Meaningful Connections:
Supporting Patient-Centered Medical Care Through Connected Health IT

David C. Kibbe, MD MBA
for Maine PCMH Pilot, February 11, 2010
The professional and policy views of patient-centeredness: Prescriptive models for health IT use within PCMH, Meaningful Use

The new context for care delivery: The cost crisis, and the call for new care delivery and payment models that transfer clinical and financial risk to providers. What this implies about health IT objectives.

The innovations: How technical advances are enlarging our opportunities for improving patient-centeredness while also managing provider risk
Some big but under-appreciated issues

- Cross-boundary health data exchange issues: how do we assure that transfer-of-care summaries, et. al, can be shared across the continuum of care, beyond my organization?

- Who gets the data on patient care? what do the data include, who owns them, what will they be used for? Payors, or providers?

- Who owns the coding sets and vocabularies? Should the government purchase these and create a new, single set of codes for all major medical concepts?

- Who will be forced to be transparent, and who not?

- How can health IT resources be both patient-centered and capable of managing provider risk?
What I’m going to assume you already know

- Basic definition of the PCMH model, and it’s goals and objectives, e.g. care coordination.
- NCQA PCMH accreditation criteria
- PCMH map of pilots and demonstrations across the country
- The basic concepts behind Accountable Care Organizations and the various levels of configuration being contemplated, and how these relate to PCMH
The Patient-Centered Medical Home (PCMH) is a Model of Health Care Delivery

The PCMH would be responsible for all of the patients’ health care needs: acute care, chronic care, preventive services, and end of life care working with teams of health care professionals.

The PCMH would “coordinate the care” of its patients with specialists, lab/x-ray facilities, hospitals, home care agencies, and all other health care professionals on the patient care team.

The PCMH would use health information systems to provide data and reminder prompts such that all patients receive needed services.

5. Patient Centered Primary Care Collaborative 2008 www.pcpcc.net
NCQA PPC-PCMH: Included in the standards are 10 “must-pass” elements.

PPC-1A: Written standards for patient access and patient communication
PPC-1B: Use of data to show standards for patient access and communication are met
PPC-2D: Use of paper or electronic charting tools to organize clinical information
PPC-2E: Use of data to identify important diagnoses and conditions in practice
PPC-3A: Adoption and implementation of evidence-based guidelines for three chronic or important conditions

6. PPC-4B: Active support of patient self-management
7. PPC-6A: Systematic tracking of tests and follow up on test results
8. PPC-7A: Systematic tracking of critical referrals
9. PPC-8A: Measurement of clinical and/or service performance
10. PPC-8C: Performance reporting by physician or across the practice

To achieve Level 1 Recognition, practices must successfully comply with at least 5 of these elements. Achieving Level 2 or Level 3 depends on overall scoring and compliance with all 10 must pass elements: http://www.ncqa.org/tabid/631/Default.aspx
PCMH Pilot Map

UnitedHealth Group PCMH Demonstration Program (AZ)
Colorado Multi-Stakeholder Multi-State PCMH Pilot (CO)
Wellstar Health System (GA)
Quality Quest Medical Home (IL)
Louisiana Health Care Quality Forum Medical Home Initiative (LA)
Maine Multi-Payer Patient-Centered Medical Home Pilot (ME)
Aligning PCMH Stakeholders in Michigan (MI)
Blue Cross Blue Shield of Michigan Physician Group Incentive Program (PGIP) (MI)
CIGNA and Dartmouth-Hitchcock Patient-Centered Medical Home Pilot (NH)
NH Multi-Stakeholder Medical Home Pilot (NH)
Patient-Centered Medical Home—Diabetes Management (ND)
MediQhome Quality Project: Patient-Centered

