Challenges And Learning
In The New Era of Health IT

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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

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- physician
- hospital
- ancillary
- pharmacy
- insurance

- **Largest not-for-profit, integrated delivery system**
- **178 thousand employees and physicians**
- **8.6 million active members**
- **$40 billion annual revenue**
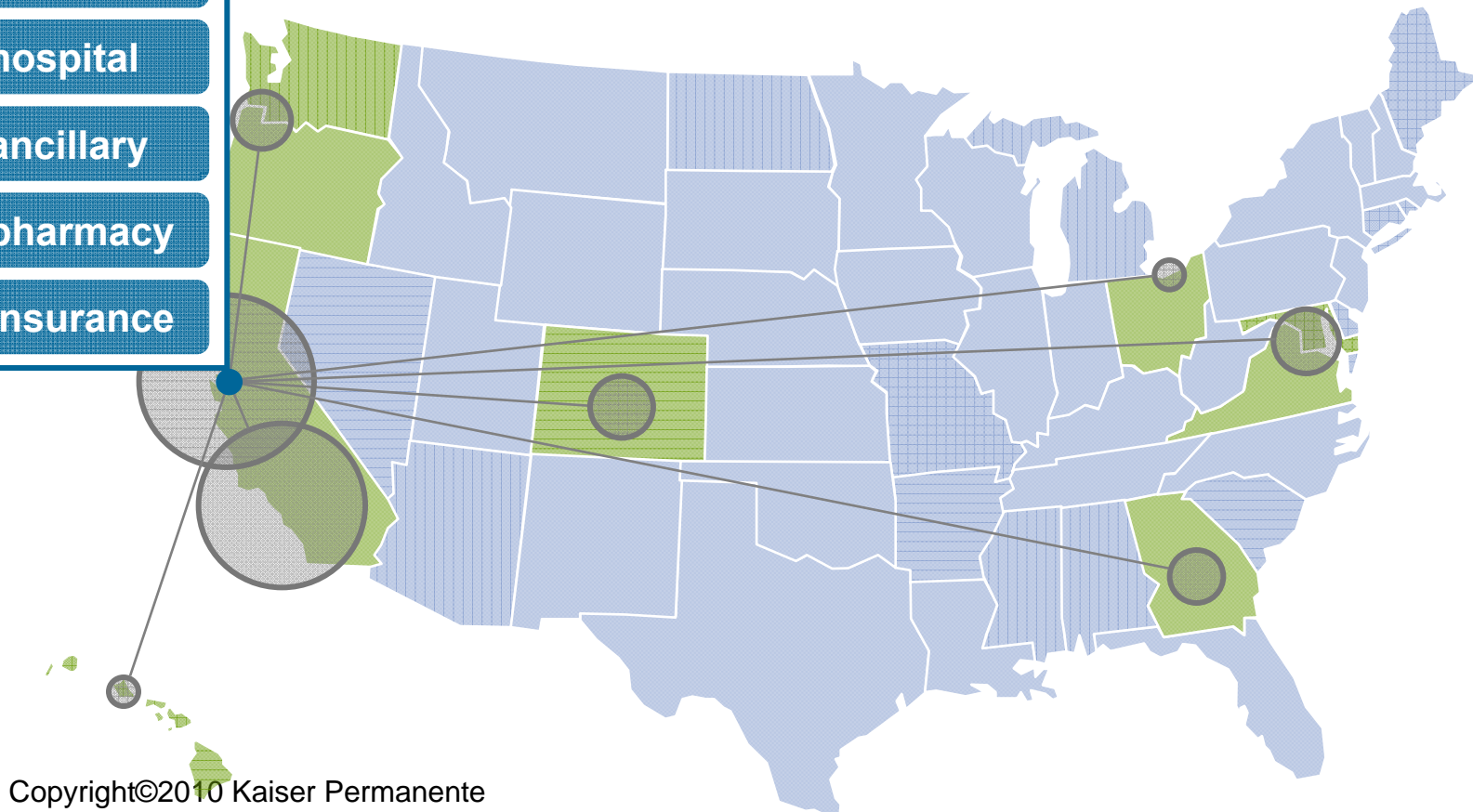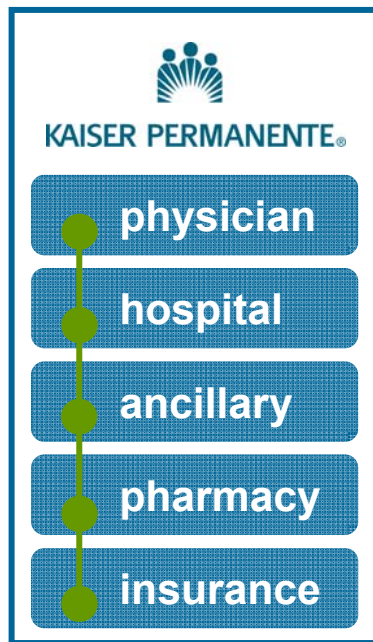
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- **Why We Are Here**

