The Realities and Challenges of Primary Care: Implications for Redesign

John W. Beasley, M.D.
Professor Emeritus, UW School of Medicine and Public Health
Honorary Associate, Department of Industrial and Systems Engineering
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Context for Redesign

• Primary Care is:
  • the provision of integrated, accessible health care,
  • by clinicians who are accountable for addressing a large majority of personal health care needs,
  • who develop a sustained partnership with patients,
  • and practice in the context of family and the community.

Mrs. A, a 76 year old married woman comes in to discuss “dizziness.”

• Recent hospital discharge, No record in EHR
• Kidney failure on dialysis
• Diabetes
• Limited vision
• Coronary artery disease
• Arthritis
• Depression
• Nurse tells me that’s she’s tearful that may have to leave her home
• I’m running 30 minutes behind schedule for this 15 minute appointment
• Eight different medications
• Unclear when or why dosages were changed
• When I reorder a medication, an allergy alert fires – but she is already taking it without problems
• When I’m leaving the room, she mentions that her husband has memory loss – he angrily denies this.
More Primary Care gives better quality

...and lower costs
Context for Redesign

• Primary care realities:
  • Multiple co-morbidities
  • Coordination with many people/places/organizations
  • Competing agendas (patient, clinician, organization, government)
  • No linear workflow because we are patient centered
  • Information chaos

9 of 10 patients had more than 1 chronic health problem

Context for Redesign

• ...and the complexity is increasing
• From 1997 to 2005 (NAMCS Data, Adults)
  • Number of clinical items increased
    • 5.4/encounter to 7.1/encounter
    • Time did increase 18 to 21 minutes
    • Decrease in time/item from 4.4 to 3.8 min

Abbo ED, Zhang Q, Zelder M, Huang ES. The Increasing Number of Clinical Items Addressed During the Time of Adult Primary Care Visits. J. Gen Intern Med 2008;23:2058-65
Context for Redesign

• Primary care requires lots of coordination
• Many people and places
• For their Medicare patients the average primary care clinician in 2005 had to coordinate care with a total of:
  • 229 other physicians
  • 117 other practices

Context for Redesign

• Competing agendas
  • Preventive health guidelines would take 7.4 hours per day.
  • Following guidelines for chronic diseases, if realistic, 10.6 hours.
    • That totals 18 hours per day!
  • Plus whatever it is the patient wants...

Workflow? Schmerkflow!!

• There is no consistent, predictable workflow in primary care encounters.
  • Visits are iterative processes driven by patient needs and the interaction between clinician and patient.
  • This is true both for clinics using EHRs and not using EHRs.

• Conclusion:
  • HIT and related support systems must be designed taking into account the variable and unpredictable nature of workflow

Information Chaos: a Source of Hazards and Errors

• Elements of some or all of:
  • Information overload
    • Patient, others in room, chart, nurse, EHR, prior knowledge
  • Information underload
    • Information not available
  • Information scatter
    • Information in multiple places
  • Information uncertainty
    • Which med list (or patient) is correct?
  • Information error
    • Just plain wrong (e.g. Hx of cancer is wrong!)

Memory, Information Processing
Demands are High

- Primary care = intensive cognitive activity
  - Memory usage is very high
    - long term memory
    - Working memory
    - Knowledge-based problem solving
  - Attention and memory resources divided
    - Need to “multi-task” – Which we don’t really do!
      - Multi-tasking = Distracted
  - Human relationships are critical

Karsh, B-T and others.
Personal communications
We Establish Situation Awareness During The Visit

• What’s going on?
• What does it mean?
• Where is it headed?
• If we change something, what will happen?

We need the EHR to help us do this
Hi! I’m the EHR and I’m here to help YOU!
Are More EHR Functions Better?

• Physicians working with highly functioning EMR...
  (are)
  • challenged when the time allotted is not equal to the time perceived as necessary to provide quality care.
  • have more burnout, dissatisfaction and intent to leave practice in the “High Functionality” EMR Cluster
  • ...EMR systems may not match workplace processes and flow

Redesign to Reduce Cognitive Clutter

• 4 pages of boiler plate from consultant
• Last line:
  • “Arthroscopy on Thursday.”
• Buried in middle of 3rd page:
  • “Patient will discuss new-onset chest pain with Dr. Russo.”
• “High Fiber Medical Records!”

