An Introduction to Tutorials at HMS

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Introduction

"It's not about learning facts. It's about learning how to think…"
-- HMS Year 2 student referring to tutorials

At Harvard Medical School, approximately half your class time in the first two years will be spent learning in the tutorial setting. For some of you, this idea – working together with others in a small group setting – will be familiar from your previous education. For many of you, though, this is a major leap. Your Harvard Medical School tutorial experience will be the first time you have a chance to really try out this mode of learning. To help you get the most out of your tutorials, we have created this introductory guide.
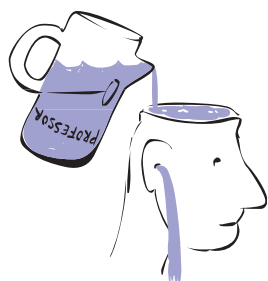
Our goals for this guide are to:
1) give you an idea of why tutorials were chosen to be such a major part of HMS
2) help suggest what you can do to create a positive learning environment
3) help you understand what is expected of you as an individual and as a member of the group
4) help you understand what you can expect from your tutor
5) describe types of questions that will be useful in any tutorial
6) give you strategies for dealing with difficult tutorial situations (including where to turn for help if you need it)

Throughout the guide, we have chosen to include quotes from HMS students to "put a voice" to the points being made in the text. All student quotes are used with permission from focus groups we conducted regarding the tutorial process. In some cases, we have also chosen to include tutor quotes to lend another perspective; almost all of these quotes (with a couple of exceptions noted) are taken with permission from an extensive set of interviews we conducted with experienced HMS tutors. Our sincere thanks go to the students and tutors for sharing their thoughts and wisdom with us and allowing us to pass that along to you.

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Why tutorials?

Less of this

More of this

Adult learners...
1) are self-motivated
2) are self-directed
3) have diverse backgrounds that form a rich resource for learning
4) are interested in learning in context
5) want to see relevance

Constructivism -- A theory which suggests that learners construct their own knowledge and understanding.

A subtitle of this section might be, "Why can't they just *tell* us the information that we need to know?" On the surface, tutorial may seem inefficient, sometimes wandering around in discussion when someone knowledgeable could be giving a lecture on the topic. Yes, there can be frustration involved in learning from discussion, but there are good reasons for you to be learning medicine in this way. In this section, we describe these reasons and give you a brief history of how tutorials started at HMS.

Things weren't always the way they are now in terms of the structure of HMS. Before 1985, students at HMS (many of whom are now your teachers) learned during their first two years by sitting in lectures all day long (and Saturday mornings!). Expert after expert would come before the class and transmit information to the entire group of students. This was very much the way learning was viewed at that time: information transmission, with the student as a passive receiver, a vessel into which knowledge could be poured.

In 1982, the dean of the medical school, Dr. Daniel Tosteson, introduced a proposal for a curriculum called the New Pathway which would emphasize small-group sessions, problem-solving, and self-directed learning. This was a radical shift from the previous model; students would be treated as motivated adult learners in charge of helping form their own learning agenda. As stated by one of the original tutors in the New Pathway, "From the beginning, you deal with students as mature individuals who can take care of themselves…In this setting, you trust them from the very first."[1]. After several years of planning, HMS accepted 25 students into the new program in 1985. By 1987, HMS had expanded the pilot program to include the entire entering class other than the Health Sciences and Technology (HST) program.

Why did Tosteson and his team choose to re-structure the curriculum in this way? The New Pathway was based on a theory of learning called 'constructivism' as well as on the principles of adult learning. Adult learning assumes that you as a student: 1) are self-motivated, that is, you are here because you want to learn medicine; 2) are self-directed, that is, you deserve to play an important role in setting and pursuing your learning agenda; 3) have a diverse set of experiences and prior knowledge that form a rich resource for learning; 4) are more interested in problem- or patient-centered approaches than in subject-based didactics; and 5) want to see the relevance of what you are learning to your future life as a doctor.

Constructivism goes beyond this and asks "How do people learn best?" This learning theory is based on the premise that you construct *your own* understanding of what you are learning and need to generate *your own* rules and mental models to make sense of your experiences. In other words, learning is an active rather than passive process; internalizing important concepts requires you to engage the material and develop your own intuition.

In short, your learning will be deeper and more durable if you struggle to figure

things out than if you are just handed the information. This can be tough to accept; in the short term, it often feels better to have someone simply tell you the information, but you will get more out of tutorial if you keep in mind that the effort is worth it.

The following list summarizes some of the advantages of tutorial learning:

1) *student-centered* -- fosters active learning, improved understanding and retention, and development of lifelong learning skills
2) *competencies* -- allows development of skills and attitudes desirable in future practice
3) *integration* – lends itself to creating connections between topics
4) *motivation* – encourages enjoyment of learning, requires all participants to be engaged in the learning process
5) *depth of learning* – fosters depth of learning through interaction with the material and relation of concepts to patient cases
6) *constructivist approach* – respects that students learn by activating prior knowledge and building on existing conceptual models and frameworks

(list modified from Wood, DF. Problem based learning. BMJ 2003;326: 328-330.)