  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**

 <u>At Kaiser Permanente, we stand for total health.</u> 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
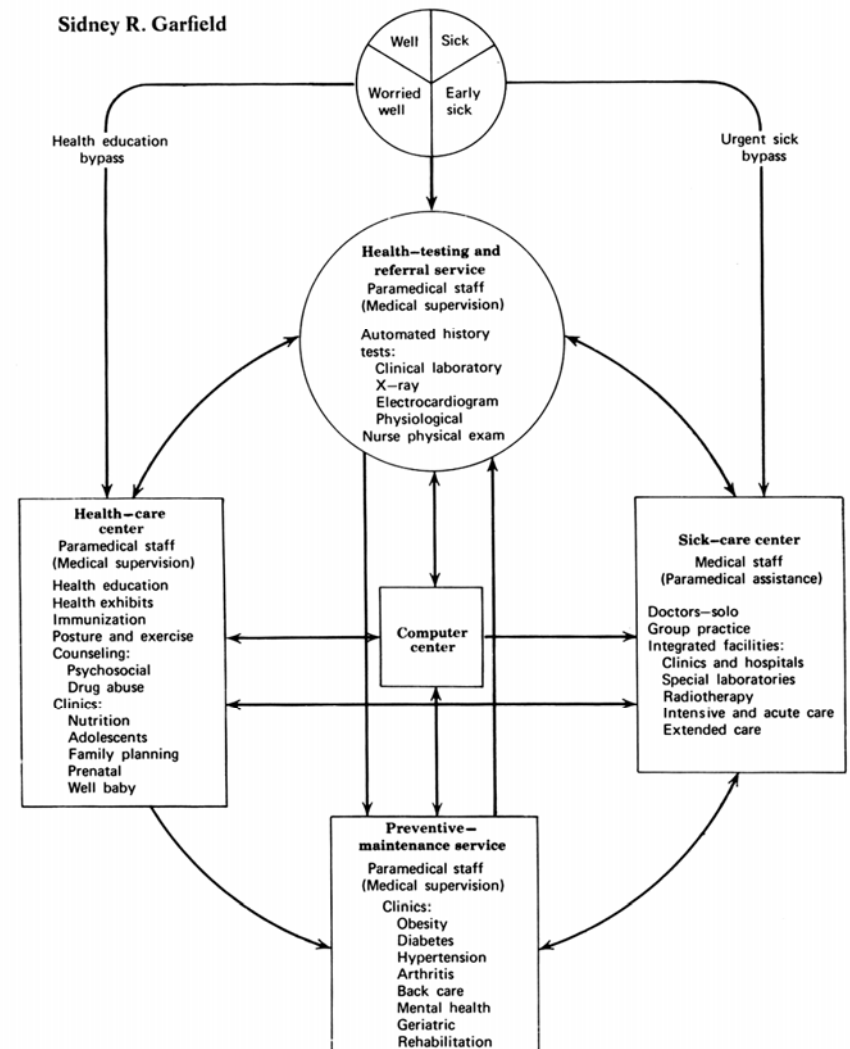
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- **More than just an electronic medical record**

