
REMAPPING DEBATE

Asking "Why" and "Why Not"

Think twice before throwing doctors to the wind

Original Reporting | By David Noriega | Health care

April 9, 2014 — Remapping Debate has [reported before](#) on the shortage of physicians already facing the nation, a shortage that promises to become more acute as time goes on. Rather than deal with that shortage, the trend is to find ways to replace physicians with cheaper alternatives, a practice known in other industries as de-skilling.

FIRST THINGS FIRST

A signature feature of the way public policy tends to be decided in the United States these days is to place funding decisions ahead of any other kind of planning process. In shorthand, the only question asked is, "What can we do given what we can afford?" The alternative, of course, is the look-at-the-best-options method. This first asks, "What achieves the best result independent of cost?" Only once that is determined is a second question asked: "What, if anything, do we want to give up in the name of cost savings?"

The differences in the two approaches are considerable. With the second, the public gets a clear sense of trade-offs, facilitating an informed, democratic decision. With the first, the trade-offs are largely invisible and the scope of debate narrow (with any deviations from a cost-cutting regime promptly dismissed as "impractical").

As Remapping Debate began to explore the question of the increasing role of nurse practitioners — in lieu of physicians — as the lead providers of people's primary health care, we found that questions of cost and access were crowding out more basic considerations: What are the differences in training between physicians and nurse practitioners? How can those differences have an impact on patient care? What, in the end, would be best for patients?

Though our reporter encountered significant resistance to having these questions squarely answered, we think his article provides important illumination as to these questions.

— *Editor*

In the world of primary care medicine, however, the replacements — most notably nurse practitioners — themselves have a significant level of training. In a growing number of states, nurse practitioners are being allowed to practice independently rather than, as traditionally has been the case, under the supervision of a physician.

Our reporting for this story shows, however, that there really are significant differences in training between physicians and nurse practitioners and that — strikingly — a host of nurse practitioners we spoke with were unwilling or unable to explain why those differences would not translate to physicians having at least some greater level of skill, on average, in primary care practice.

Quantitative differences

To become licensed as a nurse practitioner, a person must obtain one of two graduate degrees: a Master of Nursing Science or a Doctor of Nursing Practice. While nursing education groups have been trying to increase the number of nurse practitioners pursuing doctoral degrees, master's degrees remain more common among nurse practitioners.

Both normally require a student to be certified as a registered nurse before entering graduate study. The usual route is through a four-year bachelor's degree in nursing, although alternatives are available (such as associate degrees).

There are substantial quantitative differences between a standard medical school program, which all physicians must complete, and graduate programs in advanced nursing practice. The differences are most immediately evident in the number of hours that a nurse- or doctor-in-training spends in clinical practice. The second two years of medical school (the "clinical years") involve approximately 6,000 hours of training in a care setting. This is known as a clerkship, during which students rotate through the various parts of a hospital setting (operating room, emergency room, intensive care unit, and so forth).

After completing their four-year graduate degree, doctors-in-training must complete a residency program in a hospital or a clinical setting, during which they diagnose and treat patients with an increasing degree of responsibility and autonomy. The minimum length of a residency is three years, which is the amount commonly completed by primary care doctors, such as family physicians and general internists. A three-year residency amounts to 9,000 hours of clinical practice. Thus, the combined hours of clinical training acquired by a newly licensed physician add up to around 15,000.

After getting undergraduate and graduate degrees in nursing from the highly ranked University of North Carolina, a nurse practitioner would have acquired 1,886 hours of clinical experience, 13,000 fewer than a doctor freshly graduated from a residency.

By contrast, graduate nursing programs require only a minimum of 500 hours of clinical practice. Though many demand more, even these have significantly less clinical training than a medical program — according to Kitty Werner, executive director of the National Organization of Nurse Practitioner Faculties, the average is around 700 hours.

Nurses do receive significantly more clinical training in the typical undergraduate program than physicians: pre-medical undergraduate degrees usually do not involve any clinical practice, whereas bachelor's degrees in nursing include rotations through a number of clinical settings. However, this clinical practice is oriented more toward bedside nursing services than toward diagnosis and treatment (the latter being the focus of clinical practice in both medical and advanced nursing education). Moreover, the number of hours involved in undergraduate nursing education varies significantly from state to state and from program to program.

