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Anesthesiologist versus Anesthetist

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A tall, unbreachable wall separates physicians and everyone else—nurses, psychologists, physical therapists, etc. A medical doctor/anesthesiologist (MD) performs similar (sometimes identical) work to that done by a certified registered nurse anesthetist (CRNA). Yet their training, credentials, licensure, privileges, and autonomy can differ sharply. Some states require CRNAs to work under the supervision of a physician, who may or may not have expertise in anesthesia. In any state, a nurse anesthetist who wishes to become an anesthesiologist will essentially have to go back to square one to make that transition—with little credit given to prior training and experience. This physician/nonphysician distinction is deeply engrained in American healthcare. But does the demarcation serve the interests of patients? Or is it merely an artifact of physicians' 20th century political power? (Economist Milton Friedman said long ago that the American Medical Association was "the strongest trade union in the United States.") Here, health economist Bob Graboyes discusses this demarcation with Nina McLain (a CRNA and professor in Mississippi) and Murray Feldstein (a retired urologist who "supervised" CRNAs in Arizona). This is the first of the following four segments:

1. *How do MD anesthesiologists differ from CRNAs in terms of training, knowledge, and professional roles?*
2. *How do collaborative practice agreements (CPAs) work, and what do we mean by "full practice authority" for nurse anesthetists?*
3. *What would be the present-day logistical hurdles for a nurse anesthetist who wished to transition to the role of physician (medical doctor or doctor of osteopathy)?*
4. *What institutional arrangements could expedite such transitions, without compromising the quality of care?*

While the focus here is on anesthesiology, our discussion is applicable to the physician/nonphysician divide. For simplicity, we will refer here to physicians as "MDs," while noting that doctors of osteopathy (DOs) serve equally in this role. Before beginning, I'll note that Nina was my doctoral student at Virginia Commonwealth University and Murray and I co-authored a provocative series of articles arguing that healthcare professions might do well to emulate the manner in which the Federal Aviation Administration certifies pilots. – Bob Graboyes

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Part 1 of 4: Training, Knowledge, Privileges, Roles

How do MD anesthesiologists differ from CRNAs in terms of training, knowledge, and professional roles?

BOB: Nina, could you begin the discussion by explaining the institutional arrangements under which CRNAs operate?

NINA: States have differing practice statutes and limit roles certified registered nurse anesthetists (CRNAs) can assume. In many places—for example, rural areas with no anesthesiologists—a CRNA functions as a solo anesthesia provider and has a collaborative practice agreement (CPA) with a physician or dentist; in such a case, the CRNA's role is no different from that of an MD. In that same

state—say in a larger metropolitan area—the CPA may be with a MD anesthesiologist who oversees the CRNA and is available for consultation and emergencies; in this case, the CRNA provides the technical aspects of care to the patient. In yet another area of the same state, the CRNA may have a similar CPA in place with an anesthesiologist, while assuming direction of the patient's care; the anesthesiologist may push the drugs to put the patient to sleep and, once the patient is asleep and stable, the CRNA assumes responsibility for care, stays in the room, monitors the patient, and handles any issues or hemodynamic changes. These are examples of collaborative, supervision, and medical direction models, respectively. In some states, the nurse anesthetist has "full practice authority" and can operate autonomously, with no need for a CPA with any physician.

As far as skills are concerned, I would consider the training between anesthesiologists and nurse anesthetists to be similar. The National Board of Certification and Recertification of Nurse Anesthesiologists (NBCRNA) sets the requirements for clinical case numbers, clinical hours and experiences, anesthesia techniques, case types, and specific patient statuses the resident must have to sit for the National Certification Exam (NCE). Our program at USM has a synthetic human cadaver (SynDaver) that is more realistic than a "real" cadaver in color and texture. Many medical schools use these as well. We also have virtual reality (Simvana) systems and high-fidelity human patient simulation, along with our static skills models for practice. We use those for things like spinal and epidural training, nerve blocks, and airway management as examples.