- **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**

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

- 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
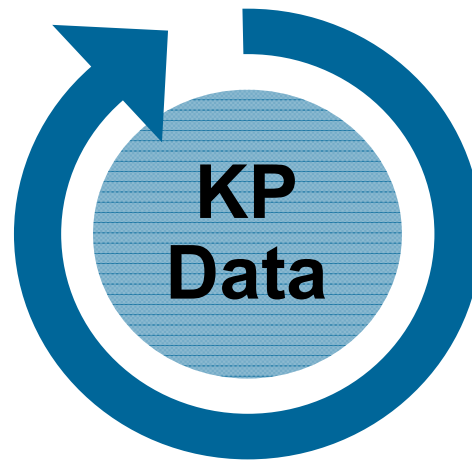 - Secure messaging with your physician

Achieving Results:
Proactive, Preventive Population Care

④ Measure & Report Performance

- ◆ Physician performance reporting
- ◆ Radiology & laboratory utilization

KP Data

① Identify Target Population

- ◆ Member care management, chronic condition, Rx data
- ◆ Risk stratification

③ Test Patients, Provide Care & Monitor

- ◆ Self-care & condition management
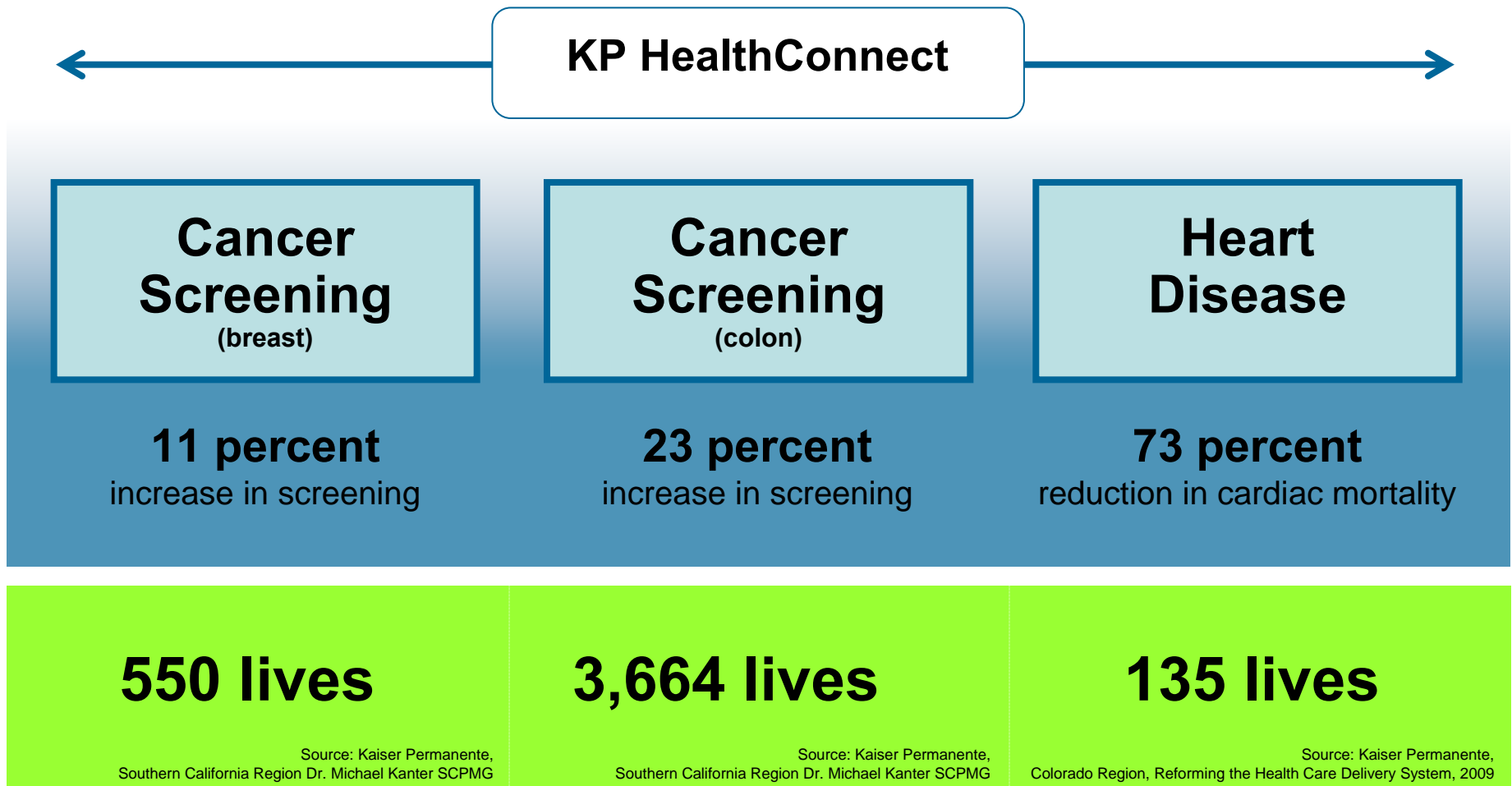- ◆ Patient surveys
- ◆ Mobile phone integration