Like any single approach to learning, tutorials have their disadvantages. Two of these that you should be aware of are *information overload* and *inter-tutorial variability*. *Information overload* refers to the fact that medical knowledge is so broad that it is easy to be unsure of how much self-directed study to do and how to determine what information is relevant and useful. This is not specific to tutorial; it is part of life in the medical field, and tutorial will help you learn how to navigate this challenge. Focusing your efforts will also be one of the things your tutor can help you with, as described later in this guide.

Inter-tutorial variability refers to the inevitable differences between tutorials. The perception that others are getting essential information in their tutorials that you are missing can become widespread and at times lead to anxiety bordering on panic. In our experience, and in the experiences of the students who have come before you, this belief is almost never true. One of the beauties of HMS is that there are multiple learning formats (lectures, minicases, labs, etc.); knowledge that is considered essential will always be covered in more than one place in the curriculum. Don't stress if you hear that Jane's tutorial down the hall had a wonderful discussion of heart failure; you will have many chances to learn this.

"Yes, it's frustrating when one group has gone over a big concept that was talked about in lecture and you feel like you were ripped off in that way, [like you weren't] going to know something that everyone else knew. That's not really the case. Tutorial isn't about that."
– HMS Year 2 student

The following table summarizes some of the other tensions you may encounter in the tutorial process.

Table: Why is there tension involved in learning this way? or "You may experience some discomfort…"

TENSION BETWEEN:		
The way you have been taught in the past	AND	The way you are being asked to learn now
Competing, being better than others, displaying knowledge (What you have been rewarded for in the past)	AND	Cooperating and teaching each other
Desire to be taught and just be told what you need to know ("my tutor is an expert on this topic and/or can explain things so well – why don't they just teach me about this?")	AND	The need to figure things out to have a deeper and more lasting understanding
Wanting to know that you covered all the things you needed to in tutorial, including what was talked about in other groups	AND	Having the freedom to pursue potentially useful avenues of discussion, realizing that you will get what wasn't covered in tutorial from other parts of the curriculum
Previously coping by memorizing	AND	Now assimilating new information by thinking and understanding
Previously focusing on content only	AND	Now paying attention to content and process, with *how* you learn being as important as what you learn

You are being asked to learn in a way that may not come naturally to you. Expect it to feel somewhat uncomfortable at first. Some degree of faith in the tutorial method is required.

"Tutorial is probably one of my most fun times of year. It is certainly one of the most rewarding times... most of us have gone into the profession in part because we're closet teachers..."
-- HMS tutor

Your teachers certainly believe in this way of learning. After all, it was not chosen for its convenience; it is a more difficult way of teaching to master than lecturing, and requires far more resources in terms of faculty and training. Many of the original New Pathway tutors came on board because they were dissatisfied with the way they had learned medicine (primarily through lectures and rote memorization) and believed there had to be a better way. Here is some of what tutors have had to say about the introduction of tutorials into the curriculum: "What I think is wonderful about the [curriculum] is that it doesn't stultify the inquisitiveness but rejoices in it."[1] and "I was fascinated because I hated [medical school] with such a passion that I felt I should really put my money where my mouth was…My real burning interest is in teaching. I get really fired up about how we teach people and how they learn…"[1] Self-directed learning doesn't mean you are alone; your tutors are there to help you succeed.

[1]Wilkerson L, Maxwell JA. A qualitative study of initial faculty tutors in a problem-based curriculum. Journal of Medical Education. 1988; 63: 892-899.

How can I help create a positive learning environment?

"I think tutorial here at HMS is the first time in my whole education where I felt like it was OK to be wrong ... the rest of your education when you're at college and you're in high school if someone asks you a question, you need to know the right answer. …[It] helps you grow to not be afraid to be wrong and to ask people questions when you really don't know."
-- HMS Year 2 student

"The only other important thing I would mention in terms of advice is being OK to just be open and ask questions and say wrong things. That if you have some idea in your head that you just need to get out and say, "What's wrong with this idea that I've come up with?", then get it out. Absolutely spit it out. Be vulnerable in front of that group."
-- HMS Year 2 student

The right learning environment allows you to feel safe enough to take risks, to be wrong in front of your tutorial group, and to ask questions without first knowing the answer. What are some of the ways you can achieve such an environment? The tutor is a factor, and we deal with their role more in the next section. Here are our suggestions of ways you can help create the right atmosphere (not in order of significance).

Appreciate diversity – Diversity comes in many forms. Your fellow students will bring their unique backgrounds and personalities to the discussion table. They will pose questions you did not think of (or were afraid to ask), and have styles of learning and ways of interpreting the material that won't always match your own. Rather than view these differences as a source of friction, keep an open mindset and you will be surprised at how much you have to learn from your classmates. In a practical sense, the more ways you have of looking at problems, the more chance you will have of coming up with answers.