Even more intensive nursing programs leave graduates with far fewer hours of training under their belt than doctors coming out of residency. For example, take the combination of undergraduate and graduate nursing degrees from two highly ranked universities. A Bachelor of Science degree from the University of North Carolina School of Nursing (ranked 4th in the nation by U.S. News & World Report) includes 1,351 clinical hours. On the graduate level, the Master of Nursing program at the University of Iowa (ranked 11th in the nation) requires 535 hours of clinical practice. Thus, a nurse practitioner freshly graduated from these programs would have acquired 1,886 hours of clinical experience — 13,000 fewer than a doctor freshly graduated from a residency.

Qualitative differences?

That there are quantitative differences between medical and advanced nursing education is undisputed. But do these gaps translate into actual differences in the quality or the safety of health care, particularly in the provision of primary care?

According to many in the nurse practitioner field, the answer is no — and this is why, they say, nurse practitioners ought to be allowed to provide primary care free of scope-of-practice restrictions or mandated relationships with physicians. Advocates of expanded practice say that the training of nurse practitioners is perfectly sufficient to provide a full range of primary care services, and to be able to identify when a patient needs more advanced care from a specialist. Nurse practitioners commonly point to studies that have concluded that outcomes for patients treated by them are similar if not identical to outcomes for patients treated by doctors, and that nurse practitioners sometimes perform better in realms like patient satisfaction.

“We end up in these conversations with physicians’ groups who try to assert that because the education is not exactly the same, or because potentially physicians have more hours in a particular place in their curriculum than nurse practitioners do, then clearly they have to be better providers,” said Geraldine “Polly” Bednash, the CEO of the American Association of Colleges of Nursing (AACN) and also a nurse practitioner. “And yet that totally ignores the evidence about the quality of care delivered by nurse practitioners.”

Bednash, like some other nurse practitioners and nursing advocates we interviewed, is willing to acknowledge that the extra years of training that doctors possess “has made them a different primary care provider” — but not “a superior primary care provider.” Surely, however, leaders in the field have to have some sense beyond unspecified “difference” to describe the practical utility of the thousands of hours of additional training for doctors — and differently focused training at that. Yet, asked what the difference could be, Bednash said that she didn’t know. “I don’t think anyone’s ever measured that and said, ‘See, they [physicians] do better here.’”

Other nurse practitioners fail to explain why doctors’ extra training does not translate to the ability to provide superior treatment. “How we’re getting trained, how that’s different from one another — I do not believe it changes what we bring to the patient in primary care,” said Angela Golden, a clinical nurse practitioner and educator, as well as co-president of the American Association of Nurse Practitioners (AANP). “Because our outcomes are the same...We’re both getting to the same endpoint.”

However, physicians’ groups counter this by pointing to what they say are limitations to most of the existing research. Much of it, for example, fails to distinguish clearly between care provided by nurses independently and that provided by nurses under some kind of collaborative relationship with a physician. Moreover, most case studies track patients for only a period of a few months, thus missing long-term complications. Others track populations with diagnoses that have already been established — usually common conditions like hypertension — and thus neglect to capture problems or complexities in the diagnostic process itself.

In other words, while doctors tend to agree that nurse practitioners are able providers of a broad range of primary care services, they say that most of them are limited to the treatment of common conditions. The research, they say, fails to capture distinctions in the quality and safety of care that become salient when rarer and more complex situations arise. The differences they claimed can best be summarized as follows: care from a doctor can be more effective in avoiding delays in accurate diagnosis; and physicians are better able to manage patients with multiple, complex conditions existing simultaneously, as well as to act as mediators between a patient and a range of specialists.

Practice makes better

Remapping Debate asked several representatives of physicians' groups — most of them with experience as both medical clinicians and educators — to outline these differences, and to explain how they result from the extended training that comes with a medical education. Perhaps the most common response was that the combined time spent in clinical training, in both clerkships and residencies, gives physicians an amount of practice that translates into sophisticated care: the more patients you see, of different kinds and in different settings, the more aware you are of the kinds of patients that exist in the world, and the more comfortable you are with every new one you encounter.

