Assessment Section of SOAP Notes Written for Outpatient Encounters: Analysis Using Online Guides, Samples, and Interviews with Doctors

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ABSTRACT

This study examines the assessment section of SOAP notes written by doctors for outpatient encounters. The sources used in this study are five online articles about SOAP notes, ten samples, and two interviews with doctors. Four main components – summary, diagnosis, etiology, and progress – were identified from five online guides for writing SOAP notes. Compliance and deviation of each component from the descriptions of the guides were examined. Patterns were found as to when a component complies with the guides, deviates from the guides, or is absent. The results reveal that online guides often list out the components of SOAP notes without specifying the situation in which each component should be documented; further steps can be taken by making a guidebook with branching paths allowing for flexibility for dealing with different patients.

Keywords: SOAP notes, Medical Notes, Doctor, Medical Documentation, Outpatient

INTRODUCTION

SOAP notes are documents written by doctors after every outpatient encounter. The name of the document is a mnemonic for its four main sections: subjective, objective, assessment, and plan, which records the patient's symptom, objective findings of the doctor, diagnosis of the problem and plan for treatment respectively. SOAP notes are important not only because it ensures the documentation of the patient's health and helps doctors remember the patient in future encounters, but also functions as proof of the quality of care given by the doctor. One of the most important sections is the assessment section because it summarizes patient information gathered in the subjective and objective sections and lays the foundation for the plan section following it. Therefore, this section will be the focus of this paper. Despite its importance, there is no formal training in writing this type of document. There are many articles online that explain components to include in the assessment section, but these guides differ from one another to some degree. Compliance and deviation of each component from the descriptions of the guides were examined. Patterns were found as to when a component complies with the guides, deviates from the guides, or is absent. This paper intends to help pre-med students gain a better understanding of the assessment section of SOAP.

METHODOLOGY

To examine ways to create the assessment section that complies with expectations, this study relies on several sources. The first source includes five online articles and guides for generating SOAP documents. These sources provide a benchmark and set the standard for the analysis. Since the focus of the article is SOAP notes written by doctors, the Global Pre-Med (3), Geeky Medics (4), and University of Manitoba (5) article target pre-med students and doctors. NCBI (6) and Wikipedia (7) guide target health care providers in general, giving a more general guideline on writing SOAP notes. The second source consists of ten samples of SOAP notes, which serve as examples to show the degree of compliance of SOAP notes to online guides. The examples were selected to resemble possible outpatient encounters. Due to privacy laws, the samples gathered probably have modified information, so they do not reflect accurate SOAP documents. This will most likely not affect the study because even though the information is modified, the types of information present in a SOAP document will presumably not be changed significantly. The third type of source used is interviews conducted with two doctors. Dr. Gosukonda, an internal medicine doctor in Georgia, talked about each component of the Assessment section in depth. Dr. Ghosh, an anesthesiologist in New Jersey, talked about the importance of documentation. Notes taken during the interview can be found in the appendix.

The main components from the assessment section and what they look like are identified from the sources. The compliance and deviation compared to the samples as well as the absence of each component were noted. Patterns were identified to predict when the samples comply with the guide, deviate from the guide, or are absent. Dr. Gosukonda's interview supplements the materials above by providing a description of the information a doctor puts in her notes.

RESULTS AND DISCUSSIONS

Summarizing information gathered from the subjective and object sections, the assessment section lays the foundation for the plan following. To do so, this section contains several elements: summary, diagnosis, etiology, and progress. The section that follows explains and exemplifies each of these components.

Summary:

Appearing at the beginning of the assessment section, this segment summarizes the chief complaint and objective findings. According to the NCBI article (6), it should list the problems from most to least important. It should also be brief and only touch on the most important points. Some summaries also include the age and gender of patients.

Six out of ten samples include a summary in the assessment section. Out of the six samples, five of them also include the age and gender of the patient before stating the problem. Sample number three shows a typical example of this component, documenting that "A 56 y/o female here for follow-up of diabetes (8)." Sample number six is the only sample that does not include the age and gender of the patient, only documenting "Problem #1 - Change in mental status (10)". The four other samples did not mention the patient's age, gender or main problems.

Comparing the samples with gender and age in summaries and samples without yielded patterns. In the samples that included age, gender and the problem summary, the patients all had chronic problems like hypertension, diabetes, chronic obstructive pulmonary disease, and lymphocytic leukemia. Summarizing their age and gender might be important for these patients since age might be an important cause for these problems and a deciding factor in determining the treatment plan. Older people are more at risk of chronic illnesses like hypertension (13) and COPD (14). Moreover, patient in different age groups have different metabolisms, so treatment methods might differ. Therefore, the samples suggest that a summary of the patient's age, gender and main problem should be included in the assessment section if the patient has a chronic illness like hypertension or diabetes.

