EHR Note Writing: Can We Teach Quality

Jennifer Bierman, MD; Heather Heiman, MD and Katie Kinner, MD
Northwestern University Feinberg School of Medicine
Laura Fanucchi, MD University of Kentucky

Objectives

Participants will:

1. Define common practices and motivating factors among residents and attending physicians regarding electronic documentation.

2. Identify quality features of a note written in the EHR.

3. Review a proposed curriculum for teaching medical students and residents how to write an ideal electronic progress note.

4. Utilize an evaluation tool to assess notes for accuracy, conciseness and clinical reasoning.
Would delete this for readability (including the use...)
zzw2ktest3, 9/29/2013
Faculty

- Katie Kinner, MD
  - PGY-3 Resident
- Jennifer Bierman, MD
  - Primary Care Clerkship Director, Northwestern
- Heather Heiman, MD
  - Medical Director, Clinical Education Center, Northwestern
- Laura Fanucchi, MD
  - Associate Program Director, University of Kentucky
What Students Observe

| I have witnessed...          | # responding “sometimes or more”/
<table>
<thead>
<tr>
<th></th>
<th># answering item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents copying &amp; pasting elements of another provider’s note</td>
<td>102/119 (86%)</td>
</tr>
<tr>
<td>Attendings copying &amp; pasting elements of another provider’s note</td>
<td>70/116 (60%)</td>
</tr>
<tr>
<td>Students copying &amp; pasting elements of another provider’s note</td>
<td>70/119 (59%)</td>
</tr>
</tbody>
</table>

Survey Feinberg 3rd year Medical Students 2010

Sad-but-True Acronyms

What is WNL?
“We Never Looked”

What is NAD?
“Not actually done”

What is PERRLA?
“Pupillary exam recently recopied from last admission”
Review of Note

Assessment of Progress Note

- Choose a table representing a stakeholder
  1. Teaching Attending
  2. Medical Student education and evaluation
  3. Resident education and evaluation
  4. Patient

- Assess a progress note from this perspective
  1. Perspective of your table’s stakeholder
  2. Share views with group
Your task (10-15 min)

1. What is good about these progress notes?
2. What is weak about these progress notes?
3. What issues do these notes raise from the perspectives of your stakeholder?

Report back to group – 1-2 minute summary per group

Observations, Practices and Attitudes of Attending Physicians Regarding EHR Documentation

Thanks to:
Katie Kinner, MD
PGY-3 Resident
Why Teach Responsible Documentation?

AAMC Learning Objectives for Medical Student Education
- “Must ensure that before graduation a student will have demonstrated…the ability to communicate effectively, both orally and in writing, with patients, patients’ families, colleagues, and others with whom physicians must exchange information in carrying out their responsibilities”

ACGME Core Competencies/Outcomes Project
- “Residents must demonstrate interpersonal and communication skills that reflect in effective exchange of information…Residents are expected to…maintain comprehensive, timely and legible medical records”

How to Teach Responsible Documentation

- One-on-one record review: chart audit, chart simulated recall
- Standardized patient or OSCE
- Appropriateness of clinical decision/treatment
- Correctness, completeness - degree to which specific components of encounter are accurate and captured
Challenges

Copy-and-Paste

The electronic medical record (EMR) arrived at our teaching hospital one year ago and the resultant changes in medical student and physician notes have been remarkable. While EMR is highly efficient in producing notes, virtually all of its notes are longer, recombinant versions of previous notes. Even notes of different authors are morphed by EMR into clones of one another. As physicians have become more adept with the time-saving features of EMR, their notes have been rendered incapable of conveying usable information by their bloated and obfuscated nature.

There are two features of EMR that contribute to the increased length and decreased effectiveness of notes. The first is automatic insertion of protom-like phrases into notes such as “The patient complains that . . .”. Authors are oblivious.


What is Quality?

• Two 90-minute focus groups of 5-6 attending general internists
• 3 hospital medicine, 7 primarily outpatient clinicians who also spend time on inpatient teaching service
• Set of uniform questions used to prompt discussion
• Recorded for transcription and data analysis
Key Questions

• What makes a quality progress note?

• What constitutes “responsible use” of electronic documentation efficiency tools (CPF, auto-inserted data, templates)?

• What are the motivating factors that influence how you write your daily progress notes?