Reid B. Blackwelder, the president of the American Academy of Family Physicians who is also a practicing family physician in Tennessee, said that, for example, residents are expected to have 1,650 patient encounters in outpatient settings (i.e., outside of hospitals). That number of encounters gives doctors-to-be a broad range of experience before they even start practicing independently.

More training makes doctors “different” primary care providers, not “superior” primary care providers. — Polly Bednash, American Association of Colleges of Nursing

Blackwelder and other doctors acknowledged that quantity and repetition do not necessarily translate to higher-quality care — but, they say, it substantially increases the likelihood that a physician will feel comfortable in any given situation. “A number doesn’t guarantee competency,” said Blackwelder. “Just because you’ve seen or done something x number of times doesn’t mean you’re really good at it...But the more hours you put into your craft, the more you bring to the table — the more likely you are to be a refined practitioner of that craft. And being refined and being competent — there’s at least some relationship between the two.”

Carol A. Aschenbrener, chief medical education officer for the Association of American Medical Colleges, said it’s not just the amount of practice involved in clinical training, but also the fact that that practice is graduated to expose the student to increasingly difficult tasks and to an ever-higher degree of decision-making and accountability. Because students spend a full five years in clinical training, this kind of progression can happen as deliberately and rigorously as it needs to.

In the first year of a clerkship, students begin making diagnoses under close supervision. “They have to present their findings and their differential diagnoses to both a resident physician and a faculty physi-

cian,” Aschenbrener said. “And they are asked questions, they are helped to see things they might not have noticed, they are helped to make connections, and so forth.”

“And as they get better and better at that, the faculty will see that they get more complex patients,” said Aschenbrener. “Then when they go onto residency training, they are doing more and more in terms of making decisions...[until] they can really have the responsibility of the physician.”

Practice makes safer

Under certain circumstances, doctors say, the amount of practice involved in a medical education becomes not just a matter of quality and sophistication but one of critical safety. Mary Ellen Rimsza, a practicing pediatrician, professor at the University of Arizona, and chair of the American Academy of Pediatrics’ workforce committee, said that pediatric primary care is rife with such circumstances.

The amount of hours spent in clinical training, Rimsza said, “is pretty important in pediatrics, where many of the life-threatening, serious diseases that we deal with can present as a common condition.” Rimsza used the example of an infant or child with a fever, which could signal either a common or easily treatable ailment (such as strep throat or an ear infection) or a life-threatening condition (like meningitis or sepsis). A pediatrician, Rimsza said, is particularly well equipped to tell the difference.

Nurse practitioners strongly take issue with the suggestion that they are more likely to misdiagnose patients. Golden, of the AANP, used the same example of a child with a fever, explaining that such a scenario is explicitly taught to nursing students.

“When I teach in the nurse practitioner program,” said Golden, “my students get a scenario of a three-year-old in the office with a temperature of 101 degrees. That’s it; that’s all the information they get. They have to come up with every possible diagnosis that could cause that fever.” Students are then given case studies, one of which “presents them with a physical exam that shows a very ill child. And their responsibility is to call an ambulance and get them to the hospital. We all know how to do that. We have been well trained to recognize ill children that should not be managed in the outpatient setting.”

Physicians, however, respond that the depth of knowledge that comes with practice and experience is more reliable than the knowledge that comes from simple instruction. “A lot of it has to do with the fact

“What we aim for in the education of physicians is a sufficiently deep conceptual understanding, not just of what’s known, but an understanding, or at least an appreciation, of what we don’t really know a lot about,” said Molly Cooke of the American Academy of Physicians. “That supports both routine expertise — ‘This looks like A and I’m going to treat it like A’ — but also the discrimination to say, ‘This doesn’t look enough like A to make me comfortable managing it as A.’”

that you've seen lots and lots of children over time. You've had the experience of examining children, identifying subtleties in their behavior that might indicate a more serious illness versus a common one," Rimsza said. "Since many of these diseases don't occur very often, you have to have a lot of time in the clinical setting before you've seen very many of them. So if your clinical training is just for a few months in pediatric, the odds are you aren't likely to see it." In contrast, a pediatrician who has completed a full clerkship and residency will almost certainly have seen "thousands of children" with fevers and "certainly dozens of cases of meningitis."