"I think it's really important to go in with an open mind to be yourself and be open to other people and be aware of how they respond to you…to work to let the group really come together and enjoy that… I've had moments of being really amazed by how well a group that I would never have pictured can work well together."
-- HMS student

Show respect – Give each other a chance. Civility sets the tone of the group. There will be times when you may want to shout at one of your classmates, but you should be able to show restraint and even genuine respect if you try. Tutorial is not just about learning content; being able to negotiate the process is a skill that will come in handy for your future when you have to work in teams. Put-downs, comments that embarrass others, sarcasm, and interrupting or talking over someone else – these are all behaviors that make people afraid to speak freely and which you should avoid.

Listen – Many of us have a little launching pad in our minds where we are preparing our next payload of brilliance while someone else is speaking. Often, we are so busy mentally rehearsing our impending piece that little attention is paid to what someone else is saying. If you can practice focusing on and understanding what someone else is talking about, you will find that you get more out of the discussion. In the future, this skill will help you hear more of what your teammates and your patients are telling you, and goes hand in hand with the empathy required in the medical profession.

"You learn how to listen to other people instead of just thinking about what's going on with your train of thought and not listening to what other people are contributing."
-- HMS student

Cooperate rather than compete – This message can't be over-emphasized. Up until now in your education, most learning environments you have been in have rewarded competitiveness. One of the previous goals was to do better than your classmates. It is difficult and disorienting to suddenly switch gears and be asked to work together. The conditioned response is to look for who is evaluating you (the tutor in this case) and try to impress that person. Your tutor, believe it or not, will not be impressed by displays of knowledge; instead, the tutor is looking for how you teach others and learn with the group.

Having a chance to teach others is an amazing learning opportunity – use it. One rule that new tutors are taught is that in a healthy tutorial group, the tutor ends up speaking about 1/nth of the time if there are n people in the group. The same is true for you; teach others but don't dominate. When you chose to come to HMS, you signed an implicit contract to learn and teach others in the tutorial setting, and this involves not speaking too much or too little. While dominant students may represent a more obvious disruption to a good learning atmosphere, it is also not value-neutral to sit back and just listen without making a contribution. There are those of you who may say, "Well, I'm just naturally quiet. I'm still paying attention and learning from the group, so what's wrong with that? What about respecting *that* kind of diversity?" Tutors and groups do respect that, but you should recognize two things – first, having one or more members be too non-participatory can have a negative effect on a group, and second, the ability to express your thoughts and teach others will be valuable to your future in medicine; view this as an opportunity to practice these skills without fear of negative consequences.

Prepare -- Having read and thought about the material between tutorials makes a tremendous difference as to the level of the discussion. When you start with some basic knowledge, the group can use the discussion as a launching point for discussing confusing areas, making connections between topics, relating these points to a clinical case, and so forth. The group just "pops" more when everyone has done some homework.

Take risks (don't be afraid to be wrong) -- The student quotes at the beginning of this section stated this well. A natural tendency is to only come out with things you know are right so as not to look like a fool in front of the group. Avoidance of shame is a powerful motivator. Trust of the group is not something that develops instantaneously, but as it does, you will shed this fear of embarrassment. Tutorial is a place to take risks and to bring things before the group that you aren't sure about. A collective atmosphere of safety will allow the group to be innovative and travel on unknown ground. Establishing this atmosphere depends on your mindfulness and sensitivity, along with the other factors described in this section.

Don't try to appear as if you know everything -- As stated previously, your tutor is not looking for overt displays of knowledge. Frequent attempts to demonstrate how much you know will make you annoying to your classmates, and won't get you far with your tutor, either. It's OK to say "I don't know" when

you are not sure; this will not decrease your value as a person. In fact, your tutor and group will likely respect you all the more. In addition, good questions are often as valuable to your group's learning as good answers; practice overcoming your fear of asking when you don't know.

Be open and candid -- This goes along with being able to admit when you don't know something. Being honest and admitting fallibility is a virtue in tutorials. Openness includes other aspects as well. For example, as trust in the group develops over time, you may feel more comfortable sharing relevant personal experiences. Some of the most memorable learning moments have come from group members relating a personal story of illness or a memorable patient experience.

The last three points in this section involve allowing yourself to be vulnerable in front of your group. You should recognize that this will take time to develop; the first few sessions with a group where you don't know the members are not necessarily conducive to this type of risk-taking. As you progress through years 1 and 2 and get to know your classmates better, these skills will come more easily.

Table: Specific behaviors that help create a positive learning environment

DO:	DON'T:
Respect others Appreciate diversity and view it as an important aspect of learning Be civil Say when you don't know Be candid and open Be curious and inquisitive Ask questions Prepare Teach each other Talk about 1/nth of the time (where there are n group members) Listen closely to what others are saying Try to relax – tutorial can be fun	Come out with frequent displays of knowledge to try and impress the tutor Be afraid to be wrong Interrupt Embarrass others for their contributions Be sarcastic Dominate the group Speak too little

What's expected of me as an individual and as part of the group in tutorial?

