



# NCC Pediatrics Continuity Clinic Curriculum: Choosing Wisely: High-Value Medical Decisions

## **Goals & Objectives:** *From Choosing Wisely® Key Principles:*

- Learn to order tests and prescribe medications based on best evidence.
- Learn to use effective communication techniques to explain and reassure patients about why we are or are not recommending certain treatments.
- Appreciate the obligation to our patients, profession and society to be responsible stewards of medical resources.

## **Pre-Meeting Preparation:**

- Read the [AAP Choosing Wisely Lists](#)
- Read “AAP: Ten Things Physicians & Patients Should Question”; “SHM-PHM: Five Things Physicians & Patients Should Question”
- Read “Insights on Residency Training: Making Value-Based Decisions about Ordering Tests” (NEJM Journal Watch, 2013)

## **Conference Agenda:**

- Review “Choosing Wisely” Quiz
- Complete “Choosing Wisely” Discussion Questions

## **Extra-Credit:**

- ["2023 Update on Pediatric Medical Overuse"](#) (*Pediatrics* 2023)
- [“Use of low-value pediatric services in the Military Health System”](#) (*BMC Health Services Research*, 2020)
- [“Trends in Low-Value Care Among Children's Hospitals"](#) (*Pediatrics*, 2024)
- ["Overuse of medical care in paediatrics: A survey from 5 countries in the European Academy of Pediatrics"](#) (*Frontiers in Peds*, 2022)
- For those on **Twitter**, check out **#choosingwisely**
- **Helpful Tools** [healthcarebluebook.com](#) (requires registration, free for providers and includes app access) [cost.sidecarhealth.com](#)
- [High-Value Care Pediatric Curriculum](#) (*MedEd Portal*, 2015. Thorough resource with articles, powerpoint lectures, case examples, geared toward residents)
- \*\*\*\*\*Check out the Share Drive: **Shares / PEDIATRICS / Cost Effective Care**\*\*\*\*\*

# 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.<sup>1,2</sup> 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.<sup>3</sup> 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).<sup>4</sup>

## 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.<sup>5</sup> 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.<sup>6,7</sup> "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.<sup>2</sup> These include failures of care delivery and coordination, and wasteful excessive care in the form of overdiagnosis, overtesting, 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.<sup>8,9</sup> 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.<sup>10</sup> 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.<sup>5,10</sup> 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.<sup>4,10</sup>

### 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](http://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.<sup>11</sup>

### 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.<sup>4</sup> 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 Ralston<sup>18</sup> 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. <sup>3,12</sup>	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. <sup>3,13</sup>	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. <sup>14,15</sup>	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. <sup>16</sup>	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. <sup>17</sup>	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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## How This List Was Created

The American Academy of Pediatrics (AAP) employed a three-stage process to develop its list. Using the Academy's varied online, print and social media communication vehicles, the first stage invited leadership of the Academy's 88 national clinical and health policy-driven committees, councils and sections to submit potential topics via an online survey. The second stage involved expert review and evaluation of the management groups that oversee the functions of the committees, councils and sections. Based on a set of criteria (evidence to document unproven clinical benefit, potential to cause harm, over-prescribed and utilized, and within the purview of pediatrics) a list of more than 100 topics was narrowed down to five. Finally, the list was reviewed and approved by the Academy's Board of Directors and Executive Committee.

AAP's disclosure and conflict of interest policy can be found at [www.aap.org](http://www.aap.org).



## Five Things Physicians and Patients Should Question

1

### Antibiotics should not be used for apparent viral respiratory illnesses (sinusitis, pharyngitis, bronchitis).

Although overall antibiotic prescription rates for children have fallen, they still remain alarmingly high. Unnecessary medication use for viral respiratory illnesses can lead to antibiotic resistance and contributes to higher health care costs and the risks of adverse events.

2

### Cough and cold medicines should not be prescribed or recommended for respiratory illnesses in children under four years of age.

Research has shown these products offer little benefit to young children and can have potentially serious side effects. Many cough and cold products for children have more than one ingredient, increasing the chance of accidental overdose if combined with another product.

3

### Computed tomography (CT) scans are not necessary in the immediate evaluation of minor head injuries; clinical observation/Pediatric Emergency Care Applied Research Network (PECARN) criteria should be used to determine whether imaging is indicated.

Minor head injuries occur commonly in children and adolescents. Approximately 50% of children who visit hospital emergency departments with a head injury are given a CT scan, many of which may be unnecessary. Unnecessary exposure to x-rays poses considerable danger to children including increasing the lifetime risk of cancer because a child's brain tissue is more sensitive to ionizing radiation. Unnecessary CT scans impose undue costs to the health care system. Clinical observation prior to CT decision-making for children with minor head injuries is an effective approach.

4

### Neuroimaging (CT, MRI) is not necessary in a child with simple febrile seizure.

CT scanning is associated with radiation exposure that may escalate future cancer risk. MRI also is associated with risks from required sedation and high cost. The literature does not support the use of skull films in the evaluation of a child with a febrile seizure. Clinicians evaluating infants or young children after a simple febrile seizure should direct their attention toward identifying the cause of the child's fever.

5

### Computed tomography (CT) scans are not necessary in the routine evaluation of abdominal pain.

Utilization of CT imaging in the emergency department evaluation of children with abdominal pain is increasing. The increased lifetime risk for cancer due to excess radiation exposure is of special concern given the acute sensitivity of children's organs. There also is the potential for radiation overdose with inappropriate CT protocols.





## Five More Things Physicians and Patients Should Question

6

### Don't prescribe high-dose dexamethasone (0.5mg/kg per day) for the prevention or treatment of bronchopulmonary dysplasia in pre-term infants.

