Finding the Right Workflow Using an Ambulatory EHR

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DISCLAIMER: The views and opinions expressed in this presentation are those of the author and do not necessarily represent official policy or position of HIMSS.
Conflict of Interest Disclosure

Barbara Drury, FHIMSS

Has no real or apparent conflicts of interest to report.
Learning Objectives

• Describe attributes of workflow applicable to both manual and automated processes.
• List examples of system and user choices impacting workflow.
• Identify hidden risks associated with system and user workflow choices.
• Describe options to mitigate risk when implementing and using an ambulatory EHR.
It takes two to tango!

• Is the functionality available? (your EHR partner)

• Are you using it? (you)

• Are you using it correctly? (you and your EHR partner)

• Is it executing correctly? (your EHR partner)
Attributes:

• Timeliness
  – Real time, Near real time, within xx hours or days
• Sequence or order during episode
• Routine/primary responsible ‘author’
• Secondary consequences of workflow:
  – Completeness for the next user
  – Represents ‘truth’ of care process in outputs
  – Represents ‘truth’ of care process in evidence
Where you work impacts Workflow
Clinical Workflows in EHR Practice

- **Review**: Chief complaint, HPI
  - From any computer, open chart to review (1 mins)

- **Create**: Histories
  - Point and click to update histories (2 mins)

- **Create**: ROS, PE
  - Point and click for any system and exam (3 mins)

- **Create**: Orders, Medications, Plan
  - Use decision support, electronic output to labs, pharmacy (1 mins)

- **Create**: User, Date, Time
  - Sign and close with E/M code checking (1/8 mins)

- **Transfer**: Codes, ICD, CPT
  - Electronically send billing codes from EHR to PMS (1/4 mins)

- **Request**: Staff
  - Message nursing consents, tests, specimens needed (1/4 mins)
Workflow Attributes for “tasks” in EHR Practice

**Review**
- **Chief complaint, HPI**
  - From any computer, open chart to review (1 mins)
  - Real time, by MA or MD, early in visit

**Create**
- **Histories**
  - Point and click to update histories (2 mins)
  - Near real time, MA or MD, early in visit or by patient a week ago, reviewed in real time

- **ROS, PE**
  - Point and click for any system and exam (3 mins)
  - Real time, MD, before “plan”, patient in bldg

- **Orders, Medications, Plan**
  - Use decision support, electronic output to labs, pharmacy (1 mins)
  - Real time, MD, before patient leaves

- **User, Date, Time**
  - Sign and close with E/M code checking (1/8 mins)
  - Real time, actual author for each part

**Transfer**
- **Codes, ICD, CPT**
  - Electronically send billing codes from EHR to PMS (1/4 mins)
  - Near real time, MD, before patient leaves

**Request**
- **Staff**
  - Message nursing consents, tests, specimens needed (1/4 mins)
  - Near real time, MD or MA or other staff, variety of time frames allowed.
Documentation in EHR Practice

User, Date, Time
- Sign and close with E/M code checking. System formats. (1/4 mins)

Pending items
- Monitor inbound documents from any computer, any time (continuous)

Inbound forms
- Based on document type, system routes to ordering staff (1 mins)

Plan, next step
- For provider review or for nursing follow-up (1 mins)
Workflow Attributes for “documentation” in EHR Practice

Create

User, Date, Time
Sign and close with E/M code checking. System formats. (1/4 mins)
Within xx hours, legal signer (MD), after patient leaves w/e-copy, before claim created

Pending items
Monitor inbound documents from any computer, any time (continuous)
Within xx hours, multiple staff, continuous

Inbound forms
Based on document type, system routes to ordering staff (1 mins)
Within xx hours, multiple staff, continuous

Plan, next step
For provider review or for nursing follow-up (1 mins)
Within xx hours, MA or MD clinical staff, continuous
Once upon an EMR......

- Endoscopy Center: Colonoscopy report begins at 13:00, in at 13:05-out at 13:15, to recovery at 13:25, discharged to home at 15:45, physician does ROS at 17:30

- Pediatric Practice: Immunizations given out of order. Unaware of how to get patient ‘out-of-immunization rules’.

• Secondary consequences of workflow:
  ✓ Completeness for the next user
  ✓ Represents ‘truth’ of care process in outputs
  ✓ Represents ‘truth’ of care process in evidence
Workflow Attributes

• Sequence or order

• When

• Who
Learning Objectives

• Describe attributes of workflow applicable to both manual and automated processes.

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Function ≠ Workflow
• Match or mis-match between your ‘intuitive’ nature and the EHR software = more or less effort to implement successfully.

