Association of Medical Directors of Information Systems Consensus on Inpatient Electronic Health Record Documentation

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Summary

In 2013, electronic documentation of clinical care stands at a crossroads. The benefits of creating digital notes are at risk of being overwhelmed by the inclusion of easily importable detail. Providers are the primary authors of encounters with patients. We must document clearly our understanding of patients and our communication with them and our colleagues. We want to document efficiently to meet without exceeding documentation guidelines. We copy and paste documentation, because it not only simplifies the documentation process generally, but also supports meeting coding and regulatory requirements specifically. Since the primary goal of our profession is to spend as much time as possible listening to, understanding and helping patients, clinicians need information technology to make electronic documentation easier, not harder. At the same time, there should be reasonable restrictions on the use of copy and paste to limit the growing challenge of 'note bloat'. We must find the right balance between ease of use and thoughtless documentation. The guiding principles in this document may be used to launch an interdisciplinary dialogue that promotes useful and necessary documentation that best facilitates efficient information capture and effective display.

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Summary Recommendations

The members of the Association of Medical Directors of Information Systems (AMDIS) propose guiding principles for electronic documentation and present best-practice recommendations for inpatient Electronic Health Records (EHR) clinical documentation. Notes should primarily serve the core needs of patients and health care providers and secondarily meet the needs of other key stakeholders such as clinical researchers, public health agencies, health insurers and legal entities. The goals of best documentation practices are to: forge an accurate, logical, concise, cohesive and secure record of each patient's narrative and health data; improve individual health outcomes by supporting effective clinical decision support; ensure that documentation meets regulatory and payment guidelines; and, continuously improve quality, safety and population health outcomes.

We describe a note format modified from the traditional SOAP note (Subjective, Objective, Assessment, Plan), called APSO (Assessment, Plan, Subjective, Objective). Providers first look for the diagnosis and treatment portion of the note. APSO places them at the beginning of the note, making provider search faster. We highlight the need to measure the quality of electronic notes. We emphasize that digital documentation will realize its full potential when, buttressed by seamless decision support, it becomes the primary platform for quality of care evaluation and improvement.

We close with recommendations for our care provider and informatics colleagues. We strongly recommend that providers replace inefficient or dangerous documentation habits with behaviors that optimize the use of current and evolving EHR functionality. We encourage our colleagues to promote an electronic documentation platform for individual and population health improvement unmatched by the pen-and-paper capabilities of prior centuries.

Introduction

Documentation of medical care may date back as far as the Egyptians in the time of Imhotep [1, 2]. Over the centuries, the transformation of medicine has been profound. In the last century, medical documentation has moved from simply documenting medical care received by the patient to one that supports communication among providers and a rationale for decision-making, payment, quality and outcomes measurement, and legal defense. Documentation of patient encounters by providers has followed time-honored and largely evidence-free traditions.

Fifty years ago, an operative note for removing an appendix might be simply "After satisfactory induction of general endotracheal anesthesia, a McBurney incision was made and an acutely inflamed, non-ruptured appendix was removed." [Personal communication: LO] To meet the needs of the multiple purposes that medical documentation now serves, that note has expanded in both length and breadth.

One of the unintended consequences of electronic documentation is the ability to easily incorporate large volumes of data into clinical documentation. The use of inappropriate computer-aided data entry (auto-filling) increases the risk of data-filled, information-poor notes. These data-filled notes risk overloading the busy clinician if the data are not useful and risk harming the patient if the data are wrong. As a result, there is an urgent need to make the most clinically relevant data in the medical record easier to find and more rapidly available.

Rationale, Goals and Scope

The many benefits of electronic documentation – legibility, accessibility, robust content, simultaneous availability, and efficiency – are challenged by the proliferation of redundant content that often detracts from readability, ultimately diminishing and even jeopardizing the communication for which notes are intended [3]. Supporting technology, like "copy and paste", can further detract from the ease of interpreting and identifying pertinent content. This "note bloat", expansion of a note's length and complexity due to a marked increase in copied content, introduces the risk of misinterpreting key clinical data with potentially negative consequences for patient safety and provider workflow.

The authors, like most active clinicians in the U.S.A, learned documentation from leading proponents of organized medical records (the paper-based, pre-digital term), and use Dr. Larry Weed's SOAP format [4]. Many clinicians also learned undesirable documentation habits in the paper era that we perpetuate in the electronic era. The goal of this consensus statement is to develop for and disseminate to the health information technology (HIT) and clinical care communities a practical, actionable document identifying important considerations, best practices, key recommendations for documenting in the EHR, and areas for future study. We focus on the documentation of **inpatient encounters** by physicians, nurse practitioners, and physician assistants. In future articles, we plan to build upon the shared principles and features to address documentation in ambulatory, rehabilitation and skilled nursing facility settings.

