Michigan Surgery Sessions Intraoperative Learning Podcast

Featuring: Robert Gilman, MD, DMD; Gurjit Sandhu, PhD; Katherine Santosa, MD

Narrator:

Welcome to Michigan Surgery Sessions, where we discuss the latest in clinical care education and surgery culture with faculty, residents, and medical students.

Gurjit Sandhu:

Welcome. This is Michigan Surgery Sessions at the Michigan Medicine Department of Surgery in Ann Arbor. I'm your host, Gurjit Sandhu. When we think about the process and interactions involved in developing the next generation of physicians, effective teaching is truly at the heart of this. Teaching and learning during residency training happens in numerous contexts. For example, simulation centers, clinics, and small and large groups. However, the operating room is a particularly unique and high stakes educational environment in surgical. Residency's here to help us learn more about teaching and learning in the operating room is Dr. Robert Gilman. Dr. Gilman completed his training in dentistry as well as surgical training in both otolaryngology and plastic surgery. Dr. Gilman has taught at Boston University, Harvard University Medical School, and worked in private practice. He joins us now as a clinical assistant professor and director of the aesthetic surgery program with Michigan Medicine Plastic Surgery. Bob, welcome to Surgery Sessions.

Robert Gilman:

Thank you, Gurjit. It's great to be here.

Gurjit Sandhu:

Also with us is Dr. Katherine Santosa. Dr. Santosa completed medical school at Washington University in St. Louis. She is now completing her chief year of plastic surgery residency at Michigan Medicine, after which she'll be moving onto an aesthetic surgery fellowship with Dr. Nahai in Atlanta. Katherine, welcome to the program.

Katherine Santosa:

Thank you so much for having me.

Gurjit Sandhu:

Dr. Gilman for surgical residency programs, the operating room is also a unique learning environment. Help me better understand what it means for an operating room to also be a classroom.

Robert Gilman:

In the operating room, we have a number of functions, especially in a teaching hospital, and in the teaching program like University of Michigan. We have, first and foremost, a patient to take care of, and I think we all understand that the care of the patient is the single most important thing that we do in any operating room. But we also have a residency program, and I, like every other practicing plastic surgeon in the world, had to go through training to get to where we are as practitioners. So, learning and learning in the operating room, and doing in the operating room while you're learning, is part of that educational process. So, we have a, not only the safety and wellbeing of the patient to think about, but how we're going to educate the next generation of plastic surgeons who will hopefully be doing the same thing I'm doing in another generation. So, I think the awareness of that brings us to a balance between teaching and patient care. And that balance is actually beneficial to everyone in that operating room, including the patient.

Gurjit Sandhu:

Dr. Santosa, what does it mean for you for an operating room to also be a classroom?

Katherine Santosa:

Yeah, the operating room is one of my absolute favorite places, and I'm so grateful to have the opportunity to enter "my classroom" every day. To me, it's not only a classroom where I learn a great deal about how to perform surgical techniques, identify tissue planes, learn anatomy, et cetera. But to me, it's also like a training room. As a former tennis player, I often view the operating room like a tennis court. So, every time I get to go to the operating room, I view it as an opportunity to grow, reinforce my skills, and to perhaps learn new ones. In surgeries that I've done many times, I'm using my muscle memory and learning how to teach and coach juniors and mid-levels. In more complex pieces that I've never done or feel unfamiliar with, it's an opportunity for me to learn the "form," strokes, the angles, as I would put it in my tennis terms, for my fellows and attendings.

Katherine Santosa:

I look at residency as all the practice I put in on the courts to someday be able to perform these operations successfully on my own, like Dr. Gilman alluded to, and really look at them as my competition in my future match day.

Gurjit Sandhu:

Dr. Gilman, you engage with learners at all different levels, from medical students to chief residents. How do you approach teaching with such variable levels and skills?

Robert Gilman:

I've had a lot of years of doing this. And at the same time, I haven't forgotten what it was like to be a medical student and a resident and a fresh in practice plastic surgeon. And I think that you just have to imagine in your own mind exactly where each of the learners that you're dealing with is in their career and their status of training and design your teaching method to be

inclusive of each of those variations. And I mean, I think that when you get good at doing what you're doing so that it becomes, as Katherine said, a little bit of a muscle memory, you also can think of ways where you can show, demonstrate, teach by example, by doing, by watching and correcting, each of those groups at their level of training. I think that's what being a effective teacher in the operating room is. Again, always with the concept that the patient's safety is the primary objective.

