Michael Wang (MW): 0:10And I'm Michael Wang, emeritus professor of clinical psychology at the University of Leicester, United Kingdom. So, thanks very much for agreeing to have this discussion. I want to start by asking you what you think is the definition of an adequate anesthetic.

Michael Avidan (MA): 0:35 An adequate general anesthetic?

MA: 0:36 Yeah, general anesthetic, yeah.

MA: 0:40 Well, from my perspective the goal of general anesthesia should be that a patient is insensible. So, that they are not aware of what is going on, that they have…they are immobile such that, the surgery can proceed. And that they are safe and that they are…so that would include things like: hemodynamic stability, stability of various…and vital organ functions. And that doesn't just include things like blood pressure, heart rate, breathing, temperature, and fluids. There are various aspects that are all for me, part of a good general anesthetic that are independent of the brain. So, that the brain is the target organ of general anesthesia, but general anesthesia includes the whole body. And in relation to the brain specifically, we aim for somebody who is safe, insensible, and who's not experiencing a lot of noxious stimulation, because I think that that noxious stimulation even without consciousness can potentially be deleterious.

MW: 2:09 What do you make of those anesthesiologists who seem to be quite happy with an end point of amnesia?

MA: 2:17 I think that's within the realm of debate. I have a perspective, it's…one can argue that it's a philosophical perspective. You know, we…I think that having a negative experience, for me, is philosophically unacceptable. So, I think that if one argues, you know… you can have a week's worth of suffering, and at the end of that week I'll give you a tablet and you'll forget the whole weeks' worth of suffering that you've had, for me that doesn't seem reasonable. I think that what we experience in our lives, in real time as human beings is what we experience, and shouldn't be judged through the prism of retrospect into saying, its…our experience is judged in the present. We as humans live lives in the present, and I don't' want to have any moments of suffering in the present, and I certainly don't want those humans who are under my charge to have moments of suffering in the present. So, although I think that amnesia is a necessary condition of general anesthesia, I do not think that it is sufficient. I think that if and…if somebody is to be awake during intended general anesthesia, it's preferable if they're awake without suffering. So, there are levels of…there are goals that the best general anesthetic is one in which somebody is completely insensate, they're unconscious, they have no evidence of noxious stimulation getting through, they have this perfect conditions for the surgery, they wake up clear headed without any pain and with minimal physiological perturbation. So, that's the goal to which we aspire, but there are…you know…there are within…if we fail in achieving that, there are degrees of failure. So, one of which if somebody has a brief episode of waking up during an intended general anesthetic, and the anesthetist or anesthesiologist immediately notices that and then administers more anesthetic medication. That is fleeting awareness which might have no negative consequence to the patient, they might not remember it, and in fact, we might even tell the patients in advance. Sometimes You know, you might have a period of brief waking up and hopefully we'll recognize that and treat that appropriately. The worst cases of unintended awareness during general anesthesia, are when patients become aware, awake, and they're unable to indicate that they're aware and awake. So, typically because there is pharmacological muscle relaxation, but I think that theoretically it's even possible without pharmacological muscle relaxation, and we can talk about that briefly. And they're unable to

move, they're distressed, they may be afraid, they may be panicking and unable to communicate that, they may be in extreme pain with feeling the surgical incisions and what's going on, and they might have inadequate analgesia. So, even having adequate analgesia, and all of that is preferable to having inadequate analgesia. These are all gradations of badness.

MW: 6:10 Yeah.

MA: 6:11 You know, and I would like my patients, to be spared all of them…

MW: 6:14 Sure.

MA: 6:15 and, you know I think we can discuss which one is worse than the other. But, from my perspective, somebody having a very unpleasant experience and not remembering it when I'm entrusted to take care of them is not acceptable. And in fact, the real answer to that isn't whether I think it's acceptable, or any of my colleagues think it's acceptable, because I think we just have to ask our patients would they find that to be acceptable. And those whom I've asked, and I have asked, have not thought that would be acceptable. It is my strong opinion that the overwhelming majority of our patients would not feel that that was a reasonable target for general anesthesia. So, who cares what I think, I could say "Oh, it's absolutely fine, yeah, they won't remember anything,"

MW: 7:07 Yeah.