Guiding Principles

EHR documentation has become a flash point for controversy in several areas. In billing there have been allegations of fraud being made by payers [32]. Senators have raised concerns about the impact of meaningful use incentives [33]. There is a new focus on meeting the "triple aim": better individual care, better population health, and lower costs. No two healthcare organizations are exactly the same and no two providers are alike. And yet, there are key principles which we believe will help guide clinicians toward effective and efficient electronic notes documentation.

1. Document each encounter with the minimum data necessary to:

- Tell the patient's unique story as it relates to the patient's concerns
- Demonstrate diagnostic thinking
- Balance free-text and structured data
- Rather than incorporate large volumes of the existing patient data, refer only to the objective information that is relevant to each encounter
- Provide enough clinical information to drive accurate Clinical Decision Support (CDS)
- Provide enough clinical information to give a covering or consulting colleague the best opportunity to maintain care and make informed decisions regarding further care
- Satisfy reasonable documentation requirements from payers
- Support coordinated longitudinal plans of care and care transitions across organizations
- Support and identify quality of care provided to patients
- Support population data and research
- Create the legal business record of the patient care facility
- Meet legal, accreditation and regulatory criteria
- Provide a clear and easily understood summary of the encounter, including findings and recommendations, to the patient or the patient's legal representative.

2. Collect the data and display it in a way that meets the varied needs of the following audiences for every note:

- Documenting provider, covering provider, consulting provider: Providers want to treat patients to the best of their ability and do so in the most time-efficient manner. Software supporting clinical documentation should be configurable to the type of provider (specialty, training) and context (admitting, consulting) and automatically attribute information to each author.
- Team members in the many environments where patients are now managed by teams
- Patient, patient surrogate or caregiver: Patients, and those acting on their behalf, want to know that the patient's record is of the highest quality, complete and reflects provider communication.
- Regulator, Department of Public Health, Accreditation Agency, Safety and Risk Management Entity: Regulators and others look for consistent implementation of policies and errors of both omission and commission. Questions often pursued include: did events happen when they were "supposed" to happen, such as antibiotic or anticoagulation administration? Did a so-called

"never-event" occur, such as wrong-limb surgery? Was recorded care accurately reflected in the charge coding, without simple errors such as an errant digit in a code?

- Legal counsel, court, jury: The medical record is the legal record. The digital form also includes "meta-data" (such as date and time stamps) and audit trail information that didn't exist in the legal paper record. Attorneys want to see the meta-data to determine when information was available and whether it was acted upon in a timely fashion ("eDiscovery"). The courts attempt to infer diagnostic and therapeutic intent from the record.
- Researcher: Researchers want to find ways to improve care for a cohort of patients. Electronic documentation provides new opportunities to perform this research. Natural language processing (NLP) can be used to infer information from free text. Aggregate de-identified information from individual patient data may reassure the public that privacy risks are minimized.
- Payer, payer agent, governmental auditor: Payers expect the documentation to support the care that was rendered and billed. Auto-filling of documentation or non-attributed copy-pasting, raises concern by EHR auditors when they see the same verbiage and elements of a review of systems or examination for many patients, even though each patient presents with different symptoms or conditions.

3. Supporting data integrity and quality

- Electronic documentation systems should allow data to be entered once by an author and used by other authors (by reference, not as a copy) based upon clinical and professional practice needs.
- When specific elements of the same patient's prior notes do not change from one encounter to the next during the same clinical episode, those elements may be copied forward or preferably acknowledged by reference rather than re-entered.
- When copying elements of the subjective information or history, the user acknowledges the source and modify the information to reflect the differences from prior notes. When copying into one's own note, the author marks those sections as having been reviewed by the author.
- Examples of information that is less controversially copied or carried forward by reference – when truly needed to communicate decision-making for the active encounter – include elements of the previously recorded:
  - Past Medical/Surgical/Obstetric/Psychiatric History
  - Family History
  - Social History
  - Past relevant reports (labs, imaging, pathology, etc.) with dates
  - Some unique circumstances where other aspects of the patient's history might be copied, such as when the patient is unable to provide this information and the original source (typically a family member or guardian) is no longer accessible.
- Providers should identify disputed data so that the information is not presumed to be true in the future. The provider should include an explanation as to why the provider believes that the data may be inaccurate.
- Patients have a legal right to dispute data and have the dispute noted in the record. Providers or their delegates often have the option of including such attributed information via copy-paste or scanning.
- Specific sections of the patient's clinical assessment should reflect the work product of the final author and **not** be carried forward from other providers' notes. These sections include:
  - History of Present Illness
  - Review of Systems
  - Physical Examination
  - Assessment
  - Plan [5]: Exceptions include the unique circumstances described above, and then only with attribution to the original author.
- Organizations should have a process in place to monitor documentation quality and recommend process changes to support improved validation, integrity and quality of data.