"Tutorial is about having a self-directed learning attitude and being responsible for your own learning. You also need to share your learning with others."
-- HMS Year 2 student

"The really amazing times in tutorial are when the students have been struggling on something for a long time and then there is an 'aha!' moment as they figure it out. You know they got to something as a group that they couldn't have on their own."
-- Experienced tutor

As a student in the tutorial system you have a unique opportunity to work with other students and a tutor to direct your own learning and to participate in a group of learners. Your roles as a member of the group may include asking questions, drawing diagrams or making notes on the board, extending another student's explanations, listening critically, proposing explanations, asking the group to slow down, just to name a few. You will be expected to deepen your understanding of not only scientific and clinical material, but also of processes such as identifying common goals as a group, mediating difficult situations, and building effective teams.

What responsibilities do I have regarding attendance and preparation?

Since the tutorial experience is the cornerstone of the curriculum at HMS, attendance at all tutorial sessions is required. You are expected to be present and ready to begin each tutorial session at the agreed upon start time. *The tutorial method relies on students to teach each other, and therefore your presence at each session as a colleague and teacher is highly valuable to the group.* Conversely, being absent or not preparing will negatively impact your group's ability to learn as a team.

When illness, unexpected responsibilities or emergencies arise that necessitate your absence from tutorial, it is your duty to inform your tutor and your group as soon as you become aware that you will need to be absent. Any last minute emergency should be communicated to your tutor as soon as possible. Tutors are responsible for maintaining attendance records, and recorded absences are automatically communicated to course directors and your society.

Preparing to contribute to the tutorial group is at least as important as attendance. It is your responsibility as a medical professional in training to engage in self-directed learning outside of tutorial and come to tutorial sessions prepared to discuss case material with the goal of furthering the group's learning.

What roles can I explore in tutorial?

In tutorial you have the opportunity to try out different roles that you may never have felt comfortable experimenting with before. One of the most empowering aspects of tutorial is the chance to change your typical way of interacting with others and then reflect upon how your new role affected your experience and the way others related to you. The roles below are by no means the only ones available to you. Try them out or invent new ones.

Listener – All group members need to spend the majority of their time in tutorial listening to others. Listening is not simply the absence of speaking; rather it involves paying attention to what someone else is trying to communicate. When you are listening in tutorial, pay attention to the material that is being conveyed, the questions that are raised, and the way the speaker is presenting the material.

Teacher – In tutorial you have the chance to teach others about the material you are learning. Teaching is often the best way to solidify material and find gaps in your knowledge. You have significant past experience being a student, so why not use this opportunity to hone your teaching skills. As a teacher your goal is not to prove how much you know, but to increase the understanding of other students. Remember that you are not restricted to verbal teaching only; you should feel free to try out visual and hands-on methods to teach a concept. Be creative and have fun with it!

"You learn how to boil down and crystallize information. You will have spent two hours reading in a textbook. Can you create a quick two minutes of bullet points to then effectively teach to other people? It's helping you reinforce the material for yourself and learn how to teach."
-- HMS Year 2 student

Questioner – As we discuss elsewhere in this guide, questions are a vital part of the tutorial. If you have previously thought that you had to know all the answers in class, in tutorial you can try out asking questions of others instead. Well-chosen questions can lead a group in interesting new directions or shed light on underlying assumptions.

Integrator – The tutorial group will often cover significant ground in discussions, and the ability to put together the material that has been discussed, present this synthesis to the group, and suggest new avenues for investigation will often be necessary.

Leader – Leading a group is a useful skill for medical professionals to cultivate. The leader pays attention to the overall trajectory of the tutorial session, the contributions and engagement of each group member, the goals of the session, and even the time constraints. The leader may consider the motivation of the group, how the discussion is flowing between participants, whether there are any conflicts that need addressing, and how the group should plan for the next session.

"It was helpful to have somebody in charge that was one of you, and to be in charge and to experience other people being in charge and to see how different people do it."
-- HMS Year 2 student

How can the group work together in tutorial?

At HMS you will rotate into different tutorial groups for most courses and have the chance to work with many different types of people. Sometimes

your group will work seamlessly from day one and sometimes there will be challenges to surmount. At its best, a group can work together to challenge each individual's knowledge and construct new understandings; at its worst it can allow itself to sink to low levels of engagement and end up as a wasted opportunity. The following suggestions are just a few of the ways you can work to establish an effective group (also see the previous section).

Respect silence – Allowing space for silence in tutorial is vital to a successful group. Different people process questions and ideas at different rates, and everyone benefits from time to think things through. Realize that silence may feel uncomfortable, but that having this space to think often improves the quality of subsequent discussion. If you are someone who enjoys rapid-paced exchange of ideas consider that there may be someone else who would benefit from time for reflection.

Consider agendas and reports -- Many groups develop learning agendas with questions or topics to investigate between tutorials. These learning agendas may include topics that students will look up as individuals, in pairs, or that the whole group will investigate. A pitfall in creating individual assignments can be so-called "mini-book reports" that students prepare and present during the following tutorial. As a third-year remembers from one of his tutorials, "We would spend 75% of the time going over stuff we looked up and it wouldn't even be an intellectual discussion. It would [just] be going around the table and [saying] what we looked up." Second years recommend that you consider carefully the educational value of these reports, the portion of time your group believes should be devoted to them, and the manner in which the new information is presented. You can experiment with different learning agendas and presentation or discussion formats.