MA: 7:08 but if they're not on board with that, well too bad what I think.

MW: 7:11 Yeah, and of course, there's also the Bristol survey. I don't know if you know about that, where anesthesiologists themselves were asked, you know if you had that option of…

MA: 7:22 Would that be okay for you.

MW: 7:23 which…which would you choose, oblivion or amnesia? Of course, they all chose oblivion.

MA: 7:28 Oblivion…absolutely.

MW: 7:30 So, there seems to be a double standard operating here. There we go, so thanks for that. I'm sure that you're aware that Robert Sanders, Jamie Sleigh, have talked about disconnectedness and now more recently, Jaideep Pandit has been talking about dysanesthesia. So, these represent a kind of midway point, or a partial loss of consciousness, but not a full loss of consciousness. What's you view of that? I mean, I say that in the context that Jaideep who's almost suggested that it would be acceptable for that to be seen as a target for anesthesia.

MA: 8:11 Well, consciousness and unconsciousness are you know, complicated terms. And these are first of all, lots of disagreements about what these actually means. These are subjective human experiences, and I can never know what conscious experience you're having, and you can never know what conscious experience I'm having, we can only describe them to each other as best we can. I guess the problem I have with that gain philosophically is that it might be a completely acceptable for somebody to have, for example, internal consciousness. So, when we dream we are conscious, you know, we are…and it's an internal form of consciousness. So, it's conceivable that you know, perhaps I would be asleep, and I would have a spinal anesthetic, and I'd be having surgery on my leg, and I would concurrently be dreaming about a holiday in Helsinki. I'm clearly having some sort of conscious experience, which is unrelated to the surgery that's going on in… on my leg. You know, maybe I'd even

have some lucid dreaming and I'd even be…I don't know, what my awareness would be the fact that…would be you know higher order of self-awareness, than you would have just with…

MW: 9:39 Sure.

MA: 9:40 normal dreaming. I think the problem I have is, that because consciousness is as I say, a very subjective experience. It is possible that you could say somebody appears appropriately anesthetized, even if they could follow simple commands. You could say, well they're probably not in pain, they're probably not aware of what's going on surgically, but I'm using the qualifier probably.

MW: 10:07 Yeah.

MA: 10:08 I'd be much more comforted, if they weren't' interacting with me at all.

MW: 10:12 Exactly.

MA: 10:13 Because that would give me more confidence that they were not aware of the surgery. It could be possible that they could, for example, squeeze a ball and at the same time not be aware that the surgeon…that you know…she was wielding a scalpel and cutting away at their ligaments, but how would I know for sure.

MW: 10:36 Sure.

MA: 10:37 I guess I could ask them, and say well squeeze the ball if you're feel the scalpel, and it would give me some evidence.

MW: 10:43 Yeah.

MA: 10:45 But it would…I'd be…the target for me would still be as much as I could as ascertain that evidence of unconsciousness. And all we have is evidence.

MW: 10:59 Yeah.

MA: 11:00 You know, I can…the fact that I'm not interacting with you doesn't guarantee that I'm unconscious, especially if I'm pharmacologically paralyzed, then my means to interact with you substantially curtail.

MW: 11:13 That's right.

MA: 11:14 Because I can't move, but even if I can move, I might be unable to initiate movement for some reason, there are…one can certainly…I've had patients. I'd give you one anecdote which is very disturbing to me. I had a patient who had a hysteroscopy, and she received an anesthetic sedative hypnotic agent called Dexmedetomidine, and an opioid medication called Remifentanil. And this wasn't one of my patient's, but I spoke to her afterwards. And during the procedure she didn't move, and the procedure went ahead uneventfully. But, she was very uncomfortable during the procedure, she had pain, she felt humiliated because of the nature of the procedure.

MW: 12:04 Sure.

