

How to Write an Effective Clinical Document?

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Abstract

Medical records are the most important practice tools used by doctors in their daily practice, regardless of specialty. The rule of thumb is “If it is not documented, it does not exist.” Deficiencies in the clinical documentation have been directly linked to increased incidence of adverse events and medical errors with resulting patient injury. Doctors are required to keep accurate and comprehensive medical records that will stand alone without their interpretation. An excellent medical record should be clear, concise, complete, accurate, and current factual record of clinical care. That must be recorded in a legible chronological and a confidential way while avoiding duplications and abbreviations. Written communication is vital to patients’ quality of care, and thus this paper is dedicated to the basic written communication skills and concepts that are foundational to all healthcare professionals. In this practice point, we provide standardized templates for most common written documentation by physicians.

Keywords: Documentation, medical records, progress notes, written communication

INTRODUCTION

Written documentation of patient encounters is a necessary skill for all medical disciplines. Communication is crucial to quality care that the Accreditation Council for Graduate Medical Education included interpersonal and communication skills as one of the six core competencies.^[1,2] Doctors are required to keep accurate, comprehensive medical records that will stand alone without the need for their interpretation. In addition to meeting professional and medico-legal requirements, good medical records will assist doctors and his/her colleagues in offering comprehensive, effective and efficient care for patients. On the other hand, the breakdown in written and verbal communication have been directly linked to increased incidence of adverse events and medical errors with resulting patient injury.^[3,4] While verbal communication skills are taught and assessed in medical schools, medical students report limited instruction in written communication skills which is often informal through a hidden curriculum and lack formal feedback.^[5,6] In a longitudinal study by Maguire *et al.* assessing how physicians’ communication skills changed over their careers.^[7] It was found that, without explicit intervention, most of the skills physicians acquired tended to be fixed in place by the end of residency. That is somewhat alarming! Common physicians problems while completing medical

records are (i) neglecting to do a proper history and physical on every patient. (ii) failing to write a note: Some physicians make rounds and pass the nurses’ station to give verbal instructions but without placing a progress note, sometimes not even a history or physical on the chart. (iii) forgetting to place an operative note in the chart instantly after a procedure or operation is performed. (iv) writing illegible and overuse of non-standardized abbreviations. (v) not entering the time and date or signing their notes. (vi) using the nonspecific phrases, “doing well” or “no change.” This does not tell anyone what has happened on that incident. (vii) failure to note speaking to relatives or family about findings. (viii) not stating a diagnosis (or provisional diagnosis) when ordering investigations or treatments: Consistently, specify the condition that is being assessed or treated when prescribing medication, sending patient to laboratory or imaging, or starting a treatment.

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rule of thumb is “If it is not documented, it does not exist.” This paper is dedicated to the basic written communication skills and concepts that are foundational to all healthcare professionals. We will provide standardized templates for most common written documentation by physicians. Macros and templates may be helpful in improving the completeness and efficiency of documentation.^[8] The primary purpose of clinical documentation is to facilitate excellent care for patients. Documentation is essential to record pertinent facts, findings, and observations regarding a patient’s health history including past and present illnesses, examination findings, results of tests, the nature of treatments, and outcomes. Good medical record should be clear, concise, complete, accurate, and current factual record of clinical care. That must be recorded in a legible chronological and a confidential way while avoiding duplications and abbreviations.^[9,10] Examples of written documentation are listed in Table 1. All orders should invariably be signed, dated, and timed.

COMMON WRITTEN DOCUMENTATION

Ideal history and physical

This is the cornerstone of the patient’s admission as far as medical decision making goes. It is the single most referred-to note in the chart, the one every consultant, resident and nurse will turn to for information on the patient. It should be structured as follows:

