

We Can Teach How to Bend the Cost Curve: Lessons in Pediatric High-Value Health Care

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“We have really good data that show when you take patients and you really inform them about their choices, patients make more frugal choices. They pick more efficient choices than the health care system does.”

Donald Berwick, MD

In continuing the series of articles by the Council on Medical Student Education in Pediatrics, we focus on the great clinical teacher’s responsibility to both deliver and explicitly teach about high-value health care. Medical students entering clinical rotations have been introduced to the concept of “too much care” in their coursework, including overdiagnosis, overtreatment, excessive testing, and poor care coordination and communication.^{1,2} As pediatricians committed to eliminating practices and associated expenditures that are not evidence-based and that lack direct patient benefit, we can improve our clinical teaching skills by making our role-modeling of such behaviors explicit. This paper reviews ways to incorporate teaching about common examples of pediatric care of limited or no value by using accessible teaching tools, such as the Choosing Wisely lists.³ We also introduce 2 efficient teaching aids to help learners incorporate the concept of value into their clinical reasoning and presentations: Prepare, Process, Initiate (PPI), and Subjective,

Objective, Assessment, Plan, Value (SOAP-V).⁴

EXCESSIVE COSTS OF HEALTH CARE IN THE UNITED STATES: PROPORTION FROM “TOO MUCH CARE”

Despite the modest deceleration in the rate of rise in total US health care expenditures over the last few years, health care spending in the United States vastly exceeds spending in other developed nations, yet our health outcomes are worse.⁵ The societal impact is substantial: health care indebtedness is the leading cause of household bankruptcy, and increasing health insurance premiums have eliminated real growth in wages for the past 2 decades.^{6,7} “Too much” care also comes at a personal cost to patients and families, including side effects from unneeded medications and complications from unnecessary procedures.

Approximately half of excess health care cost due to various categories of “waste” in the health care system falls into domains that are under the control of physicians.² These include failures of care delivery and coordination, and wasteful excessive care in the form of overdiagnosis, overtreatment, and overtreatment. Although pediatrics is not typically viewed as a source of excessive



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costs, significant opportunities for value improvement in pediatrics exist, and pediatric costs are rising faster than costs in adult health service delivery.^{8,9} Many students who complete pediatric rotations eventually pursue other specialties, but the principles of high-value care are readily transferable.

WHY TEACH ABOUT HEALTH CARE VALUE?

Given the excessive costs in US health care and their effects on patients and families, value and quality require more explicit emphasis in our pediatric teaching. Traditional clinical reasoning instruction results in the generation of extensive and frequently exhaustive differential diagnoses for common presenting complaints. This can have the unintended effect of teaching students and residents that no diagnostic possibility should go unexplored.¹⁰ Although limiting premature diagnostic closure and ensuring consideration of an accurate differential diagnosis are critical, sound clinical reasoning is also compatible with the teaching of restraint, stepwise decision-making, plans that avoid excess, and the incorporation of patient and family perspectives. When exploring clinical reasoning of learners, we can ask them to explain both the utility and the risks of tests they would like to order.^{5,10} Clinical teachers should explain the complexity, work, and unintended consequences of potential false positive results, even for what seem like “simple” tests. Although students who accurately identify a rare diagnosis receive praise, we rarely reward those who arrive at appropriate assessments with limited testing and consultation, or those who are comfortable with the uncertainty of waiting for the first round of limited testing to return, or observing a patient for a few days to see if improvement occurs. Noting and praising these behaviors more frequently could, over time, move our

training culture toward high-value care.^{4,10}

TOOLS FOR TEACHING HIGH-VALUE CARE

Choosing Wisely is a public education campaign whose purpose is to begin conversations between patients and physicians about potentially unnecessary tests and treatments. It highlights specific targets for improving value in pediatric primary care, inpatient, nursery, and select subspecialty settings, providing an excellent starting point for teaching basic pediatric high-value care. Pediatricians should have familiarity with these recommendations and potentially post them in their workrooms, or on course Web sites for easy access by learners and for use in teaching. These resources, which include references and evidence supporting all recommendations, are available at: www.choosingwisely.org.

Clinical teachers should role model honest conversations with families about current evidence-based decision-making, calculated risks versus benefits, and areas of uncertainty in clinical knowledge and practice. By doing so, they engage patients and parents in shared decision-making, and patients will often choose the less invasive, less aggressive approach.¹¹

PPI AND SOAP-V MODELS FOR CLINICAL ENCOUNTERS

PPI is a newly proposed and practical approach for teaching learners to apply the concepts of high-value care in pediatrics. Before a patient encounter, oral presentation, or before writing a note, the preceptor communicates with the learner using the following tool:

“Prepare”: What are the benefits versus harms of testing, interventions, and treatments related to the presenting problem, in general, but also,

more specifically, to this particular patient?