Results

<table>
<thead>
<tr>
<th>Quality</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Timely, up-to-date, reflects current state of patient</td>
<td></td>
</tr>
<tr>
<td>Thought process, interpretation, assessment, patient care</td>
<td></td>
</tr>
<tr>
<td>Trust/credibility</td>
<td></td>
</tr>
<tr>
<td>Length, over-documentation, readability</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motivations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational, billing, medical-legal, communication</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conflicts</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Training residents and interns, feedback</td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td></td>
</tr>
<tr>
<td>Medical-legal, billing</td>
<td></td>
</tr>
<tr>
<td>Style</td>
<td></td>
</tr>
</tbody>
</table>
TRUST: A mnemonic for a quality progress note

T  A Trustworthy note is…
R  Reasoned
U  Updated
S  Succinct
T  Truthful

Feinberg Progress Note Assessment Rubric
Feinberg Progress Note Assessment Rubric

- Developed by medicine, psychiatry and pediatrics
- Refined based on input from 2012 CDIM meeting workshop, and attending focus group results
- Evaluator should review 2 days of notes including one from Day 3 or later

EHR Pilot Curriculum

- Invited students on fall junior medicine rotation to do a pilot of deliberate practice
  - Reviewed previous curriculum briefly
  - Training case
  - Deliberate practice
    - Students brought progress notes from current Junior Medicine Clerkship for review and feedback
    - Two feedback sessions with actual progress notes
Pilot Evaluation

- Pre- and post- survey
- Pre- and post- note evaluation

Pilot Survey Data

<table>
<thead>
<tr>
<th>Statement</th>
<th>Pre-Curriculum</th>
<th>Post-Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel confident writing a progress note in the electronic health record.</td>
<td>3.3</td>
<td>4.6</td>
</tr>
<tr>
<td>2. My progress notes are written concisely.</td>
<td>3.4</td>
<td>4.2</td>
</tr>
<tr>
<td>3. My progress notes are well-organized.</td>
<td>3.7</td>
<td>4.4</td>
</tr>
<tr>
<td>4. My progress notes reflect all changes in the patient's condition and care plan.</td>
<td>2.6</td>
<td>3.8</td>
</tr>
<tr>
<td>5. My progress notes reflect my clinical reasoning.</td>
<td>3.6</td>
<td>4.2</td>
</tr>
<tr>
<td>6. Statements in my progress notes are correct.</td>
<td>3.9</td>
<td>4.4</td>
</tr>
<tr>
<td>7. I use structured data elements in the electronic health record, such as the problem list, the family history, or the social history.</td>
<td>4.4</td>
<td>4.6</td>
</tr>
<tr>
<td>8. I have received feedback on my progress notes.</td>
<td>3.0</td>
<td></td>
</tr>
</tbody>
</table>
### Pilot Rubric Results

<table>
<thead>
<tr>
<th>Student</th>
<th>Pre-Curriculum % items correct</th>
<th>Post-curriculum % items correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>92%</td>
<td>87%</td>
</tr>
<tr>
<td>B</td>
<td>73%</td>
<td>64%</td>
</tr>
<tr>
<td>C</td>
<td>80%</td>
<td>60%</td>
</tr>
<tr>
<td>D</td>
<td>66%</td>
<td>62%</td>
</tr>
<tr>
<td>E</td>
<td>53%</td>
<td>73%</td>
</tr>
<tr>
<td>Mean score</td>
<td>73%</td>
<td>69%</td>
</tr>
</tbody>
</table>

### EHR Pilot Data/Conclusions

- Small study with limited data set
- Influencing features of their team, resident and attending
- Need to educate entire team
- Current pilot that is team based
Proposed Resident Curriculum

Didactic session

• Noon conference format (UK)
• Team-based format (Northwestern)
Focus on “what makes a good note”
• Characteristics outlined in PDQI-9
• Work through the components of the H&P and SOAP notes and common pitfalls
• Examples from the EHR
What Makes a Good Note?

Up-to-date and Accurate
Useful and Comprehensible
Organized and Succinct
Synthesized
Internally consistent

At UK, particular focus on Assessment

Pilot Project

Notes assessed using PDQI-9 and Checklist developed at Northwestern.
Three groups of residents:
• Individual feedback
• Didactic only
• No intervention

Notes from two consecutive days
Thuis feels a bit redundant with Katie's presentation. Including slides from the curriculum could be good.
### PDQI-9

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description of Ideal Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Up-to-date</strong></td>
<td>The note contains the most recent test results and recommendations.</td>
</tr>
<tr>
<td><strong>Accurate</strong></td>
<td>The note is true. It is free of incorrect information.</td>
</tr>
<tr>
<td><strong>Thorough</strong></td>
<td>The note is complete and documents all of the issues of importance to the patient.</td>
</tr>
<tr>
<td><strong>Useful</strong></td>
<td>The note is extremely relevant, providing valuable information and/or analysis.</td>
</tr>
<tr>
<td><strong>Organized</strong></td>
<td>The note is well-formed and structured in a way that helps the reader understand the patient's clinical course.</td>
</tr>
<tr>
<td><strong>Comprehensible</strong></td>
<td>The note is clear, without ambiguity or sections that are difficult to understand.</td>
</tr>
<tr>
<td><strong>Succinct</strong></td>
<td>The note is brief, to the point, and without redundancy.</td>
</tr>
<tr>
<td><strong>Synthesized</strong></td>
<td>The note reflects the author's understanding of the patient's status and ability to develop a plan of care.</td>
</tr>
<tr>
<td><strong>Internally Consistent</strong></td>
<td>No part of the note ignores or contradicts any other part.</td>
</tr>
</tbody>
</table>