Advanced Medical Home Quality Improvement Initiative (ND)
CDPHP Patient-Centered Medical Home Pilot (NY)
Emblem Health Medical Home High Value Network Project (NY)
New York Hudson Valley p4p/Medical Home Project (NY)
Cincinnati Medical Home Pilot Initiative (OH)
Greater Cincinnati Aligning Forces for Quality Medical Home Pilot (OH)
Southeastern Pennsylvania Rollout of the Chronic Care Initiative (PA)
Rhode Island Chronic Care Sustainability Initiative (CSI-RI) (RI)
Memphis Multi-Payer Patient-Centered Medical Home (TN)
Texas Patient-Centered Medical Home Demonstration Project (TX)
Patient-Centered Medical Home—Vermont (VT)

Source: Patient Centered Primary Care Collaborative 2008 www.pcpcc.net
Accountable Care Organizations (ACOs) (Sec. 3022)

- Not later than January 1, 2012, the Secretary establishes a shared savings program that would reward ACOs
  - ACOs that meet quality-of-care targets and reduce costs are rewarded with a share of the savings

- ACOs include groups of health care providers
  - Physician groups, hospitals, nurse practitioners and physician assistants, and others

- ACOs need to
  - promote evidence-based medicine
  - patient engagement
  - report on quality and cost measures
  - coordinate care, such as through the use of Telehealth, remote patient monitoring, and other such enabling technologies

6. Patient Protection and Affordability Care Act 2010; Sec 3022
Rx for Health IT 2005-10
Moving toward patient-centeredness from practice- and enterprise-centeredness
Kibbe, early 2009, moving away from EHR feature and function list, to describe patient-centered *capabilities* of health IT

“Meaningful Connections” for the **Patient Centered Primary Care Collaborative**

- The ability to collect, store, manage and exchange relevant personal health information.

- The ability of providers, patients and other members of a person’s health team to communicate among themselves and in the process of care delivery.

- The ability to collect, store, measure and report on the processes and outcomes of individual and population performance and quality of care.

- The ability of providers and their practices to engage in decision support for evidence-based treatments and tests.

- The ability of consumers and patients to be informed and literate about their health and medical conditions and appropriately self-manage with monitoring and coaching from providers.
NCQA PPC-PCMH: Included in the standards are 10 “must-pass” elements that imply health IT uses.

1. PPC-1A: Written standards for patient access and patient communication
2. PPC-1B: Use of data to show standards for patient access and communication are met
3. PPC-2D: Use of paper or electronic charting tools to organize clinical information
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Stage 1 MU Objectives

**CORE**
- Use CPOE
- e-Prescribing
- Drug-drug & drug allergy checks
- Medication list
- Allergy list
- Problem list
- Decision support
- Record demographics
- Smoking Status
- Vital Signs
- Clinical summaries to patient
- Electronic exchange
- Health info to patients
- Quality Measures
- Protect health information

**MENU**
- Incorporate clinical labs
- Medication reconciliation
- Implement drug-formulary checks
- Generate patient list
- Patient electronic access
- Send reminder
- Patient-specific education
- Clinical summaries to provider
- Immunization registry
- Biosurveillance

**Must Do All**
- Record demographics
- Smoking Status
- Vital Signs

**Must Do Five**
- Clinical summaries to patient
- Electronic exchange
- Health info to patients
- Quality Measures
- Protect health information
Stage 1 MU Measurements

CORE
- Use CPOE
- e-Prescribing
- Drug-drug & drug allergy checks
- Medication list
- Allergy list
- Problem list
- Decision support

Must Do All
- Record demographics
- Smoking Status
- Vital Signs
- Clinical summaries to patient
- Electronic exchange
- Health info to patients
- Quality Measures
- Protect health information

80%

80%

50%

40%

30%

10%

MENU
- Incorporate clinical labs
- Medication reconciliation
- Implement drug-formulary checks
- Generate patient list
- Patient electronic access
- Send reminder
- Patient-specific education
- Clinical summaries to provider
- Immunization registry
- Biosurveillance

1 of 5 must be one of these
Stage 1 MU EHR Modules

**CORE**
- Use CPOE
- e-Prescribing
- Drug-use/dose-allegation
  - Allergy list
  - Problem list
  - Decision support

**MENU**
- Registry
- e-Prescribing

**Must Do All**
- Record demographics
- Smoking status
- Clinical summaries to patient
- Electronic exchange
- Protect health information

