

It costs what?! How we can educate residents and students on how much things cost

In resident education, understanding the business of medicine in a value-based health care system is imperative

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“Why are you ordering a CBC on the patient when her white blood cell count, hemoglobin, and platelets have been stable for the past 3 days?” sternly inquired the attending gynecologic oncologist. “Don’t order tests without any clinical indication. If she is infected or bleeding, there will be signs and thus an indication to order a CBC. The physical exam is your test.” There was an authoritative pause before he invoked the “value-based care” maxim.

For many residents who graduated in the past decade, education in value-based care

and alternative payment models (APMs) was cobbled together from experience, demonstrated by attendings who labeled it as such, and from rare didactic education classroom sessions and inpatient environments.

In today’s health care environment, professional survival requires the ability to successfully deliver high-value care to patients. Attendings often illustrate and champion how to do this by using patient care to highlight the definition: $\text{Value} = \text{Quality} \div \text{Cost}$.

For residency education programs to create the ObGyns of the future, they must teach trainees what they will be evaluated on and held accountable for.¹ Today’s clinicians will have to take responsibility for reigning in health care costs from the fee-for-service era, which in the United States have snowballed into one of the unhealthiest cost-to-outcomes ratios worldwide. Residents will be required to understand not only value but also areas in which they can influence the cost of care and how their outcome metrics are valued.

Modifiable factors in value-based care

As mentioned, value is defined by the equation, $\text{Value} = \text{Quality} \div \text{Cost}$. The granularity of these terms helps clarify the depth and the multitude of levels that clinicians can modify and influence to achieve the highest value.

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The authors report no financial relationships relevant to this article.

Developed in collaboration with the American College of Obstetricians and Gynecologists



Quality, as defined by the National Academy of Medicine, includes²:

- effectiveness: providing care processes and achieving outcomes as supported by scientific evidence
- efficiency: maximizing the quality of a comparable unit of health care delivered or unit of health benefit achieved for a given unit of health care resources used
- equity: providing health care of equal quality to those who may differ in personal characteristics other than their clinical condition or preferences for care
- patient-centeredness: meeting patient needs and preferences and providing education and support
- safety: actual or potential bodily harm
- timeliness: obtaining needed care while minimizing delays.

From electronic health records, which were mandated in the Patient Protection and Affordable Care Act of 2010, offices, hospitals, and medical systems have gained robust databases of mineable information. Even data abstraction from paper records has been made easier, allowing better reflection of practitioner-based delivery of care.

Understanding cost breakdown in the overall value equation

With regard to value-based care, cost is generally related to money. When broadly explored, however, cost can be broken down into cost to the patient, the health care system, and society this way:

- patient: time spent receiving evaluation and management from a clinician; money spent for family care needs while undergoing management; money spent for procedures and tests; wages lost due to appointments
- health system: preventive services versus costly emergency room visit; community-based interventions to improve population health
- society: cost to tax payers; equitable distribution of vital resources (for example, vaccines); prevention of iatrogenic antibiotic resistance.

To understand how physicians are paid,

it is important to see how payers value our services. The Centers for Medicare and Medicaid Services states that it is “promoting value-based care as part of its larger quality strategy to reform how health care is delivered and paid for.” In 2018, the US Department of Health and Human Services is striving to have half of Medicare payments in APMs.³

It is the physician’s responsibility to recognize that costs to the patient, payer, health system, and society can compete with and directly influence the outcome of each other. For example, because the patient pays an insurance premium to participate in a risk pool where cost-sharing is the primary cost-containment strategy, poor-value interventions can directly translate into increased premiums, copayments, or deductibles for the entire pool.⁴

By clearly identifying the different variables involved in the value-based care equation, residents can better understand their responsibility in their day-to-day work in medicine to address value, not just quality or cost. Clarifying the tenets of value-based care will help guide educators in identifying “teaching moments” and organizing didactic sessions focused on practical implementation of value.

Less is more

In our opening anecdote, the attending shows how curbing overuse of resources can increase the value of care delivered. But that example illustrates only one of the many levels on which educators can help residents understand their impact on value. A multidisciplinary education that incorporates outpatient and inpatient pharmacists, social workers, occupational therapists, pelvic floor physiotherapists, office staff, billing specialists, operating room (OR) technologists, and others can be beneficial in learning how to deliver high-value care.

Value-based interventions at work

In the discussion that follows, we illustrate how residents can identify, evaluate, and put

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into practice value-based interventions that can occur at multiple levels.

Antibiotic selection. Resident choices for outpatient antibiotics can severely affect patient adherence. Subtle differences in the formulation of certain antibiotics affect the price and thus pose a significant potential obstacle. Judicious use of inexpensive drug formulations with fewer dosing frequencies can help patients engage in their own care.

Knowing the pharmacologic difference between doxycycline hyclate and doxycycline monohydrate, for example, is to know the difference between esoteric salts—undeniably worthless information with regard to successfully treating a patient’s infection. Knowing that one formula is on the bargain formulary at the patient’s local pharmacy, or that one drug requires twice-daily dosing versus 4-times-daily dosing, however, can mean the difference between the patient’s adherence or nonadherence to your expert recommendation.

Contraception options. Contraceptives

pose a challenge with respect to value because of the myriad delivery systems, doses, and generic formulations available. There are dozens of oral contraceptive pills (OCPs) on the market that vary in their dosing, phasic nature (monophasic, multiphasic), iron content in the hormone-free week, and different progestogens for different conditions (such as drospirenone for androgen excess).