② Proactively Reach Out to Patients

- ◆ Multi-channel reminders & prompts for screening, testing

Health Results: Regional Population Care Pilots (Preventing Life-threatening Crises)

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Our Smart Tools scan KP HealthConnect for at-risk populations

← KP HealthConnect →

Cancer Screening (breast)	Cancer Screening (colon)	Heart Disease
11 percent increase in screening	**23 percent** increase in screening	**73 percent** reduction in cardiac mortality
550 lives	**3,664 lives**	**135 lives**
Source: Kaiser Permanente, Southern California Region Dr. Michael Kanter SCPMG	Source: Kaiser Permanente, Southern California Region Dr. Michael Kanter SCPMG	Source: Kaiser Permanente, Colorado Region, Reforming the Health Care Delivery System, 2009

Benefits Realized to Date:
Improved Cost and Satisfaction

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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**

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**

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

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- **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**

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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

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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**

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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**

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

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

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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
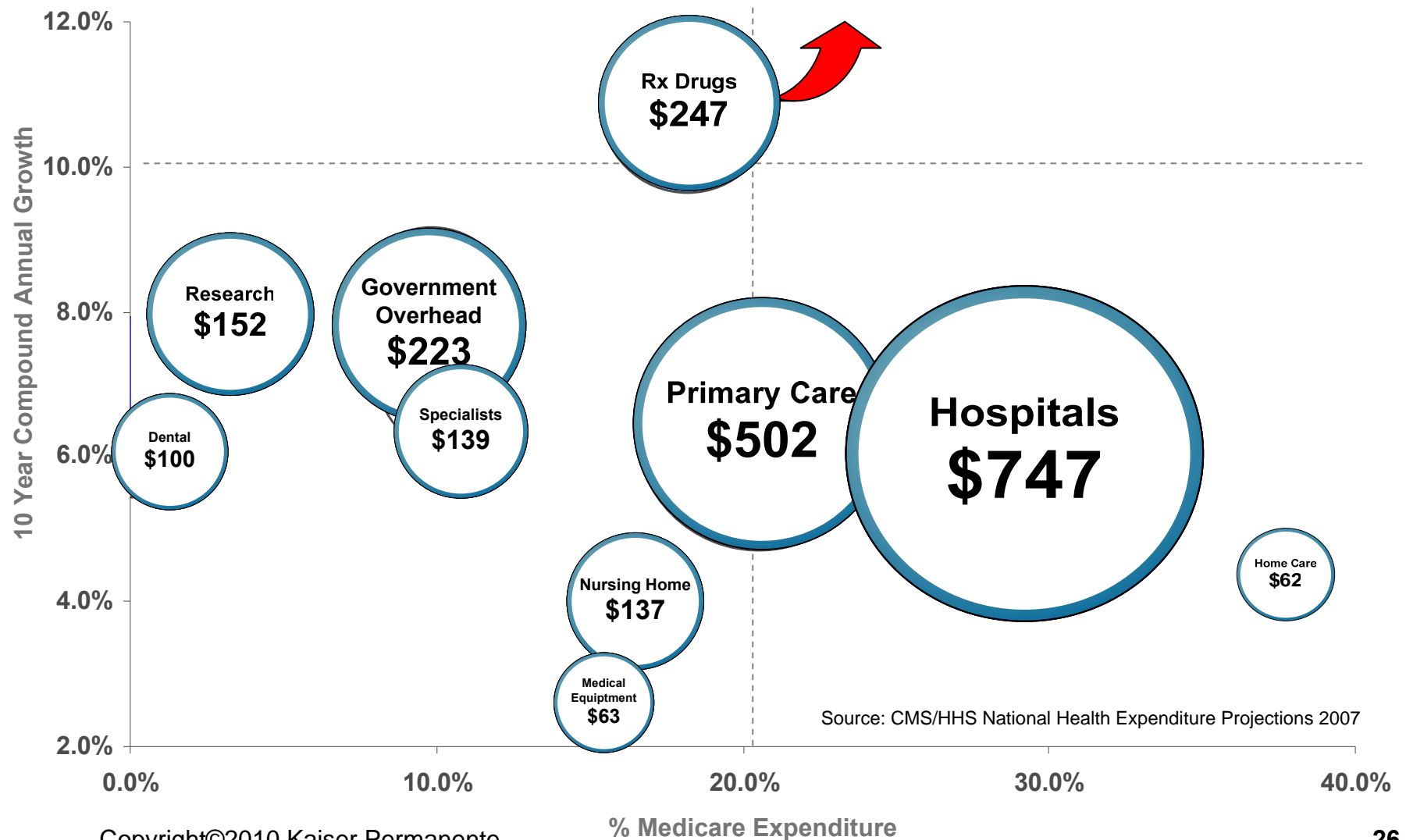 - Health information exchanges for physician-physician data sharing