MA: 12:06 But for some reason she was unable to initiate movement, and she couldn't explain that. I can't explain that. She had no pharmacological, no…

MW: 12:15 No muscle relaxants

MA: 12:16 No muscle relaxants, and yet the only thing that seems to have been taken away from her was agency. She couldn't communicate, she couldn't initiate movement, but she had full awareness of what was going on, and she…and she encoded memory.

MW: 12:30 Yeah, absolutely.

MA: 12:32 So, you know, I think it's unpredictable. We can't be certain of what people are experiencing.

MW: 12:37 Sure.

MA: 12:38 And, we have to do our best.

MW: 12:40 Yeah.

MA: 12:41 But, I think that even with doing our best, we will have failures…

MW: 12:44 Sure.

MA: 12:45 And that's also something we need to be transparent with...with patient's about, that occasionally even with our best efforts…

MW: 12:53 Yeah, yeah.

MA: 12:54 we won't get it right.

MW: 12:55 No, okay.

MA: 12:56 And that won't necessarily be because…usually, it will be because we did something wrong, but not always. Usually it is because we've done something wrong. I do think that actually, I think it's often because you know, something has happened that we haven't administered sufficient anesthetic agents. Something has gone wrong, but that's not always the case.

MW: 13:16 Yeah, moving on. What do you make of spontaneous movement in an un-pharmacologically paralyzed…in other words, there's no neuromuscular blockade.

MA: 13:30 Right.

MW: 13:31 Your patient is laying there on the table, and there is spontaneous movement.

MA: 13:36 So, what sort of spontaneous movement? Breathing or…

MW: 13:39 No.

MA: 13:40 No.

MW: 13:40 So, movement of a limb.

MA: 13:41 Apparently purposeful, or not apparently purposeful, because there is a difference. So, I think that for example, if you cut into somebody and they're not pharmacologically paralyzed, movement is pretty common, pretty common, and most of that will occur when…beyond loss of consciousness. Usually that indicates that, you know, perhaps you don't have enough analgesic medications on board. Certainly, you can increase the anesthetic agent that you're administering,

whether it is a volatile anesthetic or intravenous anesthetic. But it is unusual that the movement will indicate awareness.

MW: 14:27 Okay.

MA: 14:28 Most of the time when people move in response to the surgical stimulus, they're usually…

MW: 14:34 Yeah.

MA: 14:35 unconscious. Although, I don't know that for sure, I'm guessing

MW: 14:39 But, but you…

MA: 14:40 because as I said earlier, I can't tell what …

MW: 14:42 No, no, but you're saying that your common response to that as an anesthesiologist would be to either deepen the anesthetic or possibly give more anesthesia.

MA: 14:51 I would usually do both…

MW: 14:53 Yeah.

MA: 14:54 because even though, even though, my guess would be…our best guess, and based on how I understand the pharmacology of those drugs…that…that at very low concentrations they tend to engender amnesia.

MW: 15:12 Sure.

MA: 15:12 Subsequent to that, they tend to render a person unconscious, and perhaps not aware of the environment. And then, at a higher concentration than that, and it's not…it's mediated maybe mostly at a spinal cord level. Also, there is an effect on higher centers in the cortex and subcortical areas, but abolishing movement typically occurs with higher concentrations of…

MW: 15:47 Sure, sure.

MA: 15:48 anesthetic agents. I would nonetheless be conservative, and if a patient moved, I would both increase the agent that produces unconsciousness and provide more analgesic agent.

MW: 16:02 Thanks, you wouldn't reach for the muscle relaxant…

MA: 16:05 Oh no, no, that's not my practice.

MW: 16:07 as some of your colleagues would.

MA: 16:10 Well, you know I think it's complicated. I think sometimes they are concerned about…so that their motivation for doing that is, it's alarming to them suddenly their patient is moving, and the surgeon is getting uptight, and they're worried about…they're actually worried about the safety of the patient from a surgical standpoint. Having a patient who is having delicate surgery starting to move, is not very safe for the patient. The patient can have harm from that. You know, the surgeon can be at a delicate part in the operation, and she can cut through…

MW: 16:46 Sure.

MA: 16:47 you know, a structure she would obviously not wish to cut through.

