Systems-Based Practice: Education in Plastic Surgery

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Summary: The current Accreditation Council for Graduate Medical Education guidelines separate residents' education into six core competencies or subjects. The authors address the least intuitive of these, systems-based practice. In systems-based practice, educators and residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. Plastic surgery is a specialty that is intimately involved with the economics, coordination of care, and real-life experience of resource allocation. It should be avant-garde in the development of a systems-based educational experience and be in the forefront in creating an appropriate and well-thought-out teaching agenda for graduate medical education. The authors explain and expand this definition to include objectives for plastic surgery training, programs, and individual learning goals. A series of didactic lectures, small group discussions, and grand round presentations are suggested to fulfill and facilitate the educational objectives. A potential time allotment and method of objective and subjective evaluations are offered. (*Plast. Reconstr. Surg.* 119: 410, 2007.)

The methodology and objectivity of residency education are increasing. The Accreditation Council for Graduate Medical Education outcome project outlined six general competencies for resident education: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.[1] Patient care and medical knowledge are the surgical skills that our residency training has concentrated on. Others, such as professionalism, are harder to teach and difficult to quantify. The last competency, systems-based practice, seems to create the most confusion.

There are three issues involved: (1) What is systems-based practice? (2) What needs to be included in the creation of an educational program to teach it? and (3) How do we validate and quantify the education experience? The forefront in defining a curriculum so far has been taken by emergency medicine physicians. They have made a concerted effort to teach systems-based practice, especially as it relates to coordination of care services. This is an area of difficulty within the emergency room regarding patient access, acuity, use, and follow-up.

As the very nature of our specialty faces systems-based practice issues, plastic surgery is in the best possible position in which to be in the forefront in educating resident house staff. In no other surgical specialty are so many business issues and resource issues touched on in a daily practice. Instead of continuing a "do not ask, do not tell" policy in medical education, we would do better to develop an ethical, constructive, realistic framework of systems-based issues. This would then become a model for other Accreditation Council for Graduate Medical Education programs.

The purpose of this article is to define systems-based practice; suggest topics and formats with which to teach this core competency; suggest a manageable time commitment for programs to commit to systems-based practice; and discuss recording tools and objective evaluation techniques and incorporate the guidelines of the Accreditation Council for Graduate Medical Education outcome project for testing. This article will enable a practicing plastic surgeon to appreciate how education goals are changing and will provide a program director with tools with which to implement these changes and educate residents on the most confusing competency.

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Received for publication February 17, 2006; accepted June 23, 2006.

DOI: 10.1097/01.prs.0000245064.78012.ca

DEFINITION

As part of complete training, the Accreditation Council for Graduate Medical Education feels residents must demonstrate an awareness of, and responsiveness to, the larger context and system of health care and the ability to effectively call on systems resources to provide care as an optimum value. This entails the following:

1. Understand how their patient care and other professional practices affect other health care professionals and help organization in the largest society, and how these elements of the system affect their own practice.
2. Know how types of medical practice and delivery systems differ from one another, including an increase in controlling health care costs and allocating resources.
3. Practice cost-effective health care and resource allocation that do not compromise quality of care.
4. Advocate quality patient care and assist patients in dealing with systemic complexities.
5. Know how to partner with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect systems performance.[2]

These definitions need expansion and explanation. For educators and residents to understand the goals, it is necessary to describe the training program and individual objectives. Having done that, institutions and hospitals will have their own objectives that can be used as a resource for teaching this core competency.

WHAT IS SYSTEMS-BASED PRACTICE?

What does this mean? This core is to educate residents that we do not practice in a vacuum. The care of patients is provided within systems that overlap and interact. It is these systems that facilitate yet frustrate the provision of modern health care. Systems-based practice is how the business of medicine affects and influences the delivery of care[3] (Fig. 1).

Plastic surgeons see the extremes in our specialty. A self-pay Botox patient is minimally involved with the "systems," yet a grade IV decubitus patient is involved in all of them, including payers, facility, resources, risk management, discharge planning, and others.

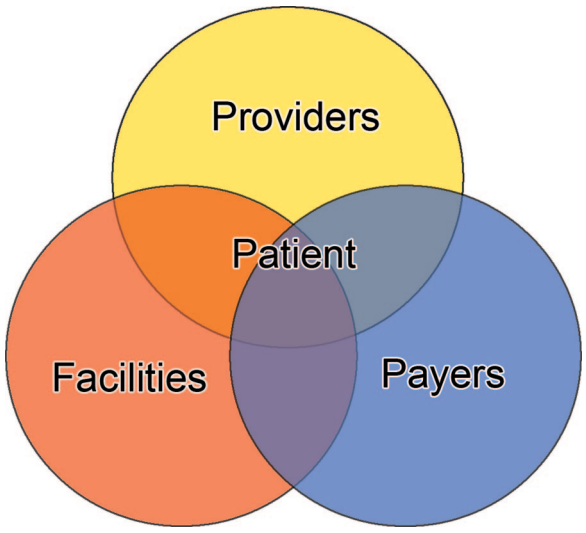

Fig. 1. The systems that overlap in patient care.