- i. History of present illness (HPI): The first sentence should be kept short, precise and containing meaningful and relevant information, for example: “A 67-year-old woman with known CAD and T2DM who presents with crushing, substernal chest pain.” Keep it very short and to the point, including only those facts that directly relate to the ultimate diagnosis. In most of the times, HPI when done well, it should generate the right answer to a diagnostic dilemma before any test is ordered
The next paragraph should include a thorough analysis of the patient’s complaint using the FAR COLDER system: Frequency, associated symptoms, radiations, character, onset, location, duration, exacerbating factors and relieving factors. Then, ask and answer all the pertinent review of systems (fever, +shortness of breath, no nausea

or vomiting) that relate to the condition you believe the patient has

- ii. Review of systems: It should not include any repetition of information already mentioned in the past medical history (PMH) or the HPI
- iii. PMH: It covers all medical conditions and when they were diagnosed as well as previous surgeries and when they were performed
- iv. Medications list and Allergies: Include the name of the offending agent as well as the specific reaction it causes
- v. Social history and family history
- vi. Physical examination, vitals, and laboratory studies
- vii. Assessment and plan (A/P): This is where you put your diagnosis; explain why you think it is correct, other things you considered and excluded and what you plan to do about it. Write this out in a problem-based format touching on the chief complaint as well as anything else you will be treating including chronic active conditions.

Admission order

A typical admission set of orders is shown in Box 1. The mnemonic for this is usually referred to as ADCA VAN DISML. All medications need a: Dose, route (PO, PR, or IV) and frequency (e.g. q6 h). All blood pressure medications should have parameters for when they should be held (e.g. hold labetalol for systolic blood pressure [SBP] <120 or heart rate [HR] <60). Verbal orders are often required in emergency situations but should be avoided otherwise. These orders need to be signed within 24 h. End the admission orders by giving nurses parameters when to call a house officer (for example T >38.5, HR >130 or <60, SBP >180 or <90, respiratory rate >30, O₂Sat <92%, mental status changes, or any acute change in patient’s condition). Diet should be specified according to the clinic state [Box 2].

Progress note

It is both required and essential to write a note on every patient every day. It should be something that the author and his/her colleagues can refer to know exactly what has happened to the patient, any recent changes or events and what was done or is planned to be done [Box 3]. Best is to imagine that one is writing it so that a consultant can be kept up to date or a cross cover resident in the middle of the night can know precisely what is happening with a patient with whom he may not be very familiar.

Progress notes are usually documented in a defined structure. This format is referred to as SOAP note; the acronym represents the first letters of the words subjective, objective, assessment, and plan. This note, ideally summaries all past 24 h events, tests, and consults as well current assessment and management plans. If postoperative, always ask about incisional pain and response to pain medications, any fever, nausea or vomiting. Also, document ambulation, voiding, passing flatus and bowel movements.

Event note

It should be written for all unexpected events and should summaries the event and written in SOAP format. Subjective:

Table 1: Examples of written documentation

History and physical
Order: Admission, preoperative, postoperative, and transfer orders
Progress notes
Event notes
Preoperative note and order
Operative note
Postoperative orders and note
Procedure notes
Transfer note and orders
Discharge note and summary
Sign-out and hands-off
Death note and death certificate

Box 1: Typical admission orders

Admit to: Name of service followed by consultant name
 Diagnosis
 Condition: Critical, guarded, fair, stable, good
 Allergies: Specific or NKDA
 Vitals: How often you want vitals done (q 6 h in floors and q1 in ICU)
 Activities: As tolerated (ad lib), ambulate with assistance, bed rest, restriction is patient specific
 Nursing
 Strict I/Os
 Daily weight
 EKG or CXR on arrival
 Incentive spirometry teaching
 NGT to gravity
 Foley to gravity
 DVT prophylaxis
 O₂ to keep O₂Sat >92%
 Diet: Regular, liquid, full, NPO, and diabetic diet
 IVF: List the rate, type of fluid and how much. Always write an endpoint for fluid. (i.e., start D5 LR at 100 cc/h or saline lock: Which means the nurse periodically flushes the line and no standing IVF)
 Specials
 Wound care and dressings
 Consultations
 List all radiology and noninvasive cardiology tests. (e.g., EKG and CT scan)
 Meds
 Labs
 Call H.O: Give nurses parameters when to call a house officer:
 E.g., T>38.5, HR >130 or <60, SBP>180 or <90, RR >30, O₂Sat <92%, mental status changes, or any acute change in patient's condition
 Sign, date, and time
 NKDA: No known drug allergy, ICU: Intensive care unit, I/O: Intake and output, EKG: Electrocardiogram, CXR: Chest x-ray, NGT: Nasogastric tube, DVT: Deep vein thrombosis, IVF: Intravenous fluids, CT: Computed tomography, SBP: Systolic blood pressure, HR: Heart rate, RR: Respiratory rate, NPO: *nil per oris*, H.O: House officer