Thus, a pediatrician with this degree of experience is far more likely to notice subtle distinctions in a patient — such as variations in vital signals or details in the way an infant interacts with its surroundings — that suggest the possibility of something serious.

Difficult to measure

Golden and other nurse practitioners say that physicians' claims about their diagnostic abilities are not backed up by any evidence pointing to higher rates of misdiagnosis by nurse practitioners. "If we could not recognize [such cases], you would see a lot more lawsuits against nurse practitioners for not recognizing them, but those lawsuits aren't there," Golden said.

In places where nurse practitioners have independent practice, people aren't dropping dead in the street because they've seen nurse practitioners. — Polly Bednash

This argument is consistent with one made frequently by nursing groups that advocate expanding their scope of practice. There are 16 states (plus Washington, D.C.) that allow nurse practitioners to provide primary care with full independence — that is, without a mandated supervisory relationship with a doctor. These states, they say, are not racked by problems caused by independently practicing nurses.

"Any clinician can miss things and make a misdiagnosis," said Bednash, of the AACN. "But there shouldn't be the assumption that because an individual is a nurse practitioner, that's more likely to happen. That's an inaccurate assumption. In places where nurse practitioners have independent practice, people aren't dropping dead in the street because they've seen nurse practitioners. There is no evidence out there that in those states we see a much higher incidence of malpractice occurring, and that patients are being harmed."

But physicians say that death and malpractice rates are not proper metrics by which to measure the differences involved. Rimsza, for example, chairs the child fatality review program in Arizona, a state that allows independent practice by nurse practitioners. But, Rimsza said, there are so few nurses practicing pediatric primary care independently throughout the state (most of them work in team-based clinics) that it is practically impossible to assess whether any of the small number of preventable deaths every year can be directly ascribed to nurse practitioners. "You can't expect to come up with those statistics," Rimsza said.

Moreover, cases of preventable death do not capture instances of delayed diagnosis. “Although there might be delays in diagnosis,” said Rimsza, “fortunately most kids can survive.” In other words, the differences, while difficult to measure, are far from trivial in their potential consequences for patients: a delay in diagnosis means more suffering for the patient before the condition is mended, or, at the very least, more inconvenience in navigating the health care system with the burden of an ambiguously diagnosed condition.

Similar cautions exist when using malpractice lawsuits as a rubric for comparing treatment, said Perry A. Pugno, vice president for education of the American Academy of Family Physicians. “In those states where independent practice is permitted, the number of [nurse practitioners] actually doing independent practice is very small — vanishingly small,” Pugno said. “When people are cared for by nurse practitioners, they tend to be people who aren’t real sick, who don’t have complex, significant illnesses. And when the patient isn’t getting better, or things don’t seem to be going right, the patient will leave that [nurse practitioner] and go see a physician, but they won’t turn around and sue the nurse practitioner for not having figured out what’s wrong. So malpractice is a very poor, very blunt instrument for doing those kinds of comparisons.”

Why not ask, “What’s best?”

Furthermore, such metrics approach the question from an angle that some physicians consider to be problematic in the first place. “I think the argument should be more, ‘What’s the best care for kids, and how can we provide it to them?’” said Rimsza. “Not, ‘Let’s look at how many people die if you let someone do x, y, or z on their own.’”

More energy, Rimsza said, should be devoted to thinking about how these two professions can be best coordinated to provide the highest-quality primary care possible for patients of any age. Otherwise, we miss out on a discussion about what kind of care is best and settle for one about what kind of care is adequate or acceptable.

“I think that the scope-of-practice issue tends to be more a discussion about what people should be allowed to do, more than what is the best way to manage care,” Rimsza said. “What the team should be, how they should be working together, and what resources should be available for each team to be successful.”