**Must Do Five**
- Patient electronic access
- Patient-specific education
- Clinical summaries to patient
- Patient Portal
- Immunization registry
- Biosurveillance
- Public health reporting

**Registry**

**Patient Portal**

**AAFP SCIENTIFIC assembly**
Stage 2 MU Objectives Will Stress Patient Engagement, Care Coordination, and Health Data Exchange

✓ EPs: 20% of patients use a personal health record (includes patient portal) to access their information (for an encounter or for the longitudinal record) at least once. Exclusions: patients without ability to access the Internet.

✓ EPs: 30% offered secure patient messaging online

✓ EPs: connect to at least 3 providers in “primary referral network,” or establish an ongoing bidirectional connection to at least one HIE. (30% for Stage 3)

✓ Patient preferences for communication medium recorded for 20% of patients

✓ 80% of patients offered the ability to view and download, within 36 hours of discharge, relevant information contained in the record about EH inpatient encounters. Data are available in a uniformly human-readable form (HITSC to define; e.g., use of PDF or text).
The ideal: Kibbe’s summary of the professional and policy views

- Patient-centeredness demands the use of health IT to
  - Encourage patient participation and engagement in care
  - Coordinate care across organizational boundaries and across time
  - Measure quality, effectiveness, and efficiency of care in order to continuously improve the patients’ experience
The current environment

Unsustainable costs for health care
Medicare the largest contribution to debt
Looming cuts in physician fees
Physician and provider organization assumption of risk.
Forecasts of National Health Care Spending as a Percent of GDP

Historical Growth Path
Congressional Budget Office Assumptions
CMS (Medicare-Social Security Trustees)
PERC Forecast

Hospital Charges:
Average Cost Per Hospital Day (US$)

Source: International Federation of Health Plans 2010 Comparative Price Report
Total Hospital and Physician Costs:
Angioplasty (US$)

Source: International Federation of Health Plans 2010 Comparative Price Report
Driving out employer-based insurance

Employers are dropping health insurance and/or reducing subsidy and benefits
Driving federal spending & debt

Medicare predicted to be half of federal budget by 2035
Almost one fifth (19.6%) of the 11,855,702 Medicare beneficiaries who had been discharged from a hospital were re-hospitalized within 30 days. 34.0% were rehospitalized within 90 days.

In 50.2% of the patients who were re-hospitalized within 30 days after a medical discharge to the community, there was no bill for a visit to a physician’s office between the time of discharge and re-hospitalization.

Authors estimate that the cost to Medicare of unplanned re-hospitalizations in 2004 was $17.4 billion.

What’s a government to do?
Section 3025 – Hospital Readmissions Policy

✓ Beginning October 1, 2012, DRG payments to hospitals who have “excess” readmissions for certain conditions will be reduced. The floor adjustment factor will be 99% for fiscal year 2013, 98% for 2014, and 97% for fiscal year 2015 and thereafter.

✓ First three conditions to track: AMI, heart failure, and pneumonia.

✓ October 1, 2014, the list expands: COPD (chronic obstructive pulmonary disease), CABG (coronary artery bypass graft), PTCA (percutaneous transluminal coronary angioplasty), and other vascular conditions.

The Patient Protection and Affordable Care Act (HR 3590 enrolled: Sec 3025)
Two new care models have emerged to meet the challenges

- **Patient-Centered Medical Home**

- The PCMH would “coordinate the care” of its patients with specialists, lab/x-ray facilities, hospitals, home care agencies, and all other health care professionals on the patient care team.

- **Accountable Care Organization**

- The ACO will involve groups of providers, physicians, hospital, NPs and PAs and others to promote evidence-based medicine, patient engagement, report on quality and cost measures, and coordinate care through enabling technologies.
In transition: from volume to value

“We’re still trying to do as many procedures as possible, but we’re thinking about cutting down on those that are unnecessary.”