Box 2: Types of diet orders and their characteristics

Regular: No restrictions
 Mechanical soft: Soft, easy to chew, and swallow
 Full liquids: Food that is liquid at room temperature, milk products
 Clear liquids: Liquids that do not stimulate extensive digestive process
 Low fat: <30% of calories from fat, lean meat, and skimmed milk used

events and complaints, objectives: vitals, physical examinations, laboratories, and test results, current assessment and management plans, including procedures and consultations as well communications with seniors colleagues, other specialties or with patient and family.

Preoperative note and orders

Preoperative note is an essential checklist written in progress notes before any planned operative procedure [Box 4]. To confirm that all data has been gathered, checked, and that the patient is ready for surgery. Preoperative orders are written before the scheduled operation [Box 5].

Box 3: Contents of an ideal progress note

Subjective: A quick outline of important events in the last 24 h, issues the nursing staff has mentioned, any updates on their condition or any new complaints
 Vitals: They are vital and must include numbers in a range of lows and highs over the last 24 h; afebrile is not a vital sign
 I/O's: Include totals in and out as well as specifics (what amount out was urine, how much was stool, how much was vomitus, drains, and tubes)
 Meds: Copied into the note and updated daily, (from the most recent medication card not from yesterday's note even)
 Physical examination: Relevant examination must be documented every day
 Labs and tests: Include daily labs, culture results including sensitivities, any new radiographic studies, and results of any procedures performed since the last note
 Assessment: A quick, one-liner including the patient's age, sex, and primary problem(s)
 Plan: List this out by the issues or for ICU patient, in a system-based format
 Make a problem list which addresses every abnormality from the history, PE, laboratories, and studies
 List them in order of importance
 Any problem which has resolved in the last 24 h should be listed one last time to acknowledge its resolution and then can be dropped from the list
 Each problem should be listed separately along with what you plan to do about it that day and what was done about it the day before
 If the specific plan on an issue is not yet final, one may write, "to be further discussed with team," an addendum note can always be completed later
 Be sure to mention prophylaxis daily (e.g., Nexium, SQ heparin or LMWH) in every note
 Sign, date, and time note
 ICU: Intensive care unit, I/O: Intake and output, LMWH: Low-molecular-weight heparin, PE: Pulmonary embolism, SQ: Subcutaneous

Box 4: Basic preoperative note

Patient is preoperative for (type of procedure)
 Laboratories
 CBC
 Chem 7
 INR, PTT
 Pregnancy test in female
 EKG
 CXR
 Type and screen or type and cross
 Consent in chart
 Preoperative orders are written
 Anesthesia to see patient
 CBC: Complete blood count, PTT: Partial thromboplastin time, INR: International normalized ratio, EKG: Electrocardiogram, CXR: Chest x-ray

Operative and Procedure note

Immediately after surgery, an operative note must be written documenting type of procedure with main operative findings and estimated blood loss, type of anesthesia, tubes or drains placed, and specimens sent. A full detailed operative summary should follow. Box 6 shows an ideal short operative note.

Box 5: Preoperative orders

Date, time and sign
 NPO postmidnight
 Laboratories or other studies if needed
 Bowel preparation if needed
 IVF: Hep-lock IV, start D5 LR at 100 cc/h
 Meds changes
 Holding anticoagulant
 DM or HTN meds adjustments
 PPI or DVT prophylaxis
 Steroid, stress dose if needed
 Preoperative antibiotics: As per protocol

DVT: Deep vein thrombosis, IVF: Intravenous fluids, DM: Diabetes mellitus, HTN: Hypertension, PPI: Proton pump inhibitor, NPO: Nil per oris

Box 6: Components of a good operative note

Preoperative diagnosis
 Postoperative diagnosis
 Procedure: List all procedures
 Surgeon
 First assistant
 Second assistant
 Type of anesthesia
 IV fluids given: Get from anesthesia records
 Estimated blood loss:
 Urine output
 Drains: Specify site and type
 Specimen
 Findings
 Disposition
 Date, time, and sign

Also, a procedure note should be written for all invasive procedures including central lines, chest tubes, percutaneous biopsies, and endoscopies [Box 7].

