

Slide 1: Using Electronic Health Records to Better Coordinate Decision Making for Complex Patients: What Can We Learn From Wiki?

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Slide 2: Outline

- Introduction and Aims
 - Caring for complex, multimorbid patients
 - Communication among collaborating physicians
- Models of Collaboration and Communication
 - Conceptual model of communication among clinicians
 - Using Electronic health records to enhance collaboration
- Implicit and Wiki Communication in Health Care
 - Current examples of Wiki-style communication
 - Future directions

Slide 3: Introduction

- Case Presentation: Mr. Smith
- 68 year old male with type 2 diabetes mellitus, chronic heart disease with history of coronary artery stent
- Now presents with diagnosis of colon cancer
- Medical decision making is complicated by the involvement of numerous physicians.

Slide 4: Traditional Model of Coordination

Image of a circle in the middle, labeled "PCP" and surrounded by 3 boxes labeled from left to right: "Endocrinologist," "Cardiologist," "Oncologist." triangle at the top of the image is labeled, "Mr. Smith"

Slide 5: Communication among Multiple Specialists Co-managing Care

Image of a triangle in the middle, labeled "Mr. Smith" and surrounded by 3 boxes labeled from left to right: "Endocrinologist," "Cardiologist," "Oncologist."

Slide 6: Aims of the Paper

- Define terms and communication model
- Role of Electronic Health Records (EHR)
 - Using EHRs within this communication model
- Applications of EHR-based coordination
 - Current examples of Wiki-style communication
 - Future applications using Wiki hyperlinks

Source: Eisenberg Center Conference Series 2009, Translating Information Into Action: Improving Quality of Care Through Interactive Media, Effective Health Care Program Web site (<http://www.effectivehealthcare.ahrq.gov/index.cfm>)

Slide 7: Taxonomy of Care Coordination

- **Traditional Clinician Roles**
 - Primary Care Provider
 - Specialist
 - Procedural
 - Cognitive—diagnosis and/or treatment
- **Co-Management Roles**
 - Co-manager with principal care
 - Oncologist coordinating all aspects of cancer care
 - Co-manager with shared care
 - Medical and surgical oncologist sharing cancer care

Slide 8: Communicating Accountability

- Primary Care Providers
 - Ultimate accountability, filled in gaps
 - Served as communication hub
 - Conducted necessary explicit communication
- Communication is critical to Decision Making
 - Limits quality and safety gaps
 - Costs of care rise without communication
 - Electronic Health Record as potential bridge

Slide 9: Improving the Process and Outcome of Complex Care Coordination

- How are medical decisions made without coordinator (PCP)?
- Communication is key
 - Accountability: defining roles and responsibilities
 - Tradition and social norms define most interactions
 - Quality: achieving appropriate outcomes, ensuring safety
 - Redundancy can aide outcomes
 - But poses safety risks—communication can mitigate
 - Reducing waste and lowering costs

Slide 10: Conceptual Model of Communication Among Clinicians

- **Synchronous Communication**
 - Occurs explicitly and simultaneously between two or more parties in real-time
 - Examples include face-to-face communication, cellular and phone calls, and video and teleconferences.
 - Advantages

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- Direct, explicit
- Real time, immediate responses
- Disadvantages
 - Interruptive, inefficient
 - Reliance on working memory increases cognitive load
 - Potential source of medical errors

Slide 11: Asynchronous Communication

- **Process of communication that allows involved parties to transmit and respond to communicative information at their own time of choosing**
- **Explicit** – communication directed at a specific person(s)
 - Methods include email, voicemail, written letters, and clinical referrals
- **Implicit** – communication without a specific target individual(s)
 - Methods include electronic and traditional medical progress notes or innovative forms of electronic media

Slide 12: Implicit, Asynchronous Communication

- Increasing favored form of communication in co-managed, integrated health systems
- Electronic Health Records are the common medium
 - Advantages
 - Efficient, uninterrupted
 - Potential to reduce cognitive load and associated errors
 - Facilitated by integration of Electronic Medical Record Systems
 - Disadvantages
 - Potential gaps in accountability for roles
 - Lack of explicit rules guiding responsibilities and role transitions