• Translated for EHR Workflow:
  – Is there a label or icon visible on the screen?
  – If not, can you find the label or icon?
  – Is a function where you need it, and
  – Is a function available when you need it?

• Each user and each EHR (and even modules within EHR) may ‘feel’ differently.
Assumptions: Functions, Workflow & EHRs

• CORE #1: Use CPOE for medication orders... (medications-CPOE)
• CORE #2: Implement drug-drug and drug-allergy interaction checks. (medications-DI)
• CORE #3: Maintain an up-to-date problem list of current and active diagnoses. (problem list)
• CORE #4: Generate and transmit permissible prescriptions electronically. (medications-erx)
• MENU #4: Send reminders for preventive/ follow-up care (tasks)
Function + Workflow (importance of “how”)
Typical Paper Charting Workflow
Any Particular Workflow (paper charting)

Risk Categories

- Omission
- Communication
- Incomplete Information
- Documentation
- Billing

Scores a net +3 (increased risk)
3 Workflows Using an EHR

Risk Categories
- Omission
- Communication
- Incomplete Information
- Documentation
- Billing

Typical EMR Process
- Net 0

Variation 1 (v1)
- Net +7

Variation 2 (v2)
- Net -3

Risk Categories:
- Best
- Middle
- Risky
Medications:
C-1, CPOE
C-2, DI
C-4, eRx
Medications: CPOE, DI, eRxE

Typical EHR Process

As described, in real-time using EHR with drug knowledge base, at POC:

Hand-written, then entered into EHR after patient leaves, DI post-visit:

Created in real-time in EHR with drug list, no knowledge base, at POC:

Best 0  Risky +4  Middle +1
Core #3 - Problem Lists

**EHR**

### All by DATE

<table>
<thead>
<tr>
<th>DATE</th>
<th>PROBLEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/18/03</td>
<td>Abdominal Pain</td>
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<tr>
<td>7/16/03</td>
<td>Angina</td>
</tr>
<tr>
<td>9/24/00</td>
<td>Diabetes</td>
</tr>
<tr>
<td>12/3/03</td>
<td>Diverticulitis</td>
</tr>
<tr>
<td>1/29/02</td>
<td>Eczema</td>
</tr>
<tr>
<td>2/11/04</td>
<td>Malignant Neoplasm</td>
</tr>
<tr>
<td>6/15/02</td>
<td>Pelvic Pain</td>
</tr>
<tr>
<td>9/30/03</td>
<td>Tendonitis</td>
</tr>
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</table>

### ACTIVE by DATE

<table>
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<tr>
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<th>PROBLEM</th>
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<tr>
<td>9/24/00</td>
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<td>Malignant Neoplasm</td>
</tr>
</tbody>
</table>

### All by ALPHA

### ACTIVE by ALPHA

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</tr>
</tbody>
</table>

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**DATE**

2/11/04 Malignant Neoplasm
12/3/03 Diverticulitis
10/18/03 Abdominal Pain
9/30/03 Tendonitis
7/16/03 Angina
6/15/02 Pelvic Pain
9/24/00 Diabetes
1/29/02 Eczema
Problem Lists

**Typical EHR Process**
As described, date or alpha sort, filter active or all, no duplicates, demographics in, paper charge ticket

**v1**
With duplicates, date or alpha sort, active or all filter, no billing interface.

**v2**
No duplicates, prioritized by provider, with 2-way interface

**Middle -1**

**Risky + 6**

**Best -3**
M-4, Tasking (reminders)

Per Patient Preference

MS Outlook™

App to app
As described, between apps to staff, any recipient, re-entry of patient data, separate step from EHR documentation.

To any user within EHR, all patient data available, documented.

Between any EHR user and any PMS user, all patient data available, derivative document.

Risky +5

Middle -1

Best -4
EHR Options

- System Design
- Implementation Options
- User Behaviors
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Deleting a link in the ‘electronic’ trail

- Lost evidence of event or task
- Unlikely to be able to restore
  - Perhaps not at all
  - Perhaps with vendor’s custom programming
- Manual addendum
  - Need to know what was deleted
  - Difficult to do ‘after-the-fact’