Paul Russo, MD, Personal Communication, 2009
Too legible.
Redesign to Support Cognition

• EHR may reduce clinicians’ need to recall info from memory/handwriting
  • May decrease cognitive workload,

• But – we need to reduce the Information Chaos
  • All information easily available at any time
    • Workflow? Schmerkflow!
  • Reduce interruptions (e.g. Break-in-Task due to CPOE, CDS and Best Practice Alerts)
  • Help establish Situation Awareness

Redesign to Maintain Flow

Experience of Flow

Slide courtesy of Mark Marnocha, Ph.D., Mosaic Family Health, Appleton, WI
Current Use of Technology

• So far, no consistent evidence of improvements in:
  • Quality of care
  • Safety of care
    • Subtle hazards
  • Efficiency of care
    • Increased clinician workload and risk of burnout

• We need to push ahead on all fronts
  • Policy, technology, implementation and how we use it
The Mismatch Between the Potential of HIT to Help and Actual Results

• Meaningful use was intended to help physicians provide better care
• AAFP funded study of “Meaningful Use: Benefits and Burdens”
• Survey of US Family Docs
• Focus on face-to-face care

31 MU Criteria
Benefit & Burden Based on Physician Face-to-Face Time

**Vitals**
- Record and chart vitals

**Rx**
- Generate and transmit scripts electronically (stage 2)
- Generate and transmit scripts electronically (stage 1)
- Maintain active allergy list
- Incorporate clinical lab-test results into EHR
- Perform Drug-Allergy checks
- Record patient family health history

**CDS**
- Record Electronic notes in patient records
- Perform medication reconciliation when receiving patient from another setting/provider

**AVS**
- Use computerized Physician Order Entry (CPOE)
- Maintain current problem list

**Zone 1**
Criteria beneficial and lower burden
- Zone 2
Criteria beneficial but more burden to complete
- Zone 3
Criteria less beneficial but lower burden
- Zone 4
Criteria less beneficial and more burden to complete

**Benefit (+)**
- Generate lists of patients by specific conditions
- Implement one trackable clinical decision support rule (stage 2)
- Use EHR technology to identify patient-specific education
- Use secure electronic messaging
- Perform drug formulary checks
- Provide summary care record for each transition of care or referral
- Provide clinical summaries for each office visit
- Implement one trackable clinical decision support rule (stage 1)
- Provide patients with electronic copy of health information within business 4 days of being available

**Benefit (-)**
- Submit electronic data to immunization registries
- Send patient reminders preventive/follow-up care
- ID and report cancer cases to registry
- ID and report specific cases to a specialized registry
- Submit syndromic surveillance data to public health agencies

**Burden (+)**
- Imaging results accessible through CERHT
- Submit electronic data to immunization registries
- Send patient reminders preventive/follow-up care
- ID and report cancer cases to registry
- ID and report specific cases to a specialized registry
- Submit syndromic surveillance data to public health agencies

**Burden (-)**
- Record Demographics
- Record smoking status
- Perform Drug-Drug checks
Redesign: Purpose and Policy

• From a national conference – March 2009
  • “The purpose of the EHR is to document care.”
    • Anon....
  • Our view is that the purpose of the EHR must be to communicate and improve care!

Karsh, BT, Beasley JW, Wetterneck T, Lapin J, Temte J, Smith P, AHRQ grant group. Also MetaStar and the I-PrACTISE group
Redesign to Decrease Errors in Primary Care

• Using NAMCS data, (N=3,467), Clinicians had only 75% of base rate of depression Rx for patients with 3 or more chronic conditions when using EHRs.

• Conclusion: EMR use can impair the diagnosis and treatment of depression in primary care in patients with multimorbidity. (And that’s most of them!)

• Missing a diagnosis is a type of error.

Redesign to Improve Access to Care

• Concerns about confidentiality and security
  • 29.2 million records breached since 2009
• Concerns about what’s “in the record”
• How many patients will not come at all?