Within these teams, both nurse practitioners and doctors have different and important roles to play. “I should say that I work with nurse practitioners every day,” said Rimsza. “They’re an important part of the health care team. I have no problems with having nurse practitioners take a lot of responsibility, and I trust them with what they do. The problem is the blanket comment that they’re interchangeable professions. They really aren’t interchangeable. They all have their role.”

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How the machine works

In addition to the benefits that physicians say accrue from many hours of practice, several medical educators pointed to differences in the pedagogical approach to teaching medicine and nursing. Pugno, who has mostly worked in medical education but also co-directed the nurse practitioner program at Loma Linda University in California, said the different educational methods lead to substantially different approaches to care.

“Nurse practitioner training tends to be more pattern-recognition–focused,” Pugno said. “When a nurse practitioner is presented with a patient scenario, their training level allows them to consider the top two or three likely diagnoses that that constellation of symptoms would represent. And their training is also based around a relatively protocol-based response to that diagnosis — if you have Diagnosis A, it’s Therapy B.”

By contrast, doctors are prepared to consider a much broader and deeper range of possibilities with any given patient. “You understand how the machine works,” Pugno said. “Kind of like a mechanic learning how to totally disassemble an engine and put it back together — you need to understand how every part works, so that you can figure out when something goes wrong.”

Pugno ascribes much of this difference to the length and intensity of coursework. This disparity is often evident in side-by-side comparisons of medical and nursing school curricula. For instance, the curriculum for the University of Iowa’s Master of Nursing Practice program includes several courses in advanced medical topics, but these topics are relatively broad: applied epidemiology, for instance, or physiology and pathophysiology for advanced clinical practice.

A typical medical school curriculum reflects more focused, intensive coursework. Take, for instance, the University of Oklahoma (ranked 71st by U.S. News & World Report), with course modules dedicated to specific biological systems: one such module covers cardiovascular, respiratory, and renal systems; another covers gastrointestinal and hepatobiliary (bile-producing) systems.

Pugno used the example of studying biochemistry in medical school, a subject he had already covered in his undergraduate pre-med courses. When he encountered it again at the graduate level, he came to understand the subject with new depth and a new appreciation for its practical significance. “I learned what the structure of the penicillin molecule looks like, and how it interferes with the biochemical process of bacterial cells forming the wall of the bacterium, and how penicillin interferes with that formation so that the bacteria dies,” Pugno said. “The nurse practitioner learns: for this bacterium, you give this dose of penicillin, and it kills it.”

Many nurse practitioners reject the premise that this level of education is a requirement to provide high-quality primary care. “One of the physicians I work with,” said Golden, of the American Association of Nurse Practitioners, “remembers being in the class where he had to identify every subatomic particle in a cell. But he said to me that he has yet to have to do that for any patient, nor has he had to explain it to any patient. So, did he need to do that [coursework]? I don’t know.”

Many doctors acknowledge that, in a majority of instances, such expertise does not have an immediately applicable worth in a primary care setting. But they say that it does make a difference in those cases where patients do not exhibit common combinations of symptoms or reactions to treatment. “By understanding how penicillin works, I’m more aware of the other drugs that work the same way,” as well as those that don’t, said Pugno. Thus, a doctor would be more likely to know, “if you’re allergic to penicillin, what other drugs might give you trouble. Or if the bacteria is resistant to penicillin, what other drugs it’s likely to be resistant to, and what drugs kill the bacteria in a different way and are more likely to be effective in this situation.”

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Molly Cooke, president of the American College of Physicians, a practicing general internist, and professor at the University of California, San Francisco, said a medical education is designed in many ways to prepare doctors for encounters with unexpected or puzzling cases. “What we aim for in the education of physicians is a sufficiently deep conceptual understanding, not just of what’s known, but an understanding, or at least an appreciation, of what we don’t really know a lot about,” said Cooke. “That supports both routine expertise — ‘This looks like A and I’m going to treat it like A’ — but also the discrimination to say, ‘This doesn’t look enough like A to make me comfortable managing it as A.’”