Resist comparing groups -- Second year students encourage you to resist the urge to obsessively compare your group to other groups your friends are in. It may be nice to hear about what other groups are doing and to consider trying out their techniques in your group, but each group is unique and you will learn best if you focus on the group you are a part of rather than what you are concerned you may be missing out on.

Reflect as a group -- A review of how the group is working together and formulation of a plan for improvement may be useful for your tutorial. You could consider setting aside 10 minutes at the end of a case to discuss how the group covered the material in the case, how the group dynamics played out, and what goals you have as a group for your approach to the next case. Your tutor may suggest this review of group process, but you are also welcome to request such a discussion. Remember, tutorial is about your learning and growing as individuals and as a group.

What can I expect from my tutor?

Your tutor is a valuable member of group, and will play a part that you may not be used to if you have mainly learned in large group settings in the past. In this section, we describe what role you can expect your tutor to play.

You can expect your tutor to:

Help create a safe and positive learning environment -- Your tutor can influence the learning atmosphere in multiple ways. It is inevitable that you will consciously or unconsciously pick up on the tutor's attitude and behavior; if they convey interest and enthusiasm, encourage respect and openness, and are humble enough to admit when they don't know something, other members of the group are more likely to follow suit. The tutor should be a model for the group.

Talk -- Contrary to myths you may hear, a good tutor will not be silent. As mentioned elsewhere in this guide, a general rule of thumb is that a tutor in a healthy group should talk about 1/nth of the time (for a group with n people). The tutor will ask questions that bring out certain aspects of the case, get you to expand on your thinking when necessary, and refocus the group when the discussion moves too far off track. Less frequently, the tutor may bring in relevant clinical pearls or stories (if he/she is a clinician) or explain a clinical aspect of the case that you wouldn't be expected to figure out at this point in your career. In a very limited fashion, a tutor may give a *brief* (we're talking 30-60 seconds) discourse on a topic if it is not central to the case and a quick explanation would help the group move on.

Show restraint -- This means not talking too much. As mentioned above, many tutors will in rare cases briefly offer an explanation. For many tutors, there is some tension between wanting to explain things by giving mini-lectures, and having faith in the group's ability to work through a case.

You should resist constantly asking questions directed at your tutor. It is likely that your tutor will deflect many of those questions to the group. He/she is not trying to be cruel; they just know that in most circumstances, directly answering the question will shortchange your learning even if it makes the tutor more popular in the short term.

Guide the group in multiple ways -- Even when tutors are silent, they tend to be listening hard. Your tutor looks for opportunities to point out connections between statements and topics and to relate the material to the clinical case at hand. As part of constructivism, a teacher should play the role of a guide who facilitates learning, draws connections and fosters understanding, rather than a transmitter of information ("guide on the side" vs. "sage on the stage").

Encourage depth of understanding -- Your tutor will do this by asking questions that push you to spell out your reasoning, by challenging assumptions, and by making sure you don't gloss over important details. By encouraging you

"We don't have the insight to necessarily be able to draw the connections… sometimes it was [the tutor] giving a hint of how things could connect that I felt like I left being able to think something through more effectively rather then just knowing five more facts."
-- HMS Year 2 student

to expand on your thought processes, the tutor can expose fuzzy logic and get you in the habit of applying intellectual honesty and rigor to your learning.

Clear up misconceptions by the end of a case -- Students are sometimes not sure that explanations given by their classmates are right. There is comfort in knowing that a tutor will eventually set things straight if the group does not do this by the end of the day or the end of the tutorial case. Don't expect premature closure, though; wrong ideas are necessary to the discussion. Virtually all scientific research has depended on people first going down wrong paths before their experiments led them in more fruitful directions. A tutor who leaps in as soon as they hear an incorrect thought is not doing you a service.

Make sure the group covers what they need to cover -- Your tutor has the course objectives in mind and knows which topics are central to your learning. He/she will therefore intervene if they sense the group is spending too much time on peripheral topics. Similar to what was mentioned regarding wrong ideas (see above), your tutor may not leap in instantly when the group goes off on a tangent. Often the group will bring these excursions back around, or in some instances, the new avenue of discussion may provide important and unexpected learning. Your tutor (and you) should be open to the unexpected.

"[It can be an] environment where people are like, "Ok, let's just for the sake of doing it pursue that idea. We don't know where it's going to go, but let's just go there." I think there's a lot of learning that does take [off from] there, and we don't actually take those chances and seize those opportunities as often as we should."
-- HMS Year 2 student

Help you summarize -- To help you put together the big picture, a tutor may summarize the day's discussion or ask one of you to do this. Many students have commented that reserving 5 or 10 minutes for wrap-up at the end of the session solidifies and organizes their understanding.

