Contemporary PEDIATRICS®

NOVEMBER 2014
VOL. 31 | NO. 11

Expert Clinical Advice for Today's Pediatrician

ContemporaryPediatrics.com

MEANINGFUL USE 2
'JUST SAY NO'

CONTEMPORARY PEDIATRICS NOVEMBER 2014 VOL 31 NO.11

PILL PARTIES

TEENS PLAY DEADLY GAME OF 'RX ROULETTE'

+ SPECIAL AAP 2014 COVERAGE

Conference Club

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FREE SPEECH THREAT

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References: 1. Scalabrin DMF et al. *J Pediatr Gastroenterol Nutr.* 2012;54:343-352. **2.** Ashley C et al. *Nutr J.* 2012;11:38. doi: 10.1186/1475-2891-11-38. **3.** Ziegler E et al. *J Pediatr Gastroenterol Nutr.* 2007;44:359-364. **4.** Nakamura N et al. *Appl Environ Microbiol.* 2009;75:1121-1128.

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 LK1142 NEW 3/14

Contemporary PEDIATRICS®

November 2014
VOL. 31 NO. 11

peer-reviewed article

24 Pharming: Pill parties deadly for teens

Adolescents are playing a dangerous game of pill roulette with prescription and nonprescription drugs. Here's how pediatricians can recognize this risky behavior and what they can do to stem a growing national epidemic.

▶ *Susan Solecki, MSN, FNP-BC, PPCNP-BC; Renee Turchi, MD, MPH, FAAP*

clinical feature

28 The emotional parent: Why empathy matters

Learning to empathetically communicate with patients and parents in everyday practice builds trust that increases the likelihood of compliance with treatment plans when the diagnosis is complicated.

▶ *Pat F Bass III, MD, MS, MPH*

special feature

32 Conference Club

If you missed AAP's 2014 National Conference and Exhibition in San Diego last month, here are key takeaways from 9 of the seminal sessions.

▶ *John Jesitus*

special report

18 Gun ownership privacy law ignores childrens' risks

Florida is defending firearms ownership privacy while ignoring the prevalence of childhood gunshot wounds.

▶ *Adam S Levine, MD, JD*

23 puzzler

WORRISOME CHRONIC COUGH IN A 3-YEAR-OLD GIRL

▶ *Shannon D Tiedeken, MD*
Stephen E Shaffer, MD

41 peds v2.0

MEANINGFUL USE 2: "JUST SAY NO"

Pediatricians should consider whether it's worthwhile to participate in the CMS EHR Incentive Program's Stage 2.

▶ *Andrew J Schuman, MD*

46 dermcase

GIRL'S ITCHY RASH RESISTS REPEATED TREATMENT

▶ *James Perera, BSc, MS5*

departments

9 CLINICAL COUNTERPOINT

12 EYE ON WASHINGTON

Research for pediatric palliative care is lagging, says the Institute of Medicine.

15 JOURNAL CLUB

in addition

4 EDITORIAL ADVISORY BOARD

47 ADVERTISING INDEX

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Contemporary Pediatrics (Print ISSN: 8750-0507, Digital ISSN: 2150-6345) is published monthly by Advanstar Communications, Inc., 131 W. 1st Street, Duluth, MN 55802. Subscription rates: one year $89, two years $150 in the United States & Possessions, $105 for one year, $189 for two years in Canada and Mexico; all other countries $105 for one year, $189 for two years. Single copies (prepaid only) $18 in the United States; $22 in Canada and Mexico, and $24 in all other countries. Include $6.50 per order plus $2.00 per additional copy for U.S. postage and handling. **Periodicals postage paid** at Duluth, MN 55806 and additional mailing offices. POSTMASTER: Please send address changes to Contemporary Pediatrics, PO Box 6083, Duluth, MN 55806-6083. Canadian GST number: R-124213133RT001. Publications Mail Agreement Number 40612608. Return Undeliverable Canadian Addresses to: IMEX Global Solutions, P. O. Box 25542, London, ON N6C 6B2, CANADA . Printed in the U.S.A.

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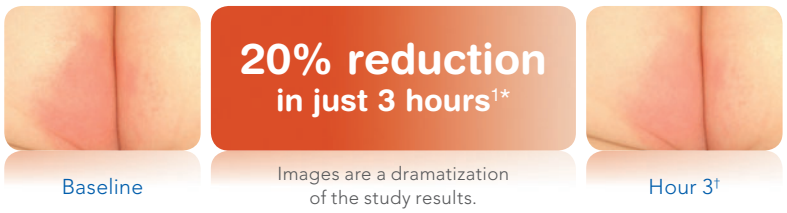

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†P=0.0001

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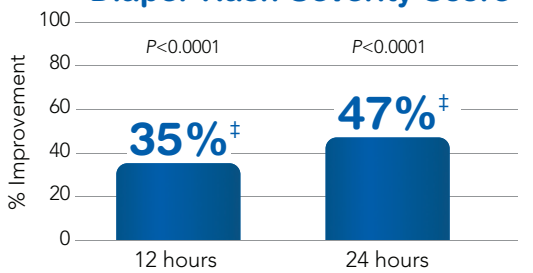

‡Efficacy and safety assessments were performed by a trained evaluator at baseline, and at 12 and 24 hours post-baseline (N=57). Subjects (2-36 months of age) must have received an "Overall Severity Score" of >1.5 as determined by evaluator at enrollment. Diaper rash severity was assessed using a 0- to 3-point scale (0=none; 3.0=severe).

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References: 1. Data on file. **2.** Brown WM, Berg JE, Li Q, Kohut BE. A clinical study to evaluate the efficacy of two marketed zinc oxide-based diaper rash ointments in children with diaper dermatitis. Poster presented at: Clinical Dermatology Conference; October 6-9, 2006; Las Vegas, NV. **3.** Product monograph. 68 FR 33377, June 4, 2003.

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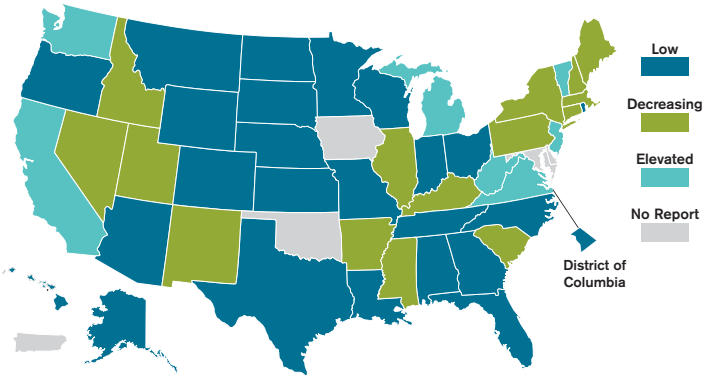
THE *OTHER* VIRUS

With media attention vectored on healthcare professionals who treated Ebola virus victims, coverage of enterovirus D68 has virtually gone dark. Some experts theorize that EV-D68 may be linked to the mysterious incidences of paralysis that have struck more than 50 US children, according to the CDC. As of October 29, the CDC had verified reports of 64 cases in 28 states and was verifying about half a dozen additional reports.

According to the agency, episodes of the illness, characterized by focal limb weakness and abnormalities of the spinal cord gray matter on MRI, have occurred since August 1, 2014, coincident with an increase of respiratory illnesses among children.

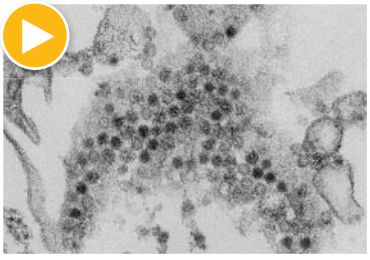
ACTIVITY OF ENTEROVIRUS D68-LIKE ILLNESS IN STATES



For the week of October 19-25, 2014, 46 states and the District of Columbia have submitted assessments to the CDC of activity of EV-D68-like illness.

Source: The Centers for Disease Control and Prevention

However, linkage of the virus to the paralysis falls short of causal. In the 10 cases reported at Children's Hospital Colorado, only 5 tested positive for EV-D68. None of the 5 children treated at Children's Hospital of Philadelphia (CHOP) for limb weakness and spinal lesions characteristic of the condition tested positive for it. The CHOP's neurology head theorizes that either the tests are insufficiently sensitive to detect the virus or that the children's bodies had already eradicated the virus by the time specimens were tested.



CDC/ CYNTHIA S. GOLDSMITH, YITING ZHANG, GETTY IMAGES/E+

WHAT YOU SHOULD KNOW ABOUT ENTEROVIRUS-D68

As Mary Anne Jackson, MD, Division Director, Infectious Disease, Department of Pediatrics and Professor of Pediatrics at the University of Missouri-Kansas City School of Medicine, reports in our exclusive interview, as of October 14th, the CDC had begun utilizing a new, faster lab test for detecting the virus. She notes that no adult cases have yet been identified, suggesting that prior exposure to EV-D68 has conferred immunity to the current virus. That hypothesis may be apt in that the virus is not a new one, having first been identified in 1962 per CDC.

At press time, the CDC had convened a panel of experts that is expected to release interim management guidelines the first week of November.

bit.ly/Jackson-EV-D68

top trending story

1 Apophysitis of the lower extremities

bit.ly/treating_apophysitis

Rest or withdrawal after concussion: a cautionary note

Physicians say evidence suggests rest may be just as harmful.

Dr. Pat Bass' article on concussion ("Managing a patient after concussion," *Contemporary Pediatrics*, August 2014) appropriately emphasizes the importance of brain protection and heightens recognition of the condition in children and adolescents. However, several points must be clarified, including importantly that the clinical management of concussion is not yet evidence based. At present, most recommendations for care are based on "expert consensus" and are not supported by clear empirical data.[1]

Dr. Bass indicates that pediatricians should caution against an immediate return to play. This is prudent in the immediate post-injury period, in part because many patients with concussion experience difficulties such as dizziness or coordination problems that might impair their ability to function safely. However, justifying the removal from play because of the risk of "second impact syndrome" is misleading. This so-called syndrome is hypothesized to involve brain swelling after a second injury, at some time close to an initial concussion. In reality, this condition has never been clearly demonstrated to be due to a second impact, and cases are probably related to a single impact causing diffuse neurovascular dysregulation and brain swelling, which is a rare but well-documented phenomenon in the neurosurgical literature.[2]

Catastrophic outcomes from sports-related concussion are much more likely to stem from acute intracranial bleeding after single head impacts rather than diffuse edema or back-to-back concussions. Regardless of the exact pathology, death from sports-related head trauma in youth is also several times less likely than death from exertion-related cardiovascular events—and even less likely than death from lightning strikes.[3]

Dr. Bass indicates that there is no evidence of harm in recommending rest in concussion. In fact, there is a broad literature on the pathophysiologic cascade that is produced by enforced periods of rest in humans.[4,5] Physical rest is contraindicated and associated with worsened outcomes in a number of medical conditions, including brain injury.[6] The psychological complications of rest and removal from regular activities are also well described, and in fact removal from validating activities has been identified as one of the most powerful predictors of illness-related depression.[7] Furthermore, enforced rest can quickly result in deconditioning, potentially exacerbating or producing symptoms typically attributed to the postconcussive syndrome itself.[4]

Recommendations from physicians to withdraw from school, social participation, and team play could iatrogenically precipitate or worsen socioemotional difficulties for adolescents, who are so dependent on their social network for validation and support. More importantly, there is no evidence that the brain can be "put to rest" volitionally. In fact, [rapid eye movement] sleep maintains nearly the same overall metabolic rate as wakefulness (even greater in certain regions such as the cingulate cortex). Cognitive rest, although recommended, remains ill defined—a rest "dosage" for activities has never been established.