Cooke cited the example of an unusually difficult patient who is paraplegic, wheelchair-bound, and suffers from chronic pain and psychological problems. After a bout of flu led to a bacterial infection and sent him to the emergency room, he was prescribed two separate rounds of antibiotics, but his condition only worsened. When the patient returned to Cooke’s practice, he was initially scheduled to see a nurse practitioner, who explicitly requested that the patient see Cooke directly, as the nurse practitioner did not feel comfortable with the complexities presented by the patient. Cooke said that her ability to correct the diagnosis and treatment was largely contingent on her detailed understanding of the pulmonary system, the various infections that could affect it, and the various pharmacological treatments available — many of which, in this instance, did not appear and interact in routine, expected ways.

Breadth of experience

Another aspect of medical education that doctors frequently point to is the fact that clerkships and residencies require rotations with several different subspecialties and in several different hospital settings. Some nurse practitioners say that such breadth is extraneous to understanding how to provide primary care, which is where their education is more narrowly focused.

“Yes, physicians do spend more time in training,” said Debra J. Barksdale, president of the National Organization of Nurse Practitioner Faculties, professor at the University of North Carolina, Chapel Hill, and a clinical nurse practitioner. “Not all of that training is devoted to primary care, however. Our training tends to be more focused. My whole program was focused on primary care, so I didn’t have to cover all of the other acute care practice that’s happening in the hospital.”

But many physicians say that their training with numerous specialties and in numerous settings allows them to manage patients with conditions that, while they do not demand attention from a specialist, are in complex ways related to that specialty. Nurse practitioners, they say, are more liable to refer such cases to a number of different specialists. Blackwelder, of the AAFP, gives the example of a patient with chronic conditions affecting multiple systems: the heart, the lungs, and the skeleton.

“The reality is that family physicians see more people with heart disease than do cardiologists,” said Blackwelder. “I take care of acute and chronic orthopedic problems...A good family physician will be able to say, ‘I can manage your heart disease right now, and I can manage your emphysema, and I can handle your arthritis. And I can do it today, and I can take care of all of that in my office.’ Versus a nurse practitioner who might say, ‘OK, I’ll hook you up with a cardiologist for your heart problem, and I’ll hook you up with a pulmonologist, and I’ll send you to an orthopedist.’”

In those instances when attention from specialists is needed, Blackwelder and others say that a physician is more likely to be better prepared to counsel the patient as to the possible outcomes of the specialists’ treatment, as well as to act as a sort of translator between the patient and the specialists. “The health care system is complex,” Pugno said. “The constellation of specialists is complex. And the primary care physician has the greater depth and broader view to be able to more efficiently direct a patient to the right specialist,” and to more comprehensively coordinate, interpret, and apply the care that is indicated.

Doctors say that this ability is a direct result of having spent substantial amounts of time practicing and training with different subspecialists during their years as students and residents. Blackwelder and Pugno both suggested the example of needing to send a patient to surgery, and explained that they participated directly in a broad range of surgical procedures during their training, from appendectomies to hip replacements to operating on gunshot wounds. “So, while I don’t do those as a family physician,” Blackwelder said, “I’ve been a part of them, I’ve worked with the physicians who do them. I know what the patient goes through, and I know the kinds of questions that will be asked.”

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Pugno and Blackwelder added that this level of knowledge and experience goes a long way in assuaging the anxieties of a patient encountering a complicated condition or, even more so, a complicated set of interacting conditions. Because they have more first-hand knowledge of the kinds of experiences undergone by such patients, they can better counsel them as to the variety of possibilities involved — the nature and likelihood of complications, for example. “That experience,” added Pugno, “allows you to relate things to your patient in more depth — but, most important, you can give them the perspective and the context that lets them know what’s really going on.”

Working together?

In spite of these differences, nearly every doctor and nurse we interviewed agreed that the quality of care improved significantly in team-based practices with various kinds of health care professionals available to care for a patient together. The principal difference is that physicians believe such teams ought to count on a primary care doctor to handle those instances where their skills and experience exceed those of a nurse practitioner. “Every member of the team is critical,” said Blackwelder. “Every member has roles they can play. Some of those roles overlap. But you can’t just substitute one member of the team for another.”

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