The Challenge of Working with Multiple Applications in the Clinical Environment: Impact on Workflow, Struggles with Interoperability

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Objectives

- Identify challenges faced by nurses working with multiple applications in the clinical setting.
- Describe potential safety and communication issues associated with use of multiple documentation applications.

Background….Why Me?

- Clinician first…
- Interest in electronic health records…
- Impact of AIMS…
- Migration of thinking…
- Today…

Definitions

Interoperability, workflow, and workaround

Interoperability

- Ability of healthcare information systems to work together and share information within and across organizational boundaries
- Ability of computer systems to exchange and use information, usually in a larger heterogeneous application network
  - Data exchange, infrastructure interoperability, user interface interoperability, process interoperability

Glaser (2011)

- Journey, not destination

Workflow

- Process description of how tasks are done, by whom, in what order, and how quickly
- Set of relationships between all the activities in a project, from start to finish
  - Activities may be triggered by external events or by other activities
- Activities delivered by nurses to the provider, patient, or organization, regardless of technology

Whittenburg (2010)

"The analysis of the nursing workflow concept is to better understand the essential components of nursing care for the electronic medical record to allow nurses to demonstrate their contribution to patient healthcare outcomes as effective advocates for patients."

Whittenburg (2010)

Workflow

- Linearity
  - System is linear, nurse work is nonlinear
- Discrepancies between care provided, care documented
- Data retrieval limited
- Uncover the 'warts'

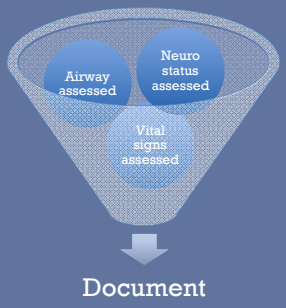
"Real Time"

- Patient arrives
- Document arrival time
- Vital signs assessed
- Document vital signs
- Airway assessed
- Document airway assessment
- Neuro status assessed
- Document neuro assessment

Linear Thinking

Patient arrives → Vital signs assessed → Airway assessed → Document

Reality



Document

"When technology makes a health care process slower or less efficient, or when it requires steps that are impossible or seem unnecessary, clinicians create workarounds."

Peace (2011)

Workarounds

- Workarounds are nonstandard methods for accomplishing work blocked by dysfunctional processes.
- Health care has a workaround culture that values expertise in overcoming obstacles to get the job done.

Tucker (2009)

Workarounds

- Source of organizational resilience
  - Ability to improvise with materials at hand to fashion a solution to an unexpected problem or situation
- Resilience on the front lines enables patient care to be delivered safely despite obstacles
- Most significant: benefit the nurse's current patient, who receives the intended care

Workarounds

- Nurses are masters
- Shortcuts designed to fix or overcome a barrier to care
- Fit to the design, fit to the care

"The challenge of workarounds is to capture their positive aspects—frontline resiliency and creativity—while simultaneously avoiding pitfalls from relying too heavily on ad-hoc solutions to long-standing problems."

Tucker (2009)

Workarounds

- Nurses must communicate about the problems they encounter with HIT
- Leaders available to
  - Process problems
  - Seek out and value information about problems, rather than to value individual first-order problem solving
  - Foster an atmosphere that encourages discussion of problems, rather than punishment or ridicule
  - Provide clear follow-through when problems are reported, because overworked nurses will report problems only if they believe there will be some resolution

"When technology does not adequately support the goals of the care team, it often causes workaround workflows. These alternate workflows are a cause for concern because these informal, evolutionary systems rely on the clinicians' memories, and bypass decision-support safeguards that the system may provide."

Cain & Haque (2008)

Impact of Interface Design

- Usability
  - Take care of the patient, not the computer!
- Functionality
  - Need input on the design side, not enough to customize a poor design!
- Tolerance
  - Soft, hard stops? Conform to standard vs. open data entry

- Range between best of breed, customized designs that meet the needs of the end user (clinicians) but do not interface (intersect)…to a single application that shares data but requires the end user to adapt to workflows that are outside the norm (for that role)

- Continuum – when will we reach the ideal – best application(s), efficient workflows?
- Or, can we?

- Get the key things right
- Don't automate bad processes!
- Geeks – really good at code, not at care Vendors don't understand what providers do
- No ability to modify, burdensome
- Too few clinicians developing products
- Workflow – reduce the steps, evaluate the steps…this is the time to rethink

- Why document what we document?
- Practice based evidence
- Disruptive innovation
- Vision to get the data out!
- Look at requirements & purpose of documentation
- What should be captured, not just because we can…
- Engage domain experts
- Usability iceberg

What Happens in the Clinical Setting?