It is also hard to imagine how avoiding concentration and the like could supersede reparative

mechanisms of brain recovery, evolved over millions of years.[8] To date, methodologically rigorous studies with humans have not yet demonstrated that rest has a beneficial effect on concussion recovery, and a mandated symptom-free waiting period before return to activity does not appear to hasten recovery.[9] Ultimately, we and others consider rest a medical "treatment" that must be subject to the same degree of study and analysis as any prescribed intervention before recommendations are made for use in concussion.[10]

Dr. Bass emphasizes that students not return to school or sports "until asymptomatic." Yet, a significant proportion of the normal population without head injury commonly reports symptoms typically seen after concussion (eg, fatigue, sleep disturbance, headache, inattention), making the goal of being asymptomatic nonsensical.[11]

We have reached a critical juncture. Parents are now restricting their children's participation in sports because of concerns regarding concussion.[12] Pediatricians are the vanguard who must educate parents on the known risks of concussion but also the risks of a sedentary lifestyle, and the benefits of sports and team involvement for children.

In summary, we recommend that pediatricians exercise caution when recommending more than a short period of "rest" or withdrawal from exercise, social interaction, or school. Interestingly, psychoeducation and reassurance have been found to be effective means of treatment for concussion.[13] We suggest that both can be used as powerful tools in the hands of a confident and educated clinician. ■

MARC P DIFAZIO, MD
MICHAEL W KIRKWOOD, PHD, ABPP-CN

Dr DiFazio is a child neurologist and assistant professor of neurology, Children's National Health System, George Washington University School of Medicine and Health Sciences, Washington, DC, and medical director, Children's National Outpatient Center of Montgomery County, Rockville, Maryland. Dr Kirkwood is a pediatric neuropsychologist and associate clinical professor, Department of Physical Medicine and Rehabilitation, Children's Hospital Colorado and the University of Colorado School of Medicine, Aurora. The authors have nothing to disclose in regard to affiliations with or financial interests in any organizations that may have an interest in any part of this article.

For references, go to bit.ly/counterpoint1114

Dr. Bass responds:

I would like to thank Marc P. DiFazio, MD, and Michael W. Kirkwood, PhD, ABPP-CN, for their thoughtful response and rebuttal to parts of my concussion article.

I believe that Drs. DiFazio and Kirkwood's comments highlight one significant problem that we have today in medicine—a large amount of what we do is not in fact based on evidence. Pediatricians in very busy office practices are often asked to make care decisions on a daily basis when a clear evidence base is lacking. As a result, expert opinion in the form of guidelines or consensus often guides the pediatrician's thinking.

Guidelines are not the be-all and end-all for pediatric care. However, they do offer the busy pediatrician a place to start and help guide decisions in areas in which the pediatrician may not have received training and may not have referrals available. In the area of concussions, I would argue that guidelines such as those referenced in the article are essential given current shortages in specialties such as pediatric neurology.

Certainly, the guideline development process is far from perfect, and I agree that the areas mentioned by Drs. DiFazio and Kirkwood are concerning and deserving of further study and investigation. I am not familiar enough with the referenced guideline development to comment on why more of the issues raised by these physicians were not addressed. However, guidelines are not mandates and each patient needs to be treated individually. I would encourage pediatricians to explore the areas raised in these thoughtful comments. ■

PAT F. BASS III, MD, MS, MPH
Chief Medical Information Officer
Associate Professor, Medicine and Pediatrics
Louisiana State University Health Science Center
Shreveport, Louisiana

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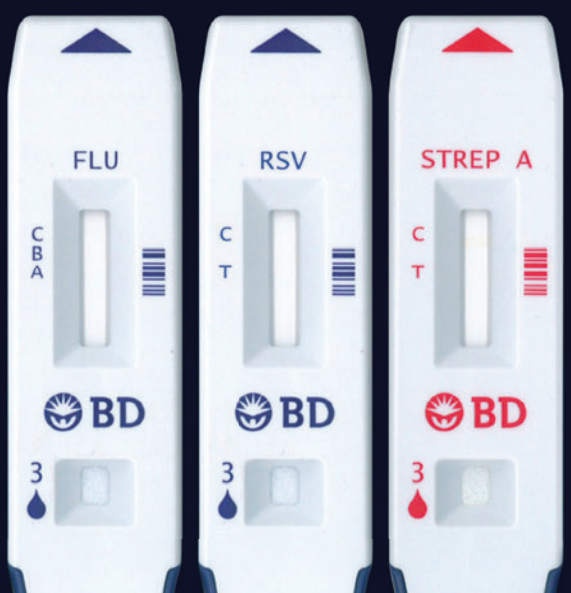

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*Respiratory Syncytial Virus.

References: 1. Data on File.

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Research for pediatric palliative care lagging

Institute of Medicine report looks at recent developments.

There's still a lack of investment in palliative care research, according to a new report from the Institute of Medicine (IOM). The panel notes that from 2006 to 2010 only a fraction of 1% of the National Institutes of Health grants were about palliative care.

Also, says the report, "Pediatric-related research needs may be especially pressing," and those needs include comparative effectiveness studies on symptom management and bereavement support; analyses of care in various settings; and studies on staffing, managing, and financing "hospital-based pediatric palliative and community-based pediatric hospice services."

The report was put together by a panel of 21 experts from academic centers and from government and the private sector.

The committee recommended that professional societies and other organizations "develop standards for clinician-patient communication and advance care planning that are measurable, actionable, and evidence based." Just as importantly, it said payers should tie those standards to reimbursement.

Among other things, those standards should encourage the opportunity for everyone, including children who can do so, to participate in their healthcare decisions, including decisions as they approach death, according to the IOM panel.

The panel also called for better palliative care training and "a major reorientation of restructuring of Medicare, Medicaid, and other healthcare delivery programs." Current incentives and the lack of appropriate alternatives "drive a reliance on the riskiest and most costly care settings," it stated.

Deaths at home from chronic conditions rise

Although about 45,000 people aged 19 years and younger die in the United States every year, it's difficult to estimate the number for whom palliative care would be useful, the IOM panel noted. For one thing, in children death often comes quickly, leaving little time for such care. Trauma and other external causes are still the largest causes of child and young adult mortality. Many other child deaths, including many of those from serious infections and extreme prematurity, are unexpected.

However, a third of pediatric deaths are in children who have "complex chronic conditions," defined as "conditions likely to last 6 months or longer (unless death intervenes) and requiring care by pediatric subspecialists and often a period of hospital care."

Even with these cases, it can be difficult to predict death, the panel indicated. Some children have either a fluctuating decline or a long period when their health is fragile, making the prediction of death "exceedingly imprecise."

Although pediatric deaths still most commonly occur in a hospital, the proportion of pediatric deaths attributed to complex chronic conditions that occur at home has risen considerably, the report said. This trend points to the need for community-based capacity for home care and bereavement services for families.

The most important research need, the IOM report said, may be in symptom management and for a toolkit for palliative care for many kinds of conditions in children whether they are close to death or not. "Unfortunately, research regarding pediatric symptom management is woefully lacking," it indicated.

The report does note that among recent developments, the Affordable Care Act eliminated the requirement to choose between curative or hospice care when it is paid for under Medicaid or the state Children's Health Insurance Programs.

The report, *Dying in America: Improving Quality and Honoring Individual Preferences Near the End of Life,* is available to download for free from the IOM. ■

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[a]PedvaxHIB[e] was initially evaluated in a randomized, double-blind, placebo-controlled study of Native American (Navajo) infants (n=3,486). Each infant in this study received 2 doses of either placebo or lyophilized PedvaxHIB with the first dose administered at a mean of 8 weeks of age and the second administered approximately 2 months later; DTP and OPV were administered concomitantly; [b]Protective efficacy in such high-risk populations would be expected to be predictive of efficacy in other populations. A booster dose of PedvaxHIB is required in infants who complete the primary 2-dose regimen before 12 months of age. This booster dose will help maintain antibody levels during the first 2 years of life when children are at highest risk for invasive Hib disease; [c]Estimated from person-days at risk; [d]Subjects in this portion of the study received 1 to 3 doses of PedvaxHIB; [e]A lyophilized formulation was used in the study. A later study found the antibody response of Liquid PedvaxHIB to be comparable. The antibody responses induced by each formulation of PedvaxHIB were similar.

CI=confidence interval; DTP=diphtheria and tetanus toxoids and pertussis [vaccine]; OPV=oral polio vaccine; Hib= *Haemophilus influenzae* type b.

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Indication

PedvaxHIB is indicated for routine vaccination against invasive disease caused by *Haemophilus influenzae* type b in infants and children 2 to 71 months of age. PedvaxHIB should not be used in infants <6 weeks of age.

PedvaxHIB will not protect against disease caused by *Haemophilus influenzae* other than type b or against other microorganisms that cause invasive disease such as meningitis or sepsis.

PedvaxHIB IS NOT RECOMMENDED FOR USE IN INFANTS YOUNGER THAN 6 WEEKS OF AGE.

PedvaxHIB is administered in a 2-dose primary regimen before 14 months of age. Infants 2 to 14 months of age should receive a 0.5 mL dose of vaccine, ideally beginning at 2 months of age, followed by a 0.5 mL dose 2 months later (or as soon as possible thereafter). When the primary 2-dose regimen is completed before 12 months of age, a booster dose (0.5 mL) should be administered at 12 to 15 months, but not earlier than 2 months after the second dose.

Select Safety Information

PedvaxHIB is contraindicated in patients with hypersensitivity to any component of the vaccine. Persons who develop symptoms suggestive of hypersensitivity after an injection should not receive further injections of the vaccine.

Use caution when vaccinating latex-sensitive individuals since the vial stopper contains dry natural latex rubber that may cause allergic reactions.

The most frequently reported (>1%) adverse reactions, without regard to causality, were fever (≥101°F), irritability, sleepiness, injection-site pain/soreness, injection-site erythema (≤2.5 cm diameter), injection-site swelling/induration (≤2.5 cm diameter), unusual high-pitched crying, prolonged crying (>4 hours), diarrhea, vomiting, crying, pain, otitis media, rash, and upper respiratory infection.

As with any vaccine, vaccination may not result in a protective antibody response in all individuals given the vaccine. As with other vaccines, PedvaxHIB may not induce protective antibody levels immediately following vaccination.

Please see the adjacent Brief Summary of the Prescribing Information.

Reference: 1. Centers for Disease Control and Prevention. Catch-up immunization schedule for persons aged 4 months through 18 years who start late or who are more than 1 month behind—United States, 2013. http://www.cdc.gov/vaccines/schedules/downloads/child/catchup-schedule-pr.pdf. Accessed February 19, 2013.

