

Histories, Note Taking and Clinical Reasoning

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Introduction

A proficient history and clinical examination are central features of medical practice. Together, the history and examination perform several vital functions. They:

- establish rapport between the clinician and patient,
- establish physical contact between the clinician and patient,
- enable an accurate diagnosis to be made (70–90% of all diagnoses are established by the end of the history and examination),
- identify the severity of symptoms,
- determine prognosis,
- improve efficiency and lower the costs of care (as a consequence of clinicians modifying their pre-test calculation of probability of disease and tailoring subsequent investigations appropriately).

It is therefore important for all doctors to both possess the skills needed to perform a comprehensive history and examination, and be aware of the accuracy (sensitivity, specific and likelihood ratios) and precision (degree of agreement between observers) of various aspects of the clinical assessment.

Kichu's thoughts . . .

Do not say Mr Singh is a poor historian. The historian is the one who documents the history! When you cannot take a detailed history, it is often because the patient is unwell, confused or has speech or communication problems.

Using an Interpreter

Many interviews with patients will need to be done with the help of interpreters. It is important to realise that many patients who appear to speak English (or any other language) well, may not actually have the capacity to express higher level concepts well. Interpreters are often underused.

At the start of interviews that use interpreters, try to arrange the seating where the interpreter is sitting to the side of the patient. This will allow you to face the patient directly.

When using an interpreter, you should first introduce yourself to both the patient and the interpreter. If the interpreter has not already done so, you should then introduce the interpreter to the patient. The interpreter and the patient need to talk to each other for a short while before the session begins, to establish who the interpreter is in relation to the patient and why they are there.

You should then brief the interpreter on the topic for interpreting, using this opportunity to explain, in plain standard English, any specialised words or concepts that may be difficult to interpret. Not all interpreters have specific health interpreting training.

Tell the interpreter that during the interview, if they are not clear on something that you have said, they should stop you and ask for a more detailed explanation.

Speak as clearly as possible, using plain standard English wherever possible. Do not speak too fast. Speak in short sentences so the interpreter can remember clearly what you have said. After each statement you should wait and allow time for the interpreter and patient to answer.

Try to speak directly to the patient rather than to the interpreter. This may take some practice. At the end of the interview you should spend a few minutes with the interpreter to discuss any language or cultural concerns that may have arisen.

History Taking

If you listen hard enough, the patient will often tell you what is wrong with him or her. (In an exam it is even perfectly allowable to ask the patient their diagnosis!) If you are not listening carefully to what the patient is saying, you may miss vital information.

One important aspect of medical interviewing is that while a clinician must treat the complaints of a patient as possible evidence of a medical problem, he or she should not view what the patient says as definitive with respect to what the problem is, or even whether a problem actually exists. During the interview the clinician swings between identifying with the patient's conversation in a way that is similar to normal social conversation, and in viewing the conversation itself as evidence that must be evaluated separately to what the speaker is trying to say.

When patients come to doctors, they will usually have prepared narratives of their illnesses to present. The aims of such narratives may be very varied — they may be structured in such a way as to give the doctor a careful, systematic understanding of every symptom suffered by the patient, or may be deliberately misleading — such as if the patient is trying desperately to reassure both themselves and the doctor that they do not have a greatly feared illness, for example, cancer. Narratives may be based on patients' cultural understandings of illness, or be aimed at expressing distress rather than at analysing illness. In rare cases, patients may deliberately fabricate a history to obtain narcotics or other drugs.

The doctor's job is to restructure the patient's narrative for the purpose of medicine — this may include interpreting the patient's narrative in ways that are different to how the patient interprets them, picking on features that the patient finds unimportant, or even minimising factors that the patient believes should be the main focus of the interaction.

Student doctors frequently take the words of patients literally (if, for example, they say they have had a “heart attack” or “asthma”) when they should instead be thinking about what the patient means

by stating this. (For example, a patient who says he/she has asthma may have another cause of breathlessness, and a patient with a “heart attack” may have had a cardiac arrest or suffered a broken heart from a failed romance.)

Some doctors may conduct interviews by firing a series of closed questions at patients. This is efficient in some situations where there are limited responses required (such as the decision about whether to remove a plaster) but it risks making major mistakes in diagnosis, and fails to establish rapport. These faults can be avoided by moving gently from open questions towards closed questions (although there are exceptions to this rule in some styles of interviewing as discussed below).