Program Objectives

The program must have well-thought-out objectives and a way to fulfill these objectives, and appropriate structured teaching with either lectures, didactic readings, or small group sessions. In addition, it must provide adequate resources, including down-feed of what is available on Web sites from the Accreditation Council for Graduate Medical Education, reading lists, videos, or DVD instruction programs regarding risk management, such as "Do No Harm" and "Beyond Blame," educational vehicles that help explore the risks associated with patient care. The program must provide resources, handouts regarding the curriculum, and documentation to support teaching and Current Procedural Terminology coding, *International Classification of Diseases, Ninth Revision* coding, and evaluation and management process. Current residency education concentrates the vast majority of its efforts on patient care and medical knowledge. The program must also emphasize system-based practice as a core competency and underscore its value, not relegate it to "red-headed stepchild" status. Finally, the program must not only document the delivery of the teaching within the core curriculum to fulfill Accreditation Council for Graduate Medical Education criteria, thereby qualifying the program for accreditation, but also document objectively resident performance and feedback of the state of the curriculum so that the educational objectives for the individual are met.[4]

Individual Objectives

It is significant for the individual to understand financial conflicts in the delivery of health

care, which are accentuated by industry, research, and pharmaceutical influences. One needs to understand systemic economic pressures, the restriction of resources, and the barriers to provision, including the needs of the uninsured. The individual must understand the role of Medicare/Medicaid and service to community, yet also appreciate the role of government in both medical care delivery and education. Most medical education is paid by Medicare. The resident should have an individual objective to comprehend which social services are available and appreciate hospital hierarchy and how it influences the delivery of care. He or she needs to participate in the assessment tools that are required to validate systems-based practice, including potential written examinations, social service conferences, documentation of participation, and 360-degree reviews. To reach these educational goals, we suggest a format of educational experiences with a template from which program directors could insert into their core curriculum. Some small modifications to existing conference time, such as morbidity and mortality conferences, to change it to a quality improvement format, would contribute to part of a systems-based learning core. They are divided into group discussions, didactic lectures, and hospital-based training sessions.

GROUP DISCUSSIONS

Morbidity and Mortality Conferences

The format would consist of a bimonthly group discussion. Most programs have a monthly morbidity and mortality conference with which to review the surgical experience of the program. This could be modified to a quality improvement program. By including Current Procedural Terminology codes and appropriate explanations, introduce the concept of *International Classification of Diseases, Ninth Revision* and Current Procedural Terminology descriptors and the use of modifiers. Explain modifier 78 (returning to operating room for complications) or modifier 58 (staged procedure), what these mean, and when to use them. Discuss the timing, planning, and global periods that are involved in surgical coding.[5]

Patient Relations

The format would consist of small group for a 2-hour period. Because a central point in systems-based practice is assisting the patient in dealing with complexities, communication is key. The patient advocacy or patient relations director is an ideal resource for communications issues related to patient care. The director will have an unlimited number of stories, anecdotes, or reflections as an excellent educational tool for highlighting poor or misguided communication. In an international or immigrant community, he or she can also discuss cultural care, discrepancies, race, and racial issues. Do-not-resuscitate and code status are often influenced by many outside factors and can be subjects that require further expansion. For this particular format, plan at least a 2-hour session, as this is a very interactive and frequently heated discourse. This format may include discussion regarding responsible family members, patient privacy, and overall patient-related concerns. This subject is valuable, as it also covers professionalism, another core competency. Finally, the need for business cards to identify the resident house staff as caregivers and their role within the health care system can be broached.[6]

Risk Management

The format would consist of a small group for a 2-hour period facilitated by a risk management attorney or risk management officer within the hospital. This is best delivered as a case-based discussion format, which stimulates more interest and makes the topic more personal and real for the residents. The idea is to use recent cases flagged by the attending physician. The residents then find out real time, it is their signatures and documentation that are under review. This subject advocates for quality patient care.[7,8]

Discharge Planning

The format would consist of a small group session given by the utilization review nurse or social worker. Discuss what is involved in discharge planning, coordination, and outside systems. Discuss the criteria and eligibility for home health visiting nurses. Discuss the paperwork trail and legal responsibilities. Discussion can include resource allocation and cost shifting, influence of diagnosis-related groups, and hospital costs. The utilization review nurse outlines the difference between rehabilitation centers versus skilled facilities versus home nursing levels of care. This group session teaches residents how to coordinate and partner with other posthospital systems while practicing cost effective health care with ideal resource use. It emphasizes that the need to initiate immediate discharge planning at admission to the hospital is crucial to the patient's discharge plan.[9]

