



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:

- **Watch** [AAP Choosing Wisely Online Module](#) (< 30 min; videos play best on Firefox, Safari, or Google Chrome browsers)
- 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 (5 min)
- Complete “Choosing Wisely” Discussion Questions (10 min)
- [Price Is Right Game](#): See final page for rules. Additional materials will be provided.

Extra-Credit:

- [“Engaging Physicians and Consumers in Conversations About Treatment Overuse and Waste: A Short History of the Choosing Wisely Campaign”](#) (*Academic Medicine* 2014)
- [“Choosing Wisely—The Politics and Economics of Labeling Low-Value Services”](#) (*The New England Journal of Medicine* 2014)
- [“Unnecessary Tests and Procedures in the Healthcare System”](#)—provider survey (2014)
- For those on **Twitter**, check out **#choosingwisely**

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Special thanks to the Gorman children for compiling the “Price Is Right” game cards.



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.

Journal Watch

Insights on Residency Training

Notes from chief residents in family and internal medicine.

Making Value-Based Decisions About Ordering Tests

Paul Bergl, M.D.

As Dr. David Green reported this week in [NEJM Journal Watch](#), the American Society of Hematology is the latest society to comment on appropriate and cost-conscious care in the ABIM Choosing Wisely campaign. I've followed the [Choosing Wisely](#) campaign closely and have been using it on the wards and in clinic as academic ammunition. A specialist society's public advice about showing restraint is an excellent means to challenge the dogma of our so-called routine practices.

I know every conscientious practitioner has struggled with the high price of medical care. Our training environments are currently breeding grounds — and battlegrounds, for that matter — for ideas on how to solve our nation's cost crisis. I have often wondered how we might change the way we train our residents and teach our students to exhibit financial diligence.

Of course, we are all part of this economic mess, and residents rightly share some of the blame. As naïve practitioners who lack confidence in diagnosis and management, residents tend to overorder and overtreat. I certainly have checked a thyrotropin (TSH) level in the inexplicably tachycardic hospitalized patient, despite my own knowledge that it was probably worthless. And I've seen colleagues get echocardiograms “just to make sure” they could safely administer large amounts of IV fluid for hypovolemic patients with hypercalcemia or DKA. When residents don't have years of experience, they use high-tech diagnostic testing as a crutch.

Then again, the expectations of the learning environment also contribute to the epidemics of excessive echocardiograms and needless TSH levels. First of all, trainees are expected to have their patients presented in neat little bundles, devoid of any diagnostic uncertainty. Additionally, they have been trained through years of positive reinforcement for broad differential diagnoses and suggesting additional testing for unsolved clinical problems.

Although the Choosing Wisely campaign speaks to me and many of my generation, it is only a start. It alone cannot stand up to the decades of decadence and our culture of waste. How can we encourage trainees to truly choose wisely in the training environment? I propose the following:

- Deploy pre-clinical curricula that emphasize value-based medical decision-making. As much as students lament the breadth and depth of their curricula, pre-clinical students have fresh, open minds and are actually receptive to learning about cost-consciousness. We cannot expect that the curricula in residency or CME efforts will have an effect on our cost-ignorant model of care.
- Include cost-conscious ordering and prescribing in our board examinations. I have seen some change from when I took the USMLE Step 1 in 2008, but I notice that clinical board questions still usually ask for a “best next step” that usually doesn't include “expectant management” as an option. As trainees prepare for these exams, they develop a line of thinking that then permeates clinical practice. When patients with chronic musculoskeletal complaints and unremarkable radiographs are referred for MRIs rather than receiving reassurance, we can put some of the blame on our licensing exams.
- Reward trainee restraint. Residents and students should be commended for not working up insubstantial problems, withholding unnecessary treatments, and showing prudence in choosing diagnostics. Again, our educational constructs are to blame, because we reward expansive thinking and “not missing” things. In morning reports and other case conferences, we often praise residents for adding another diagnostic possibility rather than exhibiting “diagnostic restraint” or cost-conscious care.
- Give trainees **some** sense of the cost and price of tests and treatments. The literature has not consistently shown that giving physicians cost or price information will prevent wastefulness. But as far as I know, these studies have focused on clinicians in practice who are wedded to their ways. From my experience, trainees thirst for this type of information. Frankly, we are all clueless about how much a chest CT costs. How much was the machine? Are there separate bills for the scan and for the radiologist's interpretation? How much is the patient expected to pay? What will insurance pay?