MW: 16:52 Yeah.

MA: 16:53 My response to that is, I'm likely to achieve immobility more rapidly with Propofol, than I am with…

MW: 17:00 Yeah, a very good point.

MA: 17:02 a muscle relaxer. So, even from the safety target…

MW: 17:05 Yeah.

MA: 17:06 a potent intravenous hypnotic agent, is more likely to achieve immobility quickly.

MW: 17:13 Sure.

MA: 17:14 I mean, you received a muscle relaxant. It didn't paralyze you in an instant.

MW: 17:20 No.

MA: 17:21 So, if you were moving in response to a painful surgical stimulus. Even with our rap…even if I gave a massive dose of rocuronium…

MW: 17:30 Yeah.

MA: 17:31 You'd still have a good minute where you would be…

MW: 17:34 Yeah.

MA: 17:34 moving…

MW: 17:35 Yeah.

MA: 17:35 and I think with Propofol you can probably achieve immobility more quickly.

MW: 17:38 Sure.

MA: 17:38 So, I think that there are various reasons…

MW: 17:42 Sure.

MA: 17:42 that a muscle relaxant's not the best.

MW: 17:45 Okay.

MA: 17:46 answer, and also, if they were awake, that would be a terrible thing to do to them.

MW: 17:52 Absolutely. Would you ever try to communicate with the patient?

MA: 17:57 I think that would be a really good thing to do. In honesty, I think my response there would be, "Oh my goodness, the patient's moving, it's a delicate part of the surgery." And although, I absolutely think talking to the patient and reassuring them…

MW: 18:14 But what if it wasn't a delicate part of the surgery?

MA: 18:16 Yeah, then that would be a really good thing to do. But you it's often the way in which that is communicated to the anesthetist for the anesthesiologist is, they're not necessarily watching the patient at that point in time, and their surgical colleague says to them "the patient is moving," in a rather alarmed tone.

MW: 18:34 Absolutely.

MA: 18:35 So, you don't…you're not necessarily able to assess immediately, you know the delicate part of the surgery, do I have the luxury of communicating with the patient, reassuring her, and yet you know you see you're going into a sort of reflex response mode.

MW: 18:50 Yeah, yeah, yeah. No, I understand…

MA: 18:52 So, you're talking about in an ideal world, absolutely. So, I would say…Michael.

MW: 18:59 Yeah.

MA: 19:00 I'd say to my surgical colleague, it's alright, just stop what you're doing for a while. Michael, you might be waking up, I'm with you, I'm keeping you safe, I'm about to give you some more medication. In fact, I'm administering them right now, that might help to alleviate any pain that you might be feeling, that will deepen the sleep that you hopefully are experiencing, and I'll make sure that you're more deeply…

MW: 19:25 Brilliant.

MA: 19:26 unaware, but I'm not sure I have the presence of mind to do that.

MW: 19:30 Yeah, that's absolutely from my point of view the right response. However, I'm giving you (unsure of what he said) ?marks?. full marks

MA: 19:37 Thank you.

MW: 19:38 However, it neatly brings us onto what for me is becoming an even…a very significant issue, and that is the politics of the operating room.

MA: 19:49 Right.

MW: 19:50 To what extent do you think your colleagues, maybe yourself, feel under pressure to perform competently in the eyes of the surgeon?

MA: 20:03 I think It's… the pressure is much more on my junior colleagues. You know, I think that for me I've been in the game for a long time. I had a sufficient gray hair quotient…

MW: 20:13 Yeah, yeah.

MA: 20:14 And…and all the rest of it. So, the pressure on me is minimal, but I think on the trainees, junior colleagues, CRNA's, and nurse anesthetists. Those are who are not…., those are experienced. Experienced clinicians have much more latitude when you've built…I think it's really important to build trust in a team. When teams work together, when they know that all the members of the team are competent and communicated for a long time, the whole dynamic changes.

MW: 20:45 So, I mean I've been in theater when the anesthetist said in the UK to the surgeon, can you just stop for a minute…

MA: 20:52 Sure.

