentage of KP Population Coverage by Year/Suite

- Practice Mgt: Scheduling, Billing and Registration
- Outpatient: Clinicals and Decision Support
- Inpatient: Clinicals, IP Pharmacy, ED and OR
Key Dates

- **April 2003**: Began system configuration
- **September 2003**: First phase of system configuration complete (collaborative build)
- **October 2003**: Regional configurations begin
- **December 2003**: First system application deployed
- **December 2004**: Launched in all 8 regions, 18 implementations
- **Summer 2005**: Deploy enhanced member access through kp.org
- **2007**: System deployed program-wide
KP HealthConnect Implementation

- Collaborative efforts across all 8 regions and all KP groups
- Once implemented, KP HealthConnect will provide the foundation for 80% of KP operations
- Projected to be the largest deployment in KP history
- Will replace 160+ current technology systems
- Largest civilian health care IT project in U.S.
KP HealthConnect Advantages

- Patients will be more closely connected to their health care
- Physicians and medical staff will continuously connect to a comprehensive medical record
- All caregivers will have a direct connection for decision support, including online references and resources for current treatment guidelines, KP Care Management Institute protocols and standard tests/screens
- Departments, facilities and regions will be interconnected and their systems tightly integrated