Didactically, the physician would likely have full courses in medical school that we do not have in most CRNA programs: for example, cell biology, genetics, histology, embryology, and additional chemistry courses. While we would have the anesthesia-specific content from those types of courses wrapped into our physiology, pathophysiology, and principles courses, we would not likely have full courses on that content in our programs. Anesthesiologists and nurse anesthetists have similar training in the basic sciences, pharmacology, multiple principles courses, health and physical assessment, clinical correlations, seminars, and courses specific to anesthesia. Then, of course, we have our doctoral work on research and methods, epidemiology, population health, policy and politics of healthcare, plus economics and finance of healthcare-type courses. A difference, of course, is that the philosophy of nursing is threaded throughout our program with a nursing focus on patient interaction.

Summing up, our education is from the nursing perspective of care—a holistic approach to healing while building therapeutic relationships, considering the physical and emotional needs as well as any additional or external influences on the patient's health. The medical perspective is more of a cause-and-effect approach of determining the root cause of symptoms and treating those. At least that is my understanding, simply stated. Historically, at least in my state, we have worked well together to provide the best patient care.

BOB: Murray. A while back, I asked you how the knowledge possessed by an anesthesiologist differs from that possessed by a nurse anesthetist. Could you remind me of what you said?

MURRAY: We need to be conscious that there's knowledge that we learn from reading and taking courses, and there's knowledge we acquire from practical experience. All healthcare providers need a fundamental grasp of basic and clinical science, as well as math, before we lay hands on a patient. We can learn some of this in college or professional school. There is additional knowledge we learn during our supervised clinical exposure while studying in professional schools and during postgraduate training. And then there is the additional knowledge and experience that we acquire when we are finally able to work independently. The science of healthcare has changed dramatically over the nearly 60 years I have

been part of the medical profession. Much of what I learned is no longer applicable, or was incorrect even when it was taught. So the competence of either a CRNA or an MD anesthesiologist will vary primarily on their practical experience. A lot of this depends upon what opportunities were available to them, and this, as Nina says, will vary from state to state because of political constraints.

It goes without saying that there is a strong individual element to all this. A person who is intelligent, intellectually curious, and compulsive when it comes to patient care will be a better healthcare provider than one who lacks these attributes, no matter which initials follow their name. One's character is just as important. Honesty, a willingness to work hard and take responsibility, and sufficient humility to realize their own limitations count for a lot.

Taking all of this into account leads me to say that there really is no way to say that all MD anesthesiologists have more knowledge than all nurse anesthetists, or vice versa. You would have to look at each individual's training, experience, and character.

BOB: In American healthcare, there is this sharp delineation between medical doctors and everyone else involved in care. We speak of "nonphysician providers," but never of "nonnurse" or "nontherapist" providers. Is this doctors-and-everyone-else model ideal?

NINA: I've never thought of the nonnurse concept, hmm. So, a physician is a nonnurse provider. I am a doctor of nurse anesthesia. Personally, I do not let anyone call me "doctor" in the clinical setting, because I feel it is misleading to the patients who are not academically minded. My good friend, Harry Gibson—one of the best anesthesiologists I have ever worked with—is a PhD and MD. Is he a Dr. Dr.?

I think the term "nonphysician" simply came about to try to be inclusive of all us nonphysician providers and to make sure the public knows we are not physicians. Maybe the physicians came up with it, or maybe a great nurse who did not want to be known as a physician did. I do not know. Realistically, I do feel that at one time, it was a doctors-and-everyone-else model, but I feel like this has changed a lot over the last decade as more people and more insurers have begun to fully understand the nonphysician provider's value. In our state, we have many facilities that practice by the team model, meaning anesthesiologists and CRNAs working together as a team to provide care; the nonphysician terminology is not even an issue. The doctors-and-everyone-else model is far from ideal, to me anyway. When I am the one asleep on the table, I want everyone to get along and functioning well together! I do not want a "them" and "everyone else." Let's all just get along and appreciate what each of us brings to the table, which is a lot.