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Liquid PedvaxHIB will not protect against disease caused by *Haemophilus influenzae* other than type b or against other microorganisms that cause invasive disease such as meningitis or sepsis. As with any vaccine, vaccination with Liquid PedvaxHIB may not result in a protective antibody response in all individuals given the vaccine.

BECAUSE OF THE POTENTIAL FOR IMMUNE TOLERANCE, Liquid PedvaxHIB IS NOT RECOMMENDED FOR USE IN INFANTS YOUNGER THAN 6 WEEKS OF AGE. (See PRECAUTIONS in full Prescribing Information.)

Revaccination

Infants completing the primary two-dose regimen before 12 months of age should receive a booster dose (see DOSAGE AND ADMINISTRATION in full Prescribing Information).

CONTRAINDICATIONS

Hypersensitivity to any component of the vaccine or the diluent.

Persons who develop symptoms suggestive of hypersensitivity after an injection should not receive further injections of the vaccine.

PRECAUTIONS

General

As for any vaccine, adequate treatment provisions, including epinephrine, should be available for immediate use should an anaphylactoid reaction occur.

Use caution when vaccinating latex-sensitive individuals since the vial stopper contains dry natural latex rubber that may cause allergic reactions.

Special care should be taken to ensure that the injection does not enter a blood vessel.

It is important to use a separate sterile syringe and needle for each patient to prevent transmission of hepatitis B or other infectious agents from one person to another.

As with other vaccines, Liquid PedvaxHIB may not induce protective antibody levels immediately following vaccination.

As reported with Haemophilus b Polysaccharide Vaccine and another Haemophilus b Conjugate Vaccine, cases of Hib disease may occur in the week after vaccination, prior to the onset of the protective effects of the vaccines.

There is insufficient evidence that Liquid PedvaxHIB given immediately after exposure to natural *Haemophilus influenzae* type b will prevent illness.

The decision to administer or delay vaccination because of current or recent febrile illness depends on the severity of symptoms and on the etiology of the disease. The Advisory Committee on Immunization Practices (ACIP) has recommended that vaccination should be delayed during the course of an acute febrile illness. All vaccines can be administered to persons with minor illnesses such as diarrhea, mild upper-respiratory infection with or without low-grade fever, or other low-grade febrile illness. Persons with moderate or severe febrile illness should be vaccinated as soon as they have recovered from the acute phase of the illness.

If PedvaxHIB is used in persons with malignancies or those receiving immunosuppressive therapy or who are otherwise immunocompromised, the expected immune response may not be obtained.

Instructions to Healthcare Provider

The healthcare provider should determine the current health status and previous vaccination history of the vaccinee.

The healthcare provider should question the patient, parent, or guardian about reactions to a previous dose of PedvaxHIB or other Haemophilus b Conjugate Vaccines.

Information for Patients

The healthcare provider should provide the vaccine information required to be given with each vaccination to the patient, parent, or guardian.

The healthcare provider should inform the patient, parent, or guardian of the benefits and risks associated with vaccination. For risks associated with vaccination, see ADVERSE REACTIONS in full Prescribing Information.

Patients, parents, and guardians should be instructed to report any serious adverse reactions to their healthcare provider who in turn should report such events to the U. S. Department of Health and Human Services through the Vaccine Adverse Event Reporting System (VAERS), 1-800-822-7967.

Laboratory Test Interactions

Sensitive tests (e.g., Latex Agglutination Kits) may detect PRP derived from the vaccine in urine of some vaccinees for at least 30 days following vaccination with lyophilized PedvaxHIB; in clinical studies with lyophilized PedvaxHIB, such children demonstrated normal immune response to the vaccine.

Carcinogenesis, Mutagenesis, Impairment of Fertility

Liquid PedvaxHIB has not been evaluated for carcinogenic or mutagenic potential, or potential to impair fertility.

Pregnancy

Pregnancy Category C: Animal reproduction studies have not been conducted with PedvaxHIB. Liquid PedvaxHIB is not recommended for use in individuals 6 years of age and older.

Pediatric Use

Safety and effectiveness in infants below the age of 2 months and in children 6 years of age and older have not been established. In addition, Liquid PedvaxHIB should not be used in infants younger than 6 weeks of age because this will lead to a reduced anti-PRP response and may lead to immune tolerance (impaired ability to respond to subsequent exposure to the PRP antigen). Liquid PedvaxHIB is not recommended for use in individuals 6 years of age and older because they are generally not at risk of Hib disease.

Geriatric Use

This vaccine is NOT recommended for use in adult populations.

ADVERSE REACTIONS

Liquid PedvaxHIB

In a multicenter clinical study (n=903) comparing the effects of Liquid PedvaxHIB® [Haemophilus b Conjugate Vaccine (Meningococcal Protein Conjugate)] with those of lyophilized PedvaxHIB, 1,699 doses of Liquid PedvaxHIB were administered to 678 healthy infants 2 to 6 months of age from the general U.S. population. DTP and OPV were administered concomitantly to most subjects. Both formulations of PedvaxHIB were generally well tolerated and no serious vaccine-related adverse reactions were reported.

During a three-day period following primary vaccination with Liquid PedvaxHIB in these infants, the most frequently reported (>1%) adverse reactions, without regard to causality, excluding those shown in the table, in decreasing order of frequency, were: irritability, sleepiness, injection site pain/soreness, injection site erythema (≤2.5 cm diameter, see table), injection site swelling/induration (≤2.5 cm diameter, see table), unusual high-pitched crying, prolonged crying (>4 hr), diarrhea, vomiting, crying, pain, otitis media, rash, and upper respiratory infection.

Selected objective observations reported by parents over a 48-hour period in these infants following primary vaccination with Liquid PedvaxHIB are summarized in the following table.

Fever or Local Reactions in Subjects First Vaccinated at 2 to 6 Months of Age with Liquid PedvaxHIB[a]

Reaction	No. of Subjects Evaluated	Post-Dose 1 (hr)			No. of Subjects Evaluated	Post-Dose 2 (hr)		
		6	24	48		6	24	48
		Percentage				Percentage		
Fever[b] >38.3°C (≥101°F) Rectal	222	18.1	4.4	0.5	206	14.1	9.4	2.8
Erythema >2.5 cm diameter	674	2.2	1.0	0.5	562	1.6	1.1	0.4
Swelling >2.5 cm diameter	674	2.5	1.9	0.9	562	0.9	0.9	1.3

[a]DTP and OPV were administered concomitantly to most subjects.
[b]Fever was also measured by another method or reported as normal for an additional 345 infants after dose 1 and for an additional 249 infants after dose 2; however, these data are not included in this table.

Adverse reactions during a three-day period following administration of the booster dose were generally similar in type and frequency to those seen following primary vaccination.

Lyophilized PedvaxHIB

In The Protective Efficacy Study (see CLINICAL PHARMACOLOGY in full Prescribing Information), 4,459 healthy Navajo infants 6 to 12 weeks of age received lyophilized PedvaxHIB or placebo. Most of these infants received DTP/OPV concomitantly. No differences were seen in the type and frequency of serious health problems expected in this Navajo population or in serious adverse experiences reported among those who received lyophilized PedvaxHIB and those who received placebo, and none was reported to be related to lyophilized PedvaxHIB. Only one serious reaction (tracheitis) was reported as possibly related to lyophilized PedvaxHIB and only one (diarrhea) as possibly related to placebo. Seizures occurred infrequently in both groups (9 occurred in vaccine recipients, 8 of whom also received DTP; 8 occurred in placebo recipients, 7 of whom also received DTP) and were not reported to be related to lyophilized PedvaxHIB.

In early clinical studies involving the administration of 8,086 doses of lyophilized PedvaxHIB alone to 5,027 healthy infants and children 2 months to 71 months of age, lyophilized PedvaxHIB was generally well tolerated. No serious adverse reactions were reported. In a subset of these infants, urticaria was reported in two children, and thrombocytopenia was seen in one child. A cause and effect relationship between these side effects and the vaccination has not been established.

Potential Adverse Reactions

The use of Haemophilus b Polysaccharide Vaccines and another Haemophilus b Conjugate Vaccine has been associated with the following additional adverse effects: early onset Hib disease and Guillain-Barré syndrome. A cause and effect relationship between these side effects and the vaccination was not established.

Post-Marketing Adverse Reactions

The following additional adverse reactions have been reported with the use of the lyophilized and liquid formulations of PedvaxHIB:

Hemic and Lymphatic System

Lymphadenopathy

Hypersensitivity

Rarely, angioedema

Nervous System

Febrile seizures

Skin

Sterile injection site abscess

For more detailed information, please read the full Prescribing Information.

Manufactured and distributed by: Merck Sharp & Dohme Corp., a subsidiary of **Merck & Co., Inc.**

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VACC-1072870-0000 03/13

BY MARIAN FREEDMAN | COMMENTARY BY MICHAEL G BURKE, MD | f CONTEMPORARYPEDIATRICS

Infant influenza hospitalization burden is high

An average of 6514 infants aged younger than 1 year were hospitalized for influenza infection each year between 2003 and 2012, according to population-based influenza hospitalization surveillance data collected by the Centers for Disease Control and Prevention. About 50% of these hospitalizations were in infants aged younger than 3 months, followed by those aged 6 months to younger than 12 months (32%) and infants aged 3 months to younger than 6 months (18%).

Although the overall number of hospitalizations varied from one season to another (ranging from a low of 1842 during the 2011-2012 season to a high of 12,502 during the 2003-2004 season), the rates always were highest among those aged younger than 3 months, about 3-fold higher than those in older infants.

Most hospitalizations (75%) were in infants who did not have any identified high-risk conditions for influenza complications, such as lung, cardiovascular, renal, or metabolic disease; neurologic or neuromuscular disorder (NNMD); an immunocompromised condition; or prematurity. The prevalence of such high-risk conditions (prematurity was the most common followed by lung disease, cardiovascular disease, and NNMD) increased with age, from 15% among infants aged younger than 3 months to 38% among those aged 6 months to younger than 12 months.

Infants who did have high-risk conditions were 2 to 3 times more likely than other infants hospitalized for influenza infection to be admitted to the intensive care unit (ICU) or experience respiratory failure. Nonetheless, even among otherwise healthy admitted infants, up to 10% were admitted to the ICU and up to 4% had respiratory failure (Chaves SS, et al. *Pediatr Infect Dis J*. 2014;33[9]:912-919).

commentary

This study is a timely reminder that influenza season is upon us and that we need to do all we can to prevent its impact on our patients. Offer the flu vaccine to all your eligible patients (aged 6 months and older). Recommend that pregnant mothers of your patients see their doctors for an influenza vaccination and suggest that other household contacts of your youngest patients be vaccinated, too. For young patients admitted with fever, consider testing for influenza. Given that up to 10% of infants admitted with influenza require admission to an ICU, consider treatment with antivirals early in the hospital course. Oseltamivir is now approved for use in infants aged as young as 2 weeks. —Michael G Burke, MD

Home nurse visits decrease maternal and infant mortality

Disadvantaged mothers who receive regular home visits by nurses during pregnancy and through their child's second birthday are less likely to die from all-cause mortality and their children are less likely to die from preventable causes than their counterparts who do not have such visits. These were the main findings of a 2-decade study in more than 1100 primarily African American women and their firstborn children who lived in highly disadvantaged urban neighborhoods.