Slide 13: EHRs & Implicit Decision Making

- EHR provides window to decision making process
 - Can see how other clinicians make decisions
 - Inconsistency of behavior in similar situations
 - Past experience does not always predict future actions
- EHR implementation doesn't clarify roles/responsibilities
 - What's missing: "Bounded Expectations"
 - Establish boundaries that define clinicians' roles
 - Collaborating clinicians have confined range of expectations regarding others' actions
 - Integrated systems have this advantage as well

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Slide 14: EHRs: What they could do but often don't

- Coordinate activity towards shared outcomes
- Communicate where a patient is along a care pathway
- Integrate iterative changes in health status into a fixed disease management plan
- Integrate individual disease management plan into a disease management registry

Slide 15: Care Coordination: Fits and Starts

- Heavy reliance on Synchronous Communication
 - "Why I have had to unlearn my love for Interdisciplinary Team meetings"
 - My inner Geriatrician resists
 - IDT meetings discuss complex cases
 - Often discuss routine, mundane facts
 - Not just outlier cases or irregularities
 - Clinician's record of disease management
 - Often doesn't integrate with a central record
 - Doesn't integrate other providers' progress notes

Slide 16: Care Coordination: Fits and Starts

- EHR haven't made goals concordant and implicit
 - Many care goals are similar across patients
 - Reduces need for discussion of routine care processes
 - Haven't made goals and treatment plans concordant across all clinicians
 - Clinicians have vague confidence about goals and processes
 - Not with the specificity and certainty needed for care coordination

Slide 17: Wiki-inspired Model of Care Coordination

diagram that shows the progression of care coordination from synchronous communication to explicit asynchronous communication to implicit wiki communication.

Slide 18: Diabetes in Cancer Care Program

- Mr. Smith's Oncologist and Endocrinologist develop a care coordination program
 - Face to face meetings
 - Bounded expectations about roles and responsibilities
 - Set clinical goals for typical, usual patients
 - Create pre-established medical orders and treatment plans for typical patients

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- Explicit Asynchronous communication from Oncologist
 - New patients enrolled into program
 - Shared patient is to start new chemo regimen

Slide 19: Wiki-inspired Model of Care Coordination

diagram that shows the progression of care coordination from synchronous communication to explicit asynchronous communication to implicit wiki communication.

Slide 20: Wiki-style Communication

- **From foundation of Bounded Expectations**
 - Oncologist and endocrinologist co-manage: diabetic patients receiving chemotherapy for colorectal cancer
 - Most communication is implicit and asynchronous
 - Each describes usual and expected actions into EHR
 - Explicit asynchronous or synchronous communication limited
 - Adverse events of usual actions
 - Atypical cases that require “off-template” care

Slide 21: Hyperlinking EHRs: Going Full Wiki

- Using hyperlinks to integrate disease management plans
 - Link to the patient’s diabetes disease management plan
 - Process and intermediate markers of care
 - HbA1c, lipids, eye clinic referrals
 - Link to a page documenting prior glycemic responses to chemo regimens
- Linking one user’s edits to shared progress notes
 - Endocrinologist’s latest foot exam is simultaneously linked to disease management plan without extra inputs

Slide 22: Disease Management and Cost Containment

- **Have not meet expectations about costs**
 - Reliance on synchronous and explicit communication
 - Redundancies in routine, usual, and expected care
 - Lack of shared goals and pre-set treatment plans
 - Limited automation of laboratory and radiology results into patient’s disease management record and population registries
 - Simultaneous update of patient’s dz management record whenever a clinician, lab, radiology, etc. has new information
 - All relevant clinicians open access to dz management record

- **Wiki-style care coordination may address gaps**

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Slide 23: Questions and Discussion??

Source: Eisenberg Center Conference Series 2009, Translating Information Into Action: Improving Quality of Care Through Interactive Media, Effective Health Care Program Web site (<http://www.effectivehealthcare.ahrq.gov/index.cfm>)