To Murray's point, all CRNA programs have transitioned to the doctorate level or will have by 2025. It is mandated by our council on accreditation (COA). There is a bit of potpourri in the designations, depending on the school that houses the program. A school of nursing offers a Doctor of Nursing Practice (DNP) degree. A school in allied health professions may offer Doctor of Nurse Anesthesia Practice (DNAP) degree. Of course, there are many different PhDs, so it is kind of a hodgepodge of terminology. But, bottom line, by 2025 all graduating nurse anesthesiology students will be at the academic doctorate level. Most actually are now.

MURRAY: I imagine so. It's the customary paradigm we have all gotten used to. By the way: Here is an anesthesiologist joke:

Question: What is the definition of an anesthesiologist?

Answer: A half-asleep physician taking care of a half-awake patient.

Here's some more serious additional thoughts about the doctor/non-doctor paradigm. A lot of physicians get mad when non-MD's put "Doctor" in front of their name. I have a good friend who is an ear, nose, and throat specialist who gets angry when audiologists use the designation. I think there's general confusion, especially among physicians, that their "doctor" title is just that. We do not have an academic doctoral degree in the sense that you do, Bob. If anybody should be angry, it should be PhDs. I remind my MD colleagues that an audiologist or psychologist, or any other healthcare worker who is not an MD, is just as entitled as we are to be called by the honorific, "doctor." And certainly, as Nina points out, advanced practice nurses are more and more frequently becoming doctors of nursing.

BOB: To close this out, I'll note that some states are making it illegal for anyone other than physicians to refer to themselves as "Doctor So-and-So"—even if they have some sort of doctoral degree, as Nina does. (I have a doctoral degree, too, but I'm not treating any patients.) You can read about it here: https://www.washingtonpost.com/health/2023/08/20/nurse-doctor-scope-medical-titles/, and this would be a worthwhile topic to discuss at some point in the future.

Part 2 of 4: Collaborative Practice Agreements and Full Practice Authority

How do collaborative practice agreements (CPAs) work, and what do we mean by "full practice authority" for nurse anesthetists?

BOB: Nina, could you explain the nature of Mississippi's requirement that you establish a CPA with a medical doctor? What is involved in the establishment and maintenance of such an agreement, and what is the real impact on your practice? Does a CPA help you, hurt you, or neither? And how does it affect the patient?

NINA: Sure. A CPA in our state is called the collaborative agreement and is mandated by our state licensing agency, the Mississippi Board of Nursing (MSBON). In Mississippi, CRNAs fall under the advanced practice registered nurse (APRN) categorization. In our state, APRNs are required to have a CPA with a physician or dentist who has an unrestricted license to practice. This is mandated in the Mississippi Nursing Practice Law, and officially called a "collaborative/consultative relationship with a dentist or physician."

As far as what is involved in a CPA, prior to working at each specific facility, the CRNA must have a physician or dentist who is amenable to collaboration and complete the online process of adding them to their practice site on the MSBON Nursing Gateway website. We pay a fee of $25 to add a new collaborator and a $25 fee to add a new clinical site. Once the addition is approved, the CRNA gets an email from the MSBON and the CRNA can then practice. The CRNA or facility keeps a copy of the CPA protocol on file at the facility. A quality-improvement plan with monitoring has to be carried out and reviewed by the collaborating physician or dentist on a regular basis. Usually, this will occur in the form of chart reviews but other methods are not excluded. For CPA maintenance, most that I am aware of, renew automatically unless ended by one of the parties.

You asked "what is the real impact" on our practice. Well, big in that we cannot practice legally without the CPA, but realistically, the existence itself does not alter what we do or how we practice. We are held to the same standards of care that a physician anesthesiologist is whether we are practicing in the same room or alone with a collaborative surgeon or dentist in an operating suite or dental office. If one were in court, the standard of care is the same whether you are a CRNA or an MD.

There is a lot of disagreement among providers as to if the CPA helps or hurts. I think that is the tale of two views. Some feel the CPA is totally unnecessary and for good reason. Some feel it is absolutely necessary, and, honestly, they have some good thoughts too. The reality is much what Murray already alluded to—it depends on the people.