Help focus learning agenda -- Many groups put together a list of topics, inspired by the case, that they would like to research between sessions. The tutor has the perspective to recognize central and peripheral topics, and may gently nudge you away from spending your study time on areas only remotely related to the course. Similarly, the tutor can help you prioritize a cluttered agenda.

Help the group reflect on how it is doing -- When something goes right (or wrong), your tutor can help the group reflect on that. This is somewhat akin to the situation when after a good tennis stroke, you stop and ask yourself, why did that just go right? After a very effective discussion, the tutor can help you step back and think about the process so the group can identify and capture the key ingredients. Similarly, if something is not going right, the tutor will encourage the group to examine the dynamics and strategize about ways to improve this. Some tutors will promote reflection on the group process at some regular interval (for example, the end of each week), while others will only bring this up when they feel it is necessary.

Give you individual feedback -- Most tutors have some way of doing this, but if no feedback is being offered, you should feel free to ask. Without feedback, it is difficult to re-calibrate what you are doing in tutorial. Tutors will usually find a way to sit down with you one-on-one about half way through a course. Your tutor will probably start by asking you how you think you are doing. This is not just an easy way to start the conversation; your tutor is encouraging you to

develop the skill of reflecting on your performance. The ability to examine your own actions is equally valuable to the advice a tutor may give during a feedback session. In addition, these one-on-one sessions help your tutor get to know you a little better as a person, something that makes tutorial (and HMS in general) a safer and more comfortable place.

What role do questions play in tutorial?

"The good tutorials have actually been when one random person would be like, "Hold up guys, can I just say this out loud to go through my thinking process?" And it would be really great because all these flaws in people's thinking would come out and sort of bubble up to the surface… it's very useful."
-- HMS Year 2 student

"I've never had a tutor say anything but, "It's great that you ask questions." They don't have to be questions that actually say that you know something. That was a complex for a couple of people. You can just say, "I don't get it" without [also saying], "In my reading, I found…""
-- HMS Year 2 student

This section will introduce you to the value of asking questions in tutorial and how the type of questions you ask will direct the level of thinking of the tutorial group. One of the most important things to remember when considering asking a question is that any question you can think of is likely on the minds of many other students in your tutorial group. The more your group can work together to grapple with questions in tutorial, the more you will get out of your time together and the deeper your understanding of the course material will be.

You can ask questions in tutorial when you:

1) don't understand something - *How did you make that connection?*
2) are excited about following a line of inquiry - *What would the next step be?*
3) want to challenge an explanation - *How do you know that is how it happens?*
4) think someone else may be lost - *What questions do we still have about this explanation?*
5) want to check out your reasoning about a topic - *Am I right in my thinking about this?*
6) want feedback - *What suggestions do you have for me to improve my teaching?*
7) want to know how someone found information on a topic - *How did you find that useful article?*
8) want to re-direct the focus of the group - *Should we consider looking at this as well?*
9) want to discuss how the group is working together - *Could we set aside time at the end to talk about how we've been working together?*

Though these questions are about very different topics, they are all important to creating a successful tutorial. Since tutorial is a safe place to experiment, consider asking questions to test out how it feels to you to do so. Also pay attention to how others respond to the questions you ask. A mark of a well-functioning group is that the participants generate many questions, prioritize the questions that are most relevant, and then work together to seek answers.

What types of questions can be useful?

The types of questions you formulate will depend on the case, your interests, and the group, but it is important to consider the level of thinking required by different types of questions. Bloom's Taxonomy, a way of organizing questions that get at different thinking skills, has six levels which increase in complexity in terms of the thinking skills required. To help you understand these different levels, consider the following tutorial scenario.

Bloom's Taxonomy
levels (modified):
1) Factual
2) Comprehension
3) Application
4) Analysis
5) Synthesis
6) Evaluation

A tutorial group is having their first session on a case in the anatomy block. They have just finished reading the first portion of the case where the patient describes having pain and numbness in her hand. Sally opens with the suggestion that the group brainstorm about all of the possible causes of the patient's symptoms. After a few minutes, Jorge suggests the group take a step back and asks "Which nerves run in that area?" Time is spent reviewing the nerve supply of the hand. Looking again at the case, Victor notes that the location of symptoms seems to fit with a median nerve problem. He wonders whether the patient is having any loss of function in her hand and asks the group, "What hand movements does the median nerve control?" The group decides to broaden the discussion and consider how each of the nerves in the hand – median, ulnar, radial – work to control hand movement.

← Factual question

← More complex factual question

Natasha brings the discussion back to the current patient by wondering if the patient has severed her median nerve and asking the group, "Based on our knowledge, what problems would we expect our patient to have if her median nerve had been severed?" A lively discussion of nerve severing ensues including a foray into where the nerve would be likely to be severed. Sally tells the group she's not sure that they know it's the median nerve that is involved in their patient's case and she asks, "Which of our patient's symptoms fit with a median nerve injury and which do not?" The group outlines the symptoms on the board that do and do not fit with a median nerve injury and generates other questions they'd like to ask the patient.