Standards Development Organizations

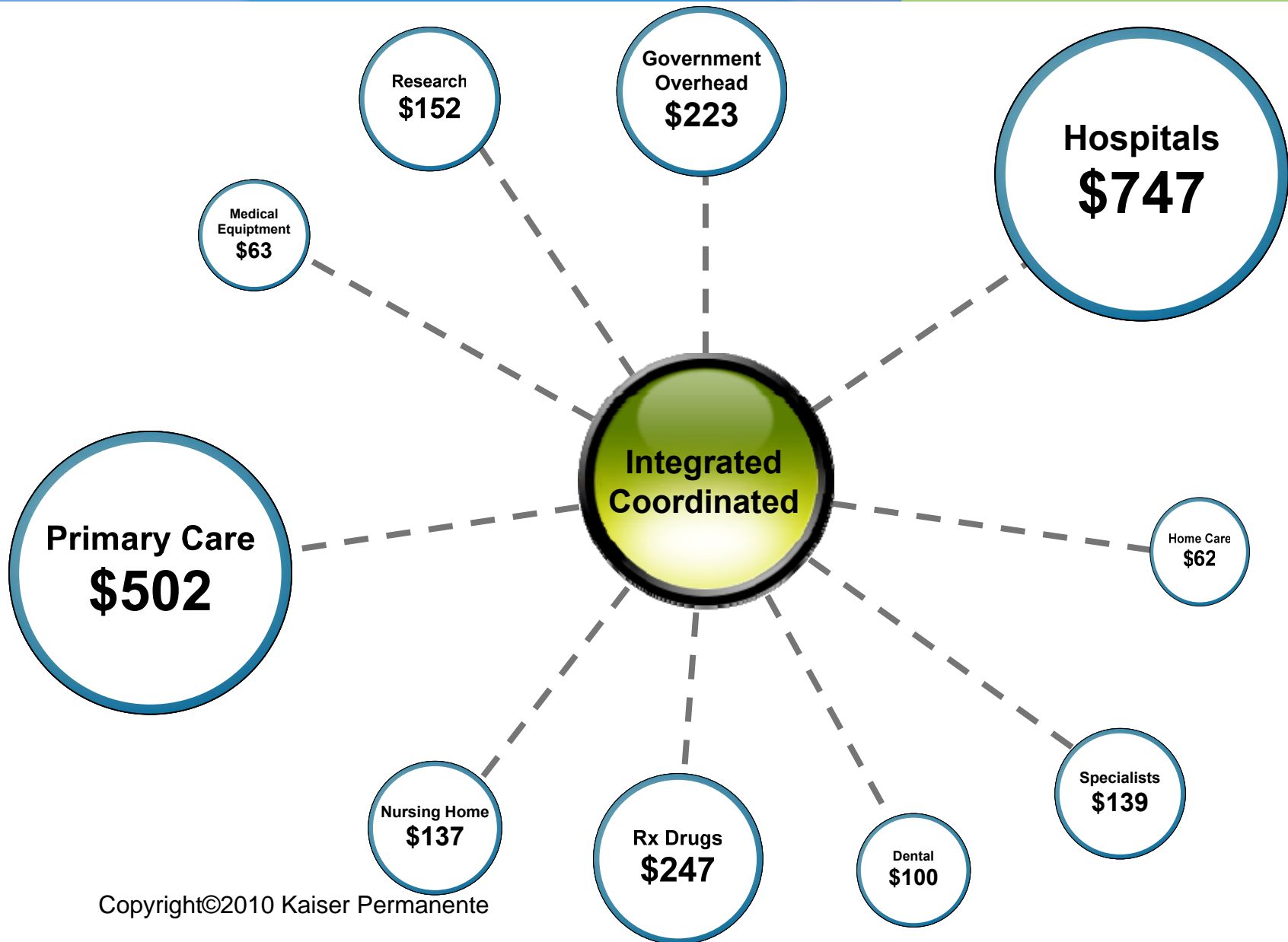- National and international health data standards: HL7, SNOMED, Others