Postoperative orders and note

After surgery, a new set of orders must be written. One of the postoperative visits during the day or evening of operation should be documented as a postoperative note. Boxes 8 and 9 provide ideal postoperative orders and note.

Transfer note and orders

Whenever a patient is transferred from one service to another a note must be written to summarize patient care and ensure proper inter-service communication and decrease possibilities of errors. The transfer note should include a summary of patient's presentations and hospital course. It also summarizes tests, results of consults, and explicitly specifying the diagnosis and treatments. It should state the reason for transfer and specify the accepting service and accepting provider. It should include a detailed medication list and current care and should be dated, timed, and signed. Ideally, a transfer note should be accompanied by a complete transfer orders indicating the transfer service and accepting provider, re-write all patient's orders and plan follow-up.

Box 7: Components of a comprehensive procedure note

Consent: "Consent was obtained and on kept on file at time of procedure"
 Operator: Your name and name of any supervising doctor.
 Procedure
 Indication
 Description of procedure: Including use of aseptic techniques, side, site, and findings
 Any complications
 Specimens, drains, tests sent
 Outcome/comments
 Date, time and sign

Box 8: The postoperative note

Date time and sign
 S/P: The type of procedure
 Subjective: E.g., c/o pain, nausea or vomiting, ambulation, voiding, PO intake, pain control, etc.
 Objective
 Tmax, T, BP, P, RR and O₂ saturation
 I/O
 I/O in OR and recovery room
 I/O on the ward
 NGT, foley, drain output
 PE
 General: Awake, drowsy, somnolent, sedated, intubated, etc.
 Chest and heart
 Abdomen and dressing
 Extremities
 Assessment and plan (A/P)
 I/O: Intake and output, PE: Pulmonary embolism, NGT: Nasogastric tube, S/P: Status Post, PO: Per oris

Discharge plans, summaries, and orders

As a rule, planning for discharge commences on the day of admission. Caring resident should keep touch with patient and the family in regard of discharge planning. He or she should advance diet as appropriate, get any IV, Foley and tubes out, switch antibiotics and other medications to PO form at least 24 h in advance. Discharge summary and prescriptions are written while discharge instructions and follow-up appointments are given [Box 10]. Discharge summaries need to be timely, complete, and accurate. A suitable discharge summary may help prevent adverse events and provide the subsequent treating physician the full medical picture to optimize continuity of patient care. When writing a discharge summary, physicians should ask themselves whether it includes all of the information needed to provide uninterrupted care. As an incomplete discharge summary or one that arrives too late leaves everyone at a disadvantage. Discharge orders must be written in chart and to include: When to discharge, list of medication, other care orders and follow-up appointment. However, do not release till approved by senior resident and consultant.

Sign-outs and hand-offs

Sign-out occurs differently across the various hospitals. In some situations, a designated time and place are arranged, in

Box 9: The postoperative orders

Admit to: Ward versus ICU, (Name of the attending doctor)
 Diagnosis: Status Post
 Condition: Critical, guarded, fair, stable, good
 Allergies: Specific or NKDA
 Vitals: q 1, 2, 4 h in ward, vascular or neuro checks
 Activities: Out of bed in am with assistance, ambulate TID, restriction is patient-specific
 Nursing
 Strict I/Os
 Daily weight
 EKG or CXR on arrival
 Incentive spirometry 10/h while awake
 DVT prophylaxis: Heparin 5000u SQ BID/LMW heparin or ted + venous compression device boots
 Drains, foley, and NGT
 NGT to gravity, flush NGT
 Drain to bulb suction. Record drain output q shift
 Diet: NPO, clears, full, soft, regular, low-fat diet (Box 3)
 IVF: LR at ... cc/h for 24 h then change to D5 ½ NS+20 KCl
 Specials: Other studies or consults
 Meds
 Resume all preoperative meds if suitable
 Pain management
 Stool softener
 Antibiotics
 PPI
 DVT prophylaxis
 Insulin sliding scale
 Labs: In recovery room, in evening or morning after surgery
 Call H.O if: Give nurses parameters when to call a house officer: T >38.5, HR >130 or <60, SBP >180 or <90, RR >30, O₂Sat <92%, mental status changes, or any acute change in patient's condition
 Date, time and sign