“Despite my very supportive board of directors, they will not allow me to lead our organization into bankruptcy by doing the right thing. We need to change our payment system if we truly want to ensure universal coverage, improve quality and reduce cost.”
The “big idea” here?

Accountability
Risk management, clinical & financial
Cost control -- or lose control
A Traditional View of Provider Organizational Risk

- Full Risk Capitation
  - California "Delegated Model"

- Corridor Capitation
  - Permanente Medical Groups

- FFS +/- "Bonus"
  - Bundled Payments
  - ACA Shared Savings Model
  - Medicare Group Practice Demo
  - PCMH

- FFS Only

**Depth** of Risk:
- Primary Care
- Specialty Care
- Hospital Costs
- Referral Costs
- Non Referral Costs
- Admin. Rx (B)
- Prescription Rx (D)

**Breadth** of Risk
A Traditional View of Provider Organizational Risk
PCMH-Associated Provider Risk Can Take Several Forms

- Cost Shifting Precluded
- Payments Bundled
- Payments Tied to Quality Measurement Targets
- Payment Mix Changes
- Payment Reductions

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<tr>
<th>Capitated</th>
<th>FFS Insured</th>
<th>Self-Pay</th>
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<td>Door #1</td>
<td>Door #2</td>
<td>Door #3</td>
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PCMH-Associated Provider Risk Can Take Several Forms
Areas of patient-centered health IT consistent with management of provider risk

- Patient engagement
- Cross organizational medical care management
- Clinical information exchange
- Quality reporting
- Business intelligence and analytics
- Revenue and cost management (including cost of IT)
Health IT areas useful for managing provider risk

- As organization matures, the ability to take on more risk will increase....

- .....provided health IT evolves apace, scales, and generates more meaningful/useful data.
From ideal to real: Four specific health IT *imperatives* that combine patient-centeredness with provider risk management

- Move architectures/platforms to the web, Internet, and mobile platforms
- Provide cross-boundary transport & communications, anywhere, anytime.
- Accelerate technical interoperability and computability of data between systems
- Make cost accounting patient-centered, measuring shared costs of care around patients’ care cycles not departments

- Scale lowers cost of ownership; apps easy to use, task-driven, substitutable, mobile; data re-used, re-purposed, patient-accessible.
- Transport layer openness removes fax; permits multi-organizational teams to form; encourages use of clinical groupware to re-define work flows.
- Data liquidity drives analytics for continuous improvement and just-in-time decision support; clinical integration around patient.
- Measuring value can re-prioritize patient experience over time > 1 year.
Innovations that can help us get there

The cloud as architecture for collaboration
Modular, mobile, plug-and-play EHR technology
Simple, secure, Internet-based transport
Universal exchange language in XML
Ten year computing cycle

- 1960s Mainframe Computing
- 1970s Mini Computing
- 1980s Client/server Computing
- 1990s Desktop Internet Computing
- 2000s Mobile Internet Computing
Applications
Moving to the Cloud

1960’s Mainframe
1980’s Client/server
Today Cloud Computing Applications
Platforms + Apps
Moving to the Cloud

1960’s
Mainframe

1980’s
Client/server

Today
Cloud Computing Platforms
Collaboration
Moving to the Cloud

1980’s
Lotus Notes
Novell GroupWise

2000s
SharePoint
Groove
File Sharing

Today
Collaborative Computing
Modular, mobile, plug-and-play EHR technology

The “medical app store”
Next Generation Devices

There are now more cell phones than desktop computers!
30 million tablet sales in 2011?