When weighing contraceptive options, the clinician must look at value not only from a cost perspective but also from an effectiveness perspective. The desired outcome in this scenario is preventing unwanted pregnancy with ideal or typical contraceptive use at the most inexpensive price point. When working within the value equation, the clinician must individualize the prescribed contraceptive to one that is most acceptable to the patient and that optimizes the various costs and quality measures. “Cost” can mean the cost of OCPs, menstrual control products, backup contraception, failed or unwanted pregnancy management, or suffering lost wages from

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missed days of work from, for example, dysmenorrhea. “Quality” can mean a low contraceptive failure rate, predictable cyclicity, the need for patient administration and the risk of forgetting, and the need for backup contraceptives.

In comparing the subdermal contraceptive implant (which can cost up to \$1,300 every 3 years, equivalent to \$36.11 per month) with OCPs (which can cost as low as \$324 for 3 years for an ethinyl estradiol and norgestimate combination, or \$9 per month), the OCPs significantly outweigh the implant in terms of cost. When comparing failure rates, the degree of patient intervention, and decreased use of menstrual control products due to amenorrhea, the subdermal contraceptive wins. As we know, long-acting reversible contraception (LARC), including the intrauterine device (IUD) and subdermal implant, is the most effective but often the most expensive contraceptive option.⁵ When cost is evaluated from a global perspective, as highlighted by the adage “an IUD is cheaper than a baby,” the LARC’s value is derived from its overall high effectiveness and low cost.

If the patient elects to choose OCPs, the clinician should direct the prescription to a pharmacy that has discounted generic pills on its formulary. Generic OCPs have a low-cost burden without loss of efficacy, thus providing maximal value.⁶ This requires an intimate knowledge of the local pharmacies and what their formularies provide. Sometimes the patient will need to drive out of her way to access cost-effective, quality medications, or the high-value option.

Surgery considerations. Judicious instrument selection in the OR can decrease overall operative costs. While most advanced sealing and cutting instrumentation is for single use, for example, it also can be reprocessed for reuse. Although the cost of reprocessed, single-use instruments is lower, studies evaluating the quality of these instruments “found a significant rate of physical defects, performance issues, or improper decontamination.”⁷

Marketing largely has driven physician choice in the use of certain vessel sealing and cutting devices, but there has yet to be

evidence that using any one device actually improves performance or outcomes, such as length of surgery, blood loss, or postoperative complications. Technology companies that create these instruments likely will have to start designing studies to test performance and outcomes as they relate to their devices to persuade hospital systems that using their products improves outcomes and reduces costs.

While learning laparoscopic hysterectomy, residents may see that some attending surgeons can complete the entire procedure with monopolar scissors, bipolar forceps, and laparoscopic needle drivers, while other surgeons use those instruments plus others, such as a LigaSure instrument or a Harmonic scalpel. With outcomes being the same between these surgeons, it is reasonable for hospitals to audit each surgeon using the Value = Quality ÷ Cost equation and to seek data to describe why the latter surgeon requires additional instrumentation.

Residency training poses a unique opportunity for physicians to learn numerous ways to perform the same procedure so they can fill their armamentarium with various effective techniques. Residency also should be a time in which proficiency with basic surgical instrumentation is emphasized. Attending physicians can help residents improve their skills, for example, by having them use only one advanced sealing and cutting device, or no device at all. This practice will make the trainee better able to adapt to situations in which an advanced device may fail or be unavailable. Future performance metrics may evaluate the physician’s cost effectiveness with regard to single-use instruments during routine surgical procedures.

Standardized order sets. Evidence-based order sets help in the management of pneumonia, sepsis, deep vein thrombosis prophylaxis, and numerous other conditions. In the era of computerized physician order entry systems (CPOEs), a resident needs to enter just a few clicks to order all necessary tests, interventions, and imaging studies for a condition. In one fell swoop, orders are placed not only for admission but also for the

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patient’s entire hospitalization. The paradox of the order set is that it uses a template to deliver individualized patient-centered care.

In the age of enhanced recovery pathways after surgery, we see patients who undergo a hysterectomy being discharged home directly from the postoperative anesthesia care unit (PACU). Generally, follow-up laboratory testing is not ordered on an outpatient basis. If, however, the patient needs to remain in the hospital for social reasons (such as delayed PACU transfer, transportation, weather), she receives the standardized orders from the post hysterectomy order set: a morning complete blood count (\$55) with a basic metabolic panel (\$45). As an academic exercise, the order set may help residents learn which orders they must consider when admitting a postoperative hysterectomy patient, but overuse of order sets can be a setback for a value-based care system.

quality metrics, and cost parameters—creates a space for resident-led studies to contribute to peer education. The ACGME’s Obstetrics and Gynecology Milestones project was developed to assess the development of ObGyn residents’ competence as they progress through training. Despite national laws tying reimbursements to value-based care, there is no mention of value as it relates to the basic formula, Value = Quality ÷ Cost, in the project.

With the nuances that value-based care offers, it would behoove the Council on Resident Education in Obstetrics and Gynecology of the American College of Obstetricians and Gynecologists to incorporate a method of evaluation to determine competence in this evolving field.

Care also must be individualized

Academic ObGyns and instructors should focus their pedagogy not only on value-based care but also on individualized care that will maximize desired outcomes for each patient. Incorporating multidisciplinary didactics, focused research, and a 360-degree evaluation in the residency curriculum will create new ObGyns who are known for successfully delivering high-value care. ●

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Evaluating competence in value-based care

Research is an integral component of all residency programs accredited by the Accreditation Council for Graduate Medical Education (ACGME). The implementation of value-based care—with all its nuances,

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