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IN BRIEF

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COVER

Each of our 1996 issues of Pediatrics in Review will feature a work of art submitted to our cover art contest this past year. We received more than 200 entries and have chosen 12 to appear on our covers—four from each of three age groups: 5 to 7 years, 8 to 10 years, and 11 to 15 years. The entrants were asked to submit a drawing of what they like to do best. Most entries will be displayed by the American Academy of Pediatrics at various sites. This month’s work, by 11-year-old Megan Moran, is of her contemplating, possibly about astrology and the universe? Megan lives in West Dundee, IL; her pediatrician is Mark Rosenberg, MD.

ANSWER KEY

Ethanol in Over-the-Counter Drugs


Alcohol Content of Liquid Medications. Petroni NC, Cardoni AA. Drug Therapy. 1978:J72–87

Panel Recommends Limits on Alcohol Content of Nonprescription Products. Am J Hosp Pharm. 1993:50:400


Aliphatic Alcohols. Krenzelok EP. Clinical Toxicology Forum. 4: No. 3. Paddock Laboratories, Inc.

The use of over-the-counter (OTC) medications among children in the United States is extensive. More than 800 OTC medications are available for treatment of the common cold, with almost 2 billion dollars spent annually on cough and cold medications alone. In 1994, Kogan et al determined that more than 50% of 3-year-old children in the United States had been given OTC medications in the 30 days prior to the study survey. Cough and cold preparations and acetaminophen were reported to be the medications used most frequently (66.7%). The use of cough and cold medications has not decreased when compared with findings from a 1981 National Health Interview Survey, despite increasing evidence that these medications are not effective and, in some circumstances, even may be harmful to children.

Many OTC medications, particularly cough and cold preparations, contain alcohol, which manufacturers claim is useful as a preservative, a solvent, and a flavoring. A list by Petroni and Cardoni published in 1978 showed that more than 700 pharmaceutical liquid preparations contained ethanol in concentrations ranging from 0.3% to 68%. The alcohol content in some cough and cold formulations was as high as 40%, while some mouthwashes contained as much as 70% alcohol.

With the high concentration of ethanol in some OTC medications, children using these preparations can be exposed to toxic levels of alcohol. Additionally, they represent a readily available source of ethanol for adolescent alcoholics, and they pose the danger, although rare, of undesirable drug-alcohol interactions such as those observed with metronidazole or disulfiram.

The accidental ingestion of OTC preparations by children is significant. Seventy percent of all accidental ingestions occur in children younger than 5 years of age, with cough and cold medications among the top ten products ingested most frequently. A high concentration of alcohol in the formulation can lead to a dangerously high serum ethanol level in a young child. Serious toxicity can occur with the ingestion of 5 mL/kg of a preparation containing 50% alcohol, and children ingesting as little as 3 mL/kg of 100% ethanol in less than 1 hour have died.

Alcohol’s effects on the central nervous system (CNS) can range from an alteration of mental status to stupor, coma, and eventually death. Children are particularly prone to an infrequently recognized syndrome of metabolic derangement that is associated with high morbidity and mortality. Unlike adults, who rarely develop ethanol-induced hypoglycemia unless they have very poor nutritional status, children are extremely susceptible to profound hypoglycemia as a result of ethanol’s inhibition of hepatic gluconeogenesis. This complication can develop with serum levels of only 20 to 40 mg/dL, considerably less than the accepted standard legal level of alcohol intoxication (100 mg/dL). Hypoglycemia is an unpredictable phenomenon, and any child who has ingested more than a small amount of alcohol is at risk. Although a change in sensorium may represent the CNS depressant effect of alcohol on a child, a serum glucose level should be obtained early to identify hypoglycemia, which, if untreated, may lead to coma.

Other complications of alcohol ingestion include hypothermia, which results from peripheral vasodilation and CNS depression, metabolic acidosis with osmolar gap, respiratory depression, and seizures.

Because of the potential hazards of ethanol in OTC medications, especially to children, the Over-The-Counter-Drugs Advisory Committee of the Food and Drug Administration (FDA) recommended the following limitations in 1993:
For children younger than 6 years of age, products should be "alcohol-free" (alcohol content of ≤0.5%).