I personally don't think a CPA is useful in any model of anesthesia care, and I have enjoyed working in them all. The CPA has never been an issue for me. I do have it in place to collaborate and coordinate patient care with my physicians, surgeons, endoscopists, or radiologists. (However, it does not change my plan of care or delivery of anesthesia to the patient.) I would add dentists, but I have not worked with them in that capacity. I would collaborate with them when necessary whether I had a CPA or not.

Collaboration does not mean "dictate or direct care," and I think people get confused on that issue. "Communicate" is a better word, in my opinion. CRNAs are well trained to develop pre-anesthetic assessment and evaluation; develop management plans; provide complete peri-anesthetic care, including induction, maintenance, and emergence of anesthesia; perform the tasks needed to care for the patient; and handle any situation that arises, whether crisis or routine. Essentially, that is what is in the CPA. I'm required to have it, so I do. If you removed it tomorrow, my personal anesthesia practice would not change in the care I give a single bit. There are many CRNAs whose practices are limited because of the model in the facility where they practice—but it is not by the CPA itself.

However, I guess to answer your question, a CPA does hurt many CRNAs in that their agreement may be with a collaborator who does not want them practicing to their full scope, as in some medical direction models. However, in rural America and a good portion of Mississippi, where there are no anesthesiologists, collaboration with a physician (or dentist) is a required formality; CRNAs can practice to their full scope, because many of the skills or certifications they have are not possessed by the physicians with whom they collaborate. In many supervisory practice models, CRNAs are able to practice to their full scope, as their supervising anesthesiologists understand the value of that team-practice model. Fortunately, I have the best of both worlds in that I work with collaborative surgeons/physicians who are very skilled and brilliant. I have known CRNAs, anesthesiologists, surgeons, and physicians I respect as much as you, and I would go down fighting for them. A couple—well, not so much. So, as both Murray and I mentioned, it just comes down to the people, and, I guess, the model of practice.

BOB: And Murray, could you please recount your experience managing a group of nurse anesthetists? How did that come about? What was involved in supervising these NAs? And do you think the arrangement was beneficial to you, to the NAs, or to the patients?

MURRAY: I did not "manage" a group of nurse anesthetists in any meaningful sense. I collaborated with them as colleagues. Nominally, and only for legal purposes, I "supervised" them during surgery. There was no anesthesiologist within 150 miles of our hospital. Anesthesiologists tended to work in large communities, and at the time, Flagstaff was only 32,000 souls. Specialists were just beginning to move in, and the town was growing. The three nurse anesthetists were quite experienced doing the kinds of procedures done in community hospitals. I wouldn't have been able to operate without them. They

were excellent. I had administered anesthesia under supervision as a medical student and as an intern. There were no anesthesiologists at the Veterans Hospital in Tucson, so I worked with nurse anesthetists there when I was a resident at the University of Arizona. The fact that there were no anesthesiologists in Flagstaff didn't bother me.

So, let's talk about this idea that I "supervised" the nurse anesthetists in Flagstaff. That was a convenient fiction, a necessary lie that had to be told to satisfy Arizona's medical practice act, because at the time, it was illegal for nurse practitioners to act independently. But the three nurse practitioners I worked with all knew a helluva lot more than I did about their work. There's no way I'm going to stop what I'm doing if I get into trouble removing a big kidney cancer and tell the nurse anesthetist what he or she has to do. They all knew what had to be done. We just dotted some i's and crossed some t's with paperwork, and it became legal. That's what was done around the country in every hospital like ours. Thankfully Arizona is one of the more enlightened states, and, after a protracted turf war in the state legislature, nurse anesthetists can now practice independently, and everyone can stop lying.

As an aside: The three nurse anesthetists have all retired. Flagstaff now has a large staff of well-trained anesthesiologists, and I believe they employ some anesthetists. But there was a brief time in the late 1970s when a newly trained anesthesiologist came into town and insisted that he was going to run the anesthesia services and make the three experienced anesthetists into employees. But it turned out he was not nearly as skilled as they were, so the surgeons refused to let them put their patients to sleep. And he left town a year later.

Part 3 of 4: Transitioning Across the Wall

What would be the present-day logistical hurdles for a nurse anesthetist who wished to transition to the role of physician (medical doctor or doctor of osteopathy)?