Participants were assigned to 1 of 4 treatment groups. Women in group 1 were provided free transportation for prenatal care appointments and those in group 2, also provided with transport, received developmental screening and referral services for their children during the first 24 months of life. Groups 1 and 2, which received no visiting

nurse support, were control groups; groups 3 and 4, which did receive nurse visits, the intervention groups.

The visiting nurses helped women improve their prenatal and postdelivery health and provide competent care to their babies. The nurses also helped women develop self-care practices, plan subsequent pregnancies, complete their educations, and find employment.

At 21 years after the start of the study, the mean all-cause mortality rate among mothers was 3.7% in groups 1 and 2 combined, compared with 0.4% in group 3 and 2.2% in group 4. Child deaths during this period numbered 16, 7 of which were related to disease (5 in group 2; 2 in group 4). Of the 9 deaths that were preventable—sudden infant death syndrome, unintentional injuries, or homicide—all were in group 2. There were no deaths from preventable causes in group 4 (Olds DL, et al. *JAMA Pediatrics*. 2014:168[9]:800-806).

commentary

Mortality is the most recently reported outcome of this generation-long study. However, previous publications have shown that this intervention in this population has led to decreases in childhood injuries, school behavior problems, and adolescent substance abuse. Maternal effects have included decreases in substance abuse, use of public assistance programs, and increased intervals between subsequent pregnancies. For all these benefits and their associated cost savings to healthcare payers and society, this 20-year study makes a strong case for standard prenatal, perinatal, and postnatal home visits for high-risk women and their children. —Michael G Burke, MD

Are kids who spend time outdoors more physically active than those who don't?

The answer to this question is "yes," according to a study in 306 youngsters aged 9 to 17 years, which showed a link between increased after-school time spent outdoors and a boost in moderate-to-vigorous physical activity and its related health benefits.

The study was conducted in the winter and spring terms of the 2008-2009 academic school year. Participants completed a questionnaire about how much time they spent outdoors after school during a 7-day period and wore waist-mounted accelerometers for a similar length of time to determine their activity level. Among all participants, 17% reported spending no time outdoors after school; 44% said they spent some time outdoors; and 39% reported spending most or all after-school time outdoors.

Moderate-to-vigorous physical activity increased along with the amount of time reported spent outdoors, and sedentary activity decreased commensurately. In addition, youngsters who spent most or all after-school time outdoors had greater cardiorespiratory fitness, although investigators saw no differences across the groups in overweight/obesity or blood pressure levels (Schaefer L, et al. *J Pediatr.* 2014;165[3]:516-521).

commentary

The only surprise in this study is that the investigators were unable to show a correlation between increased outdoor playtime and avoidance of obesity. It makes sense that students who get outside are more physically active than their peers who stay indoors, and I suspect that if we followed these children prospectively, the outdoor kids would be less likely to develop obesity as well. —Michael G Burke, MD

also of note

A retrospective review of radiographs of 406 children (median age, 3 years) hospitalized for pneumonia found associations between radiographic findings and subsequent hospital care and clinical outcomes. Children with a single lobar infiltrate were significantly less likely than those with unilateral or bilateral multilobar infiltrates to be admitted to the ICU. Presence of a bilateral multilobar infiltrate was associated with the need for mechanical ventilation (McClain L, et al. *J Hosp Med.* 2014;9[9]:559-564).

"Do you own a gun?"

ADAM S LEVINE, MD, JD

Dr Levine is an adjunct professor of law, Stetson University College of Law, Gulfport, Florida. He is also managing partner and founder of the Florida Legal Advocacy Group of Tampa Bay. The author has nothing to disclose in regard to affiliations with or financial interests in any organizations that may have an interest in any part of this article.

Does a doctor's inquiry about firearm ownership violate patient privacy—or worse, constitute harassment? Ultimately, the US Supreme Court may have to decide.

In what may be a misguided attempt to improve patient privacy because of anecdotal reports that a limited number of healthcare providers inquired about patients' firearms ownership, the 2011 Florida Legislature modified the Florida Statutes related to Weapons and Firearms Crimes, creating §790.338[1] that prohibits licensed healthcare professionals from inquiring about gun ownership or the presence of guns in the home. Unfortunately, the Legislature not only failed to evaluate any real data about the risk to a patient's gun ownership privacy before making this change, but the Legislature also failed to consider that firearms inquiry may be considered a reasonable inquiry into preventive care.

Adam S. Levine, MD, JD

Healthcare providers commonly ask patients uncomfortable questions as part of their routine history, such as alcohol consumption, tobacco use, or even sexual activity. These questions are not meant to harass, rather they are intended to provide sufficient information so that reasonable preventive care suggestions may be provided as part of good patient care. In many cases, healthcare providers may be more aware of adverse health statistics than the general public, such as those related to unintended gunshot wounds in children.

Logically, before a child may suffer any morbidity or mortality related to gunshot wounds in the home, there must be a firearm and available ammunition. In fact, in an abstract presented at the American Academy of Pediatrics National Conference in 2013, Madenci and Weldon documented both the increasing prevalence of childhood gunshot wounds occurring in the home and the statistically significant relationship between the percentage of firearm ownership and the prevalence of gunshot-related wounds in the home.[2] Notably, between 1997 and 2009, there were 81% more hospitalizations and 59% more in-hospital deaths. While this data may have been well circulated among pediatricians, it likely was not as well circulated among the general public.

Despite this data, in an effort to protect the privacy and emotional well-being of firearms-owning patients based on scant anecdotal reports, the Florida Legislature enacted §790.338 of the Florida Statutes to provide firearm-owning patients with

the right to privacy and to be free from health provider harassment and discrimination.

A fuzzy logic

So, while the Centers for Disease Control and Prevention reported 32,351 firearm-related deaths in 2011, or 10.4 deaths per 100,000 population, including 1.77 firearm-related deaths and 11.25 firearm-related injuries per 100,000 population for all races from birth to age 17 years,[3] and in response to scant legislative testimony that pediatricians were improperly asking parents about gun ownership and child safety, the Criminal Justice Subcommittee of the Florida House's Health and Human Services Committee introduced Bill 155: "An act relating to the privacy of firearms owners." After revision, House Bill 155[4] was passed by the Florida House and Senate, and signed into law by Governor Rick Scott, either because patient privacy concerning firearms ownership outweighed the harm associated with childhood gunshot wounds, because childhood gunshot wounds were not an issue while Governor Scott ran one of the largest healthcare providers in the United States, or perhaps because childhood gunshot wounds were good for business.

According to §790.338:

1. Florida-licensed healthcare providers may not enter any data related to firearm ownership into a patient's medical record if the healthcare provider knows that such data is not relevant to a patient's medical care, patient safety, or third-party safety.
2. Florida-licensed healthcare providers may not inquire whether patients or patients' family members own firearms unless the healthcare provider possesses a good-faith belief that such data is relevant to a patient's medical care, patient safety, or third-party safety.
3. During an emergency, a first responder may inquire about firearms ownership provided the first responder possesses a good-faith belief that this data is necessary to ensure patient or third-party safety.
4. Patients may decline to provide any information about firearms ownership or whether firearms are located in the household.
5. Florida-licensed healthcare providers may not discriminate against patients based on firearms or ammunition ownership.
6. Florida-licensed healthcare providers may not harass patients about firearms ownership.
7. Third-party insurers may not discriminate based on firearms ownership by increasing premiums or denying coverage.
8. Florida-licensed healthcare providers will be subject to discipline by the Department of Health for violating any provisions of rules 1 through 4.

TABLE

CDC WEB-BASED INJURY STATISTICS QUERY AND REPORTING

YEAR	FIREARM-RELATED UNINTENTIONAL INJURY (all races, both sexes, aged birth-17 years: rate per 100,000 population)	FIREARM-RELATED DEATH (all races, both sexes, aged birth-17 years: rate per 100,000 population)
2001	11.14	1.97
2002	9.08	1.98
2003	8.32	1.8
2004	9.54	1.84
2005	11.87	2.03
2006	12.95	2.16
2007	10.58	2.05
2008	13.11	1.99
2009	8.02	1.88
2010	9.91	1.80
2011	11.25	1.77
2001-2011	10.53	1.94

Abbreviation: CDC, Centers for Disease Control and Prevention.
From Centers for Disease Control and Prevention.[9]

Although the majority of §790.338 appears redundant and instructs Florida-licensed healthcare providers in basic common sense, such as only recording relevant data in the medical record, and respecting a patient's constitutional right to bear arms, §790.338 also provides that patients can refuse to answer firearm- and ammunition-related questions; that healthcare providers may be disciplined for violating what is an ambiguous statute; and that healthcare providers may not discriminate against firearms owners. The statute does not indicate that patients may simply choose not to return to a healthcare provider that harassed them, or not follow that healthcare provider's advice.

More dangerous for licensed healthcare providers in Florida, §790.338 failed to provide any definitions, such as what constitutes harassment, while prohibiting healthcare providers from harassing their patients about firearms ownership. How does the legislature define harassment? Is it a question, a contrary opinion—or even a statement that 1.77 deaths occur per 100,000 population in all races between birth and age 17 years, or that you actually need a gun and ammunition to have an accidental gunshot injury or death? The potential that this may set a precedent is concerning. Considering that the Florida Medical Practice Act[5] prohibits the practice of medicine by individuals not licensed by the Florida Department of Health, and that few if any legislators are actually licensed by the Florida Department of Health, in coming legislative terms will powerful lobbies incite potentially overweight, tobacco-smoking, alcohol-consuming legislators, who exercise little, to also statutorily prohibit healthcare providers from inquiring about diet, tobacco smoking, alcohol consumption, and exercise?

Physicians challenge the new law

Along with several individual physicians, the Florida Chapters of the American Academy of Pediatrics, the American Academy of Family Physicians, and the American College of Physicians challenged §790.338 based on the First Amendment (right to free speech) and Fourteenth Amendment (right to due process: ie, deprivation of life, liberty, and property; and equal protection: ie, all people entitled to equal protection under the law) in the US District Court for the Southern District of Florida. The District Court ultimately ruled in the physicians' favor on summary judgment and entered a permanent injunction preventing Florida's enforcement of any of the statutory provisions of §790.338.

After weighing the evidence, the District Court determined[6] that the Florida Legislature relied only upon anecdotal evidence and failed to rely on any studies, research, or statistics on physicians' practices or actual patients' experiences before enacting this statute. The District Court first entered a preliminary injunction against the State's enforcement of §790.338 holding that the plaintiffs possessed a substantial likelihood of success; that they would suffer irreparable harm in the absence of a preliminary injunction; that the threatened injury to the plaintiffs outweighed any possible injury to the State; and that a preliminary injunction would serve the public interest.

The District Court ultimately determined that the statute impermissibly limited a healthcare provider's free speech by interjecting itself into the doctor-patient relationship and essentially preventing healthcare providers from addressing firearms ownership as part and parcel of routine preventive care.

