Choosing Wisely
An initiative of the ABIM Foundation

Five or More Things Physicians and Patients Should Question

Items # 1-5
Released February 21, 2013

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I have nothing to disclose.
Educational Objectives

• Review the Choosing Wisely items # 1-5
• Discuss evidence supporting each item
• Complete task in 30 minutes or less
**Antibiotics should not be used for apparent viral respiratory illnesses (sinusitis, pharyngitis, bronchitis).**

<table>
<thead>
<tr>
<th>Rationale against presumptive antibiotic use</th>
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<tbody>
<tr>
<td>1. Evidence for clinical efficacy is lacking: impending bacterial secondary infections are not minimized or aborted.</td>
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<td>2. Patients receiving antibiotics have no difference in rate of return visits.</td>
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<td>3. Overuse of antibiotics encourages bacterial resistance.</td>
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<td>4. Antibiotic side effects can occur and may be serious.</td>
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<td>5. Unnecessary antibiotic costs should be avoided.</td>
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Pediatrics 1999;104(6):1384-8
Pathogens Detected in U.S. Children with Community-Acquired Pneumonia Requiring Hospitalization.

**A** Detection of Bacterial and Viral Pathogens

- No pathogen
- Bacterial pathogen only
- Bacterial–viral co-detection
- Viral–viral co-detection
- One viral pathogen only

**C** Detection According to Age Group

- <2 Yr (N=862)
- 2–4 Yr (N=467)
- 5–9 Yr (N=294)
- 10–17 Yr (N=181)
Proportion of children with symptoms of common cold.

Matthew Thompson et al. BMJ 2013;347:bmj.f7027

90% symptom free by 15 days
Parent Expectations for Antibiotics, Physician-Parent Communication, and Satisfaction

Rita Mangione-Smith, MD, MPH; Elizabeth A. McGlynn, PhD; Marc N. Elliott, PhD; Laurie McDonald, MS; Carol E. Franz, PhD; Richard L. Kravitz, MD, MSPH

- 50% parents had pre visit expectation for antibiotics
- 34% physician perceived silent expectation
- Contingency plan increased mean satisfaction score
  - (76 vs 58.9; \( P < .05 \)).

- **Literature tells us:**
  - Parental pressure leads to overprescribing
  - Patient satisfaction linked to (1) better understanding of their illness and (2) time physician spent with them

*Arch Pediatric Adolescent Med 2001; 155:800-806*
Cough and cold medicines should not be prescribed or recommended for respiratory illnesses in children under four years of age.


Irwin RS, Baumann MH, Bolser DC, Boulet LP, Braman SS, Brightling CE, et. al.

#9 of 13 guidelines for evaluating cough in pediatric patients:

In children with cough, cough suppressants and other over-the-counter cough medicines should not be used as patients, especially young children, may experience significant morbidity and mortality. Level of evidence, good; benefit, none; grade of recommendation, D

Chest 2006; 129 (1_suppl):1S-23S
Over the counter cough and cold medications—From then to now

1972 - FDA review of OTC cough and cold medications

1976 - AAP statement no established indications

1997 - ACCP guideline do not use, not effective, serious risks for children

2006 - FDA guideline Not for use in children < 2 years of age

2007 - Voluntary withdrawal of infant products aimed at children < 2 years of age

2008 - Voluntary label change “do not use” children < 4 years of age

American Academy of Pediatrics position: not effective for children < 6 years of age
Honey for acute cough in children

Cochrane Review

Oduwole O, Meremikwu MM, Oyo-Ita A, Udoh EE

- Maybe better than no treatment, diphenhydramine or placebo for decreasing cough frequency
- Not better than dextromethorphan
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.

- Over 600,000 ER visits per year for head trauma
- 50% of children who visit emergency department have a CT scan
- Radiation increases lifetime cancer risk
- Costly

http://www.choosingwisely.org/doctor-patient-lists/american-academy-of-pediatrics/
Identification of children at very low risk of clinically-important brain injuries (ciTBI) after head trauma: a prospective cohort study

Nathan Kuppermann, James F Holmes, Peter S Dayan, John D Hoyle, Jr, Shireen M Atabaki, Richard Holubkov, et. al., for the Pediatric Emergency Care Applied Research Network (PECARN)*

- N= 42,412
- Developed a validated clinical tool using 6 predictors
- 100% sensitivity detecting traumatic brain injury on CT
- >99% negative predictive value

Lancet 2009; 374: 1160–70
PECARN Head injury Algorithm

(A) < 2 years
(B) ≥ 2 years

GCS=Glasgow coma scale
ciTBI=clinical important traumatic brain injury
LOC=loss of consciousness