4. Ensuring Privacy and Security

It is the duty of each facility and provider to keep all patient information private and secure. The record should only be released to those for whom permission has been granted by the patient or the patient's legally recognized representative, and should be protected both physically and digitally in a manner consistent with the Health Information Portability and Accountability Act of 1996 (HIPAA).

Note Formats and Copy-Paste / -Forward

SOAP vs. APSO

The most commonly used progress note format has been the SOAP (Subjective, Objective, Assessment, and Plan) note, originally promoted by Dr. Weed [4] as part of the Problem-Oriented Medical Record. The POMR includes an updatable master Problem List, an Allergy/Intolerance List, and a Medication List. In the digital environment – especially with note-bloat – finding the information most pertinent to the clinician, the Assessment and Plan, often requires scrolling or clicking through lengthy supporting and sometimes irrelevant data.

To speed access to the Assessment and Plan, some clinicians have proposed altering the SOAP sequence to APSO (Assessment / Plan / Subjective / Objective). The APSO vs. SOAP debate arises from reduced satisfaction with the clinical note as its length has increased, in part due to misuse of "copy-paste" functionality. Advantages and disadvantages of SOAP, APSO and Copy-Paste /-Forward are presented below. We recommend that both SOAP and APSO formats be a configurable option by individual preference.

SOAP
Benefits
SOAP is the traditional, familiar format used when most providers talk to patients and subsequently construct their notes. Documentation in this format follows the traditional flow of obtaining information from and subsequently assessing a patient. Subjective and interim information is communicated at the beginning of the note, providing context for the Assessment and Plan.

Risks

The information which clinicians most often seek – the Assessment and Plan – is at the end of the documentation, requiring clicks or scrolling to find, potentially delaying and sometimes frustrating the clinician, especially with increasingly lengthy notes.

APSO
Benefits
APSO presents the information generally most relevant to ongoing care at the beginning of the note, where it can be most quickly found, shortening the time required for the clinician to find each colleague's Assessment and Plan [5]. Having the Assessment and Plan at the beginning of the document stresses its importance, and may induce a greater effort to provide a complete, clear, and concise representation of diagnostic and therapeutic thoughts.

Risks

APSO is a less familiar format and may require a period of adjustment. Having the Assessment and Plan at the beginning of the note might lead to less clear communication. Not reading the supporting subjective and objective findings placed lower in the note may induce medical errors. It has been suggested that the APSO format may not decrease note bloat, since there is no incentive to decrease the Subjective and Objective parts of the note if those sections follow the Assessment and Plan and readers of an APSO note might stop reading the note after the Assessment and Plan. A suc-

cinct APSO note requires the same training and cultural adaptation as a SOAP note, whether recorded as SOAP and transformed to APSO by EHR functionality or initially entered in the APSO format. The re-ordering into APSO is only an effort to streamline communication, not to eliminate the vital relationship of S to O to A to P.

Copy-Paste and Copy-Forward

Errors in using copy-paste occur frequently, e.g. when the 75 year-old gentlemen suddenly becomes a 30 year-old woman! The seduction of avoiding repetitive typing of HPI or review of systems sometimes results in monotonous documents, making them time-inefficient or clinically meaningless to the reviewing clinician [6] and potentially harmful to the patient.

Also, 'copy-paste' functionality or user-directed insertion of previously finalized data often results in regurgitated data that does not successfully identify the pertinent Subjective or Objective information that constitutes an effective SOAP note [7-10]. It is important to emphasize that copy-paste can be just as much a hindrance to supporting effective communication as it may be a help to clinicians completing their documentation[11]. Its judicious use enables creating a better note to support communication among care providers (Guiding Principle 3).