Gurjit Sandhu:

So as the chief resident, Dr. Santosa, how do you include learners from medical students to junior residents?

Katherine Santosa:

I think the operating room is an awesome place to engage all learners at every stage for medical students. My primary goal is to ensure that they feel welcomed in the operating room so that they are comfortable to speak up, ask questions about anatomy, ask why we do an operation, how to manage these patients post-operatively, et cetera, instead of really just focusing on teaching them the technical nuances of surgery. Most medical students definitely love learning how to sew and I love teaching them how to sew as a plastic surgery resident. I've always felt that my job though, is to set up medical students and junior learners up for success. So, if we're doing an abdominoplasty and there's quite a bit to sew, I don't just leave it all to them to sew on their own, but I usually get them started and get them an achievable goal to sew, so they don't feel pressured to perform.

Katherine Santosa:

And that we're, like Dr. Gilman mentioned, that we're kind of prioritizing the safety of the patient and the effectiveness of the OR as much as possible. For junior residents, I try to do my very best to verbalize the steps of the operation before or during the case. I also try to relate to them about the steps of the operation that I usually find to be more difficult, or things that I used to find really difficult, so that when they encounter that step of the operation and struggle, they don't feel alone. They don't feel like they failed.

Katherine Santosa:

And with the blessing of an attending, especially like one of very similar to Dr. Gilman, I also like to allot time for junior resident to do a particular task and let them struggle, because I think taking an operation over really takes away from that learning opportunity. And I really do believe that struggling is a key component of growth and development as a surgeon. So, it's my job as the chief resident, again, with the permission of a gracious attending like Dr. Gilman, to allow junior residents and medical students to struggle so that they're able to optimize their learning potential.

Gurjit Sandhu:

So, it sounds like, Dr. Gilman, you would have Katherine, you would have Dr. Santosa in your operating room as a chief resident giving her lots of decision-making opportunity, but then you

also may have a very novice medical student with you. How do you negotiate that? How do you approach having multiple learners in the OR with you?

Robert Gilman:

You have to conceptualize where they are and what they're feeling in terms of the type of anxiety a medical student might feel about being in an operating room, which is totally foreign to them at this point, versus someone like Katherine who's there but for another few months, ready to go out and be on her own. So, I was thinking while Katherine was talking that, one of my favorite things is, let's just say, we're working on a nose and we're elevating a little flap of tissue and a flap of tissue is over cartilage. And as you go to bone, there's a different feel to it. And that's one of the things that's one of those kinesthetic feedbacks that you're looking for as part of your surgery. Katherine knows it well having experienced it many times. A medical student has no idea what we're talking about. And the simple thing, it's not a procedure you'd let them do at their stage, but at the same time, if they're just watching it, we're telling them, it's no fun, but if they feel the elevator.

Robert Gilman:

And they're able to scrape it a little bit on the bone and feel the difference between what it feels like when you're scraping on the bone and when you're scraping on, hopefully not scraping it, but when you're passing it along the cartilage, you look at their eyes and they light up because, ah, that's what it is. And even in residency, as they go along, they might be the first stage to elevating that flap, might be, you're sort of doing it with the resident. It's called graded responsibility, right? The more you know and the more along you are in your training, the more you get to do. But at first, it may be you do it, then they do the other side, then they can do it. And then as they do more and more, they get more facile at it. So, I just love watching that course of learning that you see in their eyes and their expressions and their anything else as you're doing it.

Gurjit Sandhu:

I'm hearing the joy and the spark that you're talking about. Dr. Santosa, there's a number of studies that point to the role that residents have on medical student specialty selection. What role do you think residents as teachers has in that?

Katherine Santosa:

I think residents have a tremendous role in the education of medical students. As a medical student, it can be exceedingly daunting to join a large surgical team, then meet everybody in the OR, learn how to scrub, not contaminate yourself, learn when to ask questions, round, present, write notes, see patients in clinic, remember resident [inaudible 00:11:08] and preferences, and I could go on forever, but it's a ton. And I think as residents, we sometimes forget how intimidating this can all be, even for students who are dead-set committed to going into surgery. So regardless of what a student goes into, I think it's imperative that surgery residents take an active role in medical education and be as welcoming as possible. It is an

absolute privilege to be part of their educational journey, and I think the mentor-mentee relationship goes both ways.

Katherine Santosa:

I often learn a great deal about medical management of certain diseases and disorders from medical students who have more recently rotated on the pediatric service or the cardiology service, et cetera. And I really think it helps them get engaged in the surgical service as much possible. As a chief resident, I've learned to email expectations to my team members at the beginning of every month and emphasize the importance of teaching medical students on service. I think we have a tremendous opportunity to not only impact their professional lives, but we can even convince them to be part of our specialty someday, which I think is a tremendous privilege.