BOB: In a conversation with Murray, I posed a hypothetical. Suppose a nurse anesthetist like Nina decided for some reason, "I'd rather be an MD anesthesiologist." Let's explore that idea. First of all, why might a CRNA decide to become an MD? What could be the attraction?

MURRAY: Money. Prestige. Status. Some large hospitals will not let anesthetists work unless under direction or employment by anesthesiologists. Academic programs are set up that way most of the time. Again, it will vary by state, since some still do not grant CRNA's the right to independent practice.

NINA: Hmm … maybe they want more school debt? (Kidding!) I think if they were interested in specializing in a specific type of practice, say pain management, and wanted to do it without restrictions, that would be an incentive. Currently, a CRNA who wants to do this has to be sure they live in a state where the laws allow it. Or, a younger person who had time and wanted to practice independently in a state that doesn't allow independent practice by a CRNA might have an interest in going back to school. Those are really the only couple of reasons that would be worth it to me personally, but I am sure someone younger would have a different answer! I could survey for you and find out though.

CRNA salaries are really good. Many physician anesthesiologists in our area are encouraging their children to get nursing degrees and come to our program. Jokingly, I had one anesthesiologist ask me if

he could get admitted to our program so he could have better hours. He claimed we make more per hour than he did after his overhead with his group, his low reimbursement from insurers, and a few other factors.

BOB: If an NA decided to become an anesthesiologist for one of these reasons, how much time and expense and effort would be involved in making the transition?

NINA: Well, there would be several courses that could transfer but there would still be many courses to take to even apply to the school. That could take two years depending on what prerequisite courses you had taken in college. I wanted to be a marine biologist and work with dolphins when I started college, so someone like me would have a few more science courses than others might. Then they would have take the Medical College Admissions Test (MCAT) and score really well, find a program willing to admit a CRNA, and go through the same rigorous admission process as everyone else.

Expense? Definitely a big consideration. In our state, to quit life as an experienced CRNA making $185,000 to $250,000 per year (plus more, depending on whether you take call or work extra days), and give that up to go full time to medical school? Eek! That is big. And then to be poor for another several years with low income as a resident at some point. I think realistically, that would be a major factor that would make the transition very unattractive to get the MD title and do essentially the same job we are doing now. As I suspect my esteemed economics professor would agree, that would be a poor decision.

BOB: So, if I'm not mistaken, it would take Nina the same time, expense, and effort to become an MD that it would take a 21-year-old just finishing an undergraduate education, right?

NINA: Well, again, that would depend on what other courses were taken during their undergraduate program. I'm unaware of any medical school that would give any type of credit for case hours or experience, but to be honest, I have never investigated that. Essentially, that sounds right.

BOB: But, unlike the graduating college senior, a CRNA like Nina already possesses a large percentage of the knowledge base required for an MD. In a perfect, frictionless world, how much time would a nurse anesthetist really need to acquire the missing pieces of a medical degree–to become an anesthesiologist?

MURRAY: It really depends upon the nurse's prior experience. How long did the nurse work before deciding to change titles? Where was he or she employed: Big hospital? Academic center? Smaller community hospital? Was the nurse working independently or as an employee of a large MD anesthesiology practice under rigid supervision? What kind of procedures did the nurse do before? Open heart surgery or outpatient hernias in healthy patients?

The more experienced nurse might already be more knowledgeable and skillful than an anesthesiologist freshly minted out of a residency. In that case, the only thing the nurse would need to do would be to get acclimated to the standard operating procedures of the particular institution in which he or she was working. But if the nurse was relatively inexperienced, and only a year or two out of her anesthesia program, and had only been involved in managing healthy patients in minor elective procedures, he or she might need to take a refresher courses in respiratory physiology, pharmacology, and a year or more of a supervised residency. Especially if he or she were now going to something complex, like heart transplant work. What do you think Nina?