High-dose dexamethasone (0.5 mg/kg day) does not appear to confer additional therapeutic benefit over lower doses and is not recommended. High doses also have been associated with numerous short- and long-term adverse outcomes, including neurodevelopmental impairment.

7

### Don't perform screening panels for food allergies without previous consideration of medical history.

Ordering screening panels (IgE tests) that test for a variety of food allergens without previous consideration of the medical history is not recommended. Sensitization (a positive test) without clinical allergy is common. For example, about 8% of the population tests positive to peanuts but only approximately 1% are truly allergic and exhibit symptoms upon ingestion. When symptoms suggest a food allergy, tests should be selected based upon a careful medical history.

8

### Avoid using acid blockers and motility agents such as metoclopramide (generic) for physiologic gastroesophageal reflux (GER) that is effortless, painless and not affecting growth. Do not use medication in the so-called "happy-spitter."

There is scant evidence that gastroesophageal reflux (GER) is a causative agent in many conditions though reflux may be a common association. There is accumulating evidence that acid-blocking and motility agents such as metoclopramide (generic) are not effective in physiologic GER. Long-term sequelae of infant GER is rare, and there is little evidence that acid blockade reduces these sequelae. The routine performance of upper gastrointestinal (GI) tract radiographic imaging to diagnose GER or gastroesophageal disease (GERD) is not justified. Parents should be counseled that GER is normal in infants and not associated with anything but stained clothes. GER that is associated with poor growth or significant respiratory symptoms should be further evaluated.

9

### Avoid the use of surveillance cultures for the screening and treatment of asymptomatic bacteruria.

There is minimal evidence that surveillance urine cultures or treatment of asymptomatic bacteruria is beneficial. Surveillance cultures are costly and produce both false positive and false negative results. Treatment of asymptomatic bacteruria also increases exposure to antibiotics, which is a risk factor for subsequent infections with a resistant organism. This also results in the overall use of antibiotics in the community and may lead to unnecessary imaging.

10

### Infant home apnea monitors should not be routinely used to prevent sudden infant death syndrome (SIDS).

There is no evidence that the use of infant home apnea monitors decreases the incidence of SIDS; however, they might be of value for selected infants at risk for apnea or cardiovascular events after discharge but should not be used routinely.

## Five Things Physicians and Patients Should Question

1

### Don't order chest radiographs in children with uncomplicated asthma or bronchiolitis.

National guidelines articulate a reliance on physical examination and patient history for diagnosis of asthma and bronchiolitis in the pediatric population. Multiple studies have established limited clinical utility of chest radiographs for patients with asthma or bronchiolitis. Omission of the use of chest radiography will reduce costs, but not compromise diagnostic accuracy and care.

2

### Don't routinely use bronchodilators in children with bronchiolitis.

Published guidelines do not advocate the routine use of bronchodilators in patients with bronchiolitis. Comprehensive reviews of the literature have demonstrated that the use of bronchodilators in children admitted to the hospital with bronchiolitis has no effect on any important outcomes. There is limited demonstration of clear impact of bronchodilator therapy upon the course of disease. Additionally, providers should consider the potential impact of adverse events upon the patient.

3

### Don't use systemic corticosteroids in children under 2 years of age with an uncomplicated lower respiratory tract infection.

Published guidelines recommend that corticosteroid medications not be used routinely in the management of bronchiolitis. Furthermore, additional studies in patients with other viral lower respiratory tract infections have failed to demonstrate any benefits.

4

### Don't treat gastroesophageal reflux in infants routinely with acid suppression therapy.

Antireflux therapy has been demonstrated to have no effect in reducing the symptoms of gastroesophageal reflux disease (GERD) in children. Concerns regarding the use of proton-pump inhibitor therapy in infants include an inability to definitively diagnose pediatric patients according to the established criteria of GERD, lack of documented efficacy of acid suppression therapy in infants and the potential adverse effects associated with acid suppression therapy.

5

### Don't use continuous pulse oximetry routinely in children with acute respiratory illness unless they are on supplemental oxygen.

The utility of continuous pulse oximetry in pediatric patients with acute respiratory illness is not well established. Use of continuous pulse oximetry has been previously associated with increased admission rates and increased length of stay. The clinical benefit of pulse oximetry is not validated or well documented.





## “Choosing Wisely” Discussion Questions

Based on National Survey of Physicians on Unnecessary Tests and Procedures in the Healthcare System (Feb-Mar14)—see *Extra Credit link* for survey results and compare your own responses.

1. Do you think the frequency of unnecessary tests and procedures in the health care system is a problem?
2. In your own practice, how often do parents ask for a test or procedure that you think is unnecessary?
3. How often do patients/parents follow your advice and avoid the unnecessary test or procedure?
4. Let’s say a parent came to you convinced that her child needed a specific test. You knew the test was unnecessary, but the parent was quite insistent. Would you refuse to order the test? Would you order the test but still advise against it?
5. In your own practice, why do you sometimes end up ordering an unnecessary test or procedure? (e.g. just to be safe, to reassure yourself, parents insisting on test, wanting to keep patients/parents happy, not enough time with patients, new technology in practice)
6. Do you feel comfortable or uncomfortable talking to parents about why they should avoid an unnecessary test or procedure for their child?
7. When parents ask for a test or procedure you feel is unnecessary, how often do you talk to them about WHY they should not have the test or procedure?
8. How often do you talk with your patients about the COST of tests and procedures?
9. How much responsibility do you feel you have for making sure your patients avoid unnecessary tests and procedures?
10. Who do you think is in the best position to help address the problem of unnecessary tests and procedures? (e.g. physicians, the government, trial lawyers, patients, insurance companies, hospitals)
11. After reviewing the ChoosingWisely campaign, do you think you will reduce the number of unnecessary tests you order? Do you think you will talk to parents more about avoiding unnecessary care?