Mobile revolution is well underway -- Gartner predicts 118 million tablets by 2014
Changes in integrality/modularity have begun to alter the market for HIT

1990 - 2005

- Hardware
- Health info exchange
- Web portal
- Care coordination & planning
- Disease registry
- E-prescribing
- Communications & online Care
- Decision support
- DB management
- Implementation
- Sales & distribution
- Field service

2006 - Present

- RHIOs
- Dell, IBM, Apple, HP, Toshiba
- RMD, Docsite, Medfusion, Relay Health, VisionTree
- RMD, Docsite, VisionTree, Intel
- DocSite, RMD, 4Medica, VisionTree
- Allscripts, DrFirst, Zix, iScribe
- TelaDoc, RMD, MedFusion, RelayHealth
- Anvita, MedAI, ActiveHealth, DocSite, UptoDate, Keas
- SQLServer, MySQL, FileMaker, Oracle
- Contract assemblers
- AC Group, AthenaHealth
- VARs
- Hospitals
- Independent contractors, HITECH extension offices

Version fall 2009
ONC certification triples number of EHRs, many are Internet-based

- 200+ EHR technologies certified by January 1, 2011
- ~ 150 of these are either ‘complete EHRs’ or ‘EHR modules’ for ambulatory care
- ~ half of these are cloud-based, both web-based and Internet-based
- ~ costs have decreased; between $150-350/doctor/month
- ad-based EHR technologies are free of fees
Simple, Internet-based data transport

The Direct Project protocols and specifications to connect physicians
I’m sending you Mrs. Smith!

La, la, la... I can’t hear you, can’t hear you!
Currently, there are three mechanisms for health data transport:

- Fax, mail, and courier
- Enterprise-wide networks
- HIEs
A ‘little guy’ such as a 2 doctor practice in rural America wants to send content to another 2 doctor practice across town. These small practices should not have to operate servers or have to pay for a complex health information exchange infrastructure. Healthcare Information Services Providers (HISPs) should provide them the means to exchange data as easily as Google provides Gmail or Verizon FIOS provides ISP service. All HISP to HISP communications should be encrypted such that the sending practice and receiving practice can exchange data without any HISP in the middle being able to view the contents of the data exchanged.

The innovation: cross-network transport that is vendor neutral and uses open protocols

Simple, secure, vendor neutral, point-to-point e-mail with attachments
ONC launches NHIN Direct, a simpler communications protocol
Tracking HITECH

NHIN Direct

Uses the standards, services and policy tools of NHIN for less complex environments.

Focus is on meaningful use.
Specifically: summary care records, referrals, discharge summaries and other clinical documents in support of continuity of care and medication reconciliation, and communication of laboratory results to providers.

Concept grew out of a blog by Wes Rishel (Gartner).

Example Use Cases

1. Primary care provider refers patient to specialist including summary care record
2. Primary care provider refers patient to hospital including summary care record
3. Specialist sends summary care information back to referring provider
4. Hospital sends discharge information to referring provider
5. Laboratory sends lab results to ordering provider
6. Providers without a fully certified EHR send and receive data
7. Primary care provider sends patient immunization data to public health
8. Pharmacist sends medication therapy management consult to primary care provider
9. Provider sends patient health information to the patient
10. Provider sends a clinical summary of an office visit to the patient
11. Hospital sends a clinical summary at discharge to the patient

Editorial: This has turned out to be a practical approach. Commercial initiatives are using the NHIN Direct standards to wrap services around. One example is the Surescripts clinical interoperability service connecting any US physician to any other.
Gartner Hype Cycle

- Peak of Inflated Expectations
- Plateau of Productivity
- Slope of Enlightenment
- Trough of Disillusionment
- Technology Trigger
Accelerating interoperability

Getting really serious about using XML, RDF, JSON, etc. to make data and metadata computable
PCAST report

- Recommends establishment of “universal exchange language” in XML
- Envisions “metadata-tagged data elements” that are web-searchable, able to be assembled by providers and patients
- Highly critical of centralized database efforts, e.g. HIEs
SMArt Ecosystem

Researching “substitutable medical apps” that behave like the iPhone App Store
Am I missing anything?

- David C. Kibbe, MD MBA
- dkibbe@aafp.org
- 913 205 7968
- Thank you!
Study shows that EHRs are not so effective in coordinating care outside the practice

Focus on Care Communications

Phone interviews:

52 physicians from 26 practices that have deployed an EMR for 2 years.

4 vendor chief medical officers and 4 national thought leaders.