NINA: Murray is spot-on as far as my understanding. Our graduates straight out of school have all the required case types and procedures. They do cardiac and vascular surgery cases—all the big ones the docs do. In a perfect world without egos and silly interprofessional frictions, some type of system could be developed to give credit via testing or simulations if anyone was interested in making a transition. As the professional climate is now, that could only happen in a few places. Someone like me would have to take 12-14 courses and some labs to be able to apply. I guess the one advantage over the other students would be their base knowledge in anesthesia and their experience, abilities, crisis management, and critical thinking/diagnostic abilities. Heck, they may even be top of the class, as they would be starting with some really awesome pearls in their pocket.

So, the crazy thing is—CRNAs do transplants, in school and afterward if they choose to work in those kinds of facilities. In our area, those facilities are usually larger private organizations or university medical centers, where physician anesthesiologists are generally either the supervisors or medical directors. In our state, legally, the CRNA can collaborate with a surgeon and be the anesthesia provider for a transplant team. But realistically, since transplants are done here at the larger private hospitals or university medical center, the docs are in charge. Again, the prohibitive factor is the model, not the ability. If a CRNA had not done a transplant since training and wanted to accept a position like that, a sane one would certainly want some specialized mentoring by an experienced anesthesia provider, whether CRNA or physician. “No cowboy anesthesia” is what we preach at our program.

And Murray is right about having to be a doc to get a good fellowship. Once, I was curious if I could apply for a post-graduate fellowship in anesthesia. I was really into grant-writing at the time. I still love it. At that time, all federal funding for fellowships was for physicians. A lot of funding was available for nursing, focused on qualitative research and traineeships for things that had nothing to do with anesthesia. There are now CRNA fellowships coming about through schools. I know of some in pain management and pediatrics, for example. But the federal funding has not materialized for CRNAs as it has for the docs. But then, that starts my brain on the train track of graduate medical education (GME) funding for physicians only. And I try hard to keep that tamed and save that to tackle closer to retirement. With the huge nursing shortage (a.k.a., “crisis”), I am fighting the urge to scream about no equal GNE (Graduate Nursing Education) funding with the same model as the GME. But again, that would take an act of Congress, literally, as you described at the first of this series, and the AMA has the power and money.

BOB: And therein lies a fundamental problem with the very idea of licensure, as opposed to, say, certification. It encourages the establishment of rigid, inflexible, one-size-fits-all arrangements. To filter out unqualified or incompetent providers, they employ heuristics that inadvertently filter out people who are qualified and competent, but who acquired those skills in unconventional ways. At other times, licensure boards’ focus wanders away from the public interest to their own interest, and the power to bestow or to deny a license gives rise to self-interested fiefdoms—guilds, if you prefer. In the fourth and final segment of our conversation, we’ll talk about how alternative pathways to licensure might serve the public interest.

Part 4 of 4: Transitioning Across the Wall

What institutional arrangements could expedite such transitions, without compromising the quality of care?

BOB: Murray, you and I have written about conjectural licensing regimes in which there would be more of a spectrum of certifications, rather than the unbreachable walls that separate medicine from nursing, therapy, and other healthcare professions. As an alternative licensing model, you and I looked to the "stackable" certifications that the Federal Aviation Administration uses for pilots and other flight personnel. If a pilot certified for single-engine propellor-driven planes wishes to fly Lear jets, he or she has to acquire new skills and certifications, but does not have to go back to Cessna school– the way Nina would have to go back to med school to become a doctor. Let's explore the advantages (and disadvantages) of such an alternative licensing system.

MURRAY: I believe there are considerable advantages to the kind of stackable certifications we discussed in our article. And by the way, I was, a long time ago, a private pilot. So I'm familiar with the differences between the way the two professions are certified or licensed. If we were to adopt the theoretical system we envisioned in our paper there would be a huge impact on the training and specialization of all healthcare providers. Many opportunities would open for healthcare providers that are currently unavailable.