MW: 20:53 we need to stop. I obviously, when I've been in the theater with Ian, it's quite common for Ian to start speaking with the patient.

MA: 21:00 Of course.

MW: 21:01 And of course, the surgeon's that you worked with…

MA: 21:02 Are used to that. Yeah, right.

MW: 21:03 are used to it.

MW: 21:04 Absolutely. I have to say that I think there needs to be a turnaround in the culture, where it's acceptable for an anesthesiologist in America, as well as in the United Kingdom and all over the world, to start attempting communication with what from a surgical point of view appears to be an unconscious patient.

MA: 21:27 Right.

MW: 21:28 Just to check.

MA: 21:29 It's complicated because you know, many of the surgeries these days…so for example, thinking about the isolated forearm technique.

MW: 21:38 Mm-hmm.

MA: 21:39 Many of the surgeries these days are done with patients…so for example, all the heart surgery I do, the patient's arms are strapped to their sides. There's no way I can do the the isolated forearm technique.

MW: 21:49 Try the leg.

MA: 21:50 But even that, you've got the tray all the way…

MW: 21:53 Yeah, yeah, yeah.

MA: 21:54 but got no access to the leg. You can't do…you actually physically don't have access. There are many types of surgery today where patients are mummified…

MW: 22:04 Sure.

MA: 22:05 in their preparation, and it's not practical. So, you know some of the objections, it's not…I have no intellectual objection, and for many of my surgeries I do do isolated forearm, but for many it's simply not practical, or the hind leg of a patient…could be, it's not foreleg. Is it?

Anthony Messina (AM): 22:28 You actually use the isolated forearm….?

MA: 22:30 I do, yeah I do, I do.

AM: 22:33 You have to clone this guy.

MA: 22:34 No, I mean it's not…but, there are really surgeries where it's not feasible.

AM: 22:38 No, no I totally get it.

MA: 22:40 And especial…most of the surgeries for which I provide anesthesia, patient's arms are strapped to their side.

MW: 22:46 Understand.

MA: 22:47 So, it really takes that possibility out, but I don't paralyze those patients.

MW: 22:54 Sure, that which is great...but, I'm wondering if there's any room for compromise on whether a conversation between a surgeon and an anesthesiologist could result in some way of getting around that.

MA: 23:07 Oh, I mean undoubtedly. I think the whole notion of you know this is my emporium, that's your emporium, or you know but never the twain shall (unsure of words).

MW: 23:17 Yeah, okay.

MA: 23:18 We're all there for the patient, and it's all about communicating, and building teams and...

MW: 23:29 Yeah.

MA: 23:30 I think that we at our institution because we've conducted multiple studies into intraoperative awareness…

MW: 23:37 Yeah.

MA: 23:38 our patients are aware of it much more so than at other places, and more sensitive to it, and they understand that this is a big problem.

MW: 23:47 Sure.

MA: 23:48 When they've had patients who've had intraoperative awareness, we've provided feedback to them about it, and they're (unsure of word)?looped in?.

MW: 23:53 Yeah, sure. I want to move on now to ask you some questions about NaP 5.

MA: 23:58 Alright.

MW: 23:59 So, the National Audit Number 5 was a audit project conducted by the Royal College of Anesthetists and the Association of Anesthetists of Great Britain and Ireland, and this was an audit carried out over a one year period in the countries of the United Kingdom and the Republic of Ireland. And, it was rather unique because of the fact that the college gained access to every single hospital in those two countries, and all of the data was reported to…but directly to the college, and because of that fact a very large number of operative procedures were covered in the millions. And of course, one of the issues here is that the incidence of reporting was found to be very much lower than the standard Bryce interview approach incidence that we have in the literature. So, instead of it being one in 600, it comes out to be one in the many thousands. I think the average was about one in 19,000 overall in the procedures. I just wanted to start by asking you what your opinion was of Nap 5, and in particular what you make of the way in which certainly I have noticed, that in the United Kingdom many anesthetists are

using NaP 5 data as an excuse for dismissing accidental awareness as a significant clinical phenomenon that we have to worry about.