Realities, Frustrations

- Good design, bad design
  - Good design flows, intuitive, one time entry, background calculations, efficient
  - Bad design leads to frustration, time wasting, challenge to find/construct the patient story

- Documentation should not drive clinical practice – opposite of what it should be!
  - Technology can support change
- Time increased to document vs. improved access to information

Impacts: Safety, Communication, Satisfaction

- Fears about safety – actually interfere with the nurse's ability to provide safe patient care
  - Reluctance to report safety issues due to cultural barriers – "flawed system"
  - Eliminate some concerns, replace with unintended consequences

- Lack of communication (verbal) hinders care, frustrates, potential safety impact
  - Deteriorates with implementation of CPOE
- Satisfaction – turn the data around to drive practice changes, patient outcomes, show the nurses the value of their work!

- The nurses themselves….
  - Is it age?
  - Education?
  - Culture?

Case Examples

- 3 applications
  - Clinical documentation application
    - Integrated with anesthesiology
  - *CPOE**
    - Interaction with preoperative clinicians, postoperative nursing
  - *Patient management application**
    - Text based

*C-COW enabled

Case Examples

- Add another application – view only access…as we migrate to an integrated application across the system
- What's the bedside nurse to do?
- Best approach to promote safety, efficiency AND satisfaction

Nurses' Responses

What is the best thing about our current documentation applications?

- We had the ability to customize Periop Clin Doc App to make it work for us.
- I like the CPOE eMAR (but don't like that we sometimes cannot see the orders....visit numbers)
- NO big fat charts to go thru and bad handwriting to translate.

What is the biggest issue with our documentation applications?

- Too many applications at the same time. Time consuming, frustrating and increases the risk of error.
- PM is antiquated and does not include all discipline's notes.
- CPOE is not used in the ambulatory setting....this has caused so many work arounds and exceptions to the rules that no one can keep up with them.

What frustrates you the most about our documentation applications?

- They don't talk to each other! They are not integrated and therefore more breakdowns in the interfaces or no interfaces at all.
- Also, the physicians are NOT totally on board. Many of the attendings do not or will not write orders in CPOE. In my opinion they should not have been given the option for real training...they were able to opt for on-line only training.
- The physicians do not perform medication reconciliation which should be mandatory in my opinion.

- The help desk or help support is NOT helpful and it takes too long to get a "ticket resolved".
- CPOE orders are very difficult to read (written in long paragraphs rather than bullets) and nomograms are difficult to understand.

- "We stopped communicating at the bedside. This may occur with any electronic documentation perhaps, but physicians do not come to the bedside to write orders which decreases the amount of time we used to have for communication. Many providers or caregivers do their documentation away from the bedside now as it can be done remotely. I think that has had a real unforeseen influence in healthcare in general."

If you could change one thing about our documentation applications, what would you change?

- "Would like them to be integrated and talk to each other or just have one single system.
- Be firm that all users have proper training..NO EXCEPTIONS!
- Ability to see all disciplines entries."

"They don't 'talk' to each other. We are currently using 3 systems to care for a patient. Risk for missing information or orders. Physicians are not forced to reconcile and discontinue orders- this is a patient safety issue as nurses are 'sifting' through 100's of orders trying to determine what is current."

CPOE

"Biggest frustration is not having pt's temp located. It takes up so much time to check if they're there, then having to temp locate them. Biggest problem and frustration with CPOE is that it is hard to pull up. It takes a long time, then frequently it says it is open, but it is not. Then you have to keep starting over. Also CPOE frequently shuts down for no reason. I spend a lot of time trying to open it up. The actual documenting of meds is OK."

CPOE

- "The biggest issue with our documentation applications is bringing up CPOE. Sometimes it takes forever (seems like forever).
- Lately, I'm most frustrated about patient names falling off the CPOE list.
- If I could I would make CPOE easier to access (I don't even know if that is possible)."

- "Biggest issue: clinical doc app does not talk to PM and CPOE
- Data is not easily accessed
- Frustrates me most: CPOE is not very intuitive and we cannot change it
- What would I change: have one system for everything with the ability to customize"

- "Clinical doc app, like the fact that most of the things that I need to say are in the script; pretty user friendly. Most frustrating thing is that there is no communication between systems and you can update something in one place but it's not updated in another. Once something is in PM, difficult or impossible to change or get it out (doctor documents a medication that the patient doesn't really take, for example). Would make everything talk to each other. Streamline everything so that all of one type of information is updated at the same time."

General Thoughts

- Ease of use
  - Sign-on
  - Intuitive user interface
- Give feedback to individual clinicians
  - Quality of documentation does not change just because its vertical!
- Meaningful data
  - Reviewing documentation needs to continue

Strategies: What to Do?

- Meeting the challenges
  - Receptivity to products, adequate training
- Reduce frustrations
  - Involve in selection, design
- Enhance safety
  - Responsibility to keep patients safe as we rollout new applications in the healthcare setting
- Promote documentation quality

Recommendations from the Bedside…

- Go to the bedside…when were you at the bedside?
- Access the end users – how do you reach out?
- Solicit input – users groups, 'tickets'
- Human factors – this is truly the human factor

Questions?

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