

## Handoffs—The Process and How It Relates to EDIS

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### Our Goals

- Learn the complex science of EM Handoffs
- Understand Handoffs and how they connect to EDIS
- Search for best Handoffs and Tracking in EMR
- Teach EMR producers these key concepts

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“Improving Handoffs in the ED”  
Annals of Emergency Medicine 2009  
Volume 54, Number 11, pages  
CheungDS, KellyJJ, BeachC

- “attainment of the ‘shared mental model’ ”

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### Perspectives from other Disciplines

- NASA Shiftchange: “question and answer period” to detect errors in assessments and plans
- Nuclear Submariners: “precise, unambiguous, impersonal and efficient” language to navigate safely
- Aviation: Pilots are required to perform scripted preflight emergency briefing
- Highly effective Flight Crews: used 30% of their communication time to discuss threats and errors in their environment (poor performing crews used 5%)

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### Legal Aspects of Handoffs

- Handoffs are high-risk events
- Communication breakdown occurs in 80% of medicolegal cases
- Faulty Handoffs are implicated in 24% of ED malpractice claims
- Levinson W. JAMA 1994;272:1619-1620
- Kachalia A. AnnEmergMed 2007; 49:196-205
  
- Transitions of care can dilute accountability

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### Computer-Assisted Handoffs

- Will likely play a larger role in the Handoff
- Improves Essential Communication
- Reduces adverse events
- Increase functionality/Prompts to improve compliance

(Peterson LA: JtCommQualPatientSaf.1998;23:77-87)  
(VanEaton: Surgery2004;136:5-13)  
(VanEaton: JAmCollSurg2005;200:538-545)

- But Complex Templates (with numerous data elements) not desirable in ED
- If template is not part of EMR: redundant record problem

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### Computer-Assisted Handoffs

- Allow Focused Templates
- Allow updates to be added to the medical record
- Aid in retrieval of information
- Monitor Handoff Practices

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### Computer-Assisted Handoffs

- EMR systems may serve as adjuncts in transfer of care
- Interactive Exchange between care providers will remain the gold standard (Solet DJ: AcadMed 2005;80:1094-1099)
- May allow us to focus on integrated patient assessments and less on information exchange

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### Challenges of Improved Handoffs

- “Standardization as panacea”: it reduces shift-change variability and errors
- (AlveradoK;HealthcareQ2006;9:75-79)
- (McCannL:NZMedJ2007:120:U2778)
- Little agreement on “essential info” and process
- All data and processes=too unwieldy
- Some information not useful
- May obscure rather than reveal

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### Conceptual Framework: Shiftchange

- Providers transfer information, primary authority, responsibility for patient care
- Other aspects of the Care Environment discussed: Diversion status, boarding patients, pending transfers, equipment issues, personnel issues
- Shiftchange could be an opportunity for rescue...resulting in preventing/recovering from an adverse event

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### Conceptual Framings for Handoffs

- Informational Processing
- Stereotypical narratives
- Social Interaction
- Resilience

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### Conceptual Framings: Information Processing

- Transfer data through a noisy communication channel
- Risk: Missing or inaccurate data
- Intervention: Ensure minimum data set content is transferred and accurate

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### Conceptual Framings: Stereotypical Narratives

- Categorize by stereotypical narrative and highlight deviations
- Risk: Inappropriately applying default assumptions
- Intervention: Explicitly label stereotypical narratives and highlight deviations

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### Conceptual Framings: Social Interaction

- Coconstruction of shared mental model
- Risk: Failing to support shared sense-making and anticipation
- Intervention: Encourage flexible, adaptive, tailored sharing of perspectives on data

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### Conceptual Framings: Resilience

- Cross-check assumptions with a fresh perspective
- Risk: Incorrect framing of problems/risks and solutions/strategies
- Intervention: Create a supportive environment that encourages cross-checking through a question and answer period

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**Stages of Care Transition:  
Preturover**

- Emergency Physician organizes and updates information pre-Handoff
- Failure Mode: Poor situational awareness of current state of ED and Hospital

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**Stages of Care Transition:  
Arrival**

- Emergency Physicians stop patient care tasks and prepare to Handoff care
- Failure Mode: Delaying Handoff while intermittently continuing care or abruptly stopping care when help arrives without reaching closure point

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**Stages of Care Transition:  
Meeting**

- Specific face-to-face meeting (include important parties)

Failure Mode: Departing Doc could:

- Pass incomplete information/incorrect information
- Provide info in disorganized or confused manner
- Fail to provide clear clinical impression and plan

Failure Mode: Receiving Doc could:

- Misunderstand passed information
- Not listen (distractions/fatigue)
- Prematurely close/jump to a conclusion