Coordination inside the practice was supported by many EMR features.

Coordination externally had most of the challenges.

Templates can load up notes with boilerplate and make them hard to read quickly.

EMRs may not have comprehensive applications for referral tracking.

Coordinating structured, codified data between different systems is difficult, most attached scanned documents as PDFs.

Notes may target satisfying billing issues and not clinical care coordination.

Principal tasks necessary for effective care coordination

1. Maintaining patient continuity with the PCP/primary care team.
2. Documenting and compiling patient information generated within and outside the primary care office.
3. Using information to coordinate care for individual patients and for tracking different patient populations within the primary care office.
4. Referrals and consultations (initiating, communicating and tracking).
5. Sharing care with clinicians across practices and settings.
6. Providing care and/or exchanging information for transitions and emergency care.

Editorial: The 6-task model captures the relevant issues. The study is a good summary of the interoperability and medical home issues that will continue to be discussed as physicians implement EMRs.
Study identifies 7 key EHR improvements for medical homes

Focus on Care Communications

Cites 4 peer-reviewed studies of medical homes highlighting the positive impacts of EHR. NC Medicaid, Geisinger, four small practices, and Group Health.

Authors identify 7 domains for EHRs that require development to help medical homes realize full potential. See table at right.

EHRs perform poorest in team care and care transitions.

Major work also in clinical decision support, particularly in chronic care management. Including registries and metrics.

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<thead>
<tr>
<th>EHR Domain</th>
<th>Potential benefits for patient-centered medical home</th>
<th>Patient-centered medical home implementation challenges</th>
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<tbody>
<tr>
<td>Clinical decision support</td>
<td>Improved care processes and intermediate disease outcomes; reduced adverse drug events</td>
<td>Insufficient decision-support features in many available EHRs</td>
</tr>
<tr>
<td>Registries</td>
<td>Better patient and outcome tracking; improved workflow efficiency</td>
<td>Highly functional, multi-disease tools not widely available</td>
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<tr>
<td>Team care</td>
<td>More patient-centered, collaborative care; changed patterns of specialty referral</td>
<td>Need communications capacities beyond notes (i.e., real-time specialist consultation)</td>
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<tr>
<td>Care transitions</td>
<td>Info exchange during care transitions; helping ensure timely follow-up visits and monitoring</td>
<td>Difficult to integrate inpatient and outpatient EHRs</td>
</tr>
<tr>
<td>Personal health records</td>
<td>Increased patient engagement and self-efficacy; portable and real-time info</td>
<td>Low patient uptake; low health literacy; providers hesitant to share info</td>
</tr>
<tr>
<td>Telehealth</td>
<td>Improve CHF outcomes; less need for in-person; more patient engagement</td>
<td>Outside EHR functions; extra cost; help practices select</td>
</tr>
<tr>
<td>Measurement</td>
<td>More individual and aggregated data; transparent benchmarks</td>
<td>EHRs unable to abstract; need harmonized quality and efficiency metrics</td>
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Editorial: Drs. Bates and Bitton from Brigham and Women’s publishing in Health Affairs. An insightful roadmap of where to put product development dollars.
Data Standards

Tuesday, December 21, 2010

New Panel To Consider Common Language for Health Data Exchange

The Office of the National Coordinator for Health IT plans to establish an advisory panel to evaluate strategies for implementing recommendations from a recent report by the President’s Council of Advisors on Science and Technology, Government Health IT reports.

National Coordinator for Health IT David Blumenthal described the plans for the advisory panel during last week’s meeting of the Health IT Standards Committee.

PCAST Report

The PCAST report recommended that the federal government encourage the adoption of a common language for exchanging data between electronic health record systems.

The report called for ONC and CMS to develop the technical definitions and descriptions for the universal exchange language and include them in the 2013 and 2015 requirements for the meaningful use of EHRs.
Social Networking Users Surpass Email Users on 7/09

Source: Morgan Stanley Internet Mobile Report, December 2009
Data is for unique, monthly users of social networking and email usage.