Finding the proper balance is essential. Despite the dangers of copy-paste in some circumstances, there is clear value in having the computer do menial work assisting the clinician with documentation. Effective copy-paste should be limited to specific circumstances (Guiding Principles 3). As much as possible, "copy" should be performed by reference rather than by creating an actual copy in the record.

For example, to reference a consultant's recommendation in another provider's note, it should be possible to highlight the relevant section in the original note and identify that section as being incorporated into the new note using a standard method, differentiating copy-pasted material from directly entered material. This display might take the form of different colors or fonts, or mirror common publishing conventions with indentation for quotation. Similarly, the daily progress note need not reproduce all the patient events of the day through copy-paste. Adding to the daily note an "events of the last 24 hours" section – which can be toggled to display or hide – and then allowing these events to be displayed in sequence in a single view might provide the relevant information without redundancy.

Assessing the Quality of Documentation

Defining what constitutes a high-quality note remains a challenge [14]. While EHR adoption has grown and everyone applauds the universal *legibility* of electronic notes, new problems including copy-paste, 'note bloat', 'boilerplate,' and clinical plagiarism [15] – risk subverting the *readability* and *functional usability* of electronic notes. Aligning visit documentation with optimized billing specifications has threatened the use of notes to promote effective communication among providers and patients.

These concerns have prompted studies of note quality. Rosenbloom [16] proposed that note quality should be judged on the basis of legibility, accuracy, thoroughness, and compliance with administrative documentation standards. Alternative models of quality have been proposed by AMIA, HIMSS, AHIMA and other informaticians [17-21]. Stetson [22] validated the Physician Documentation Quality Instrument that measures note quality by these dimensions: up-to-date, accurate, thorough, useful, organized, comprehensible, succinct, synthesized and internally consistent. He recommends adding measures of "originality" to succinctness and internal consistency in order to improve detection of inappropriate copy-paste. Audit tools to assess the readability of notes have been developed at the Universities of Wisconsin and Colorado [Personal communication: WB]. This preliminary work requires further validation at multiple institutions.

Among payers, Medicare has begun to define what a quality note *is not*. First Coast Service Options, a CMS Medicare contractor, notified providers in a 2006 Medicare Part B newsletter that information cloning is prohibited and would be cause for payment denial. They defined cloning as

"each entry in the medical record for a beneficiary is worded exactly like or similar to the previous entries," or "when medical documentation is exactly the same from beneficiary to beneficiary [15]."

In addition to parameters of quality, notes must be composed in such a way that they are consistent with and can support decision support and research, as well as patient care [23]. The *manner* in which EHR information is presented, the function of the user interface, and the definition of the user experience, affects the ability of clinicians to effectively use informatics tools to support these purposes [24].

Free text in the EHR has been demonstrated to be a viable source of information for health care quality reporting [25]. The variability of documentation habits in this less structured format makes quality measurement more difficult [26]. As Natural Language Processing (NLP) improves, the challenges associated with free text may diminish and the ability to assess the quality of free text components of a note should increase.

Finally, in the era of Meaningful Use, rapid acquisition and implementation of commercial EHR systems and health information exchanges throughout the country create an opportunity to assess healthcare safety and quality indicators as never before [27].The clinical need to "tell the story" has challenged these efforts in American HIT to date. With higher-quality electronic notes and comprehensive, elegant methods to capture documentation in a structured and machine-readable manner [28-31], electronic notes can serve multiple needs, from communication to payment and research. Driving a consensus on electronic note quality through improved provider documentation behaviors and note quality measurement will enable us to balance care quality and coordination with payment and regulatory compliance.

Recommendations to Colleagues

To achieve higher-quality clinician documentation, we recommend that:
1. clinicians documenting their encounters with patients replace inefficient paper-era habits with behaviors that optimize use of EHR functionality as it currently exists, and complete their notes concurrent with encounters or as soon afterward as reasonably possible;
2. clinicians focus on the quality and clarity of their patient notes, rather than include excessive detail in an attempt to optimize Evaluation and Management coding [12]; and
3. medical education leadership and physicians active in medical training programs model best documentation practices and provide feedback and evaluation to their trainees on optimal documentation.

Recommendations for colleagues are described according to type of inpatient note below.