Get leadership buy-in at academic centers. I am neither a healthcare economist nor a chief financial officer. But my experience as a chief resident has taught me that buy-in from the academic leadership is necessary to turn the tide on monumental tasks.



Every day, piles of money are spent on needless tests and treatments in training hospitals and clinics.

“Choosing Wisely” Quiz

1a. The AAP used a 3 stage process to select its list of ChoosingWisely® treatments. In the second stage, the expert review and evaluation narrowed 100 topics down to 10. What criteria did the AAP use to make its final list?

- Evidence to document unproven clinical benefit
- Potential to cause harm
- Over-prescribed & over-utilized
- Within the purview of pediatrics

1b. Based on these criteria, are there any other medications, tests, procedures you would include?

2. What are the 4 basic communication skills the AAP deems necessary to promote patient/parent understanding of the ChoosingWisely® recommendations?

- Provide clear recommendations (*use guidelines, avoid jargon, provide written materials*)
- Elicit patient beliefs/questions (*nonjudgmental, “curious questions”, silence*)
- Provide empathy, partnership, legitimation (*“I understand your worries & I’m ready to address them”—studies show this does not significantly prolong encounters*)
- Confirm agreement/overcome barriers (*check understanding, plan follow-up*)

3. List the 5 main AAP recommendations and the 5 SHM-PHM recommendations. Provide a brief rationale for each. And, indicate your current level of adherence:

Recommendation to Avoid	Rationale	Adherence (%)
Antibiotics for URIs	Increases toxicity & resistant organisms	
Cough & cold remedies	No benefit; risk of OD if multiple ingredient	
Head CT s/p head trauma	1/1500 kids<15 who undergo 1 head CT will develop a lethal malignancy; use PECARN	
MRI s/p febrile seizure	Risk of sedation; high cost	
CT for abdominal pain	Radiation overdose; risk of cancer	
CXR for bronchiolitis	Limited clinical utility; will reduce costs	
Albuterol for bronchiolitis	No effect on outcomes; increase adv events	
Steroids for LRTI in <2yo	No demonstrated benefit in bronchiolitis	
PPIs for routine GERD	No effect on sx; potential adv events	
Continuous Pox for RTIs	Increases admission rates and LOS	

“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?



“Choosing Wisely” Version

Faculty Instructions & Answer Key

Bidding Round

- 1) Select 3-4 residents to join the “Contestants Row”.
- 2) Show residents card with initial “product” (a lab test, procedure, or treatment).
- 3) Ask residents to place a single “bid”—that is, a guess on how much that “product” costs.
- 4) The contestant who bids closest to the product’s price *without going over* wins and *then* gets to play one of the “Pricing Games” (see below).

Pricing Game Round

- 1) Winning contestant from “Bidding Round” will play “Work It Up” Game.
- 2) Show resident card with Chief Complaint and basic historical information.
- 3) Give resident associated Management Plan cards, from which he/she will choose.
- 4) Goal of the game is to “work up” the patient, using the Management Plan cards, for under a given maximum price which is listed on the main Chief Complaint card. (The Management Plan cards will *not* have prices listed on them; residents will have to guess).