← Application question

← Analysis question

Monique joins in at this point with a story of her aunt, who worked as a typist for many years and had a "pinched nerve". Monique remembers that her aunt was found to have a problem in her wrist. Monique is excited by the idea of there being different locations where the nerve could be damaged, and she asks, "Could we think about the path that the median nerve travels and whether we can figure out the associated symptoms and signs of a problem at each of those levels?" The group is interested in this question and spends the remainder of the time discussing and diagramming the median nerve pathway and techniques for examination. A few minutes before the end of tutorial, Malcolm asks if they can review their tutorial session and determine how effective they have been at understanding the different nerves in the hand and the median nerve in particular.

← Synthesis question

← Evaluation/ reflection question

Having followed this tutorial group, let's examine what types of questions the students were using at different points and how those questions encouraged the group's learning.

"*Which nerves run in that area?*" Jorge begins with a **factual** question. This question is a basic foundation for further discussion and needs to be answered, but requires only recall of knowledge.

"*What hand movements does the median nerve control?*" Victor asks a more complex **factual** question. His builds on Jorge's question and requires the group to delve into the motor components of the median nerve and muscle movements.

"*Based on our knowledge, what problems would we expect our patient to have if her median nerve had been severed?*" Natasha asks for **application.** She is requesting that the group apply their knowledge about the median nerve to predict what would happen in a new clinical context. There is no indication that the patient in the case has a severed nerve, but Natasha moves the group to another level of thinking by trying to apply the information about motor and sensory control of the median nerve to a new clinical scenario.

"*Which of our patient's symptoms fit with a median nerve injury and which do not?*" Sally requests **analysis.** Her question requires the group to analyze the different symptoms that do or do not fit with a median nerve injury.

"*Could we think about the path that the median nerve travels and whether we can figure out the associated symptoms and signs of a problem at each of those levels?*" Monique encourages **synthesis**. This question requires the students to relate the path of the median nerve to the different symptoms and draw connections between these topics.

Finally, Malcolm encourages the group to **evaluate** their understanding and **reflect** on how effective they have been, which leads the group to summarize their new knowledge and to examine the process they engaged in to construct their new insights.

You can now see that each question was important for the direction of the tutorial, but that subsequent questions required higher-order thinking skills. Synthesizing information about pathways and symptoms requires much more complex thinking than recalling the nerves of the hand. Though you may have the most experience with the factual type of questions, you can work on pushing yourself and your classmates further by asking more complex questions.

You will not be expected to be an expert at all of these levels of questioning and thinking at the start of the tutorial process. Your tutor may initially take more responsibility for encouraging the group to explore more complex issues by asking higher-order questions. As your comfort and facility with this learning style improve, you and other students will be increasingly responsible for asking all levels of questions.

How will my tutor use questions?

Your tutor will likely use questions in much the same way that individual group members use questions - to extend ways of considering a topic, to clarify thinking and to assess whether all members of a group are understanding material. As a second-year student noted, "Tutors are helpful when they ask questions where they've clearly figured out where I am in my thinking and thought about how they could help me get from where I'm thinking to more on track of the problem." When your tutor asks the group or an individual a question, the goal is to improve everyone's learning experience, not to make any individual feel uncomfortable or singled out. Your tutor may pay particular attention to the flow of conversation in the tutorial group and use questions to bring in quieter students or determine whether all students understand the topic being discussed. Sometimes a tutor will even let questions float in order to inspire the group's curiosity and desire to research topics between sessions. You might feel a bit uncomfortable with having unanswered questions, but these can serve as a powerful motivator.

"I like when there are a lot of questions on the table. The weight of those unanswered questions builds up some tension, but I find that that tension is very useful because then the students leave and look everything up because they know how much they don't know."
-- Experienced tutor

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How can I best deal with difficult situations?

Though we hope that all of your tutorial experiences will be smooth sailing, chances are that from time to time you will encounter difficult situations. The range of challenges includes family emergencies, domineering students, problematic tutors, feeling overwhelmed, overcoming quietness, and so on. Although each situation will be unique, we'd like to share some ideas for how to think through some of these common challenges.

What is the purpose of reflecting on my feelings in a difficult situation?

Thinking through a challenging situation:
• What action or attitude is bothering you?
• What is at the heart of the problem?
• How do you respond to the problem?
• How could you solve the problem?
• Who could you talk to for advice?

Taking the time to learn more about why a situation is difficult for you may help you test explanations, devise solutions, and seek help if necessary. If your difficulty is with someone else, reflect upon what attitudes or actions are bothersome to you. For example, if you find yourself feeling frustrated whenever John starts talking, the problem might not be all about John.

Take notice of what exactly the other person says or does and what your reaction is. Then consider what sort of response you have to the person and whether you find that response helpful or problematic. Consider whether the problem lies more with what the other person is doing or not doing or with your response to them. This type of thought process will help you develop strategies that may include self-reflection, discussion with a friend, discussion with the individual(s) involved, or consultation with your tutor.

Why are students quiet in tutorial? Is this a problem?