- For children 6 to 12 years of age, the alcohol content of any preparation should not exceed 5%.
- The alcohol content of products for persons older than 12 years of age should not exceed 10%.

In addition, the Committee advised that products containing alcohol be identified clearly on the package label, giving consumers the chance to decide whether to use such a preparation.

With the publication of these FDA recommendations, the Nonprescription Drug Manufacturers Association (NDMA) began a voluntary program to establish limits for the alcohol content of their members' products and has made particular progress with pediatric OTC medications. On March 13, 1996, the recommendations became regulatory, allowing exemptions for only a few homeopathic products that require a higher concentration of alcohol to dissolve their contents. However, the FDA regulations only affect orally ingested OTC medications; thus, products such as mouthwashes, which contain a high alcohol content, remain exempt.

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**Comment:** More troubling even than the risk of alcohol toxicity from OTC products is the overwhelming extent of their use among children and, in the majority of instances, without any proven benefit. The issue is not unique to the United States: One study estimated that the English administer 68 million child-days of antipyretic drugs each year. Barton Schmitt dramatically documented in his classic description of "fever phobia" (AJDC. 1980; 134:176) that the real problem is misinformation.

When parents fear permanent brain damage even from low-grade fever, it is not surprising that 85% routinely treat temperatures below 38.8°C (102°F), and more than 50% give their children an antipyretic for temperatures in the normal range. We seem to have the same compulsive need to suppress cough that we do fever, although both very likely are physiologically protective. The Committee on Drugs of the American Academy of Pediatrics long has advocated education of parents to understand cough as a beneficial mechanism, not "something to be stopped" at all costs. The cost of cough and cold medications, literally billions of dollars each year, is much too high for what often is at best a placebo and may well be worse.

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**PIR Quiz-CME Credit**

A short quiz can be found at the end of each article in *Pediatrics in Review*. Use the Quiz Card (bought into the January issue) to record your answers. Each question has a SINGLE BEST ANSWER. The answers to the questions appear on the inside front cover of each issue. Three AMA Category 1 continuing medical education (CME) credits are awarded per completed issue for a yearly total of 36 CME credits.

To obtain credit, record your answers on the *Pediatrics in Review* Quiz Card and send it to the American Academy of Pediatrics, PREP Office, PO Box 927, Elk Grove Village, IL 60009-0927. To receive CME credit on the 1996 annual credit transcript, Quiz Cards must be received by February 28, 1997. Quiz Cards received after this deadline will be recorded in the year they are received. Quiz Cards from the 1996 volume of *Pediatrics in Review* will be accepted through December 31, 1998. A special note to PREP group subscribers: You will receive the PIR Quiz Card and the Self-Assessment Credit Reply Sheet under separate cover.

The American Academy of Pediatrics (AAP) is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians. The American Academy of Pediatrics designates the Pediatrics Review and Education Program (PREP) for 56 credit hours in Category 1 of the Physician's Recognition Award of the American Medical Association. PREP meets the criteria for 56 hours of credit toward the AAP PREP Education Award.

PREP has been reviewed and is acceptable for 56 prescribed hours by the American Academy of Family Physicians. (Term of approval: beginning date January 1996. Enduring materials are approved for 1 year with option to request renewal.) For specific information, please consult the AAP Office of Continuing Medical Education.

PREP has been reviewed and is acceptable for 32 AOA Category 2-B CME hours by the American Osteopathic Association. For specific information, please consult the AOA Department of Education.

PREP has been approved for 56 NAPNAP contact hours. An individual requesting contact hours should submit proof of participation and verification of PREP accreditation to the NAPNAP National Office.

In addition, the Canadian Pediatric Society has approved PREP as one method for pediatricians to demonstrate maintenance of competence (MOCOMP). For specific information, please consult the CPS directly.

**PREP EDUCATION AWARD:**

The AAP PREP Education Award recognizes Academy Fellows and Candidate Fellows who earn a minimum of 150 AAP-approved CME credits over 3 consecutive years. The Award will be mailed automatically in July 1997 to all individuals who qualify.