Robert Gilman:

I love what Katherine just said, because I think it is so true. And that even as an attending, even as an old attending, I hardly ever go into the operating room where I don't learn something from the residents. So, it is not a one-way teaching. It's not just going from senior faculty, to junior faculty, to residents, to medical students, but it's really a circular event. And I think the people who are most successful, those of us who are most successful in this mission of education of our next generation of surgeons, are going to be people who are flexible enough and accepting enough to listen, to all listen to the medical students and the residents. And it's no surprise that we learn a great deal from residents and from medical students.

Gurjit Sandhu:

So I've been hearing a lot about the effectiveness of teaching and the relationship, nurturing that relationship in teaching. Dr. Gilman, can you tell me what might get in the way of effective intra-operative teaching?

Robert Gilman:

There are times, and I certainly feel this way, where I really struggle with that balance of responsibility to the patient and responsibility to the resident. I don't like to sort of, "takeover," do things. And yet there are times where I feel that a portion of an operation, something that we might let, under some circumstances, might let a resident struggle with a bit, it's very difficult at times to do that. And trying to decide where that cutoff is of graded responsibility, responsibility to patient, responsibility to resident come through. And that's, I think, sometimes the most difficult thing for me. I came out of a, both teaching and a private practice setting. And so, I have to admit that there are times where I wish I had not. I wish I had taken more time to allow the person I'm working with to struggle and where I've just taken over. So, I think that's one of the things that is very difficult to balance. And I think some teachers are able to do it very well and some teachers can't do it at all. And some are sort of in the middle.

Katherine Santosa:

I personally think that the culture and the environment that an attending sets in the operating room can really get in the way of optimizing an inter-operative educational opportunity. Positive tone in the environment really sets the stage for the rest of the day. Everyone in the team then feels free to ask questions, bring up potential issues, and work as efficiently and effectively as possible. I think in a less ideal setting, my learning personally gets stifled because I worry too much about the things that potentially don't matter, like how the attending interacts with the CRNA, making sure that the circulating nurse answers my pages promptly, that we've pulled all the drapes that we need. And those are skills that are not directly related to my surgical training.

Katherine Santosa:

So, I think creating a safe and comfortable space in the operating room by the attending is critical. I also take this responsibility very seriously for myself because if I come to round or come to the OR with less than a stellar attitude, act unprofessionally, treat other members poorly, then I think the team members would feel uncomfortable speaking up, asking questions. And I believe that this kind of environment would stifle learning opportunities for my medical students and junior learners on the team.

Robert Gilman:

I totally agree with what Katherine is saying, that the operating room is a place that is sacrosanct to surgeons, right? It's kind of our temple. It's an incredible responsibility that patients give to us. Perhaps the most intimate responsibility that any interaction can be. They're giving us permission to operate on them. It's important to know that there's a seriousness in the operating room, but it's also important to set an environment that's not always on edge. There are times where you have to be extraordinarily serious, no distractions whatsoever. And there are times most of the time really where it's relative routine and the environment can be very conducive to learning if you're not so anxious that your adrenaline levels keep you from really appreciating the points of surgical learning. So, I think setting that balance of an environment that's recognized as being serious and, at the same time, that can keep a balance of that with comfort for those people working there. If you can do that, you will have a successful operating room, and always, both in patient care and in teaching.

Gurjit Sandhu:

I've heard you both sort of mentioned that learning can be inhibited or the learner can sometimes struggle in the operating room. Dr. Santosa, I wanted you to touch on that. What are some strategies that can be implemented to support a resident who might be struggling?

Katherine Santosa:

I think it's really important to have a discussion before the case and afterwards with any resident, but particularly one who's struggling. Setting attainable goals can also help in this situation. So, if a task seems too large, unattainable, or burdensome, I think that stifles learning and it further decreases the confidence of the struggling learner, which is the opposite of what

we'd want to do in that situation. I like to take more of a bite sized approach and break up tasks in more attainable ways, just so a struggling learner could potentially attain that goal, develop the confidence, and then potentially succeed and fly.

Gurjit Sandhu:

Katherine, one of the reasons I invited both of you here was you had shared an experience with me about operating with Dr. Gilman. I'd love for you to share that with our audience in terms of effective teaching and the joys of teaching in the operating room.