NKDA: No known drug allergy, ICU: Intensive care unit, I/O: Intake and output, EKG: Electrocardiogram, CXR: Chest x-ray, NGT: Nasogastric tube, DVT: Deep vein thrombosis, IVF: Intravenous fluids, CT: Computed tomography, SBP: Systolic blood pressure, HR: Heart rate, RR: Respiratory rate, LMW: Low-molecular-weight, NPO: *Nil per oris*, TID: Three times daily; BID: Twice daily, S/P: Status Post, H.O: House Officer

others, you can sign-out whenever all your work for the day is finished. Sign-out has the potential to be a place where “the ball gets dropped;” don’t let this happen to you. The most important aspect of the sign-out is assuring that the overnight person knows what to do in case an issue with your patient occurs overnight. Suggested sign-out information is age, sex, significant PMH, admission date, relevant presenting signs and symptoms, important events of the day and significant tests and findings, working diagnosis, and treatment. It is important to include an on call to do list, anticipated events (list things to watch for and what to do?) and contact information (family member) if pertinent. Use of the mnemonic SAIFIR shown in Box 11 is very helpful.

In the event of death

When physicians are called on to pronounce death. Certain steps must be performed: On arrival to the bedside, the patient should be observed for respirations, auscultate for heart sounds,

Box 10: Essential components of the discharge summary*

Patient presentation
 Admission diagnosis: List the primary diagnosis first followed by all other conditions which were acute and treated on that admission, leave out chronic conditions
 Hospital course: As descriptive as possible including how the patient presented, what was done for him/her, how they responded, what was done next. List consultations called and procedures performed
 Treatments and procedures
 Important tests and consults
 Discharge diagnosis
 Discharge medications
 Treatments plans: To include diet, activities, wound care, and other specialized care
 Follow-up plans
 Emergency flags for return or calling
 Date, time, and sign

* A summary of patient's presentation and hospital course

palpate for a pulse, and attempt to elicit a corneal reflex. The exact time of death need to be agreed with the nursing staff. Notify the attending physician and family immediately, even in the middle of the night. Complete a death note in the progress note section of the chart. Consider including the following information: “Called by nursing staff to see patient regarding unresponsiveness. The patient was found to be breathless, pulseless, and without heart sounds, blood pressure, and corneal reflexes. The patient was pronounced dead at (time and date). The patient's physician and family were notified.” Death certificate is an important legal document. It should be filled out completely, accurately and promptly. An assessment of the cause of death should be included. When completing a death certificate, the doctor should print or write clearly, write his/her name in block letters, sign, date, and time the certificate. In addition, record clearly the deceased exact name and demographics as well as accurate time and place of death. It is advisable not to use the following in death certificates: a non-specific term as the modes of dying (e.g., “heart failure” or “cardiopulmonary arrest”), major organ failure such as “congestive heart failure” as an underlying cause of death, terms such as (“asthenia” or “cachexia”), terms that may be misinterpreted as “cerebrovascular accident,” the term “natural cause” and do not use abbreviation or medical symbols such as “#” for fracture.

CONCLUSIONS

The practice of medicine involves management of large amounts of information, making the medical record the cornerstone of communication and documentation. Therefore, written communication is an important skill for all physicians and the rule of thumb is “If it is not documented, it does not exist”. Proper documentation is required to record pertinent facts, findings and observations about a patient's health history including past and present illnesses, examinations, tests, treatments and outcomes. Moreover, good documentation describes what information is given to the patient and the

Box 11: Sign-outs and hand-offs

S → Summary: To be given in 1 or 2 sentences

A → Active issues: Things the team is addressing that may come up overnight

I → If/then: A series of scenarios that may occur and what to do about it

F → Follow-up: All laboratories, test, etc., specifically that need to be followed up

I → Interactive questions: From the receiving H.O. to the handing H.O.