It is possible that psychiatric disorders do not require documentation of age and gender. In the sample that includes a summary of the problem but not the age and gender, the patient is suffering from depression. However, since there is only one sample of a patient with a psychiatric disorder, no meaningful conclusion can be drawn. It is also possible that this sample is an outlier and that summaries should generally include the name and gender of the patient. More research would need to be done to answer this question.

The interview with Dr. Gosukonda provided more information on if and when summaries are needed. She said in the interview that she always writes a brief summary that includes the patient's age, gender and main problems. She explains that all doctors have different styles of documentation and that some doctors exclude the summary component for brevity. She further explains that writing the summary is important because it shows the doctor's process of picking out the most important points from previous sections (2).

Taking all the information into account, we can conclude that the summary component is not mandatory but is helpful to have. This component occurs more frequently when the patient has as a chronic illness. Summaries often include the age, gender and main problems of the patient. The presence or absence of this component also depends on the writing style of the doctor.

Diagnosis:

This component is where the doctor states the diagnosis of the patient's chief complaint. The NCBI guide states that this section should include a differential diagnosis, which is a list of possible diagnoses from most to least likely, and the reasoning behind the list (6). Some SOAP notes fully comply with the guide, listing out a differential diagnosis and reasoning. Some deviate slightly by excluding the reasoning. Others deviate further by only writing one diagnosis or by excluding the diagnosis completely. We see this compliance and deviations of this component from NCBI's description in the sample SOAP documents.

In sample number 4, there is a differential diagnosis and the reasoning behind the diagnosis, thus it complies fully with the NCBI guide. This sample lists out three diagnoses in the order of most to least likely and gives reasons for the diagnosis and the ranking of the diagnoses. This SOAP note documents that:

> "The chest pain is most likely from GERD, given that it is only when recumbent and not present with exertion. Also, the change in her diet to eating larger meals at night is supportive. The chest pain could also be from heart disease though this seems less likely given that no chest pain with exertion. The chest pain could also be due to chest wall strain as the pain improves with position." (8)

One possible explanation for the presence of an explanation of differential diagnosis is that the symptoms the patient is experiencing – chest pains – can be the cause of many different illnesses; therefore, it is hard to confirm which one is the main cause. Since doctors cannot gather sufficient information, they document more, laying out the reasoning and thought process behind the diagnosis.

Some samples include a differential diagnosis, deviating slightly from the guide. These are samples five, six, seven, eight, and ten. An example of this could be seen in sample five, in which the assessment portion of the SOAP lists the diagnoses as:

> "1. Low back strain
>
> 2. Somatic Dysfunction
>
> -Lumbar, Pelvis
>
> 3. HTN - Controlled with meds" (9)

An explanation for the absence of reasoning might be that these samples have more obvious diagnoses. In the samples with differential diagnoses without explanations, the chief complaints were back pain, burning feeling in the stomach, stiffness in the hands and pain in the knees, and jaw pain. These symptoms might have more easily identified causes that are widely recognized, so an explanation might not be necessary. However, there is no clear evidence or patterns that can determine when an explanation of differential diagnosis is needed because there is only one sample.

A greater deviation occurs when the sample only includes one diagnosis. This can be seen in sample six, which only documents that the most likely diagnosis is

> "depression w/ suicidal ideations". (10)

A possible explanation for the presence of only one diagnosis here is that the doctor is very certain of the diagnosis. Since that patient was previously diagnosed with depression and has been on medication, the doctor has more evidence suggesting that the problem is depression. Moreover, the symptoms of the patient are more straightforward and correlate more closely with depression. Other diagnoses are possible, but they might be so unlikely compared to depression that the doctor chose not to include them in the SOAP note. However, no conclusions can be drawn due to a lack of samples with this type of variation and further research is needed.

Samples one, two, three and nine did not include any diagnosis. In all four of the SOAP notes that did not include a diagnosis of any kind, the patients were all doing a follow-up of their respective chronic illnesses. They had no new symptoms to report, so a diagnosis was not necessary. The patient in sample four was also doing a follow-up of his chronic illness, but he was also experiencing a "new onset of chest pain" and the assessment section of his SOAP note included a diagnosis (8). We can conclude that a diagnosis is not included in the SOAP note of patients who are doing a follow-up of their chronic illnesses who are not experiencing new symptoms. However, a diagnosis is necessary for patients doing a follow-up and experiencing new symptoms.