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

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10 Year Compound Annual Growth

Rx Drugs $247

Research $152

Government Overhead $223

Dental $100

Specialists $139

Primary Care $502

Hospitals $747

Nursing Home $137

Home Care $62

Medical Equipment $63

Source: CMS/HHS National Health Expenditure Projections 2007

% Medicare Expenditure

26

A Reformed System Of Integrated, Coordinated Care

Research $152

Government Overhead $223

Hospitals $747

Medical Equiptment $63

Integrated Coordinated

Primary Care $502

Home Care $62

Nursing Home $137

Rx Drugs $247

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Specialists $139

Home as the hub

Integration & leveraging
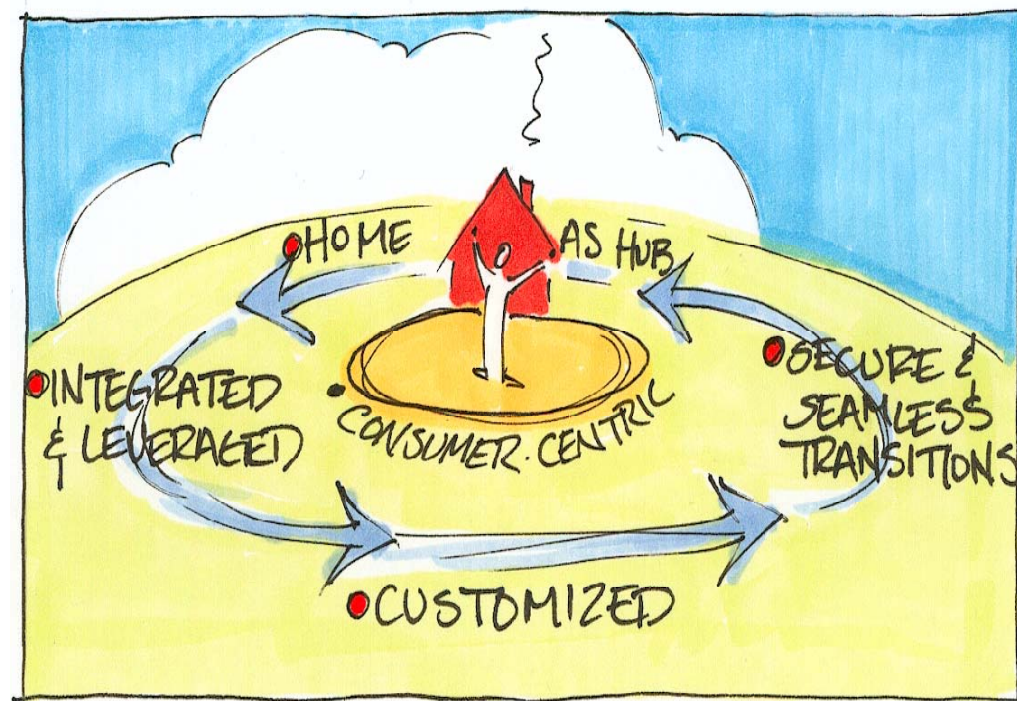
Secure and seamless transitions

Customization

Patient Focus

Evidence-Based Medicine

Team-Based Care "Medical Home"