### Preliminary Results

Residents find Northwestern tool more helpful in receiving feedback than the PDQI-9

Data pending
Apply Rubric to Progress Note

10 Minutes

The Administrative Perspective on E.H.R.
Progress Notes:
Billing/Coding, Legal, Quality Reporting

Thanks to:
Charlotta Weaver, MD
Medical Director, Clinical Quality Documentation
David Liebovitz, MD
Associate Chief Medical Officer
Northwestern Memorial Hospital
### Documentation Tips

<table>
<thead>
<tr>
<th>Avoid....</th>
<th>Instead Consider This....</th>
</tr>
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<tbody>
<tr>
<td>Low Counts</td>
<td>Pancytopenia</td>
</tr>
<tr>
<td>CHF</td>
<td>Acute (chronic) Systolic Heart Failure</td>
</tr>
<tr>
<td>HFrEF</td>
<td>Acute (chronic) Diastolic Heart Failure</td>
</tr>
<tr>
<td>Worsening Renal Function</td>
<td>AKI</td>
</tr>
<tr>
<td>Altered Mental Status</td>
<td>Delirium (with cause); Encephalopathy</td>
</tr>
<tr>
<td>Replete Lytes</td>
<td>Hypokalemia; Hypomagnesemia</td>
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<tr>
<td>Urosepsis</td>
<td>Sepsis due to UTI</td>
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<tr>
<td>Dirty UA</td>
<td>UTI</td>
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<tr>
<td>Hypertensive Urgency/Emergency</td>
<td>Accelerated or Malignant HTN</td>
</tr>
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<td>Flash Pulmonary Edema</td>
<td>Acute Pulmonary Edema</td>
</tr>
<tr>
<td>Respiratory Distress</td>
<td>Acute Respiratory Failure</td>
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### Billing/Coding
Documentation: Hospital Charges (ICD-9)

Really revolves around Assessment and Plan

1. Principal diagnosis: Determines DRG
2. Comorbidities and major comorbidities: impact charges and quality metrics
   - Not codable unless worded as a diagnosis and sometimes with very specific terminology
   - Acute or chronic
   - Include only those conditions that are evaluated, treated, or managed
   - Linking statements: due to
     - ex. Fall due to UTI
## Documentation Tips

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Legal issues

- “The Office of Inspector General is studying the link between electronic records and billing.”
  - Billing claims have increased from 2006-2010 for two highest codes in emergency departments
  - Whistleblower lawsuits nationally

- Identical templated physical exams and copied forward historical information may be compared at trial to discredit physician’s care

Personal communication, William Bower, Chief Risk Executive, NMHC

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Quality Reporting
Clinical Quality Measure Reporting: Our Future!!

Meaningful use requires reporting on particular quality measures from multiple domains

• Encourages use of structured data elements in the chart
• These may appear to be lists in the note and be separated from clinical reasoning

BUT…

• We may be able to use natural language processing to capture structure from the narrative.
  • The EHR could then prompt us to explain reasoning:

  "this patient has a DVT but is not on anticoagulation. Document contraindication."

• Free text could be entered and abstracted to meet quality measure or exemption and could populate the assessment and plan

---

Administrative Perspectives: A summary

<table>
<thead>
<tr>
<th></th>
<th>Synergistic with rubric</th>
<th>Contrasts with rubric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billing and coding</td>
<td>ICD-9 and MS DRG coding encourages thoughtful diagnosis</td>
<td>CPT coding suggests more documentation in the subjective and objective is better</td>
</tr>
<tr>
<td>Legal</td>
<td>Copy-paste should be avoided</td>
<td></td>
</tr>
<tr>
<td>Quality reporting</td>
<td>Encourages thoughtful treatment of primary diagnosis and comorbidities</td>
<td>Would encourage structured data entry, which often makes thought process unclear</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Solution: natural language processing)</td>
</tr>
</tbody>
</table>
Write SMARTER, not longer

If your con list is longer than your pro, sometimes, you have to advocate for a change in EHR.