R → Read back: Confirmation by the receiving intern of all he/she has heard

H.O: House officer

patient's response. This includes notes about informed consent, the patient's questions, the physician's answers, and any information given to the patient about next steps or follow up. In addition to eligibility and avoiding using unrecognized abbreviations, particular emphasis must be placed on the five factors: Accuracy, objectiveness, completeness, timeliness and confidentiality. Physicians should only make changes to ensure that the medical record is relevant and accurate. It is important to preserve the original entry and then to write, sign and date any additions or changes. Inadequate notes are open to misinterpretation or are simply unhelpful in providing care to the patient or in demonstrating what took place. Short falling of proper documentation is: Writing illegible, failing to write a note or orders, forgetting to write an immediate operative note on chart, not entering time and date, not naming a diagnosis when ordering a test or treatment or failing to note interaction with family and relatives. Macros and templates may be valuable in improving the completeness and efficiency of documentation.^[8] Patient records have been stored in paper form for centuries. Over time they have required a large area of storage leading to notably delayed access, which is limited to one person at a time.^[11] Legibility is another major issue and paper-based records are not durable and susceptible to both water and fire.^[11]

Electronic Health Records (EHRs) are computerized medical information systems that collect, store and display patient information and are intended to replace existing paper based medical records. Perceived advantages of EHRs can be: Creating legible and organized records, improving access to patient medical information, reducing errors and reducing of papers while forming a data repository for research and quality improvement.^[12] Therefore, EHR is having a great potential for improving quality, continuity, safety and efficiency in healthcare. However, the barriers of implementing HER across

the world are: high start up cost, need for staff training and continuous technical support, limitations of some systems with lack of customization and concerns for patient privacy and confidentiality.

Authors' contribution

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REFERENCES

1. Nasca TJ, Philibert I, Brigham T, Flynn TC. The next GME accreditation system – Rationale and benefits. *N Engl J Med* 2012;366:1051-6.
2. Kavic MS. Competency and the six core competencies. *JSL* 2002;6:95-7.
3. Sexton JB, Thomas EJ, Helmreich RL. Error, stress, and teamwork in medicine and aviation: Cross sectional surveys. *BMJ* 2000;320:745-9.
4. Greenberg CC, Regenbogen SE, Studdert DM, Lipsitz SR, Rogers SO, Zinner MJ, *et al.* Patterns of communication breakdowns resulting in injury to surgical patients. *J Am Coll Surg* 2007;204:533-40.
5. Melvin L, Connolly K, Pitre L, Dore KL, Wasi P. Improving medical students' written communication skills: Design and evaluation of an educational curriculum. *Postgrad Med J* 2015;91:303-8.
6. Levinson W, Lesser CS, Epstein RM. Developing physician communication skills for patient-centered care. *Health Aff (Millwood)* 2010;29:1310-8.
7. Maguire P, Fairbairn S, Fletcher C. Consultation skills of young doctors: II – Most young doctors are bad at giving information. *Br Med J (Clin Res Ed)* 1986;292:1576-8.
8. Kuhn T, Basch P, Barr M, Yackel T; Medical Informatics Committee of the American College of Physicians. Clinical documentation in the 21st century: Executive summary of a policy position paper from the American College of Physicians. *Ann Intern Med* 2015;162:301-3.
9. Guidelines for Medical Record and Clinical Documentation WHO-SEARO Coding Workshop; September 2007. <https://jhmvi.jhu.edu> Last visit. [Last accessed on 2018 Nov 15].
10. The Protective Canadian medical Protective Association. Why Good Documentation Matters, originally published March 2011/Revised October 2016. P1101-6-E. Available from: <https://www.cmpa-acpm.ca>. Last accessed 2018 Nov 15].
11. Evans RS. Electronic Health Records: Then, Now, and in the Future. *Yearb Med Inform.* 2016 May 20;Suppl 1:S48-61.
12. Ayatollahi H, Mirani N, Haghani H. Electronic health records: What are the most important barriers? *Perspect Health Inf Manag.* 2014 Oct 1;11:1c. eCollection 2014.

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