The interview with Dr. Gosukonda supplementes the findings from the literary analysis. She said that she always writes a detailed explanation in her notes because "it's important to let people know why you think what you think." She also said that some doctors prefer to keep their notes brief and exclude the explanation, but she added that "usually it's better to explain...especially if it's a complex case." She also explained that in some cases when the diagnosis is straightforward, only one diagnosis is needed instead of a differential diagnosis (2).

It can be concluded that a diagnosis is required for patients exhibiting new symptoms. A differential diagnosis is more common in patient encounters where the doctors are not certain of the diagnosis. An explanation of the differential diagnosis is not mandatory but helpful to have, especially if that patients' symptoms are difficult to diagnose.

Etiology:

The etiology documents possible causes of the illness. This is different from the diagnosis because the diagnosis states the name of the illness and the etiology states the causes of that illness. For example, if a patient were diagnosed with hypertension, possible etiologies could be diet, drugs, or lack of exercise. Examples of etiologies written in SOAP documents are listed and analyzed below.

Only one guide and two samples included this component. In sample two, the SOAP note documents that "a possible trigger to [the patient's] poor control of HTN may be her alcohol use or presence of obesity". In sample four, the patient's problem is chest pains and the SOAP note documents that the cause of chest pain could be the fact that the patient is eating larger meals at night (8).

A possible explanation for the presence of etiology in these two samples is that the cause of the problem is within the patient's control. In both these cases, the etiology is a habit and is within the patient's control to change. In this case, documenting and telling the patient the etiology is useful because it suggests what the patient should do or avoid to be healthier. On the other hand, the cause of the problem in other samples are not within the patient's control. For instance, in sample nine, the patient suffers from lymphocytic leukemia, which is caused by a genetic mutation (12). That patient cannot do anything to reverse that mutation, so listing out the cause might not be necessary.

Another reason might be because the problems these two patients are experiencing - hypertension and chest pains - have many possible causes, so identifying the specific cause of their case is important. On the other hand, other diseases might have more well-known causes. For example, in sample eight, one of the diagnoses is osteoarthritis (10), a disease that is caused by damage to the cartilage in joints through wear and tear (15). Since there is a single cause to this disease, listing out the etiology might not be necessary.

Another possible explanation as to why this element was absent in the other samples is that there is no clear etiology of the problem. This is the opposite reason as to why the etiology was absent in the arthritis example. For instance, in sample six, the diagnosis was depression (10), which has no known cause (16), so it is impossible to write an etiology. However, since there are only two samples with an etiology component, no definite conclusions can be drawn.

The interview with Dr. Gosukonda gave more insight into this component. She said that it is always good to write down the cause and that she writes it all the time. She explains that it is always good to record the aggravating and alleviating factors of the problem because it shows the doctor's thought process (2).

It can be concluded that the etiology is not a mandatory component, but helpful to include. An etiology is especially common in patient encounters where the etiology is a habit of the patient and within the patient's control. It is also more common if the diagnosis of the patient has many possible causes.

Progress:

This component is where physicians comment on whether the patient's health is improving or deteriorating (4). Doctors state the long-term health goal of the patient and comments on whether the patient is on track of achieving the goal. For example, for an obese patient coming in for a follow-up, the goal might be to maintain the patient's weight within a certain range. The doctor would then comment on whether the patient gained weight, lost weight, or stayed within the weight range.

Samples one, two, three and nine included this component. In the examples, sample one shows a patient whose health is improving, documenting:

> "#1. Coronary artery disease, 12 weeks s/p bypass surgery. Doing well without angina or shortness of breath. Good exercise tolerance.
>
> #2. Hypertension, well controlled on atenolol, since BP less than 140/90." (8)

Sample two documents that the patient's health is deteriorating by stating that:

> "Ms. G is here for follow up of her hypertension. It is not well-controlled since blood pressure is above goal of 140/90." (8)

All four samples that included this component were patients who visited the doctor for a follow-up of their chronic illnesses and have no new symptoms or problems. This component has a negative correlation with the diagnosis component: the presence of one predicts the absence of the other.

CONCLUSION

The results show that there is much variation among components of SOAP notes for outpatient encounters. Future research can further investigate the causes of these variations, allowing people to predict the components that will be present in the SOAP notes given the problem presented by the patient. This research also reveals the limitations of guides for how to write SOAP notes. These guides often list out the components of SOAP notes without specifying the situation in which each component should be documented. SOAP notes are less like a filled-out template and more like a document with many branching paths. Patients with one type of problem require doctors to assess and document certain components in SOAP notes. Making a guidebook with branching paths allowing for flexibility for dealing with different patients can be a future step to take in helping pre-med students write better SOAP notes.

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APPENDIX

1. Interview with Dr. Gosukonda Notes:

What types of documents/ writing do you do?