DIDACTIC LECTURE SERIES

Pathway to Surgery

The format would consist of a didactic lecture presented every 2 to 3 years on a rotating basis. The goal of this lecture is to introduce the context of a system and teach resource use for optimum value. Included in the lecture on the pathway to surgery would be patient registration; confirmation of benefits; insurance verification details; the need for preauthorization, format, and discussion of letters of medical necessity; preoperative photographs; and accompanying documentation that is required to be sent to insurance companies. A case vignette that describes a breast reduction, the need for a history of the general practitioner's treatment, medical management, and failed physical therapy could be used to discuss what is necessary to get a patient on the pathway to surgery, and a discussion of surgical booking, inpatient versus outpatient, outpatient versus observation, and postsurgical care could be conducted. Discuss the definition of a clean bill, reconciliation of billing to payments, review of what an explanation of benefits is, and the concept of patient deductibles. A resident who understands system complexities can better assist patients.[9]

Health Care Structure: Alphabet Soup

The format would consist of a didactic lecture every third year. Discuss the current medical alphabet: what is an HMO (health maintenance organization), PPO (preferred provider organization), or POS (point of service). Discuss open and closed systems, administrative costs, enrollment in Medicare participation and nonparticipation. This lecture is dry but helpful for understanding the complexity of current issues. It is an excellent time to discuss Stark laws (Stark II was introduced in 2004), the Emergency Medical Treatment and Labor Act, and the Health Insurance Portability and Accountability Act. This lecture is critical for understanding how the larger society and system of medicine will affect a resident's own practice.[9]

The Job Search

The format would consist of a didactic lecture on a 3-year basis. Explain the types of, and differences in, medical practice and delivery systems: single practitioners, single specialty group, multispecialty group, and academic versus institutional (i.e., government, U.S. Department of Veterans Affairs, health service, and military). Discuss the plastic surgeon–to–patient population ratio that is ideal (currently considered to be 1:40,000), current distribution and demographics of plastic surgeons, geographic penetration of managed care, and uninsured ratios in different communities.

Discuss the interview process, access to practice books, blue sky and noncompete causes, the importance of a contract, and the need for contract attorney assistance. It prompts a resident to begin to consider what system will best suit him or her.

Current Procedural Terminology/*International Classification of Diseases, Ninth Revision* Coding

The format would consist of a 2-hour didactic lecture with an open discussion every 2 or 3 years. Discuss the relevance of these two systems, one of which is for diagnosis, the other of which is a descriptor of procedures used. Understanding this is essential to providing cost-effective health care. Explain relative value units and their meaning, and work, risk, and practice components. Discuss that Current Procedural Terminology and *International Classification of Diseases, Ninth Revision* codes must correlate to support a clean bill and the need for *International Classification of Diseases, Ninth Revision* codes in orders, chest radiographs, liver function tests, and so forth.

Discuss black box edits and the use of modifiers, and the significance of global periods 0-, 10-, and 90-day procedures. Discuss modifiers (e.g., modifier 25 for evaluation and management codes on the same day as the procedure, and modifier 78 for emergencies that start the global period clock ticking again). This is the framework to which the quality improvement group discussion adds.[9]

Evaluation and Management Codes

The format would consist of a didactic lecture every 3 years. Discuss documentation and support of evaluation and management codes: the importance of history of present illness, review of systems, medical history, and the potential for electronic medical records; what is involved and what constitutes adequate documentation for evaluation and management codes; and the difference in billing by time or documentation and the systems involved in a complete physical review. This lecture rounds out the Current Procedural Terminology/*International Classification of Diseases, Ninth Revision* coding subject.

Governance

The format would consist of a didactic lecture given by a hospital administrator or credential staff every third year on the same schedule as Joint Com-

mission on Accreditation of Healthcare Organizations visits. Discuss the roles of Medicare, Accreditation Council for Graduate Medical Education, the Health Insurance Portability and Accountability Act, the Joint Commission on Accreditation of Healthcare Organizations, the Occupational Safety and Health Administration, what these bodies do, and how each impacts delivery of care, both a facilitation of and obstruction of delivery of care. A hospital administrator can discuss the framework and hierarchy of the hospital system and further advise the residents of what opportunities there are for them on the committee level and their potential for involvement. This didactic session is ideal for discussing the complexities of American health care and where improvements can be made.[9]

Contract Negotiations

The format would consist of a didactic lecture every 5 years. Discuss managed care, contract negotiations, the differences between a limited liability company and a public limited company, the structure of companies, the structure of negotiation with managed care, legal obligations of enrollment in managed care contracts, enrollment, and subsequent legal implications of being involved in Medicare. This discussion would best be presented by the hospital contract negotiator or a contract attorney. It is most valuable for chief residents, yet for all residents, it will teach partnering with health care payers and providers on the indemnity side.