Take the example of the CRNA with a moderate amount of experience doing only elective procedures who decides to work now with a transplant team. Under the current regime, only MD anesthesiologists can do this type of work unsupervised (at least in some states). The nurse cannot just get trained up to the new task without going through some period of supervised experience. But only MDs are allowed into the post-graduate programs (residencies) that provide that kind of training. So, the nurse has to get the MD degree in order to have the opportunity to get the training. Just as Nina pointed out, this means applying and getting accepted to a medical school which might require going back to take come college courses. Then there would be the four years of medical school to get the MD degree—essentially repeating two whole years of taking the anatomy, biochemistry, pharmacology, and physiology that the nurse already knows. Following this basic clinical training, the CRNA will have to spend additional years learning things that she will never need in her anesthesia job—things like obstetrics, psychiatry, well-baby pediatrics, etc. After graduating medical school and being accepted into an anesthesia residency (assuming she gets into such a residency), the nurse will have to repeat another 2-3 years of general anesthesia instruction he or she has already had before, until finally–***finally***–getting a 2-year fellowship in the subspecialty of open cardiac surgery including heart transplantation. If my math is correct we're looking at an additional 8-9 years of training.

In the system we discussed in our paper, a post-graduate training program for open heart surgery might be willing to accept applicants who are not MDs, but who have recognized certified skills and training as acceptable qualifications. The system we envisioned recognizes competence and experience rather than just an MD degree (which is only a proxy for competence). Presumably, this "stackable" approach would significantly cut the length of time for transitioning from CRNA to MD (or some equivalent career move).

NINA: I knew I liked Murray. I used to fly too, but only a Cessna 182. I had full plans to continue on and get my instrument rating and certification to fly my hubby's (now ex-but still great friends) Citation. But, I got pregnant and the baby boy became the focus, and flying fell to the wayside. So, I am familiar with the FAA certifications as well.

I think with the AD in nursing, then BS to MS to PhD route that I took, and my extra science courses, I could maybe do it in 6-8 years if all my coursework transferred, but now it is too late because that has been ... a minute or 30 years. It would probably take longer for those who took the nursing bachelor's straight to doctorate in nursing path, because they would have fewer science and math courses.

BOB: I think a more flexible system–something resembling the FAA's licensing system–could have strong, positive effects on the availability of healthcare resources in underserved areas. (Rural areas, inner cities, etc.) What do you think?

NINA: Absolutely. As a resident in a rural-underserved county, and state in most cases, I do not live where I teach. I totally agree. In the context you are speaking of, I honestly think in a way, nursing has already had something close to this although it is not recognized as such. We have Licensed Practical Nurses (LPNs), 2-year associate degree RNs, then bachelor's prepared RNs, master's level nurses, and APRNs (both doctoral and masters prepared). There has been a big push to get away from the LPNs and 2-year associate nurses over the last decade in many states. I could not really buy into it. Ages ago, around this area, the best nurses came from a hospital diploma program, really. They were great. Some of the best nurses I have worked with, and still do, are LPNs and 2-year associate-degree nurses. Historically, their roles were more technical and, in my personal opinion, that experience, combined with the patient compassion they bring to the table, is a huge thing missing in current healthcare.

Then COVID hits. Nursing shortage, crisis galore. Sure would be nice to have some people who know how do nursing care at the patient level that does not require a higher degree, right? Not everyone needs to have a "professional" degree designation. Remember, these are my personal opinions only.

I believe we still have a place for the LPNs and 2-year RNs, who by the way, are often just as good at critical thinking (and in code situations, too) as the bachelor's nurses and physicians. I know, I know people think I am not supposed to feel that way for a bunch of reasons, but maybe that should be revisited. Both the LPN and associate nursing routes are also great pathways to get the high school student whose GPA will not let them get into a competitive bachelor's program into an entry level nursing position earning money. An LPN can "upgrade" by going back to take courses for their RN degree, then do a bridge course to their bachelor's. If they choose to go on, they can earn their master's or doctorate and might even be a CRNA or family nurse practitioner one day. Maybe even a dean of a college of nursing. If one chose that path—LPN to doctorate level—that would take about 8-9 years total. Similar to bachelor's and medical school, right? Help the underserved become those who serve the underserved. Neat concept, economically feasible in my opinion.