When doctors record the histories that they take from patients, they generally do it in the following order:

1. Presenting symptoms
2. History of present illness
3. Past medical/surgical history
4. Medications
5. Allergies
6. Smoking, alcohol and illegal drugs
7. Family history
8. Social history (including occupational history), followed by
9. Examination
10. Diagnosis or problem list
11. Further investigations
12. Treatment

As medical students are taught to record histories in this way, many doctors also take histories in this order. Those who use this method tend to open the consultation with some identifying data (name, age, occupation, etc.) and some general rapport-promoting questions and then proceed to ask questions in the order that they will record it.

This style of interviewing has many advantages: it flows naturally, as the patient begins with the problem at hand and then delves back into their past. It also allows doctors to write the history as it

is given, and they will not generally need to append or modify their notes, thus saving time. This style of history taking also allows doctors to move from open questions (such as “How are you?” or “Can you tell me what’s the matter?”) to closed questions (such as “Have you got any allergies?”, or “Do you smoke?”.)

However, there are also a number of problems with this approach. Firstly, it does not easily adapt to patients with multiple problems. Secondly, there is often a clear logical link between items in the social history, drug history or past medical history and the presenting problem, which are better brought out early in the case rather than inferred by the reader at the end. (For example, if a patient with fevers has lived much of their life in the tropics, or a patient with dyspnoea is a heavy smoker, or another patient with dyspnoea is able to play an entire game of football.) There may also be clues in the medication history that point to further medical problems. (For example, a patient with a long history of dyspnoea might reveal that he or she takes antihypertensives, gout medication and antidepressants, but not give any history of hypertension, gout or depression.)

There are several other ways of taking a history. One approach is to start by asking the patient for a *list* of their problems. (Often this method is used in a long case for the postgraduate examination, when there is a limited time to complete the history and examination.) At this stage of the interview, the doctor does not seek any more information about these problems, but merely seeks to list them, and may have to cut the patient off if they try and explain more about each problem. Once this list is finished, the patient is then asked to list their medications. If any other medical problems are suggested by the medication list, these are checked with the patient, and then added to the original problem list. (For example, a patient on long-term warfarin may not have told you about his/her history of pulmonary embolism three months ago.)

The doctor then asks for detailed information about the patient’s current level of functioning and activities — their work, their other activities, how they spend their day, why do they have any limitations, etc. The aim of this part of the consultation is to examine the

context in which to understand the patient's problems. The doctor also asks in detail about family history, to see if there are underlying hereditary factors that may expose the patient to an increased risk of disease. Habits such as drug and alcohol use, and allergies are also asked at this time.

Occupational history is also important. A patient with shortness of breath may have been exposed to coal dust or asbestos. If a patient had a funny turn and he is a train driver, it may have major implications in future management.

The doctor only goes back to the patient's problems once he or she has a clear understanding of the context in which these problems should be viewed. The doctor then focuses on each problem in detail, and can link them with underlying social and hereditary factors and with each other with comparative ease.

The advantage of this method is that it tends to be very time-efficient, particularly for patients with multiple problems. The logical cause and effects of problems are explored in an appropriate time frame (i.e. going from the underlying cause to the effect), and little is left out. This method can be adapted easily to oral presentations, by writing each section and problem on a card, and shuffling them at the end to put them in the traditional order (although this should not be allowed to obscure the cause and effect relationships).

The problems with this method are that patients may feel as though they have lost rapport with the doctor in the early stages, where their story is interrupted, but this is usually made up later in the interview by the concentration upon social factors. It may also feel unnatural to the doctor. Doctors must begin with a series of closed questions to make the original problem lists, and only ask open questions later in the interview. In situations where the interview must progress through a translator, it can be difficult to capture the social flavour of interactions, and the first method may be easier.

In clinical practice, it is our experience that few patients have detailed medical histories recorded, apart from those with difficult medical problems. For many patients, the scope of the interview will be much narrower (such as in an orthopaedic clinic where the doctor

is merely attempting to see whether the plaster can be removed). In other cases (such as in general practice) a picture of the patient may have been built up over a long time, and each consultation only adds a small amount to the underlying picture.

Sometimes after the history and physical examination, you may have to ask a few closed questions. For example, after you find bilateral ballotable kidneys, you may want to explore a family history of polycystic kidneys, cerebral aneurysms and hypertension to tighten up the diagnostic process. What is important is that doctors need to be flexible in their history taking, and continue to be open to the need for a more thorough history where it is required, and be capable of obtaining such a history.