Patient Stratification and Personal Plans

Remote Consultation, Care, Monitoring & Technology

Value-Based Design

PATIENT CENTERED CARE

Infrastructure and Support

Patient Focus
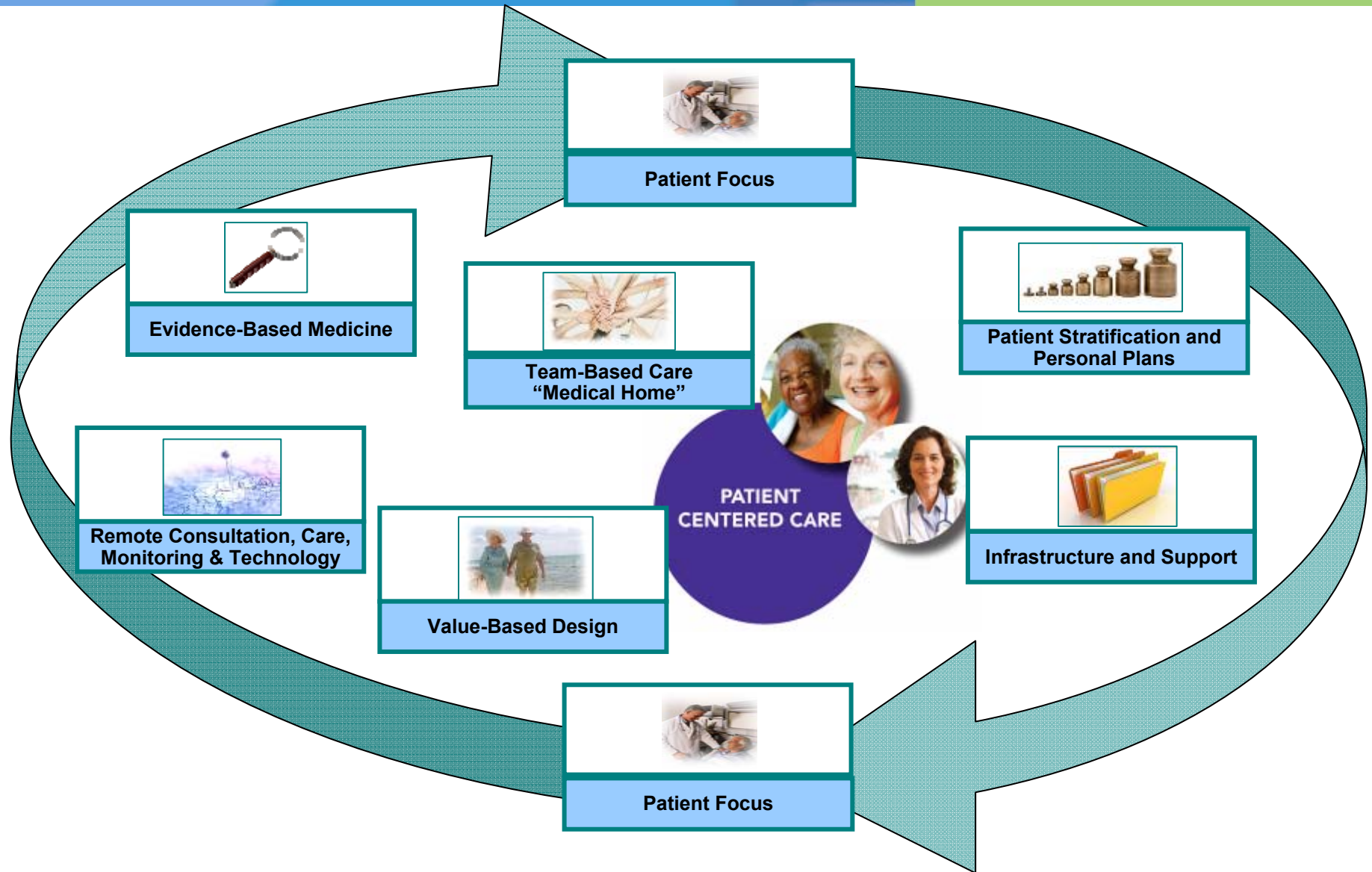
Improved coordination of care will help patients contact the appropriate team for assistance

- 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

Smart

Networked

Collaborative

Affordable

Preventive

Questions?