Reasons for quietness:
• shyness
• ill-preparedness
• cultural background
• feeling intimidated
• personal crisis
• careful listening
and so on...

People are quiet in tutorial for one or more of numerous reasons including having a shy personality, being ill-prepared, coming from a cultural background that places negative value on assertiveness, feeling intimidated, experiencing a personal crisis, or being a careful listener. If you are quiet in tutorial, think about what is contributing to your quietness and whether there is something you could do as an individual, in conjunction with another student, in conjunction with your tutor, or as part of your group to facilitate your participation. You have the right to ask your group for help in facilitating your participation. If you are a quiet student, try to use tutorial as a laboratory to experiment with new methods of opening up. If you are struggling personally, there are places you can turn for help (see the end of this section for more information).

There's nothing inherently wrong with being quiet in your personal life, but this may not serve you well in your tutorial group or as a member of future medical teams. In the medical profession we are called upon daily to share our ideas and questions and to communicate with others. A group may feel uncomfortable that one of the members is not participating and be frustrated with the situation. A tutor may have difficulty providing feedback and evaluating a student if there is very little participation. If you notice that another student in tutorial is quiet, try to give them space to participate by allowing longer pauses in discussion or by being sensitive to their body language or other cues that may signal they are interested in contributing.

Why are students dominant in tutorial? Is this a problem?

People are dominant in groups for a variety of reasons including eagerness to participate, strong personality, insecurity, beliefs about what is expected of them, and high comfort level with a subject area. If you are a dominant student, it may be difficult for you to recognize. In general, people often recommend that each student speak approximately equally to every other student. If you find yourself going on at length, cutting others off, or directing the discussion very often, your actions may be problematic for the group. Examine what your motivations are for participating in this manner. Reflect on how your style and frequency of participation may be affecting other members of your group. Discuss your participation with another student, a friend, your tutor or the group as a whole. Try to find new ways to channel your reasons for dominating into productive group participation. If you are insecure, realize that everyone is likely insecure and you don't need to dominate the group to learn or to be recognized for your contributions. If you are highly eager to participate, come up with new ways to participate such as asking questions of other students or providing a summary of the day's discussion.

Reasons for students being dominant:
- eagerness
- strong personality
- insecurity
- misperceived expectations
- high comfort level with the subject

and so on...

If there is a dominant student in your group, consider bringing up how that student's actions are affecting the group's ability to work together. Be as specific as possible and focus on the problem behavior(s) rather than the problem person. In learning how to give effective feedback, you may hear the phrase, "Be hard on the behavior but soft on the person." It shouldn't be about personalities; constructive criticism is directed at things that can be changed. The behaviors could be discussed individually, in the group, or with your tutor. Many times, dominant students are unaware of how their behavior is affecting other people so addressing the issue in a clear and kind manner may be very helpful. Try offering to present your explanation of a topic or encourage other students to join in a discussion if someone is dominating the tutorial.

"Sometimes talkative students don't even know that they are annoying everybody. I would try talking to them individually and enlist their help in bringing other students into the discussion."
-- Experienced tutor

Shouldn't my tutor be the one to solve these problems?

There are two schools of thought as to where the responsibility lies for handling difficult situations. Many experienced tutors feel that it is naturally part of their role to do things like talk with quiet or dominant students and help them modulate their contributions to the group. On the other hand, there are also excellent tutors who feel that it is a valuable part of the learning process for groups to learn how to handle challenges. There are distinct benefits for your future work in teams to be able to develop strategies for overcoming obstacles such as personality conflicts. Most groups end up falling somewhere in between; the tutor plays a role in intervening, but some of the responsibility also falls to the group and individuals to figure out the best way of dealing with their issues.

What if my problem is with my tutor?

At times individual students or groups of students will have difficulty working with their tutor. Consider the same issues as we discussed in handling any challenging situation. Once you have identified the concerns, bring them up with your tutor and come up with possible solutions. If you have attempted remediation with the tutor or are uncomfortable addressing the issues with the tutor directly, the course director may be the best person to contact. The course director will be knowledgeable about the goals of the course and can arrange for observation of a tutorial session or speak privately with the tutor to resolve the problem.

Where can I look for individual extra help?

If you think you may need extra help, it may be useful to first check out your self-perception with someone else. If your concern is over course content, consider asking other students or your tutor whether your understanding is truly below that of others or whether you are overly concerned. All of us doubt our abilities from time to time so getting a reality check can help.

If you identify that you need extra academic help, your tutor can contact the course director and arrange for some form of individual tutoring, such as having a second year student work with you. Other resources also exist at the school if you are concerned that your academic problems may be broader in scope. The Office of Advising Resources and your society leadership are available to help you develop study plans, obtain testing for learning disabilities and plan for any necessary accommodations.

Some students at HMS come with significant emotional and psychological needs, and many other students will need extra support during their time at HMS. If you are concerned about yourself or someone else, seek support from your society or University Health Services as soon as possible. There are many individual and group resources available at HMS and in the community. Look for these resource references as part of the information packets you receive at the beginning of medical school.