Overall Play

- 1) Play **3** Bidding Rounds, followed by **3** Pricing Game Rounds. Rotate residents through the Bidding Rounds so that everyone has shot at advancing to the Pricing Game Round.
- 2) Set timer for each Bidding Round to **1 minute**. Set timer for each Pricing Game Round to **4 minutes**. Total play time should be approximately **15 minutes**.
- 3) Spend **5 minutes** after each Pricing Game Round discussing YOUR recommended work-up for the given Chief Complaint and whether or not this work-up could be achieved within the maximum price listed on the card.

Please Note: There is no one right-answer for any of the 3 cases in the Pricing Game Round. The Chief Complaints/HPIs were made purposely ambiguous to prompt discussion of a wide-range of evaluation and treatment options. Your discussion should focus on how residents can achieve high-value care, considering the evidence base for some of our routine practices and whether the benefits outweigh the potential costs, both monetary and patient-centric.

Faculty Instructions & Answer Key. *continued*

Bidding Round

Healthcare Item	Fair Price*
Urine culture	\$79
Barium enema	\$324
Concerta (90 day supply)	\$792

* **Fair Price** from <https://www.healthcarebluebook.com/>; price charged at WR-B may vary.

Pricing Game Round

Game 1: 4 year-old healthy, afebrile female with painless limp x 10 days

Healthcare Items	Fair Price*
CBC with differential	\$45
CMP	\$59
ESR	\$44
CRP	\$48
Blood culture	\$211
Lyme titers w/reflex W. blot	\$450
ANA	\$44
RF	\$44
X-Ray of hip	\$78
X-Ray of knee	\$74
X-Ray of leg	\$56
X-Ray of ankle	\$66
X-Ray of foot	\$62
X-Ray of Femur	\$60
Ultrasound of hip	\$359
MRI of leg	\$1241
Bone scan	\$96
Motrin (90 day supply)	\$13
Rheumatology consult	<i>Priceless (or \$387)</i>

Goal for the initial workup is to spend no more than \$701 (2014 pricing).

For additional management recommendations, see the [American College of Rheumatology-Pediatric Rheumatology List of “Five Things”](#)

See prior continuity module for additional reading on [lower-limb disorders](#)

Game 2: 9yo male w/eczema with several mo of recurrent hives; no anaphylaxis.

Healthcare Items	Fair Price*
CBC with differential	\$45
IgG subclasses (1-4)	\$230
Serum tryptase	\$290
Allergen Profile-Basic Food	\$90
Allergen Profile-Perennial	\$260
Allergen Profile-Mold	\$120
Allergen Profile-Fall (Weeds)	\$150
Allergen Profile-Spring (Trees)	\$150
Allergen Profile-Summer (Grass)	\$150
Peanut-specific IgE	\$48
Hydroxyzine (120 day supply)	\$10
Cimetidine (30 day supply)	\$10
Prednisolone (25 day supply)	\$8
Hydrocortisone (1 tube)	\$31
EpiPen Jr (2 pens)	\$340
PFTs	\$120
Allergy Consult	\$387

Goal is to order an initial workup & management plan for under \$380 (2014 pricing).

For additional management recommendations, see the [American Academy of Allergy, Asthma, & Immunology List of “Ten Things”](#)

See prior continuity module for additional reading on [food allergies](#)

Game 3: 13yo female w/6mo of bitemporal headaches w/ vomiting. Normal exam.

Healthcare Items	Fair Price*
CBC with differential	\$45
CMP	\$59
ESR	\$44
Urine toxicology	\$106
TFTs	\$50
Lumbar puncture	\$399
EEG	\$790
Head CT (non-contrast)	\$407
Brain MRI (w/ and w/o con)	\$1261
Amitriptyline (30 day supply)	\$6
Naproxen (60 day supply)	\$7
Sumatriptan (9 tabs)	\$17
Neurology Consult	\$387

Goal is to order an initial workup & management plan for under \$101 (2014 pricing).

For additional recommendations, see the [American Headache Society List of “Five Things”](#)

See prior continuity module for additional reading on [headaches](#)