Johnson ME. Data Hemorrhages in the Health-Care Sector. *Financial Cryptography and Data Security*, Feb 22-25, 2009


*Medical Economics*, April 25, 2014, pg 34
Redesign to Improve Access to Care

• Might patient attitudes re EHRs influence access to care?
• Only 26% of patients want digital records
  • 85% concerned re privacy!
  • 51% concerned information could be misused
  • 26% feel EHRs have improved interactions with the office
  • 14% think “my doctor is savvy enough” to use an EHR.

http://www.ama-assn.org/amednews/2012/08/20/bisb0820.htm
(Courtesy Mark Marnocha, Ph.D.) Study by Xerox of 2,100 patients.
Redesign to Reduce Keyboarding

• Keyboarding reduces dialogue between physicians and patients.
• Communication less patient centered when physician looks at screen and does keyboarding
• Phys Gaze Computer = Patient Gaze Other
• Greater physician gaze at patient -> greater patient satisfaction

Redesign to Support Better Inter-professional communication

• Issues of readability
  • Loss of narrative
  • Templates: redundancy, low information density.
    • Results from emphasis on documentation rather than communication!

• Assumption that information has been received
  • Plaintiff's attorneys may come to love this one.

• Loss of personal contact and relationship ("John, we never talk anymore!")
Redesign to Reduce Hazards for Clinicians

• Why Care?
  • Clear correlations between workforce satisfaction and patient outcomes (and decreased malpractice liability)

• Job satisfaction decrease relates to EHR use, especially if physicians see EHR as interfering with the quality and efficiency of care

• May increase workload and burnout


Coleman M, Dexter D, Nankivil N., Factors Affecting Physician Satisfaction and Wisconsin Medical Society Strategies to Drive Change. WMJ 2015;114:135-42
Redesign to Decrease Workload Issues

• From a physician assistant:
  • “I’ve about had it. I’ve cut my work time to 80% just so that I have one day to catch up on all the stuff in my in-box and don’t have to do it on weekends.”

• From a family doc:
  • “Every hour I spend seeing patients costs me another hour.”

• Spouse: “You’re on the damn computer every night!”

• One hour Face-to-Face = 2 Hours additional time


“There is an urgent need for… evidence-based interventions addressing… the practice environment.”
Redesign to Reduce Workload:

• Time for tasks
  • “For 5 patients I first did the admission orders on paper and next uploaded the orders electronically. The difference? 73 seconds vs 17 min per patient.”
  • “In a particularly perverse mood, I did a study of the time required to electronically sign charts...it took 25 minutes to provide 23 signatures. The average signature took 8 clicks and 33 seconds...
  • “…it takes 6 seconds to write “RTC 1 wk w/ CBC, K+” and 121 seconds to do this in our EHR.”

• We have 370 tasks/actions per patient encounter.
• Average of 192 Clicks and scrolls per encounter.

Christine Sinsky, MD. GIM, Dubuque, IA. and AMA. Personal Communication, 2010


Redesign to Reduce
Computer Physician Order Entry

• Order sheet
  • 3 sec/pt
  • 100 pt/week
  • 5 minutes per week

• CPOE
  • 2 min/pt
  • 100 pt/wk
  • 3.3 hours per week

Slide courtesy Tom Sinsky, MD and Christine Sinsky, MD, 2013
Clinicians spend an average of 1.4 hours of work on the EHR per day outside of the 10 hour clinic day!

This does not include time on other systems (e.g. OB, hospital call)

Redesign Organizations for Communication

• Encourage and support “Synchronous Analogue Communication” (i.e. talking with each other!)
  • Understanding is “…hampered by …a presumption that the … function of a handoff is one-way information transmission.”
  • There is a loss of “…co-construction of the understanding of the patient.”
  • Good care depends on accurate, succinct information.

Redesign to Minimize Copy/Paste

• “The VA is a great place to work because with the computers you can just copy and paste your notes, and you don’t need to write a new note every day.”¹

• The copy-and-paste function “resulted in the propagation of misinformation or even in frank errors”¹

• Copy/paste may decrease quality of care
  • Lifestyle counseling for DM – copy/paste worse than no note at all for patient outcomes!

Adapted from talk by Jennifer Frank, MD, Fox Valley Family Medicine


Redesign to Engage the Patient

• Clinicians rated as less effective when they spent more time looking at the computer and when there were more periods of silence in the consultation.

• Clinicians benefit from using communication strategies that maintain the flow of conversation when working with the computer.

• Remember: Phys Gaze Computer = Patient Gaze Other


“One of the key contributors to burnout … EHRs [that have] … radically altered and disrupted established workflows and … interactions, become a source of interruptions and distraction and are very time intensive. (Health Affairs Blog, March 28, 2017)
A Call to Action

“Clinicians need to take back ownership of the medical record as a tool for improving patient care…”