Grand Round Series

The format would consist of a didactic lecture. All programs have an invited speaker. Systems-based practice can be incorporated. Seek outside speakers with national or regional expertise in systems-based practice. Examples include the director of a health maintenance organization, health policy expert, medical director of a closed system such as the U.S. Department of Veterans Affairs, Kaiser or military medical facility, Dr. Gorney of the Doctors Company, or someone of similar status in malpractice insurance coverage, a representative of the American Medical Association, or a medical lobbyist. This will give a broader; less insular view of health care delivery that is in essence the purpose of this care.

HOSPITAL TRAINING SESSIONS

The hospital has a number of resources available for system-based practice education. Many of the requirements a hospital must meet for accreditation overlap in this area. Awareness of this and active involvement of residents in the institution activities is beneficial. The additional benefits are that these are often mandatory and have recorded attendance. This provides documentation for programs as required by the Accreditation Council for Graduate Medical Education. A teaching institution should provide an environment free of conflict of interest and, as such, may require a policy in dealing with drug representatives, their support of education, free lunches, and the influence of an industry. It must have policies for the delivery of care to the underserved. Outreach programs include Catholic charities, visiting mobile service for underserved communities, or programs for the underprivileged. It should have programs to deal with cultural and socioeconomic barriers such as translators and social workers to communicate with non–English-speaking patients. The institution must find a balance between its medical missions and its fiscal missions, and the residents should be aware of these issues.

Hospitals are constantly being evaluated by different standards, including the Accreditation Council for Graduate Medical Education, the Joint Commission on Accreditation of Healthcare Organizations, the Occupational Safety and Health Administration, and patient satisfaction data. In addition, they longitudinally audit charts and medical records for compliance. All of these relate to systems-based practice or how systems affect the provision of health care.

HOSPITAL RESOURCES

Hospital courses or training sessions attended by residents could be included as part of an elective curriculum or incorporated into orientation for incoming residents. For instance, compliance training, an administrative state of the union address (given annually or quarterly), and staff quarterly meetings that address the environment of health care or the problems institutions may be facing. The administrative chief resident could attend Joint Commission on Accreditation of Healthcare Organizations meetings as a resident representative and then disseminate the information to the resident house staff.[10] Hospital resources are as follows:

- Compliance training
- Health Insurance Portability and Accountability Act training
- Joint Commission on Accreditation of Healthcare Organizations preparation
- Administration state of the union address

- Quarterly staff meeting
- Diversity training

EVALUATIONS

The method of evaluation of such a subjective core competency of systems-based practice is difficult. The Accreditation Council for Graduate Medical Education has provided suggested methods of evaluation. Their preferred ratings for each of the evaluation systems are included.[11] The following could be incorporated to make this as fulfilling an evaluation process as possible.

First, in residency training, 360-degree evaluations are becoming standard. If individuals involved in systems-based practice and patient advocacy were included (i.e., discharge planning nurses or patient representatives), validity would rise. They would be in the best possible position to score residents that are least knowledgeable and require additional training.

Second, pretest and posttest are effective tools with which to measure progress. A pretest could be administered at the time at which the resident in an integrated or categorical program starts the clinical period of plastic surgery training at the postgraduate year-2 or postgraduate year-3 level, and then a posttest could be delivered at the end of his or her chief year before leaving the program. This would be a longitudinal assessment of educational competency, and modifications could be made annually as needed to facilitate performance.[12]

Third, currently, our yearly in-service examinations and written boards emphasize clinical care. Adding questions to these tests that pertain to systems-based practice would emphasize it as a core curriculum subject.

TIME COMMITMENT

The Georgetown University plastic surgery program currently runs a weekly 3-hour didactic program. In addition, it incorporates another 10 hours of outside speakers or visiting professors per year, for a total of 160 hours. Of this time, 24 hours are dedicated to quality improvement. Our schedule is a 3-year core curriculum that is represented twice in the resident's 6 years. We incorporate these subjects into that 3-year program for a total of 22 hours. Therefore, if we consider one-fourth of quality assurance a systems-based practice, our program teaches 12 to 13 hours per year in this core competency.

CONCLUSIONS

The longitudinal teaching of a systems-based practice that in many ways is the practicality of care delivery can save new graduates untold time, difficulty, and learning pains. To accept that this is an integral part of education, not unlike teaching your child how to balance a checkbook, is the first step. To embrace it as a positive thing that can only enhance our students' education and keep us on the forefront of medical education is the next step.

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DISCLOSURE

The authors have no relevant financial interests and no other conflicts of interest related to this article.

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