* A short story….
Example of Former Structured Plan

**Problem 1:** Leukocytosis with fever - sepsis as probable infection w/lung vs pancreas

**Plan:**
- WBC trending down - CSF negative
- Blood Cx grew Lactobacillus, likely contaminant; even if it wasn't it should be covered by meropenem - ascitic fluid 9/17 not SBP; repeat para 9/24 showed 693 nucleated cells with 146 neutrophils. It also had protein > 1 concerning for possible rupture. SAAG was also < 1.1 and previously it had been > 1.1.
- Meropenem D9
- Repeat cultures show no growth so far
- Repeat blood cultures NGTD, C. diff PCR neg, and stool cultures neg (wife with food induced diarrhea and vomiting, so EHEC had been a possible concern)

**Problem 2:** AMS - likely 2/2 infection

**Plan:**
- More alert and interactive, hallucinations not continued today
- Concern for ICU psychosis
- Been stooling at least 4x/day with lactulose
- Hyponatremia getting closer to his likely baseline
- May still be infectious cause; see #1

**Problem 3:** Left pleural effusion

**Plan:**
- Drained in IR 9/18; CT shows mod pleural effusion with small loculation
- Has 2/3 light's criteria c/w infection or pancreatitis (also with elevated amylase in pleural fluid)
- On bs meropenem D9
- Pulmonary consulted for possible drainage via chest tube but loculated area too small; effusion appears free flowing otherwise
- Will broaden abx coverage to vanc and tobra for MRSA and secondary pseudomonas coverage
- 16 mm x 13 mm internal mammary node noted on CT; will have patient follow up as out patient
Problem 4: Pancreatic pseudocyst - resolved per imaging
Plan: - per IR-pseudocyst in tail of pancreas measures 4.5 cm, reconsulted for possible drainage as is possible source of leukocytosis - on repeat CT scan it was resolved
- acetaminophen PRN for pain

Problem 5: Hyponatremia
Plan: -see above, likely secondary to dehydration vs hypovolemia; may be 3rd spacing fluid into abdomen from vasculature; on exam looked euvoelastic, but high stool output
- stable at 130
- continue NS supplementation with boluses PRN
- likely baseline from 128-132 from previous admissions
- will cont lasix now and monitor; will hold again if becomes hyponatremic

Problem 6: Melanotic Stool
Plan: - 5 stools yesterday with only slight melena per nursing; stool this am with no melena noted
- see EGD 9/21 - gastropathy with nonbleeding gastric varices
- HH improving; will continue to check daily
- GI following and recs appreciated

Problem 7: EKG changes
Plan: - cardiac enzymes trended and were slightly elevated at 0.05
- he was given ASA 325mg, started on metoprolol 25 mg bid
- we will continue a daily 81 mg ASA; will hold in light of bloody stool
- no heparin as patient w/hx of hemorrhagic pancreatitis and liver disease
- cards consulted due to EKG changes and recommended echo - shows impaired LV function
- cards recommends out patient follow up 2 weeks after dispo

Problem 8: EtOH cirrhosis
Plan: - Ammonia = 14 on admission
- DF = 30, MELD = 17 (not a current hepatitis flare as pt's LFT's not 3x normal)
- will cont lactulose to maintain 4-5 loose stools q day
- GI consulted and following secondary to bloody stool

Problem 9: COPD
Plan: - will cont home nebs
- had one noted O2 sat at 86%, but otherwise he has satted > 90% on room air; may have been an errant recording
**Problem 10:** HTN  
**Plan:** -monitoring q 4 vitals; not currently htn or hypotensive

**Problem 11:** Anxiety/Depression  
**Plan:** -continue home meds

**Problem 12:** Esophageal Candidiasis  
**Plan:** -seen on EGD 9/21  
- bx pending  
- started on fluconazole 9/21; will give x 21 days (end date 10/11/12)

**Problem 13:** Ascites  
**Plan:** -concern for SBP vs rupture based on 9/24 results; however, wbc trending down and af x > 48 hours  
- well covered with meropenem  
- GI following; appreciate recs

---

**Next Steps**

**Curriculum Development**
Existing Curriculum

For faculty and residents:

Minimum standard

• Represent one’s own work
• Never copy/paste anyone else’s work
• Never copy/paste subjective or exam
• If copy A/P – must update carefully

Formative feedback on clinical rotations

Teach the Ideal Across the Continuum:

• Rubric sets clear expectations of everyone
  ---But must get faculty and resident input
  -- Allows for training of faculty as teachers

• Methods:
  • Conferences: Noon, M&M, Workshops
  • Timing: Orientation, Retreat, intro to clerkships
  • Feedback: Formative and Summative
Teach the Nuances

• How to ‘meaningfully use’ the EHR
  • Dot phrases
  • Ordering medications as form of documentation
  • Using other tabs

• Highlight documentation for transitions of care

• Acknowledge and incorporate coding

Questions
Contact Information

- Jennifer Bierman jbierman@nmff.org
- Heather Heiman hheiman@nmff.org
- Laura Fanucchi laura.fanucchi@uky.edu

- Med Student curriculum
- Resident Curriculum
- Progress Note Assessment Checklist
what do you mean here?
zzw2ktest3, 9/29/2013