“Process”: What evidence exists pertaining to the presenting problem and the proposed interventions?

“Initiate”: Of the interventions available, which ones will maximize benefit, minimize harm, and be least costly? Here, preceptors emphasize to learners that patients and parents should share in this decision-making.

See Table 1 for examples of how the PPI model applies to common pediatric conditions.

SOAP-V adds “value” to the traditional Subjective-Objective-Assessment-Plan presentation by incorporating 3 value elements in the framing of management plans.⁴ Ask students to include answers to these questions when presenting a plan: (1) Does adding my proposed intervention potentially change management? Does it meaningfully benefit the patient? (2) Have I incorporated patient and family values and circumstances, and considered potential harms? (3) What is known about the cost of the intervention, both immediately and downstream?

VALUE AND ETHICS

Lessons on the principle of nonmaleficence (*primum non nocere*) are abundantly available in the teaching of high-value care. Although the bioethical principle of beneficence has led some to believe that cost should never be a consideration in treatment decisions, Schroeder and Ralston¹⁸ have recently illustrated how the bioethical principle of parsimony entreats us to effectively diagnose and treat each patient in the most efficient manner possible, with the efficient approach containing the most benefit for the patient.

TABLE 1 Using PPI To Teach Value

Setting	Example	Prepare	Process	Initiate
Office	Parents of a thriving 4-month-old infant ask if she needs medications for her “reflux.”	Could acid suppressing medication help? Are there harms?	Systematic review of articles on acid suppression harms and Choosing Wisely show no benefit and increased risk of infections. ^{3,12}	Reassure family that spit-up is normal if growth is fine; come to shared decision not to use medication.
Office	An immunized 18-month-old child has a normal neurologic exam and a viral exanthem after a simple febrile seizure.	Does this child need more work-up for seizures? Is there potential harm from a CT scan?	AAN/AAP guideline and Choosing Wisely: no EEG or head imaging needed. Consider potential harms of radiation, sedation, inadvertent findings. ^{3,13}	Empathize with family on how frightening this was, but explain how it is also common and the absence of long-term effects. Counsel what to do if there is a recurrence.
Office	A low-risk, 120-h-old, 41-wk gestation girl has a serum bilirubin of 20.1 mg/dL. Mother reports her milk is in, and baby has gained 20 g since the previous day.	Should we initiate phototherapy? Are there side effects to phototherapy, such as impact on bonding?	Measured level is below the AAP guideline phototherapy line; NNT in this category is >3000. ^{14,15}	Discuss risks/harms of phototherapy and treatment alternatives, such as a repeat bilirubin level the next day and continued frequent breastfeeding in a comfortable home setting.
ED	A 3-year-old girl presents with minor closed head injury after falling off a trampoline. She had no LOC and 2 episodes of emesis.	What is this child’s risk of a TBI that needs neurosurgical intervention? What are the harms of a CT scan in terms of radiation, sedation, and costs?	PECARN study risk calculation shows intermediate (0.8%) TBI risk. ¹⁶	Shared decision-making with family on options of observing for a few more hours in the ED for worsening symptoms versus risks of sedation and incidental findings on imaging.
Inpatient	A 6-year-old initially admitted for peripheral IV antibiotics for acute hematogenous osteomyelitis is now afebrile, clinically improved, and has a significant decline in C-reactive protein.	By what route should additional antibiotics be administered? What are the costs of PICC lines (including placement, risk of clots, infection, mechanical complications) versus oral antibiotics (including concerns about compliance).	Large study showing equivalent cure rates for oral and IV antibiotics, but with higher risks for IV antibiotics administered at home via PICC after discharge. ¹⁷	Shared decision-making with family; they opt for discharge on an oral agent with weekly follow-up.

AAN, American Academy of Neurology; AAP, American Academy of Pediatrics; CT, computed tomography; ED, emergency department; IV, intravenous; PECARN, Pediatric Emergency Care Applied Research Network; PICC, peripherally inserted central catheter; TBI, traumatic brain injury.

CONCLUSIONS

With almost half of excess health care costs related to decision-making at the clinician level, opportunities to teach the incorporation of high-value care at the level of the clinical encounter are plentiful. Clinical teachers can bend the health care cost curve downward by teaching and role modeling high-value care. The tools presented in this article can help clinical teachers structure lessons in high-value care in daily clinical encounters. Highlighting the underlying bioethical principles and giving thoughtful consideration of options while meeting the best interests of patients and families will assist in incorporating the concept of value in clinical reasoning and medical decision-making. Great clinical teachers are well positioned to demonstrate in both practice and teaching how “doing less” in

appropriate situations is safe, family-centered, evidence-based, and ethical.

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ABBREVIATIONS

PPI: Prepare, Process, Initiate
 SOAP-V: Subjective, Objective, Assessment, Plan, Value

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