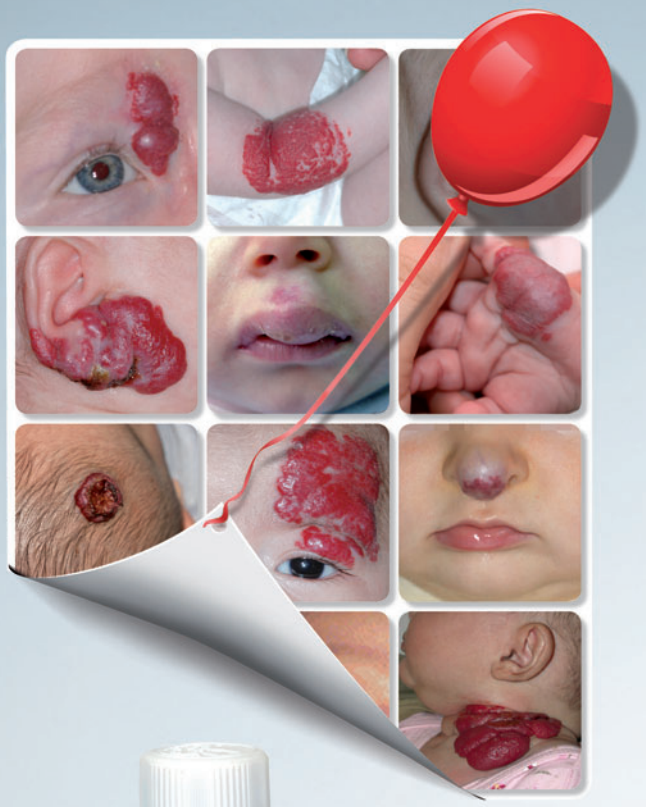
For the continuation of this article with references, go to bit.ly/firearm-privacy

commentary

The Florida Legislature's action represents a potential sea change in the regulation of the doctor-patient relationship. Before §790.338, legislative bodies really only attempted to regulate reproductive rights such as contraception and pregnancy termination—areas in which the law is reasonably well settled.

Now, with the potential regulation of firearms ownership comes the very reasonable possibility of further regulation based not on randomized, prospective, peer-reviewed trials or preventive care, but on lobbying dollars. Why wouldn't tobacco companies or alcohol distributors lobby the legislature to prohibit healthcare providers from inquiring about their own products' use?

While the debate and legal machinations over gun ownership and privacy continues, the prevalence and rising incidence of preventable childhood gunshot wounds remain largely ignored because, after all, gun ownership in Florida is a critical matter of patient privacy. —Adam S Levine, MD, JD



80% of hemangioma growth is complete at 3 months.[1]

Up to 69% of infantile hemangiomas leave residual lesions when left untreated.[2]

Proven efficacy

as shown in a phase II/III clinical trial.

60.4% of complete or nearly complete resolution by six months *versus* placebo 3.6%.

88% of patients showed improvement at week 5 of treatment.

Safety profile

The most common adverse reactions (occurring ≥10% of patients) were sleep disorders, aggraved respiratory tract infections, diarrhea, and vomiting.

Fewer than 2% of treated patients discontinued treatment due to safety concerns.

Hemangeol™

(propranolol hydrochloride) oral solution **4.28 mg/mL**

The only FDA approved drug for infantile hemangioma

There is no therapeutically equivalent drug.

Indication

Hemangeol™ (propranolol hydrochloride) is indicated for the treatment of proliferating infantile hemangioma requiring systemic therapy.

1. Tollefson M & Frieden IJ. Pediatrics 2012;130:e314.
2. Bauland CG et al. Plast Reconstr Sur. 2011;12:1643–8.

MANAGE EARLY*

*Initiate treatment at ages 5 weeks to 5 months.

See important safety information on the adjacent page.

HEM-14279A

Pierre Fabre Pharmaceuticals, Inc.

Pierre Fabre DERMATOLOGIE

Important safety information

Hemangeol™ (propranolol hydrochloride) oral solution is contraindicated in the following conditions: • Premature infants with corrected age <5 weeks • Infants weighing less than 2 kg • Known hypersensitivity to propranolol or any of the excipients • Asthma or history of bronchospasm • Heart rate <80 beats per minute, greater than first degree heart block, or decompensated heart failure • Blood pressure <50/30 mmHg • Pheochromocytoma.

Hemangeol™ prevents the response of endogenous catecholamines to correct hypoglycemia and masks the adrenergic warning signs of hypoglycemia, particularly tachycardia, palpitations and sweating. Hemangeol™ can cause hypoglycemia in children, especially when they are not feeding regularly or are vomiting; withhold the dose under these conditions. Hypoglycemia may present in the form of seizures, lethargy, or coma. If a child has clinical signs of hypoglycemia, parents should discontinue Hemangeol™ and call their health care provider immediately or take the child to the emergency room.

Concomitant treatment with corticosteroids may increase the risks of hypoglycemia. Hemangeol™ may cause or worsen bradycardia or hypotension. Monitor heart rate and blood pressure after treatment initiation or increase in dose. Discontinue treatment if severe (<80 beats per minute) or symptomatic bradycardia or hypotension (systolic blood pressure <50 mmHg) occurs.

Hemangeol™ can cause bronchospasm; do not use in patients with asthma or a history of bronchospasm. Interrupt treatment in the event of a lower respiratory tract infection associated with dyspnea and wheezing.

Hemangeol™ may worsen circulatory function in patients with congestive heart failure or increase the risk of stroke in PHACE syndrome patients with severe cerebrovascular anomalies. Investigate infants with large facial infantile hemangioma for potential arteriopathy associated with PHACE syndrome prior to Hemangeol™ therapy.

Hemangeol™ will interfere with epinephrine used to treat serious anaphylaxis.

The most frequently reported adverse reactions to Hemangeol™ (occurring ≥10% of patients) were sleep disorders, aggravated respiratory tract infections, diarrhea, and vomiting. Adverse reactions led to treatment discontinuation in fewer than 2% of treated patients.

The most common (>3% more often on Hemangeol™ than on placebo) adverse reactions reported in a total of 424 patients treated with Hemangeol™ 1.2 mg/kg/day or 3.4 mg/kg/day were sleep disorder (17.5%; 16.1%), bronchitis (8%; 13.4%), peripheral coldness (8%; 6.7%), agitation (8.5%; 4.5%), diarrhea (4.5%; 6.3%), somnolence (5%; 0.9%), nightmare (2%; 6.3%), irritability (5.5%; 1.3%), decreased appetite (2.5%; 3.6%), and abdominal pain (3.5%; 0.4%), respectively.

Adverse events such as cardiac disorders, urticaria, alopecia, decreased blood glucose, and decreased heart rate occurred in less than 1%.

Safety and effectiveness for infantile hemangioma have not been established in pediatric patients greater than 1 year of age.

Indication

Hemangeol™ is indicated for the treatment of proliferating infantile hemangioma requiring systemic therapy.

Please see Full Prescribing Information on www.hemangeol.com

HEM-14279A

puzzler

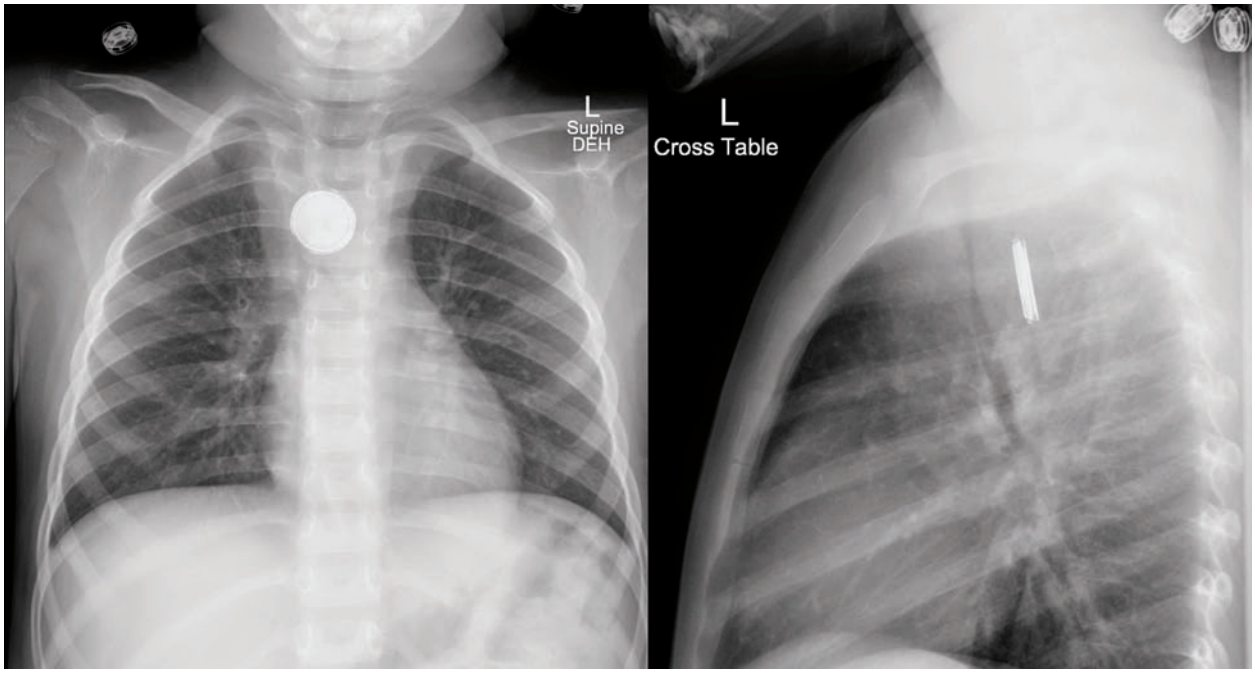


FIGURE 1 Anteroposterior/lateral chest x-ray reveals a radiopaque foreign body within the area of the esophagus, concerning for foreign body ingestion.

Worrisome chronic cough in a 3-year-old girl

SHANNON D TIEDEKEN, MD; STEPHEN E SHAFFER, MD

THE CASE

A 3-year-old girl presents to the emergency department (ED) with a 2-day history of worsening cough. Within the last 6 months, she has been diagnosed with gastroesophageal reflux disease (GERD) and asthma as the etiology of her persistent cough. TURN TO PAGE 39 FOR MORE ON THIS CASE. ▶

IMAGE CREDIT / AUTHOR SUPPLIED

Pharming: Pill parties can be deadly for teens

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Adolescents today are playing a dangerous game of pill roulette with prescription painkillers and over-the-counter drugs. Here's how pediatricians can recognize this risky behavior and what they can do to stem a growing national epidemic.