1. When Admitting patient,
    1. History and Physical. Why did they come? CC? HPI? Past medical history, social history, allergies and medications, family history.
    2. Physical exam, head, heart, abdomen, (listen, press), to legs, check circulations. Lab testing document. X-ray ,CT, if requested.
    3. Assessment: Look at all the objective and subjective data, find diagnosis of patient, what need to be treated
    4. Treatment: change in medication, diet, encourage more exercise etc.
2. Once they are admitted, write a progress note the day after. Do not include histories. Shorter version of H and P.
    1. CC, progress, elaborate on HPI, pain scale from one to ten.
    2. Physical exam
    3. Lab work
    4. Assessment and plan.
3. Discharge note
    1. Why they came
    2. What happened in the hospital?
    3. Assessment and plan
    4. Discharge diagnosis
    5. Follow-ups
4. Consult Note: Admitted by other doctor, send patient to you for check-up in specific problem. Similar to H and P. But is not the primary care giver.

Assessment:

1. Assess patient history in this section.
2. Synthesize information from physical exams. Lab work and CBC.
3. What the problem is. Differential diagnosis: problem is from this...this...this…, explain which one is most likely. Needed when cause of problem is not straightforward.
    1. Sometimes, only one diagnosis is needed. Happens when the situation is straightforward. More experienced doctors can diagnose problem more easily. Everyone is different.
    2. Symptoms that have many possible diagnoses: shortness of breath, diarrhea, vomiting, chest pain, abdominal pain, nausea. Patients have a combination of symptoms. These symptoms are harder to diagnose. Must take into account many factors: history, recent travel etc.
4. Explanation of diagnoses: everybody is different, she usually writes detailed notes, should always tell patient, some doctors write very brief notes. Writing detailed notes is better because it helped other people understand why you think a certain way. “You don’t have to, if it is very simple and straightforward.” “ Usually it’s better to explain...especially if it’s a complex case it’s better to explain why you think what you think.”
5. Summary: “I also summarize too”, you are putting together information. “60 year old gentlemen visiting with history of hypertension and diabetes, visiting with chest pain and

shortness of breath. Congesting, lab work shows …. This is most likely ….” Picking the most relevant things from each section.

6. Types of patients: mostly hypertension, alcohol and nicotine abuse, diabetes. Many many types of diseases.
    1. Depression:
    2. Psychiatric: dementia, depression,
    3. Overnight patients and brief office visits
    4. Patient’s don’t come for follow up. Primary care doctors take care of that.
7. Causes: always write, contributing and aggravating factors, some people don’t write, but it’s good to show the thought process. Record things like drinking too much, smoking too much, state that these are contributing factors.

Background:

- **What’s your specialization?** Internal medicine doctor, like general practitioner/ physician. Only see adults. 18 and up.
- **Where did you go to Med School?** Bachelor of medicine in India, residency in US, then took an exam for board certification. State licenses need to be renewed again. Trained in NY.
- **Where do you currently work?** Georgia

Schooling in Writing:

- **Are you taught how to write in Med School?** The Indian system is different, less documentation. “A Lot more documentation” in the US. spend ten minutes on patient, 30 minutes documenting. Documentation restricts doctors. Needed for insurance problems. Documentation disconnects patient with doctors. Also takes up lots of time, away from clinical work. “Documentation takes priority over patient care”.
- **What types of writing are you taught in school? In residency? Expected to learn as you go?** Hospitals have their own protocols for each disease. That’s how you learn. Then doctors developed their own style, some write more brief notes. Learned documentation mostly during residency. Nobody teaches you how to write.

2. Interview with Dr. Ghosh notes

What types of documents/ writing do you do?

Don't do too much, machines automatically some patient information like vitals, write down statistics, medical history, allergies,
During surgery: document every we do, vitals, bP, pulse,
Recover: How they do after, complications? How well they recover.
Legal document? "If God forbid somethings happens... lawyers will look at the documents."
CYA. Every information, correctly, record everything. Lawyers look into the chart. Can't add anything.

Background:

- **What's your specialization?** anesthesiologist
- **Where did you go to Med School?** Med School and Residency in India, residency in New Jersey again due to laws.
- **Where do you currently work?** New Jersey,

Schooling in Writing:

- **Are you taught how to write in Med School?** In med school for all specializations but each specialization has different documentation, specialization is trained in residency, learn as doing. Observation, they guide you through the process, showing you, go through together. Learn how to graph, fill in charts. Can ask if you have questions.
- **Did you feel prepared to write those documents?** Learned from watching doctors do the notes, doctor will explain each step, can ask attendants.
- **Did you ever google how to write a document? If so, which document?** No, googled personal statement.