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**Stages of Care Transition:  
Post-Turnover**

- New provider must integrate new information and begin patient care of both patients Handed-off and newly arriving patients
- Failure Mode: Incoming physician could:
  - Forget key tasks or information
  - Act on a plan without careful thought (critical thinking)

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**Barriers in Handoffs:  
Tech Factors**

- Patient Rosters (Whiteboards)
- EMRs

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**Barriers to Handoffs:  
Team Factors**

- Shift schedules
- Physician Compensation Methods
- Peer relationships/power balances
- Failure to recognize importance of Handoffs
- Ambiguous moment in transfer of care

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**Barriers in Handoffs:**  
**Task Factors**

- Signal-to-noise ratio
- Salience vs Completeness
- Varied clinical volume, presentations, complexity
- Geographic location
- No standard approach
- No "red flags"

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**Barriers in Handoffs:**  
**Patient Factors**

- Alertness
- Education
- Pain
- Language barrier
- Knowledge of their illness
- Unclear diagnosis

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**Barriers in Handoffs:**  
**Environmental Factors**

- Location: loud, chaotic, lacking in privacy
- Competing demands for time and attention
- Inpatient boarding
- Long ED stays

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### Barriers in Handoffs: Caregiver Factors

- Fatigue, stress
- Inattention
- Poor memory
- Inexperience
- Knowledge deficit
- Cognitive bias
- Personal agendas after shift change

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### Strategies for Best Handoffs

Reduce number of unnecessary Handoffs  
(overlapping shifts helps ER Doc dispo cases)  
However, do not “force” dispo  
Concede that evaluation is in progress, diagnosis is uncertain, dispo is unclear  
“Appropriate Handoff” is the safe option

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### Strategies for Best Handoffs

- Limit interruptions and distractions
- Maintain Integrity of the handoff process
- Team NOT anxious to leave
- Quiet and dedicated space for handoff

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### Best Strategies for Handoffs

- Provide a succinct overview
- Encapsulate a clear summary
- No unnecessary detail
- Begin with CC, Assessment, Plan, Dispo

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### Best Strategies for Handoffs

- Communicate outstanding tasks, anticipate changes, have a clear plan
- Dx/Dispo unclear = at risk for adverse event during Handoff
- Communicate all "outstanding" studies/tests
- Contingency plans (abn test or scan)
- Authority issues (Neuro will determine dispo)
- Potential management issues discussed

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### Best Strategies for Handoffs

- Make Info readily available for direct review
- Labs/Images for receiving team
- Chart available during signout as backup info

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### Best Strategies for Handoffs

- Encourage questioning and discussion
- Clarify issues
- Discuss rationale behind clinical impressions
- (PattersonES;JCollabComput2001;10:317-346)
- Cross-check process identifies key issues!
- Handoffs via 3<sup>rd</sup> party or by recorded notes denies this cross-check safety process

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### Best Strategies for Handoffs

- Account for all patients
- Remember the one in IR, and the one in Dialysis?

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### Best Strategies for Handoffs

- Signal a clear moment in transition of care
- Communicate in a visible way that handoff has occurred
- One Attending to one patient
- Receiving Attending takes full responsibility

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**Measures of Handoff Outcomes:**  
These could be integrated into an E-Handoff for measurement

- Knowing the historical narrative
- Being aware of significant data or events
- Knowing what data are important for monitoring changes
- Being prepared to deal with effects of previous events
- Anticipating future events
- Understanding the current plan of care strategy
- Performing planned tasks
- Alerting others to the completion of interdependent tasks

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**Handoffs of the Future?**

- Research to characterize the integration and influence of Medical Records/EMR into the Handoff
- Research use of Electronic Templates in Handoff
- Research use of Computers and other technology for Handoff
- Best practices need to be derived and validated

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**Big Challenges that Remain:**  
The Perfect Handoff

- Effective Communication in Emergency Physician-Physician Handoffs is poorly studied.
- Few established Standards
- Lack of supporting Research
- Care Transitions will always involve balancing competing goals

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**Questions**

- The Root Cause in about 70% of Sentinel Events involve:
  1. Human Error
  2. Drift from standard practice
  3. Physician recklessness
  4. Miscommunication (correct)

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**Questions**

- Handoffs in an EDIS format must
  1. Communicate essential information
  2. Improve compliance and monitor handoff practice
  3. Allow focused simple templates
  4. All the above (correct)

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**Questions**

- All the following are true about Handoffs except:
  1. Handoffs will remain as long as we have shift changes
  2. Simple EDIS solutions are elusive
  3. Standardizing Handoffs is the ultimate solution (false)
  4. Best Handoffs are discipline specific and patient specific

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