How can something that is prescribed by a doctor, or available for purchase without a prescription at Wal-Mart and Walgreens, be so bad or cause such devastating problems for teenagers? Unfortunately, Corey Suazo, a 17-year-old high school student had been to a "pharm" party before he died. Cocaine and the painkiller OxyContin were found in his system. A pharm party is similar to a bring-your-own-bottle party, except kids substitute pills for bottles. Kids bring whatever they can get their hands on and they may not be sure about what they have. The pills are thrown into a communal bowl and the participants grab handfuls to consume, often washing them down with alcohol. They wait for what's next, which may be death. One could call it prescription roulette.[1]

FAST FACT
After marijuana, prescription medications are the drugs most commonly abused by adolescents.[5]

Introduction

Unauthorized use of pharmaceutical and over-the-counter (OTC) drugs by teenagers is a growing national problem.[2] This latest trend in drug abuse by adolescents is called *pharming*, or the nonmedical use of prescription and OTC cough and cold medications.[3] It is a concerning risky behavior that allows for the ability to get high with disregard for the type of drug that is being ingested, often along with alcohol.[4]

Pharming parties may also be referred to as "Skittles parties" or "skittling" by comparing the pill-popping behavior with the small hard candies that come in multiple colors and flavors.[4] "Robo-tripping," referencing the cough suppressant Robitussin, is the abuse of cough medications containing dextromethorphan,

in which the cough syrup, often left over from earlier illnesses, is drunk alone or in combination with other substances to obtain a high.

The purpose of this article is to explore the risk-taking behaviors of adolescents who engage in pharming parties; the effects that pharming parties, with indiscriminate use of prescription and nonprescription drugs, have on children and teenagers; and the approaches that health-care providers (HCPs) can employ to guide young persons and their families to prevent negative outcomes from this growing epidemic.

Be vigilant in questioning frequent refills or multiple prescriptions for commonly abused medications and be cognizant of patients who "doctor shop" or "ED hop."[3]

Surge in prescription and nonprescription drug use

Nearly 50% of all Americans take at least 1 prescription medication.[5] The quantity of prescription painkillers sold to pharmacies, hospitals, and doctors' offices quadrupled in a little over a decade, from 1999 to 2010.[6] In 2010, enough prescription analgesics were prescribed to medicate every American adult around the clock for 1 month. The federal Substance Abuse and Mental Health Services Administration (SAMHSA) reports that after marijuana, prescription medications are the drugs most commonly abused by the adolescent population with the biggest growth of abuse among persons aged 12 to 24 years.[5] Alarmingly, the abuse of prescription and OTC medications has surpassed the use of illegal drugs such as crack, cocaine, ecstasy, and heroin. An estimated 14% of high school seniors have used prescription drugs for nonmedical reasons at least once.

Students report that prescription pills often can be bought for less than other drugs such as marijuana and cocaine. However, costs can increase when these medications are in high demand, such as when students use them to cram before midterm and final exams.[5] One study of intentional drug abuse in teenagers and children aged 6 to 19 years revealed that 38% of intentional drug abuse involved nonprescription drugs, with dextromethorphan, caffeine, antihistamines, and nonprescription stimulants identified as the most commonly abused nonprescription drugs (Table 1[6]).[8] The Partnership for Drug-Free Kids estimates that 15% of teenagers have abused nonprescription cough or cold medications to get high.[9]

Teenaged girls, in particular, see prescription pills as "cleaner" than other drugs and equal their male counterparts in prescription drug use, but girls are less likely to use marijuana or cocaine compared with boys.[5] Student athletes may see pills as a way to enhance sports performance or may self-medicate with opiates for pain related to sports injuries. Seventy percent of all persons who abused prescription pain relievers obtained them from friends or relatives, often without permission.[9] Parents are advised to watch out for their own children as well as for their children's friends who may be searching through the medicine cabinets when visiting the home.[7]

A national effort to reduce illicit

TABLE COMMONLY ABUSED MEDICINES

OPIOIDS
Derived from the opium poppy (or synthetic versions of it) and used for pain relief.
- Hydrocodone (Vicodin)
- Oxycodone (OxyContin, Percocet)
- Fentanyl (Duragesic, Fentora)
- Methadone
- Codeine

BENZODIAZEPINES
Central nervous system depressants used as sedatives, to induce sleep, prevent seizures, and relieve anxiety.
- Alprazolam (Xanax)
- Diazepam (Valium)
- Lorazepam (Ativan)

AMPHETAMINE-LIKE DRUGS
Central nervous stimulants used to treat attention-deficit/hyperactivity disorder.
- Dextroamphetamine/amphetamine (Adderall, Adderall XR)
- Methylphenidate (Ritalin, Concerta)

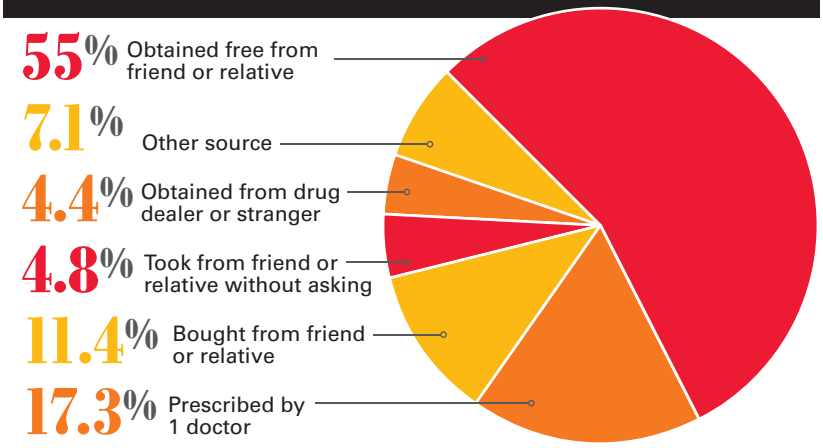
Centers for Disease Control and Prevention.[6]

drugs such as heroin and cocaine has seen a slight decline in overall drug use among young adults in recent years.[5] However, as prescription drug sales continue to soar, pharming or prescription drug abuse is on the rise, with adolescents now dubbed the "Ritalin generation." Pills are available to sell or share more than ever before, with more prescriptions written every year for antianxiety drugs, sleeping pills, and stimulants such as Ritalin, which is used to treat attention-deficit/hyperactivity disorder.

Skittling or pharming is a party game in which teenagers indiscriminately mix drugs together, putting themselves at risk for stroke, heart attack, or irreversible brain damage.[9] Children have easy access to medications from medicine cabinets in their own homes and homes of their families and friends (Figure[6]). Gathering unused or expired medications often goes unnoticed by family members and does not cost the child anything. Emergency departments (EDs) may have difficulty discerning the combination of medications that an individual has ingested, resulting in delay and uncertainty of treatment.[8] Experts report that it is difficult to identify a teenager who abuses prescription drugs because these medications are odorless and can be easily hidden, and the abuser may not manifest with unusual behavior such as stumbling or slurred speech.[10]

FIGURE

ABUSERS' SOURCES OF PRESCRIPTION PAINKILLERS



Centers for Disease Control and Prevention.[6]

FAST FACT
One in 4 teens has misused or abused a prescription drug at least once in his or her lifetime.[8]

Raising awareness of pharming parties

Under federal law, it is illegal to possess controlled substances without a prescriptiion.[5] However, prosecutions for possession are rare, especially when minors are involved. Although many schools ban students from carrying medications without a prescription, rules can be difficult to enforce.

There has been limited response from state and federal governments, as well as from pharmaceutical companies.[5] The Bush administration introduced an effort to control prescription drug abuse, however, most of the plan focuses on the reduction of sales of narcotic medications online or by HCPs who write pain prescriptions indiscriminately.

The US Food and Drug Administration (FDA) and SAMHSA have instituted media ad campaigns that highlight the dangers of prescription drug abuse among young persons, and the manufacturer of OxyContin introduced a public campaign about the dangers of abusing the drug after reports of misuse. However, some fear that antidrug television ads can add to the problem by telling kids that they can find illicit drugs in their own medicine cabinets![9]

Parental support and guidance

The 2008 Office of National Drug Control Policy reported the disturbing statistic that more than 1 in 4 parents (27%) believe that prescription and OTC medications are much safer to abuse than street drugs.[11] Research shows that teenagers whose parents discuss and express strong disapproval of drug use are less likely to abuse alcohol and drugs. Unfortunately, many adolescents report that parents do not discuss the dangers of such drugs.[10] Parents need to understand that legal does not equal safe when it comes to OTC and prescription medications. Providers' instructions should encourage families to routinely assess the content of

their medicine cabinets and "if you don't need it, get rid of it."[9] Anticipatory guidance stressing that parents talk to their kids, watch for behavioral changes, and be vigilant is necessary to counteract this epidemic problem.[12]

The HCPs' role

Significant morbidity and mortality result from the recreational abuse of prescription medications, nutritional supplements, and nonprescription products that go undetected in the younger population, in the absence of regular interaction with HCPs.[6] Routine office screening must incorporate prescription drug, pharming, and skittling screening in all risk-taking behavior assessments. Providers should discuss recreational drug use with young patients as part of standard pediatric care, in response to the challenge in recognition, detection, and management of nonprescription drug abuse in children and adolescents.[7]

Healthcare providers can play a key role in providing anticipatory guidance regarding pharming parties and in emphasizing the importance of the parent-child relationship as a protective factor in keeping children safe. They can educate parents about the skills necessary to detect drug abuse and discuss ways in which parents can engage their children in open communication. Also, they need to educate families to keep medicine cabinets locked and keep prescription drugs out of reach or out of range for both their children and friends who may be visiting. It is important to educate families on how to prevent accidental ingestion by children, pets, or anyone else, and that certain expired, unwanted, or unused medicines have specific disposal instructions that indicate if they should be flushed down the sink or toilet as soon as they are no longer needed, or when they should be disposed of through a medicine take-back program.[13]

Healthcare providers should remain vigilant and question frequent refills or multiple prescriptions for commonly abused medications.[2] They need to be cognizant of patients who "doctor shop" or "ED hop." Supporting the placement of dextromethorphan-containing products behind counters in pharmacies or the prohibition of the sale to minors could also reduce abuse. Finally, HCPs share a responsibility to support legislation that might curb access to nonregulated Internet pharmacies and the sale of medications without prescriptions.

Incorporate routine office screening on the abuse of prescription drugs and pharming parties.

PHARMING FACT SHEET FOR HEALTHCARE PROVIDERS

Pharming parties are the latest risky trend in which kids pool together a supply of prescription and nonprescription drugs that are placed into a bowl for anyone to sample, often along with alcohol, in order to get high with disregard for the type of drug that is being ingested.[1]

Provide anticipatory guidance with every patient encounter:

- Educate families to keep medicine cabinets locked and prescription drugs out of reach of their children and their children's friends who may be visiting.
- Clean out medicine cabinets in the home of all unwanted, unused, and expired medications.
- Emphasize the importance of the parent-child relationship as a protective factor in keeping children safe, and educate on the skills necessary to detect drug abuse and ways in which parents can engage their children in open communication.
- Instruct on proper disposal of medications and participation in prescription medication take-back programs.

1. Do you ever hear your child talk about a skittles party. Narconon website. Available at: http://www.narconon.org/blog/narconon/do-you-ever-hear-your-child-talk-about-a-skittles-party/. Published August 22, 2012. Accessed October 23, 2014.