In general, it is best if doctors can practise a number of different interviewing styles and use them as the circumstance requires. (It is worth noting that a university exam would not be a good time to try out a new method of history taking for the first time!)

Presenting a History

It is customary to start presenting a history with a patient profile (i.e. “Mr Jones is a retired truck driver.”). Some presenters attempt to make themselves look a little better by commenting favourably on the patient’s demeanour (“Mr Jones is a very pleasant retired truck driver”) or by adding colourful information (i.e. “Mr Jones is a very pleasant retired truck driver who is a great fan of Elvis”). Although they may be useful at times, these tactics should be used sparingly, as they may distract the listener.

At the beginning of a history presentation, the listener should be informed about where the presenter is going (i.e. “Mr Jones was admitted with fever, cough and confusion. The story of his illness began...”).

When a doctor has an underlying theory about the patient’s illness, this should be stated overtly to the listener or the reader, who should not have to infer it themselves. So for example, if a young woman presents with dyspnoea, the doctor should not simply state

that the patient does not take contraceptives, and leave the listener to infer that he or she is attempting to rule out causes of pulmonary embolism. A better statement would be “The patient has no risk factors for pulmonary embolism, in particular she does not take contraceptives, has had no long trips recently, and has had no previous or family history of coagulation abnormalities.” In this way, questions that refer to certain hypotheses should be explicitly linked to those hypotheses during the presentation.

For many diseases, there are a number of important aspects of history that should be grouped together, rather than scattered throughout the history. For example, if a patient presents with ischaemic heart disease, the risk factors of smoking, family history and hyperlipidaemia should all be dealt together in the history of the presenting illness, rather than in their usual places. (i.e. “The only risk factor that this patient has for ischaemic heart disease is that he smokes 20 cigarettes per day. He does not have any family history, and does not have high cholesterol.”) Relevant negative findings may be included within these groups of findings. Laboratory data may also be sometimes included briefly in the history of presenting illness or past medical history if it is necessary to understand the story in a logical way.

Medical students are usually directed to ask a wide range of general questions about body systems as part of a systems review. While these should be recorded in the notes, they should not be repeated in verbal presentations. If a relevant positive or negative finding comes up in a systems review, it should be included in the past medical history or history of present illness. An important key to making oral presentations is to know what to include and what to leave out.

If you have placed a piece of social or other history into a part of the history where it does not normally get covered (such as smoking history in the presenting symptom of weight loss and haemoptysis), you should not repeat it later. The aim of the presentation is to briefly but thoroughly explore a patient’s problems, not to slavishly follow protocols for discussion.

It should be noted that it is possible to be overly narrative in a presentation. (“First the patient went to doctor A who said this, then

he/she went to Dr B who said that, then he/she went back to doctor A, etc.”) Remember that a medical history is a particular type of narrative that aims to show cause and effect in order to make sense of the story, not necessarily to render a historically accurate account of a person’s business.

Presenting the Examination Findings

At the end of an examination, doctors are expected to present their findings in a logical, systematic way. They are also expected to present a diagnosis if possible and to lay out the course of action that should follow from the findings that they have observed.

There are a number of ways that findings can be presented. In an assessment situation, where everyone is highly stressed, it is probably best to report the findings in the sequence in which they were discovered. This way nothing important will be forgotten. After this, the doctor should briefly summarise the important points, give a diagnosis, and possibly a differential diagnosis, and then report where they would go to next. When doctors are summarising their findings, they should not re-state everything again. A summary should summarise (i.e. stick to one or two sentences)!

Kichu’s thoughts . . .

If you hear hoofbeats outside, it is more likely to be from a horse than a zebra. But to make medicine more interesting, it is occasionally a zebra, not a horse!

Making a Diagnosis

The medical history attempts to create a narrative, in which a number of symptoms and signs are placed into a structure of cause and effect. Most fictional stories have an introduction, a temporal sequence and a conclusion. The same is true of medical histories, although this is not always how patients present their stories to the doctor. The doctor attempts to place patient’s symptoms into a story

that is coherent, and which may then suggest a number of possible theories about what is wrong with the patient.

In general, doctors pick their theories about what is wrong with their patients using several principles that sometimes conflict with one other.

The first principle is that attempts to explain signs and symptoms should follow a logical time sequence. For this reason, the timing of all symptoms should be pinned down as clearly as possible. For example, if a patient presents with diarrhoea, and is known to be on antibiotics, the diagnosis cannot be completely explained by antibiotic-associated diarrhoea if it is known that the diarrhoea was present before the antibiotics commenced.