**A**

- GCS=14 or other signs of altered mental status†, or palpable skull fracture
  - Yes
    - 13.9% of population
    - 4.4% risk of ciTBI
  - No
    - Occipital or parietal or temporal scalp haematoma, or history of LOC ≥ 5 s, or severe mechanism of injury‡, or not acting normally per parent
      - Yes
        - Observation versus CT on the basis of other clinical factors including:
          - Physician experience
          - Multiple versus isolated§ findings
          - Worsening symptoms or signs after emergency department observation
          - Age <3 months
          - Parental preference
        - 32.9% of population
        - 0.9% risk of ciTBI
      - No
        - 53.2% of population
        - <0.02% risk of ciTBI
        - CT not recommended¶

**B**

- GCS=14 or other signs of altered mental status†, or signs of basilar skull fracture
  - Yes
    - 14.0% of population
    - 4.3% risk of ciTBI
  - No
    - History of LOC, or history of vomiting, or severe mechanism of injury‡, or severe headache
      - Yes
        - Observation versus CT on the basis of other clinical factors including:
          - Physician experience
          - Multiple versus isolated§ findings
          - Worsening symptoms or signs after emergency department observation
          - Parental preference
        - 28.8% of population
        - 0.8% risk of ciTBI
      - No
        - 57.2% of population
        - <0.05% risk of ciTBI
        - CT not recommended¶

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† GCS score is ≥15 for children < 2 years old and ≥14 for children ≥ 2 years old.
‡ History of LOC = loss of consciousness.
§ Isolated findings refer to injuries that are not associated with other injuries.
¶ CT not recommended for infants and toddlers due to the risk of sedation and radiation exposure.

Lancet 2009; 374: 1160–70
PECARN Pediatric Head Injury/Trauma Algorithm

Provides the PECARN algorithm for evaluating pediatric head injury.

Note: This only applies to children with GCS scores of 14 or greater.

Age
- <2 Years +1
- ≥2 Years +2

GCS ≤14 or Signs of Basilar Skull Fracture or Signs of AMS
(Agitation, somnolence, repetitive questioning, or slow response to verbal communication)
- Yes +1
- No +2

History of LOC or History of vomiting or Severe headache or Severe Mechanism of Injury?
(Motor vehicle crash with patient ejection, death of another passenger, or rollover; pedestrian or bicyclist without helmet struck by a motorized vehicle; falls of more than 1.5m/5ft; head struck by a high impact object)
- Yes +1
- No +2

PECARN recommends No CT; Risk <0.02%, "Exceedingly Low, generally lower than risk of CT-induced malignancies."

PECARN recommends CT; 4.4% risk of clinically important Traumatic Brain Injury.

PECARN recommends Observation vs CT; 0.9% risk of clinically important Traumatic Brain Injury.

Imaging dependent on: Physician Experience, Worsening Signs/Symptoms During Observation Period, Age <3 Months, Parental Preference, or Multiple vs. Isolated Findings: Patients with certain isolated findings (ie, with no other findings suggestive of traumatic brain injury), such as isolated LOC, isolated headache, isolated vomiting, and certain types of isolated scalp haematomas in infants older than 3 months have a risk of cITBI substantially lower than 1%.

Children’s Hospital and Medical Center Omaha
Neuroimaging (CT, MRI) is not necessary in a child with simple febrile seizure.

• Simply find the fever source!

• The question is lumbar puncture or no lumbar puncture?
  • Vaccination status is important.

Pediatrics 2011; 127(2): 389-394
Risk of Intracranial Pathologic Conditions Requiring Emergency Intervention After a First Complex Febrile Seizure Episode Among Children

Teng D, Dayan P, Tyler S, Hauser WA, Chan S, Leary L, and Hesdorffer D

<table>
<thead>
<tr>
<th>Imaging</th>
<th>No (%)</th>
<th>No intracranial emergency</th>
</tr>
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<tbody>
<tr>
<td>Emergency CT scan only</td>
<td>2 (3)</td>
<td>0</td>
</tr>
<tr>
<td>MRI only</td>
<td>36 (51)</td>
<td>0</td>
</tr>
<tr>
<td>Emergency CT scan and MRI</td>
<td>8 (11)</td>
<td>0</td>
</tr>
<tr>
<td>Telephone interview</td>
<td>12 (17)</td>
<td>0</td>
</tr>
<tr>
<td>Medical record review</td>
<td>13 (18)</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>71</td>
<td>0</td>
</tr>
</tbody>
</table>

Pediatrics 2006; 117(2): 304-308
Computed tomography (CT) scans are not necessary in the routine evaluation of abdominal pain.

Radiation exposure from CT scans in childhood and subsequent risk of leukaemia and brain tumours: a retrospective cohort study


- Overall risk is low
  - 74 of 178,604 diagnosed with leukemia
  - 135 of 176,587 diagnosed with brain tumor

- Radiation dose is important

Relative risk of leukemia (A) and brain tumors (B) in relation to estimated radiation doses from CT scans.
Items 6 through 10

Released March 17, 2014
6. Don’t prescribe high-dose dexamethasone (0.5mg/kg per day) for the prevention or treatment of bronchopulmonary dysplasia in pre-term infants.

7. Don’t perform screening panels for food allergies without previous consideration of 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.”

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

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