Katherine Santosa:

Yeah. I think something that Dr. Gilman does exceptionally well is he sets just such a positive environment in the operating room. I think from the moment you walk into the operating room and work with him, you just realize that it's going to be a great day. Regardless of what happens, I'm going to learn a ton, we're going to do a great job for the patient, and I'm going to feel really great coming out of work. So being in an operating room with Dr. Gilman for 16 hours really feels like I just binged my favorite Netflix show for a couple of hours at home. He takes the time to ask me questions about my personal life. He always asks me about my daughter, and I think it really helps that he creates such a positive learning environment for me.

Katherine Santosa:

Before any complicated case, we always talk ahead of time. He asks me to outline the steps of the operation, has me analyze the patient. We compare notes. He then has a list of his thoughts about the operation. We compare it to mine and we kind of talk through why one approach is better than the other, why he prefers one technique over the other. And I think that's a tremendous learning opportunity for me. In the operating room, he kind of alluded to this before, there are some parts of the operation that may just not be suitable for a resident to struggle. And I think he identifies that really well. So, the portion of the operations he feels that I could do and I can struggle with, he allows me to do, and before I lose confidence or become frustrated, I think he kind of, he senses it and he's able to kind of navigate me towards success.

Katherine Santosa:

So, it's really hard to define exactly what Dr. Gilman does to be such an effective educator. But I think fundamentally, it's because he sets a wonderful environment in the operating room. He's exceedingly approachable, he likes to discuss cases before hand, and he has a really great idea of what autonomy, or when autonomy should be given to a resident and allows you to struggle, and always thanks you after the end of the case.

Gurjit Sandhu:

Katherine, do you remember there was a specific case where, I remember you came in afterwards, or you were sharing with me like, "Oh, I got to do this." Or there was some ... Can you describe that? Do you remember what I'm talking about?

Katherine Santosa:

Yeah. So, we had my first chief resident case in July. I think it was in my very first month as a chief resident. And we were doing a mini abdominoplasty and liposuction that was for aesthetic reasons. And I felt like the stakes were exceedingly high because this was my first chief resident case. I wanted to prove something, not only to myself, but to the patient and to other people that I could do this on my own. And I remember going to Dr. Gilman and telling him that I was so nervous about the case, as I often do. He reassured me that I would be totally fine, but that this was my show. I was going to direct it, and he would definitely be there for me if I were to need it whatsoever. And he was.

Katherine Santosa:

So, we did the operation. He had me guide him through the operation. And at the very end, we thought that the patient had a really wonderful outcome, so much so that she booked another aesthetic procedure with me through the resident clinic that Dr. Gilman and I got to do together. I just left that experience feeling so confident in my skill and feeling as if I had grown as a surgeon so tremendously because Dr. Gilman allowed me to, and actually directed me to direct him during the operation, which was a very unique learning opportunity.

Gurjit Sandhu:

Dr. Gilman, what kind of cues or clues do you look for in order to determine how much leeway to give your learner? For example, in the operation that Dr Santosa described, there was a lot of responsibility that you gave to her. What do you look for?

Robert Gilman:

I've worked with Katherine now for her entire residency career, and it's an interesting thing because Katherine started out as a very enthusiastic resident from day one. And I can remember I used to do a lot of these little, sort of surgical dermatology cases at Lavonia, and we'd have a whole day of it. And Katherine would come out, and as a PGY one, just to get to sew or to going to take a lesion out or do whatever. She loved it. I know her progression of training. I know her level of learning. I know what she's ... I've seen her progress. I have a pretty good idea of what she can do and what she can't do. If she is coming into the operating room as a chief resident with me on the first day, it would be a different experience.

Robert Gilman:

As a relatively experienced surgeon, I can look at somebody operate and get an idea of how comfortable they are, how comfortable they are holding an instrument, how comfortable they are, their body language, all of those things make a difference. How nervous they are. You just can tell that. I think we as individuals know what to look for. I don't know that I could put it in more specific terms, but you just get to know when someone's struggling, when they're not. The important thing about that is to turn a struggle into an opportunity. And so if somebody is struggling, then that's a great opportunity to sort of demonstrate, let them try and let them see, and work through it. And then the next time you're in the same sort of situation, then watch the growth and competence.

Robert Gilman:

Residents, just like attendings, are different. There are residents that are easy going, and there are residents that are very tightly wound. And you have to appreciate the differences in learning styles of different individuals. Sometimes it may be important to sort of be the demonstrator in a more official way of how you do something. Some people don't take to the stress of struggling very well, and you have to mete that out in smaller doses. But I think getting to know the person you're working with as a human being, as an individual, and as a training surgeon, those are things that are important skills and important milestones that you have to develop if you're going to be an effective educator.