I suppose we could reinvent the wheel and repackage it into a certification instead of license model, but it would make more sense to me to take what we have and streamline what would be taught at each of the levels a little better and roll with it. I will say, we have new standards and essentials from the American Association of Colleges of Nursing (AACN) for bachelor's to doctorate levels and here is where I go off script and may get daggers thrown at me (but you know me Dr. Graboyes and Dean Story if you are reading this). We could add in the 2-year associates and the LPN competency levels and "voila!" There are your stackable certifications doc, for nursing. But, I am a dreamer, and hate to be told that something can't be done.

As far as I know, there is no similar pathway for physicians. There may be, I would have to defer to Murray on that one.

MURRAY: I still opt to go to a stackable certification program rather than "streamlining" what we have now, but I advocate a "sneaky" way to do it. What we have now is a state monopoly in licensing regimes, and political considerations are often the most important factor in deciding how the monopoly operates: which big dog owns the territory as it were. Why else would 50 different states have 50 different scope of practice laws for nurses, physical therapists, etc? The answer, of course, is that in one state, the nurses have more political pull, and in others, doctors are the victors in defending their turf.

What Bob and I proposed in our paper is letting the states have the final say in which accrediting organizations are good enough to be accepted on their accreditation registry, but then letting those organizations define what it takes to be competent. There is going to be overlap in some areas between professions and even within professions. And those are the areas where turf wars erupt, and politicians, who often know nothing about medicine, get to decide who gets to do what. In the system we propose, those are the pressure points where competition gets to exert its beneficial effects. It will lead to the programs becoming both more equitable and more efficient in who is acceptable for training, what is taught, and how long it takes to be trained for any given competency. And while politics is always going to be a factor, the states can outsource its deciding what accreditation boards are acceptable by relying on the standards established by the American Board of Education, among other such meta-accreditation organizations.

Nina, think of the many different ways the entry pilot, flying by visual flight rules in a single engine plane, can progress to become an airline pilot, or anything in between, such as a commercial pilot flying customers with an instrument rating in a single engine seaplane to an isolated lake in Alaska. (I'd love to be fishing in one of them right now!)

Stripping the state medical boards of their respective monopolies would incentivize medical training institutions at all levels to reconsider their requirements and their curriculum. Graduate nurses, psychologists, physical therapists, optometrists, pharmacists–and even MD's–have accumulated skills that could allow them to choose from a menu of post-graduate programs that could diversify their skill sets and allow them to adapt to whatever are the particular needs of their practice setting.

BOB: To throw just one more item into the mix—a big item—medical schools, other healthcare schools, licensing boards, and other players are rapidly imposing ideological litmus tests on their students and practitioners. I think this will soon constitute a real crisis, if it doesn't already. I think it will have negative impacts on patient care. Establishing parallel modes of education and licensure (or certification) are just about the only way that I can think of to defuse this situation.

A big thanks to both of you for this excellent conversation.

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Nina McLain is the Nurse Anesthesia Program Administrator and tenured Associate Professor at The University of Southern Mississippi, with a clinical practice in central Mississippi. She has provided anesthesia in several anesthesia models including collaborative agreements with surgeons/physicians as the solo CRNA and in a medical team model of both direction and supervision with MD anesthesiologists. She has been a CRNA for 30 years and a registered nurse for 5 years before that. She served as Vice President of the Mississippi Association of Nurse Anesthetists and is currently on the National Advisory Council for Nurse Education and Practice, which advises the U.S. Secretary of the Health and Human Services. She holds a Ph.D. in Health Related Science from Virginia Commonwealth University.

Murray Feldstein is a retired urologist. He received his M.D. from the University of Pennsylvania School of Medicine in 1967, did a general (rotating) internship for a year at the University of Oregon, and then served as a general medical officer in the U.S. Army's 82nd Airborne Division. He took his initial surgical training at the University of New Mexico and then finished his urology training at the University of Arizona—the first resident who graduated from that program. He practiced in Flagstaff, Arizona for 25 years, and also worked at the Tuba City Hospital on the Navajo and Hopi reservations. His partner and he started outreach clinics throughout Coconino, Yavapai, and Navajo counties. Murray briefly retired in 2000, but then was asked to join the Mayo Clinic in Phoenix and became an Assistant Professor until his retirement eight years ago.