MA: 25:51 Well, I think first of all, to start with a laudatory comment and to say that it was a very impressive project, and to conduct these national audit studies where you really cover every hospital in Great Britain and Ireland, is impressive in its scope. It's ambitious, and very informative. And like the other national audit projects, Nap 5 yielded valuable information that continue to inform aspects of practice. It is…you know as we were discussing earlier, one of the difficulties with intraoperative awareness, is that it's not something that you can ascertain has occurred through…I can't put some sort of monitor on your head and say "Whoop" he's experienced awareness and he's going to remember it, or he's not going to remember it. This is something we depend on our patients to tell us about, and for various reasons, our patients don't necessarily inform us that were…that they had episodes of being awake during their surgery, after their surgery. For one thing, they might not remember that they were awake during their surgery, which is probably the most common, or one of the more common reasons. Because most times that patient's wake up during surgery, they don't consolidate episodic memory, but even if they do remember, you know initially they're confused about the experience, they're wondering when did this happen, they're maybe focusing on other things. They often tend not to report this voluntarily…

MW: 27:41 Yeah.

MA: 27:41 they certainly often don't report this immediately.

MW: 27:45 Yeah.

MA: 27:46 So, I think that almost by definition, this will be an under detected problem. The extent to which tit is under detected by any method…

MW: 27:55 Yeah.

MA: 27:56 I think is debatable. I think usually when a patient reports this has occurred, I would say most of the time it has occurred. But certainly, their perspective that it has occurred and to say when it has occurred is also pretty difficult. You can say oh well, it doesn't sound like this was during the surgery, this sounds like it was some other time. These are difficult judgment calls…

MW: 28:21 Yeah.

MA: 28:23 but as I say, I think that the key point here is that this is a problem that is…can be very devastating for patients when it does occur.

MW: 28:31 Yeah, yeah.

MA: 28:36 It…some patients describe it like the sensation of not they necessarily would've experienced it, but they imagined it to be similar to being buried alive.

MW: 28:44 Sure.

MA: 28:46 So, a very distressing experience, and not only are they buried alive with the inability to communicate with having that sensation, they're also in pain, and unable to communicate that they're afraid.

MW: 29:00 So finally, I mean you've got actually two cohorts within the…those who don't spontaneously come forward and complain, or report. Which of course NaP 5 is relying on.

MA: 29:11 Right.

MW: 29:12 On the one hand you've got those people who certainly had awareness experiences and have explicit recall, but they do not consider what they remember as being terribly important. In other words, they are trivial memories without significance or salience.

MA: 29:27 Or they think that…many people laugh hysterical. I've just had major heart surgery, I'm not going to talk about the fact that I…

MW: 29:37 And particularly men.

MA: 29:39 Yes, you know, society puts some various pressures on us and expectations…

MW: 29:42Absolutely, absolutely, and then…

MA: 29:44 and we don't' want to be…

MW: 29:45 Absolutely, and then at the other extreme we have the really traumatized people…

MA: 29:50 Right.

MW: 29:51 who actually won't even go near that family doctor after this has happened, let alone the anesthesiologist that did it to them.

MA: 29:57 This isn't the only trauma that people conceal and keep to themselves.

MW: 30:02 Absolutely.

MA: 30:03 I mean, many people have many serious traumas.

MW: 30:07 Child and sexual abuse.

MA: 30:09 Is a very germaine example, I mean a childhood, adult sexual abuse. I mean you people keep things to themselves for complicated reasons.

MW: 30:20 Yeah.

MA: 30:21 and the same applies to this particular trauma. There's no reason why we would expect that everybody would say, Oh, I've had this awful experience where…you know…

MW: 30:30 Yeah.

MA: 30:32 some people will, and some people won't. It's the majority who will not feel comfortable talking about it.

MW: 30:37 Yeah, absolutely.

MA: 30:39 You know…they feel here's … you know, you feel grateful to the clinicians who've taken care of you, and you know you're alive, you've done well, and they you don't…

MW: 30:52 You don't want to rock the boat.

MA: 30:53 want to come across as being ungrateful.