Gurjit Sandhu:

Katherine, what can you share with us in terms of strategies that have worked for you as a learner?

Katherine Santosa:

First, I think is to be prepared. There's nothing that really substitutes good preparation. One of the things that I do now is not only read and prep for the case, but I also rehearse the steps in my head and even write them down before each surgery. I think it takes some time to develop this, and as a chief, I feel like this comes much easier to me than as a junior resident or as a mid-level resident. But I think it helps catalog the areas in which I feel comfortable, and catalogs also the areas in which I don't. And so that then allows me to have a discussion with the attending ahead of time, and I've done this with Dr. Gilman before.

Katherine Santosa:

And I'll just say, "Hey, Dr. Gilman, I don't really feel comfortable in setting the umbilicus. I know we've done many abdominoplasties before. Is that something that I could take a more active role in?" And he immediately says, "Yes, of course. It's all yours." And so, I think kind of rehearsing those steps allows you to not only to rehearse the steps and be prepared for the case, but it also identifies the areas that I don't worry about too much, and the parts of the operation in which I have an opportunity for growth and development. Second, I think it's really important to be proactive. I ask now to do the parts of the operation that I don't feel comfortable with, because I think if I didn't, then I would be allowing my education to be stifled. And so, I just will ask attendings, "Hey, we've done a couple of these now. Do you mind if I do this portion of the case and would you allow me to struggle during it?"

Katherine Santosa:

I also am mindful of doing that with junior residents and mid-levels, understanding that there are portions of the operation that they want to struggle with, and that are key part of the operation for them to learn from. And finally, I think it's really important to be grateful. I think it goes a long way. I make it a point to thank everyone in the OR staff, or OR, that day. I thank my colleagues for retracting, talking me through the case. And I always think it's really important to thank our attendings for the teaching that they do in the operating room. I often think that we lose sight of how important it is to express gratitude to all the people, including, the CRNA and

the scrub tech and the OR circulating nurse and the anesthesia attending and the surgery attending and junior residents and medical students, who all help us become better learners and surgeons.

Gurjit Sandhu:

Dr. Gilman, as a seasoned surgeon educator, what are some final pearls, some teaching pearls that you can leave our listeners with?

Robert Gilman:

Those of us who have been around for a long time and who enjoy what we do, I think we're most successful when we allow that joy to come through. So, I would say a pearl is to enjoy every day, be thankful for every day, make the most of every day, and just remember that nobody does this alone. This is a team effort. Great for University of Michigan. Team, team, team. It is a team endeavor, and that every single individual that you deal with in the operating room is both a provider and a teacher and a student. Everyone. I don't care whether it's the person who comes in to clean the room afterwards, or it is the CRNA, or it is another anesthesiologist, a medical student, a resident of any level, and an attending. We are all both learners and practitioners at the same time. Take it easy, listen, and try to always put yourself in the shoes of the person who's standing next to you. Those are my pearls, I think.

Gurjit Sandhu:

Is it bad that I want to hug everybody right now?

Katherine Santosa:

That's what we were going for.

Gurjit Sandhu:

This has been brilliant.

Robert Gilman:

We're blessed. And I know that Katherine's going to go on to a great career. One of the perks of doing this is to get to watch people go on and do great things. As they always say, every generation stands on the shoulders of the generation before them. To get true satisfaction that you have something that is passed on to another generation, I think it's the most basic of biologic principles, and it works in education as well.

Gurjit Sandhu:

I want to express my gratitude to both of you. Katherine, I know you're behind your mask and all, so I appreciate you still stepping into this conversation. I have immense gratitude to both of you for helping us better understand intra-operative teaching and learning. That's Dr. Bob Gilman, plastic surgeon with Michigan Medicine. Bob, thank you so much for being with us.

Robert Gilman:

It's been a pleasure, Gurjit. I'm really glad that I have had the opportunity to talk about this. It's a subject that I care a lot about. Great to have a resident like Katherine to bounce these things off of.

Gurjit Sandhu:

And also, with us was Dr. Katherine Santosa, chief resident with Michigan Medicine. Katherine, thank you for being here.

Katherine Santosa:

Thank you so much for having me. It's been a privilege chatting with you and Dr. Gilman, individuals at Michigan Medicine who have trained me to be the best learner and surgeon that that I can be.

Gurjit Sandhu:

You've been listening to Michigan Surgery Sessions, and I'm Gurjit Sandhu. Thank you for listening.

Narrator:

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