For an extended version of this article with references, go to **bit.ly/pharming-parties**

The emotional parent: Why empathy matters

PAT F BASS III, MD, MS, MPH

Dr Bass is chief medical information officer and associate professor of medicine and pediatrics, Louisiana State University Health Science Center–Shreveport. The author has nothing to disclose in regard to affiliations with or financial interests in any organizations that may have an interest in any part of this article.

Learning to empathetically communicate with patients and parents in everyday practice builds trust that increases the likelihood of compliance with treatment plans.

Consider the following scenario in an outpatient clinic:

Doctor: *Mrs. Johnson, we need to talk about the results of your son's echocardiogram, It didn't turn out exactly as I hoped it would. The echo indicates your son has a hole in his heart called a ventricular septal defect. There are a number of things we need to do now. First, we need to get you in to see a cardiologist or heart doctor. While this could turn out to not be a big deal, we need to consider multiple alternatives. Your son might need medication, a procedure performed by the cardiologist I am going to send you to, or the cardiologist might refer you to a surgeon to repair the problem surgically.*

Parent: *I love the way you talk, doc. My son might be OK or he might have a really serious heart problem! You are basically telling me my son has a serious heart condition, right? This might be nothing or he might need a bunch of treatments and even surgery. Could he die? Is that what you're really trying to tell me? Once you remove the euphemisms, isn't that what you are really trying to say?*

The medical profession is emotionally overloaded by its very nature and the range of emotions experienced in a single day can be tremendous. Pediatricians can experience great sadness when giving bad news and great joy in telling patients and parents a suspected condition is not present or is now under control. Receiving a diagnosis, actions leading up to a diagnosis, and apprehension over future health all may have different emotions for parents and patients.

Emotions affect communication, comprehension, and the ability to take action based on the knowledge provided by the pediatrician. As much as 80% of the medical information provided to patients cannot be recalled in the short term. Additionally, patients and parents often "remember" information that is incorrect.[1,2] When patients or parents are presented with a new diagnosis or prognosis that provokes emotions, it is not surprising that recall is poor and desired actions are not taken. However, clear and empathetic communication can improve a number of important outcomes including patient safety, self-management behaviors, and satisfaction.

The potential impact of emotions on different aspects of care leads to a number of important questions:

- Are emotional reactions common in practice?
- What happens when the emotional needs of patients and parents are not met successfully?
- What are the consequences of failing to meet the emotional needs of parents and patients?
- How can pediatricians better deal with the emotional patient or parent?
- How can comprehension and adherence be improved?

How common are emotional responses in medical practice?

Negative emotions are common when receiving an undesirable diagnosis or dealing with patients experiencing a chronic medical condition. Depression, anxiety, and posttraumatic stress are common among patients and parents with advanced disease as well as in those hospitalized with general medical conditions.[3,4] Emotional responses may persist for some time and even may be prolonged by use of negative coping strategies such as denial, venting, and self-blame.[3] Cardiac patients have been found to continue to display emotional and psychological problems as long as 4 months after receiving a diagnosis.[5] Because many children and their parents experience significant emotional distress prior to obtaining medical care, during diagnostic testing, or in getting a diagnosis, the emotional responses physicians see in their offices may be compounded.

What if emotional needs are unmet?

Residents and students sometimes ask if parents' and patients' emotional responses really matter. They are often surprised that there is an actual evidence base to support addressing the emotional issues of patients and parents in the same way that asthma symptoms or a diabetic's HbA_{1C} is addressed.

Common emotional reactions parents and patients experience as part of receiving a diagnosis or dealing with a chronic illness are associated with poorer health outcomes. For example, psychological distress is much greater in the mothers of preterm infants compared with mothers of full-term infants. Emotions such as anger, stress, and sadness are associated with increased risk of depression and posttraumatic stress disorder.[6] More commonly studied in adult patients, addressing the emotional needs of patients is associated with a long-term mortality benefit in adult cardiac patients.[7] Similarly, improvement in clinical outcomes such as length of stay and disease-specific quality-of-life scores are seen for a wide range of hospitalizations, including cancer, asthma, and postoperative care.[7-11]

At a more basic level, patients and parents need to remember and act on information about treatments and appointments. When strong emotions are injected into healthcare, patients and parents tend to remember central themes (eg, your son has a hole in his heart) and may not recall treatment options or appointments.[1] Additionally, there is evidence that patients tend to recall information best when in the same "physical state" in which the information is received. Given this, it is not surprising that a parent may not be able to explain to a spouse everything discussed during a stressful conversation in the pediatrician's office when they get home to a more supportive environment.[1]

How might emotional responses impact a pediatrician's practice?

There are also practical concerns regarding patient emotionality that must be considered in addition to providing the best possible care for patients and parents. In areas experiencing high penetration rates of capitated care, emotionally laden care may result in more utilization and greater cost of medical services.[12] When pediatricians fail to meet the emotional needs of parents and patients, parents may seek care from another hospital or practice.[13] Finally, failure to appropriately handle emotionally laden care situations

may increase litigation risk whereas effectively dealing with these situations decreases risk of litigation.[14]

Addressing emotional distress in practices

What can a pediatrician do when patients or parents display emotion in reaction to an unwanted diagnosis or inappropriate handling of a chronic illness? By putting the following suggestions and strategies into practice, pediatricians demonstrate empathy that may result in higher satisfaction and understanding of important health messages:

Make sure pediatrician and patient/parent are on the same page. If a pediatrician does not know exactly what a patient or parent understands and misunderstands, addressing their emotional needs is problematic. Unfortunately, patients and parents impacted by chronic illness often receive mixed messages. Misunderstanding is a common etiology or root cause for emotionally laden interactions with patients/ parents. As a result, understanding what a patient is thinking and his or her reactions to what you are saying is important. For example, this more commonly occurs when patients see multiple physicians or subspecialists. A patient's nephrologist may say that the patient's kidney function is worsening at the same time the rheumatologist is happy the symptoms of the patient's arthritis are improving. Receiving a positive message from one specialist and a negative message from the other specialist may lead to significant patient emotions in your office. Pediatricians can make a tremendous impact for their patients by mitigating these sometimes-conflicting messages.

Be empathetic. Patients and parents may leave the office with the impression their doctor is uncaring if the pediatrician fails to acknowledge emotionally laden topics when they occur.[15] Further, once patients or parents have expressed these emotions, the pediatrician should explore them with the patient and parent. Empathetic communication is most effectively accomplished by using questions that acknowledge and explore the topic. Following up with questions about the chief complaint for an office visit or the "real symptoms" does not demonstrate empathetic communication and may lead to the patient not sharing in the future.[16] See the Table for examples of communication strategies that express concern and empathy for the emotional patient.[17]

Slow down. Office-based practice can be very fast paced and pediatricians may not take time to slow down, but delivering information slowly and deliberately gives parents and patients the ability to better comprehend and more opportunities to express emotions and develop questions about what is being said.[16,18] Simply pausing after delivering bad news or another emotion-provoking topic is an effective method to make sure parents and patients receive the message and provides them an opportunity to react, ask questions, or comment on what the pediatrician has just said.[16] Additionally, asking the patient or parent to summarize the discussion provides the pediatrician with information about whether or not the message was understood as well as how the patient or parent is interpreting what was discussed.

TABLE EMPATHETIC COMMUNICATION BEHAVIORS

1. Open ended questions	○ "Why do you think you are feeling this way?" ○ "What do you want to do next?"
2. Directly address the patient's emotions	○ "How has it been since being diagnosed with diabetes?" ○ "How do you feel about . . . . ?" ○ "That must have been frightening for you."
3. Provide affirmation	○ "You showed a lot of self-control in the way you handled . . . ." ○ "While it may not seem like much, I was very impressed how you . . . ."
4. Normalize the reaction	○ "Many patients have a similar response to . . . ."
5. Obtain more information	○ "Can you tell me more about that?"

From Lo B, et al.[17]

Read more of Dr Bass' article on empathetic communication, which includes references, at **bit.ly/empathy-matters**

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1. Kanabar D, Randhawa M, Clayton P. Improvement of symptoms in infant colic following reduction of lactose load with lactase. J Hum Nutr Diet. 2001;14(5):359-363

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CONFERENCE CLUB

NEWS & VIEWS FROM AAP 2014

JOHN JESITUS

from the editors

The energy at this year's annual gathering of pediatricians at the American Academy of Pediatrics' National Conference and Exhibition in San Diego was palpable.

From a dynamic address by Hillary Rodham Clinton, to a riveting talk on prospects for gene therapy in childhood diseases, the program offered fresh perspectives and thought-provoking data for an international assembly of child healthcare attendees.

But never fear if you were unable to make the meeting. In this issue, *Contemporary Pediatrics* brings you key highlights of the scientific presentations by therapeutic area—as well as analyses by experts in the field on the implications of the presentations to the community practitioner.

Be sure to read the full report and commentary online at **ContemporaryPediatrics.com/ConfClub-AAP2014**.

Gastroenterology/Pulmonology

ASPIRATION AND GER IN RECURRENT PNEUMONIA

With little data supporting any particular approach, preventing recurrent pneumonia (RP) secondary to dysfunctional swallowing presents complex challenges requiring individualized solutions, said Gerald M. Loughlin, MD, FAAP, in his presentation "Aspiration and Gastroesophageal Reflux: Most Common Cause of Recurrent Pneumonia in Children."

Aspiration—inhalation of food, saliva, or gastric contents below the vocal cords—causes between 3%[1] and 48%[2] of RP cases. Populations at particular risk for gastroesophageal reflux (GER) and RP include premature infants and those with congenital abnormalities, upper airway trauma, central nervous system (CNS) dysfunction, vascular compression of the esophagus, and acute respiratory illness associated with tachypnea and increased effort of breathing. Gastroesophageal reflux also may strike apparently normal infants, Loughlin added.

Because clinical manifestations of GER may occur independent of feeding times, physicians must have a high index of suspicion for dysphagia, particularly in infants with atypical pneumonia or response to therapy. In such cases, said Loughlin, clinicians and parents must make tough choices, considering factors ranging from the parents' acceptance of the diagnosis to the child's age, CNS status, and underlying conditions.

If liquids of all consistencies pose a problem, a nasogastric (NG) tube can provide a temporary solution to relieve symptoms, and may help to confirm the diagnosis of aspiration while swallowing. While the child is on orders for nothing by mouth, Loughlin

recommended determining the role of GER and the child's ability to tolerate tube feedings.

A child who will be on an NG tube for a long period may be a good candidate for a percutaneous endoscopic gastrostomy tube.

For the complete report and commentary, go to **ContemporaryPediatrics.com/ConfClub2014-GER**

commentary

Aspiration is a very important condition for general pediatricians to consider, given that they're on the front lines seeing infants with symptoms. Pediatricians especially need to be able to recognize concerns that parents may be expressing about their infant's feeding or breathing that may be suspicious for aspiration. As a specialist in pediatric gastroenterology, even I can be surprised that an infant may be suffering from aspiration. Aspiration can be quite subtle, and it may not be the presenting complaint.

I do think it's important to recognize that all aspiration does not necessarily involve gastric contents.