To qualify for the PREP Education Award, a Fellow or Candidate Fellow must:

- Earn a minimum of 75 credit hours through participation in PREP or PREP: The Course, and
- Earn the remaining credit hours (75 hours) through other Academy-sponsored or -approved CME activities. This may include: AAP Spring Session or Annual Meeting; AAP CME courses; ACQIP; Pediatric UPDATE Audiocassette Tape Program; or other AAP approved courses.
SUGGESTED READING


PIR QUIZ

6. A previously healthy 7-year-old boy has had a cold for 4 days. He is brought to your office because “he coughed up blood.” His mother offers a moist, discolored facial tissue as proof. The material on the tissue tests strongly hematest-positive. The color that would be most consistent with a diagnosis of hemoptysis is:
   A. Bright red.
   B. Dark brown.
   C. Dark green.
   D. Dark red.
   E. Magenta.

7. A previously healthy 7-year-old boy suffers an episode of acute hemoptysis unaccompanied by any other symptoms. The etiology most consistent with the clinical history is:
   A. Endobronchial carcinoma.
   B. Epistaxis.
   C. Mitral stenosis.
   D. Pulmonary embolism.
   E. Retained foreign body.

8. A previously healthy 7-year-old boy who has had a cold for 4 days coughs up a small amount of blood-streaked sputum on one occasion. He is afebrile. His physical examination reveals only clear nasal mucus and scattered rhonchi on auscultation of the chest. Further evaluation must include:
   A. Computed tomography.
   B. Fiberoptic endoscopy.
   C. Magnetic resonance imaging.
   D. Plain chest radiography.
   E. Thoracic ultrasonography.

9. A previously healthy 7-year-old boy presents with acute, persistent hemoptysis. Physical examination, including thorough visualization of the nasopharynx, is unremarkable. Plain chest radiographs and coagulation studies are normal. The most appropriate choice as the next diagnostic procedure is:
   A. Angiography.
   B. Computed tomography
   C. Fiberoptic bronchoscopy.
   D. Magnetic resonance imaging.
   E. Ventilation-perfusion scan.

10. A 16-year-old girl who has cystic fibrosis suffers massive hemoptysis. Supportive measures are administered and an airway established. Rigid bronchoscopy identifies the right middle lobe as the source of bleeding, but lavage with iced saline, topical administration of ephedrine, and balloon catheter tamponade all fail to control the bleeding. Assuming no contraindications, the most appropriate next intervention would be:
    A. Embolization of bronchial arteries.
    B. Emergency resection of right middle lobe.
    C. High positive pressure mechanical ventilation.
    D. Laser coagulation of bronchial arteries.
    E. Vigorous airway suctioning.
11. Pediatricians caring for patients of differing cultural backgrounds from their own may adopt a "mini-anthropological" approach to understanding their patient's cultural perspective. The advantages of this approach are all the following except:
   A. Pediatricians will learn that the illness experience is bound to the patient's social context.
   B. What is typical of a group predicts the experience of an individual patient.
   C. Appropriate translation services could be made available.
   D. Potential areas of conflict between the practitioner and the family about a medical or social problem may be avoided.
   E. Office literature could match the cultural needs of the community.

12. GN is a 13-year-old Korean male who has been referred to the adolescent clinic for a worsening chronic cough. All the following are important aspects of the patient's visit except:
   A. Elicit the patient's and his family's clinical reality.
   B. Have a close family member who knows the patient well act as the translator.
   C. Become familiar with the patient's cultural norms regarding medical treatments.
   D. Spend time talking to the patient without his parents.
   E. Ask the family if they use complimentary health-care providers.

13. Despite adequate translation services, GN's family refuses to allow him to have a chest radiograph. The most likely reason for their refusal is that:
   A. The family uses alternative medications and is not forthcoming.
   B. The family is ignorant.
   C. The situation is one of medical neglect, and protective services should be notified immediately.
   D. The family and patient think the physician is incompetent.
   E. The family and the pediatrician have different understandings of the clinical reality.

14. Providers could be reluctant to focus on multicultural aspects of care because of the associated time and costs. Alternatively, not addressing cultural issues may lead to conflicts, inappropriate testing, inadequate therapy, multiple consultations, and fragmented care. The most important guideline for resolving this difference in approach is to:
   A. Allow time for the family's story to become understood.
   B. Call for an older family member to translate if communication is not going well.
   C. Cover all issues during the first visit.
   D. Point out the deficiencies of alternative care.
   E. Require several staff members to interview each family.