MW: 30:55 Yeah, absolutely.

MA: 30:56 Or you know…it's very complicated, I mean these are not straight forward reasons. But, I think that everybody would agree that NaP 5 yielded very valuable information, but it almost certainly under detected.

MW: 31:15 Yeah.

MA: 31:16 The uh…

MW: 31:16 It is not a valid measure of incidence.

AM: 31:18 No, I'm curious though, since everyone knew that it would be an under representation, what was the practical point of doing it, because it was a huge project.

MA: 31:29 Right, um, well…you know. I wrote an editorial about it and you know, the editorial I think…our…the title of our editorial was *Under the Rate* or *Under the Radar*.

AM: 31:45 Yeah, I remember that.

MA: 31:46 So, we specifically, George Masseur, M.D., and I addressed that question head on, and we said it's entirely predictable that this would have under detected the problem, and we know that from our own research. So, for example, we published another study where we had two methods of detection in the same patient cohort. So, this is very important, this is in the same patient cohort, that when the patients reported themselves compared with when we subsequently contacted them and asked them direct questions, we were detecting ten times more through the method of contacting patients than through self-report. So, we knew already we had good empirical evidence…

MW: 32:30 Yeah.

MA: 32:31 that this method would yield under detection…

MW: 32:34 That's right.

MA: 32:34 of the problem.

MW: 32:35 That's fine.

MA: 32:35 So, you know it's not…this came as no surprise to us.

MW: 32:38 Absolutely, and can I say that I along with Jackie Andrade, PhD, were from the outset members of the NaP 5 panel. We were members, we were present when all the discussions took place about design, and methodology of the project. We knew at the outset that many of the anesthetists involved in the panel had thoughts, maybe they hadn't articulated them openly, but had thoughts that NaP 5 would find a much lower incidence. And this comes within the context of average estimate. So in other words, there have been surveys you know, you ask anesthesiologists what do you think, off the top of your head, is the incidence of accidental awareness? And most British anesthesiologists would say, maybe one in 10,000, and you say to them, well did you know that the empirical evidence using the Bryce Interview shows that it's around one in 600, and that's pretty consistent. And most of them are in

denial about that data. So, then…so, we have the Audit project, and it's my perspective that many of the anesthetists came to that project with the view that this was an over estimate, one in 600, and that NaP 5 would find the true incidence. And I've had many arguments with panel members, and we started out from very beginning, and I predicted that we would get very low estimates, like you, and I made the point that I wanted from the outset to say that this is not going to be a measure, a true, or valid measure, of incidence, but inevitably that's the way it's being used.

AM: 34:36 So, I think this brings up a cultural political point that goes like this, one of the reasons I wanted to analyze the not valid aspect of the expert system, was that not that it would be an absolute way to have a more precise classification rather, but rather in the need for transparency. Because when Peter Sebel published it, one of his criteria was, to publish all the reports and let the reader decide, and yet, it evolved to where it wasn't being published. And with the Zhang paper, he made a comment about different cultural aspects of Chinese patients reporting stuff that clearly had nothing to do with the surgery, and that's fine, but It's important to objectify that stuff. And over the course of my involvement in anesthesia, the recurrent theme I see is with new anesthetic developments and issues, there is a tendency in the field by the experts and the rank in file to shift to positions that tend to underestimate awareness. Whereas now, we're getting experts very concerned about delirium and decreased survival as a justification for light anesthetic techniques and across the board paralysis. That was the same rationale in the 40's, 50's and 60's, when truly people were dying from deeper levels of anesthesia. But then, that justification was brought forward when we got sophisticated interventions in cardiac, physiology, etcetera, when we could keep them deep, even though they were critically ill. So, there's a tendency in our field for very…because it's tough to be in the O.R., it's tough to deal with unhappy patients. Where we justify light anesthetic techniques of paralysis, that seems to me to be the theme that needs to be addressed. And you do it, you're fabulous, but you're in the minority. We get a lot of expert opinion now, about the concerns over delirium, decreased survival, and the need of light anesthetic techniques with across the board paralysis.

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