• User Behavior
• System Permissions
• Workflow Process
Amendments & other fixes

<table>
<thead>
<tr>
<th>DATE</th>
<th>DOCUMENT TYPE</th>
<th>STATUS</th>
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<tbody>
<tr>
<td>8/15/03</td>
<td>Office Visit, Est.</td>
<td>Closed</td>
</tr>
<tr>
<td>8/17/03</td>
<td>Office Visit Brief, Est</td>
<td>Closed</td>
</tr>
<tr>
<td>9/28/03</td>
<td>Lab Results</td>
<td>Closed</td>
</tr>
<tr>
<td>11/4/03</td>
<td>Office Visit, Est.</td>
<td>Closed</td>
</tr>
<tr>
<td>2/25/04</td>
<td>Amendment 8/15/03</td>
<td>Closed</td>
</tr>
<tr>
<td>2/29/04</td>
<td>Pathology Results</td>
<td>Pending</td>
</tr>
<tr>
<td>3/10/04</td>
<td>Office Visit, Brief, Est</td>
<td>Open</td>
</tr>
</tbody>
</table>
Amendments

Typical EHR Process

As described, new record, new DOS, header may show old DOS, not linked

New record, new DOS, attached to original DOS record, displays with original DOS.

Edited record, old and new data in same document, original DOS, view

Risky +7

Middle 0

Best -4
Once upon an EHR......

- What’s in a “word”? 
  - SAVE
  - CLOSE
  - LOCK
  - FINAL

- 1000’s of visit notes in an open or editable state for 3 years.

- Secondary consequences of poor workflow:
  - No easy way to find all charts (schedule book!)
  - Labor intense methods to close each with a reason.
  - Metadata shows open on 2/1/2007 by Dr. Smith and closed on 2/1/2012 by “Administrative Action”.
Workflow Risks

• POC Data & Tools

• Failure to Follow

• EHR vs. Truth
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Health Information Management and Workflow Tools
HIM: All Methods and Media

• Workflow includes Systems, People and Process

• All three need to be actively managed

Patient Safety *Wins*

- **E**: Efficiency
- **U**: User Preference
- **S**: System (EHR+)
Workflow: Policies & Procedures

• Review your P&P for specifics related to the EHR:
  – Who uses it
  – How specific procedures are to be followed
  – What to do for questions or “oops”
  – Process of routine monitoring for P&P
  – Consequences for not following P&P

• Don’t outline P&P that is contradictory or can’t be followed and tracked in your EHR system by your own staff!
Plan to Appropriately Address Errors

- Is there an actual capability (with different results) to amend and/or to change ‘original’ data?
  - Under what circumstances should either be used or not?
  - What entries (documents, messages, phone encounters, etc.) may or may not have either an amendment or change?
  - Who may make either an amendment or change (rendering MD or staff, or IT department or vendor, etc.)?
  - Is there a window of time after which either an amendment or change is not allowed?
  - What is the workflow of letting ‘the next’ user know they acted on data that is now either amended or changed?

- Consider separate policy for amendment and separate policy (or none) for ‘change’. Both should be tied to appropriate workflow in THIS EHR.
• Wrong provider ‘signs’ the record
  – Shared passwords? Scribes? Supervising physicians?

• Changes to master templates impact previously closed records
  – Never! Check with vendor.

• Wrong patient associated with ‘note’ or attachments
  – What is this EHR’s best workflow to redact?
  – Who viewed or used the ‘wrong’ data?

• Chart accidentally closed ‘before finished’
  – Was a claim already transmitted (fraud potential)?
Analyses Will Define & Support P&P

• When certain workflow is followed, what does the:
  – record look like when viewed on the screen?
  – record look like on paper and digital output (CCR export, pdf, referral letter, electronic visit summary for the patient, patient portal, etc.)?
  – Metadata or electronic footprint say about the steps or workflow process?

• Does the EHR version of workflow represent actual events by appropriate users at specific times?
One Primary Care “paper” workflow
EHR Clinical Workflow:

Chief complaint, HPI
From any computer, open chart to review (1 mins)

Histories
Point and click to update histories (2 mins)

ROS, PE
Point and click for any system and exam (3 mins)

Orders, Medications, Plan
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EHR Documentation Workflow

- **User, Date, Time**: Sign and close with E/M code checking. System formats. (1/4 mins)
- **Pending items**: Monitor inbound documents from any computer, any time (continuous)
- **Inbound forms**: Based on document type, system routes to ordering staff (1 mins)
- **Plan, next step**: For provider review or for nursing follow-up (1 mins)
Workflow is Dynamic

• State of System and Users
  – Active Implementation = Workflow, version 1
  – Go-live post implementation by one year = Workflow, version 2
  – Steady State (EHR & Users) = Workflow, version 3
  – Changing State (EHR upgrades, Users, Locations, Modules) = Workflow, version 4

• Revisit EHR Software, Workflow, User Behaviors, Best Practices and P&P
  – Nobody is exempt
  – Value time for TQI
  – Regular
Information Management Options:

- Address Errors
- Analysis: Overt/ Covert Views
- Revisit Regularly
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Function + Process (importance of “how”)

Drury
Discussion?

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