1. Admission Note Structure
Subjective
- Chief concern/complaint; other concerns
- History of the Present Illness
- Past Medical / Surgical / Anesthetic / Obstetrical / Pediatric / Psychiatric History
- Family/Genetic History
- Social History
- Review of Systems
- Document medication review, acknowledging medication reconciliation (even if performed elsewhere in the EHR)
- Functional status prior to admission
- Preferences for life-sustaining treatment

Objective: Acknowledge relevant data by reference, avoiding wholesale importation.
- Vital signs
- Physical Examination

- Laboratory Data
- Imaging Data
- Other Diagnostic Data
- Recognition of the documentation of other clinicians This notation should include recording review and recognition of the result(s) if not directly entered by the clinician.

Assessment

- Problem 1: Differential Diagnoses, Discussion; Plan for Problem 1 (described in Plan below)
- Problem 2: Differential Diagnoses, Discussion; Plan for Problem 2 (described in Plan below)
- Repeat for additional problems.

Each problem entry should include the likely diagnoses and areas of ambiguity. Included should be the possibility of other diagnoses that may harm the patient, but are less likely. A problem list that begins with symptoms, but evolves into diagnoses, might also fit these needs. Therapeutic choices related to the diagnosis and the high-risk, low-probability concerns should also be included. Diagnoses should be the direct and explicit entry of the clinician, not the computer.

Plan

For each Problem:
- Testing needed and the rationale for choosing each test to resolve diagnostic ambiguities, ideally what the next step would be if positive or negative
- Therapy needed, including medications, if applicable, to be ordered
- Specialist referral(s)
- Patient education including expectations, preferences, benefits and risks.

2. Progress Note

- Tell the story of what's changed since the last note, identifying significant changes in the patient's condition, results, and any treatments administered. Repetitive information should not be entered daily. Avoid copy-pasting into notes the subjective and objective data recorded elsewhere in the record.
- Include only information pertinent to a change in the patient's status
- Document review of other clinicians' notes and any considerations raised; lab, radiology and pathology results; discharge plans; and any other relevant findings
- Include medical decision-making

3. Transfer or Intra-Hospital Service Note

- List active problems or conditions and anticipated upcoming care
- List major pertinent problems, procedures, and diagnostic studies or results
- Document medication reconciliation
- Update patient's preferences for life-sustaining treatment
- Document communication of handoff or listing of transition of care to receiving caregiver.

4. Discharge summary

1. State pertinent reasons for hospitalization without regurgitating the history and physical verbatim
2. Identify primary diagnoses and procedures
3. Describe concisely what happened to the patient
4. List procedures and operations chronologically
5. Describe outcomes of treatment, procedures, and surgery
6. Report adverse events and the associated outcomes
7. Describe condition at discharge in medical terms, using objective terms such as "ambulatory and tolerating a pureed diet", rather than subjective terms such as "stable" or "critical"

8.   List medications at discharge and document medication reconciliation
9.   Describe functional status at discharge
10. Update patient's preferences for life-sustaining treatment
11. State discharge destination
12. Include detailed instructions for follow-up given to the patient or legal guardian including appointments
13. Include discharging provider contact information for post-acute care providers.

5. General

- Copy-Paste – Limit reference to prior episodes and never import from one patient's record to another patient's record (Guiding Principle 3). Ongoing education, modeling and monitoring efforts should be undertaken to ensure that notes are unique to the encounter being documented.
- Auto-Save – Save all notes periodically so that a power problem, system malfunction, or a provider distracted by an urgent situation does not lose the documentation achieved. These notes should be clearly designated "draft" and only made available to the provider who entered them.
- Free-Text vs. Structured Data – Use free text for subjective input, such as in most of the HPI, and structured data for objective findings, including exam, ROS and labs.

6. Enhanced Functionality of EHRs

- Computer coding - Always identify the diagnosis, whether in free text or from a pick list. Benefit from diagnosis codes offered by the EHR based on provider entered diagnoses.
- Privacy - Users need access to the information which matches their roles, including a master set of identifiers and roles. Such access becomes even more important in an environment which supports health information exchange, allowing for regional and national accessibility.
- Patient photographs - Pictures enhance clinician memory and reduce the chance of entering or retrieving information on the wrong patient [13]. Standards are needed to recommend frequency of photographic updates, especially for the pediatric population.
- Right patient - Previous versions of the document are flagged to minimize duplicate records.

Conclusion

Medical documentation has existed for thousands of years. In the last 50 years, computers have been used to systematize medical documentation and add features that paper can only match with great difficulty or simply cannot replicate. This paper is intended to highlight the benefits of this transition to digital electronic health records, the pitfalls to avoid, and the path forward.

Conflict of Interest
None

Human Subjects
None

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