

Not Like They Used To: The Decline of Procedural Competency in Medical Training

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ABSTRACT

As a primary care pediatrician trained before work hour restrictions were enacted, I spent hours mastering procedures that trainees today rarely perform. The changing landscape of health care clinician roles, technology, and work hour restrictions have all contributed to a remarkable decline in trainees' procedural competence which has significant negative effects for patients, health care systems, and physicians themselves. I suggest simulation, live training, mentoring, and scheduled opportunities as ways to reemphasize the importance of learning these technical skills.

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INTRODUCTION

One June, my 4-year-old tripped on a 6-foot stuffed snake, a relic of my younger brother's childhood. A pediatrician's visit and x-rays made the diagnosis of a right femur fracture and ended, at the hospital, with my daughter in a pink fiberglass cast from armpits to toes. A month later, we returned to the hospital to remove her cast. The senior cast technician greeted us, running his fingers over the perfectly symmetric and smooth edge of the cast. Smiling, he hummed appreciatively and asked who had made the cast, guessing 2 of the most experienced pediatric orthopedists. I confirmed it was the second of these, and he nodded sagely. "I knew it," he explained. He shook his head wistfully, "The young ones don't make casts this beautiful. Don't make them like they used to."

That was 19 years ago, and medical training has continued its inexorable march away from procedural proficiency. When I finished pediatric residency in 2001, 2 years before the first set of work hour restrictions were placed on house staff, I had done enough bladder catheterizations, blood cultures, and intravenous lines to do them in my sleep (and some would argue that was what I had been doing). Further limitations of total hours per week and shift duration followed in 2011.¹ Fewer hours meant some topics had to be deemphasized in training. Prompted by finances and physician shortages, many visits, especially in procedure-heavy fields like emergency medicine, are now staffed by mid-level clinicians, resulting in fewer opportunities for physician trainees to learn procedures.² In addition, increasing technology decreases the need for hands-on technical skills; when the ultrasound wand tells you how to get venous access, your ability to judge the landmarks becomes less crucial.

The interplay of these factors: work hour restrictions, new staffing models, and technology, has negatively impacted resident education.³ And although the Accreditation Council for Graduate Medical Education (ACGME) still officially requires competence in core clinical skills, many graduates in the last decade and a half lack sufficient exposure, practice, and confidence in what used to be bread-and-butter skills: placement of intravenous lines, bladder catheterizations, lumbar punctures, and cast making.

Often, these skills can be done by non-physician staff members. When they cannot, all eyes turn to the physician. It may seem illogical that the clinician of last resort is a physician when the nurse in question has always done the procedure more recently. As a dinosaur trained in the days when technical proficiency was *de rigeur*, I find my muscle memory, knowledge of anatomy, and willingness to try

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nearly always save the day. My younger colleagues must now learn these skills after residency. Or never learn them and leave patients in the lurch.

For patients, physician inability to perform these procedures leads to fragmented care, frustrating delays, and increased cost. Going to an emergency department or urgent care for a bladder catheterization erodes the medical home model. In geographically remote or under-resourced areas, the requirement to go elsewhere for simple procedures magnifies health care inequities. On a systems level, every additional visit adds to the total cost. Some centers have tried to rectify this with the introduction of proceduralists, who float from ward to ward doing procedures that others cannot. A clever solution for elite institutions, this does nothing for patients and physicians outside academia's inner circle. Even within major hospital systems, lack of timely procedural competence has significant repercussions. When patients are unstable or critically ill, the ability to perform skills with speed and accuracy is paramount. Rarity of procedural expertise has costs and liabilities. A common recent example is the febrile infant who must wait for interventional radiology to perform a lumbar puncture or is obligated to 14 days of antibiotics when cerebrospinal fluid cannot be obtained in time for cell counts or culture.

Lack of procedural competency also has a cost for physicians. Simple procedures bring simple pleasure. Like many physicians, I am a doer. I enjoy the satisfaction of solving a problem. In a professional life of mental health morasses, seemingly unsolvable social determinants of health, and prior authorizations, removing a foreign body brings a sense of completion and accomplishment—a jolt of joy in a frustrating day.

Moreover, my confidence in my technical skills is fundamental to solving novel problems—a kind of MacGyver mindset, like the 1980s television action hero who could save the world with a mirror and an ashtray. After a telephone consultation with an orthopedist, I have deconstructed 2 metal finger splints and built a brace that stabilized a 3rd metacarpal fracture until the orthopedic appointment. Although I was not trained to do this exact procedure, my background (and ability to telephone a friend) allows me to cope with new scenarios. Patients are saved additional visits; I experience the satisfaction of a defined solution.

Recent graduates are admirably well-equipped to practice medicine in tertiary care hospitals between the hours of 8:00 AM and 6:00 PM, on weekdays, with a full complement of ancillary services and state-of-the-art equipment. When equipment fails, when they are miles from ancillary services, and when it is the middle of the night, they are

less well-prepared. Patients, physicians, and the health care system need physicians who can provide care in all these situations; we must provide trainees with the opportunity to achieve procedural competence and confidence.

Ensuring technical skills in trainees need not be done the way I learned—by trying all night until I succeeded, which benefitted neither trainees nor patients. In a world of simulators, we can help this generation of trainees learn the skills they need to practice outside the ivory tower. Expensive simulators, which have been shown to improve trainees' skills, cannot be the sole solution. Neither simulation nor experience alone guarantee competence, although both provide benefit to trainees.⁴ Residents and fellows will still need the opportunity to use their learned skills on patients. With work hour restrictions limiting the number of patient interactions, we may need to give serious thought to extending the length of residency. Additionally, we will have to create schema to provide opportunities for practice. For example, when our office trains new staff, we designate one training nurse as the procedure nurse of day; all procedures that day are done by this trainee, with expert supervision, until they demonstrate proficiency. Emergency departments and outpatient clinics could enact a similar algorithm to increase trainee exposure to learning procedures.

While we have the (vanishing) window, we should not waste the valuable resources of senior physicians who can teach those skills before they retire. Perhaps a young orthopedist, reading this, will track down one of those 2 great surgeons (still practicing) at my institution and ask them how to make a beautiful, smooth-edged cast.

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Key words: technical skills; physician satisfaction; medical home; procedures

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