A second principle is that doctors should attempt to explain the signs and symptoms by starting with common diseases and only move on to less common diseases if things cannot be explained with a common disease. A number of old sayings in medicine involving zebras and other exotic animals attest to the usefulness of this principle. For example, a patient who presents with overweight and abdominal striae is more likely to suffer from plain obesity than from Cushing's disease. (However, it may also be important to rule out Cushing's disease as explained below.) An important limitation of this principle arises from the fact that rare diseases will never be found unless they are looked for, thus doctors must keep their minds open to the possibility of rare diseases, while concentrating upon the probability of common diseases.

A third principle is known as "Ockham's razor". Ockham's razor states that one should not multiply causes unnecessarily. In other words, a simple explanation is more likely to be correct than a complex one. Doctors will therefore first attempt to explain patients' symptoms by using a single disease. If this is not convincing they may attempt to explain it with a number of related conditions, and finally with a number of unrelated conditions. For example, if a young man presents with haemoptysis and haematuria, the doctor may think either of Goodpasture's syndrome (a single disease that explains both symptoms), or Ig A nephropathy with a respiratory infection (diseases which together will cause the clinical picture), or

simultaneous chest and urinary infections (unrelated diseases that together will cause the syndrome.) Ockham's razor would suggest that Goodpasture's syndrome would be the first disease to rule out.

A fourth principle that is commonly used by doctors, is that if a diagnosis has severe implications, it should be included as a possibility in order to rule it out. For example, a patient who presents with atypical chest pain will generally need further investigations to rule out ischaemic heart disease, even if the chest pain seems unlikely to be ischaemic in origin, because the consequences of missing a diagnosis of ischaemic heart disease may be serious.

It is also possible to use more quantitative approaches to diagnosis. Such approaches form the basis of a number of computerised diagnostic algorithms which are becoming more commonly used in medicine. Many of these algorithms are based upon Bayes' theorem. Diagnosis using Bayes' theorem begins with the clinician estimating the pre-test probability of the patient having a particular disease. This would be usually estimated by the underlying epidemiology of the disease and the clinical picture of the patient. This probability is then expressed as the odds that the patient will have the disease.

Test results (or even the results of clinical examinations) can then be put in the form of "odds ratios", which in turn can be combined with the pre-test likelihood of a disease, to make a more accurate estimate of the odds that a patient has a disease (the post-test odds). Post-test odds are then converted into post-test probabilities of the disease.

For example, if I believe that a patient has a pre-test probability of having a pulmonary embolism of 20%, this can be translated as odds of 1:4. A strongly positive VQ scan has an odds ratio of close to 7, which can be multiplied by the pre-test odds to give a post-test odds of 7:4 or 63%.

Kichu's thoughts . . .

A young person with multiple organ involvement may have multisystem disease, whereas older patients may often have multiple diseases of multiple systems. Ockham's razor is often not applicable to older patients!

How to Communicate Effectively in the Chart

The Purpose of Medical Records

The primary purpose of medical records is as the note-taker's record of the encounter. Notes should therefore include both factual data and a record of the intellectual process that the author went through so that he or she can refer to this at a later date. Secondary purposes for medical records include for communication with other team members, and for medico-legal purposes, for quality assurance activities and for later audit and research. What is written in the medical notes may eventually impact on resourcing, planning and healthcare research.

In order for medical records to fulfil these purposes, it is essential that they are legible. Anyone who writes in the record must be certain that the following points are clearly identified:

- Patient ID (name, date of birth, HRN)
- Your identity (rank or unit)
- Date and time
- Purpose of record (e.g. "Ward round" or "Asked to see patient re breathlessness")
- Source of information (e.g. patient, relative)
- It is often useful to list the hospital day, the post-op day or the duration of antibiotics
- Signature

The Format of Medical Records

There is no standardised way to write in the notes. Different methods of note taking are required for admission notes, progress notes, discharge summaries and outpatient records. In the future, hospital records are likely to become increasingly computerised, so it is important that the techniques used for writing notes can be adapted to this. (Notes are already computerised in many practices and hospitals.)

The main approaches to note writing that are used are variations on the “Patient-Oriented Medical Record” and “SOAP” as described by Weed in 1968/1969. Weed’s method of note taking depends upon making a numbered problem list for each patient, and then addressing each active problem in the notes each day. The problems are each addressed under the headings Subjective, Objective, Analysis, Plan (SOAP). Weed also recommended the use of a flow chart for recording pathology results.

Most physicians today use modified versions of Weed’s method. The most common modification is to use a problem list followed or preceded by a narrative. Unlike Weed’s approach, the problem lists are rarely formally numbered or addressed by number in the notes. Most medical units include problem lists in the admission notes. Some physicians prefer the list to be written separately on a page at the front of the patients’ notes.

Problem lists need to balance conciseness and thoroughness (e.g. if “urinary tract infection” is seen as one problem, “leukocytes in urine”, “fever”, and “dysuria” should not be listed as additional problems).

Each of the problems is addressed daily on the ward round. If a problem is no longer important, the list can either be re-written, or a dated note made on the original problem list informing that this problem is now resolved.

Many residents also find that the SOAP acronym a useful way of organising their daily notes. This can either be done as Weed intended — with a new SOAP written for each problem, or with a single set of headings that address all the problems.

Flow charts of pathology results are frequently used in ICU, renal wards and other highly technical areas. There is an increasing tendency to not document results obtained from the computer, which is risky both legally and from the point-of-view of efficient decision-making. Important results from the computer should be written in the progress notes to document that the team has discussed them. The team’s interpretation of these results should also be noted. Flow charts of results should probably be used more commonly.

The Language of Medical Records

The language of medical records must be respectful of the patient. You should not use disrespectful descriptions of the patient or their condition (such as “gomer” or “acopia”), no matter how amusing these might be. These look very bad when read out in court! Similarly, you should not use abbreviations that are not easily understood or universally acknowledged. RDH (Royal Darwin Hospital) is an example.

You should avoid criticism of other care-givers in the notes. This might otherwise lead to legal action. Short, simple sentences are best (e.g. “Mr Jones is breathless at rest.”). Headings and dot points are encouraged. Medical teams find it useful if the medical notes stand out from the other notes (although this can often be inferred from the quality of the handwriting). Leaving some space before and after the medical notes helps with this. There is an extremely limited role for the use of different coloured pens and other such tricks.

Direct quotes are often useful (e.g. “Patient says that ‘He would rather die than go to a nursing home.’”). When dealing with a difficult patient or family, write down what was said (e.g. “In the family meeting we advised then that the patient was unlikely to return home but would need nursing home placement.”). It is often useful to read the notes back to the rest of the team at the end of the consultation.

The Content of Medical Records

Medical records should include both the objective findings and the thoughts of the team (e.g. you should not write just “LVF” or just “JVP elevated”. Both should be combined “Elevated JVP — likely LVF.”) Where possible, observations should be quantified (e.g. “He is tachypnoeic rate 24.”). When abnormal laboratory results are seen, they should usually be commented on, e.g. “Creatinine is rising (today 224) likely due to gentamicin.”

Wherever possible, you should explain the team’s thinking in the chart. If it is not apparent to the note-taker, he or she should ask for

clarification, e.g. “Mr Jones’ confusion is likely to be due to a combination of sepsis and underlying dementia” or “Anaemia noted: If it continues tomorrow we will transfuse.” (This is particularly important because many notes are reviewed for evidence of mistakes of management as part of quality assurance activities. If it is not clear why changes to management are made, it is difficult to assess whether the changes were appropriate.)

It is sometimes useful to communicate with other disciplines in the notes (e.g. “Question for surgeons: When do you intend to remove NG tube?” or “Question for physio: Shouldn’t this man have a frame rather than a stick?”).

Legal Issues

From a legal perspective, the main value of medical records is that they provide a record of happenings. They will therefore be preferred over most verbal testimony if the two are in conflict. Medical records that are incomplete, or those that appear unreliable (i.e. if they appear to have been amended), or records written after the event, are all less valuable. In addition to the suggestions above, legal sources suggest that you should, where possible:

- write notes yourself and sign them;
- never sign an entry on behalf of another staff member;
- do not edit the notations, even for legibility;
- if errors occur, cross out the inaccuracies and initial and date them with a margin note explaining the reason for the change;
- take great care when transcribing treatment orders or reports from an original order or report.

Medical records contain information that is a private matter between the patient and the treating team. Medical students and doctors have sometimes been observed looking up the records of friends and family members who are currently patients. This is entirely unacceptable, unless both patient and treatment team have consented.

Medical records are referred to frequently throughout the day's work. They should not be removed from the ward, and if they are taken to a private area on the ward, the ward clerk should be aware in case they are required.

There are many legal requirements concerning the privacy of medical information. There is not enough space in the current document to detail these, but students need to be familiar with them.