Neurology

TEAMWORK AND TACT FOR CONVERSION DISORDERS

In "Is That a Conversion Disorder?" Donald L. Gilbert, MD, FAAP, suggested emphasizing the possibility of functional causes in patients unwilling to consider psychogenic issues, but referring quickly to neurology for multidisciplinary management.

The *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* classifies conversion disorder among somatic symptoms and related disorders. A key element for diagnosing conversion disorders—also known as functional neurological disorders—is the presence of signs and symptoms incongruous with a defined disease, as in cases where electroencephalography evidence contradicts that actual seizures are occurring.

Nevertheless, Gilbert said, the loss of physical function (such as blindness or paralysis) that marks a conversion disorder is not faked or "all in the patient's head." With that in mind, he offered practical strategies for diagnosing and treating conversion disorders:

- Consider that minor stressors can seem major for patients with poor coping skills, unresolved emotions, or underlying mood disorders.
- Work with the patient's feelings and/or behavior. This may be more productive than identifying the source of stress.
- Interact with the patient and family tactfully. When delivering a diagnosis, if the family seems open to a diagnosis related to stress or mental health, use psychogenic terminology such as suggesting that the child's symptoms stem from "pseudoseizures, also known as nonepileptic seizures." If the family is not open to psychogenic causes, steer toward functional terminology such as ascribing the symptoms to "functional nonepileptic events where the brain sends abnormal signals to the body, producing shaking that resembles seizures."

commentary

By the time a patient reaches my office, the family has gone through many evaluations. Their experience is that nothing fits; nothing makes sense. Families tend to be open to some sort of psychogenic cause, mostly because they just want an answer. That's been my experience.

Keep in mind that epilepsy or any other neurologic illness is very complicated, and there can be a psychological component, if you will, to neurologic disease that can be just as complex. If you have epilepsy, it's very common to have depression or anxiety. So sometimes you can treat the epilepsy, but depression remains. The key is that you must treat all aspects of the patient's illness, not just the neurologic aspects.

Many people with nonepileptic seizures also have electrical seizures. That's probably the most common type of person who has nonepileptic events. Sometimes you can try to decipher which events stem from electrical changes versus which do not.

For the complete report and commentary, go to **ContemporaryPediatrics.com/ConfClub2014-neurology**

Communications/Media

VIOLENT GAMES AND ENTERTAINMENT

To reduce the impact of violent video games and media on child and adolescent behavior, Edward Donnerstein, PhD, said that pediatricians must urge parents to limit children's screen time to 2 hours daily.[1]

To ensure that physicians appreciate the link between violent media and violent behavior, he said, this topic should become part of medical school and continuing medical education curricula. In their presentation "Do Violent Video Games Lead to Aggression and Mass Shootings?" co-presenter Douglas Gentile, PhD, even recommended that the American Academy of Pediatrics standardize and require such education.

Skepticism about the link abounds among parents, representatives from the video game industry, and academic media researchers. The media's reluctance to report its own negative effects explains the persistence of the denial, said Donnerstein.

commentary

Being parents is a tough job. They need all the help they can get, and pediatricians can help. If a pediatrician tells the child that he or she should not be exposed to more than 2 hours of screen time per day, or to any age-inappropriate media, parents can say, "Do you remember what your doctor said? We're going to use this timer to limit your screen time. We're not going to let you watch that mature video."

Although adults can smoke cigarettes, drink beer, go to restricted (R-rated) movies, or play mature-rated games, we don't let kids do those things because it's not good for them.

For the complete report and commentary, go to ContemporaryPediatrics.com/ConfClub2014-media

Community Pediatrics

HEARING IMPAIRMENT

Because even mild hearing impairment hinders children's verbal and social development, Dylan K. Chan, MD, PhD, urged attendees to screen newborns for cytomegalovirus (CMV)—the culprit in 15% to 20% of all congenital hearing loss (HL)—within 21 days of birth when indicated. His presentation, "Child Hearing Impairment: Therapeutic Breakthroughs for a Silent Epidemic," also stressed the importance of making families and communities aware of preventive strategies for HL at all ages.

Regarding CMV, Chan recommended that pediatric care providers retest within 2 weeks the hearing of any infants who fail a newborn hearing screening. Babies who fail this screening should undergo testing for congenital CMV before 3 weeks of age (the state of Utah has made these requirements law). Those who test positive require a full audiology examination as soon as possible.

On the therapeutic horizon, a 6-month course of oral valganciclovir provided significant improvement or stabilized normal hearing (odds ratio, 1.02-6.91) at 24 months' follow-up in a large multinational phase III trial (Kimberlin DW, et al; in press).

As for preventing HL, Occupational Safety and Health Administration (OSHA) guidelines suggest no more than 8 hours of unprotected exposure at 90 dB, but just 15 minutes or less at 115 dB, the level of a rock concert. Even ambient noise in the neonatal intensive care unit can pose problems for infants, Chan noted.

commentary

In Dr. Chan's presentation, what jumps out is the number of babies lost to follow-up. Data show that in California, of the 10,000 babies who fail the newborn hearing screen, about 5% do not get further testing; 800 newborns are diagnosed with congenital sensorineural hearing loss (SNHL) each year and referred for further outpatient testing. Of these infants, 100—more than 12%—are lost to follow-up and do not get early intervention that is likely to preserve language.

For the complete report and commentary, go to ContemporaryPediatrics.com/ConfClub2014-hearing

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Nutrition

VITAMIN D—BONES AND BEYOND

Screening high-risk patients for vitamin D deficiency can circumvent problems including rickets in younger children (peak incidence, 3-18 months) and bone fragility in older children, said Neville H. Golden, MD, FAAP, in "Vitamin D—Bones and Beyond: When to Screen, When to Treat, and How to Treat." Vitamin D also may reduce cardiovascular and metabolic risk, boost immunity, and prevent some cancers, particularly of the breast, colon, and prostate, he said.

American Academy of Pediatrics (AAP) and Pediatric Endocrine Society (PES) criteria define vitamin D deficiency as having less than 20 ng/mL 25-hydroxyvitamin D (25[OH]D). Measuring 25(OH) D levels provides a more accurate gauge than does 1,25(OH)D because of the former's longer half-life (2-3 weeks vs 4 hours for 1,25[OH]D, respectively), he said, and 1,25(OH)D levels have little if any predictive value relative to bone health.

Using the 20 ng/mL 25(OH)D criterion, 29% to 49% of overweight and obese children are vitamin D deficient, as are 71% to 87% of African Americans and 44% to 52% of Latino children.[1]

Golden departed from 2011 PES guidelines by advising against universal vitamin D screening for obese patients and those with darker skin.[2] In concert with these guidelines, he suggested screening patients with risk factors such as:

- Osteoporosis;
- Malabsorption syndromes (cystic fibrosis, inflammatory bowel disease, Crohn disease, celiac disease);
- Hyperparathyroidism;
- Medications (glucocorticoids, anticonvulsants, antiretrovirals, and antifungals);
- Conditions linked with reduced bone mass (such as eating disorders and chronic illnesses); and
- Recurrent low-impact fractures.

To treat vitamin D deficiency in infants and toddlers, Golden recommended 50,000 international units (IU) once weekly or 2000 IU daily for 6 weeks, followed by recheck, then 400 IU to 1000 IU daily (maintenance). For children aged 1 to 18 years, induction doses can continue for up to 8 weeks; maintenance doses range from 600 IU to 1000 IU daily.

commentary

Dr. Golden's AAP presentation covers the "bread and butter" of what is known about vitamin D and bone—why vitamin D is important to bone health, who's at risk of deficiency, and how to treat vitamin D deficiency. Golden's 2014 article[2] goes much more in-depth regarding the known factors that are important during childhood and adolescence to achieve peak bone mass in the second or third decade of life. Any chronic illness can affect the achievement of peak bone mass. Vitamin D and calcium are key factors in optimizing bone health.

Other important factors promoting bone health in childhood include bone-pounding exercise and achievement of a healthy weight. Exercise during the peripubertal and pubertal time is especially important to optimizing bone mass. Some hormonal deficiencies or excesses also affect bone health. A healthy hormonal milieu helps ensure strong bones. Making sure a patient has normal growth hormone, thyroid function, and sex hormone production is very important. Deficiencies in these hormones are most often picked up because of abnormal growth.

Weight is an important factor in optimizing bone health. For example, being underweight or having a low body mass index (BMI) usually predisposes patients to lower bone mass and a higher risk of fracture. Often this occurs in the setting of anorexia nervosa or the athletic triad: a teenaged girl who has a low BMI, is not menstruating, and has low bone mass. Some studies have shown that obesity may increase fracture risk, although further study is needed.

Vitamin D is the exception to the rule that eating healthy should provide adequate nutrients. Ingesting the recommended amount of 600 IU for children aged older than 1 year would require drinking 6 8-ounce glasses of milk daily, or the equivalent. It's very difficult to obtain adequate vitamin D from your diet without vitamin D supplementation.

Sun exposure can be a source of vitamin D. However, vitamin D cannot be produced by the skin in most US regions between October and March.

For the complete report and commentary, go to **ContemporaryPediatrics.com/ConfClub2014-vitaminD**

Cardiology

CRITICAL CARDIAC PROBLEMS

Identifying "Critical Cardiac Problems Commonly Missed in Office Practice" involves recognizing red flags that indicate a need for greater scrutiny, said Kevin M. Shannon, MD, FAAP.

Among causes of nonfamilial sudden death, for example, coronary anomalies and myocarditis can both feature abdominal pain and nausea. However, symptoms of coronary anomalies can include syncope or near-syncope with exertion, and postexertional vomiting. Symptoms of myocarditis can include extreme malaise and tachycardia out of proportion to level of dehydration or that does not respond to a fluid bolus. Evaluation techniques for both conditions include echocardiogram, plus a computed tomography angiogram for coronary anomalies or an electrocardiogram (ECG) for myocarditis.

Long QT syndrome (LQTS) is a channelopathy often linked to familial sudden death. To uncover a family history of sudden or unexplained deaths, said Shannon, ask patients about any deaths in relatives aged younger than 30 years—especially single-vehicle car crashes and unusual drownings (eg, shallow water, good swimmer). Key symptoms include frequent stress-associated syncope. Appropriate evaluation techniques include resting ECG and genetic testing (3 genes account for more than 75% of LQTS cases).

commentary

Critical cardiac problems (not defined in Dr. Shannon's presentation, and no consensus definition exists) are often missed in the pediatrician's office for the following reasons:

1. The signs and symptoms may be very nonspecific and mimic or overlap with much more common illnesses.
2. The relative rarity of these diseases is such that pediatricians don't always include them in their differential diagnosis.

A careful history, including a family history of premature or sudden/unexplained deaths, may be the most valuable information that may prompt further testing for a potential cardiac etiology. A chest x-ray (CXR) and ECG are reasonable initial tests for children with suspected heart disease.

For the complete report and commentary, go to ContemporaryPediatrics.com/ConfClub2014-cardiac

Infectious Diseases

DIAGNOSIS OF CMV

Recognition of the importance of diagnosing and treating congenital cytomegalovirus (CMV) infection early in children is fueling the development of faster diagnostic techniques, perhaps most notably, real-time polymerase chain reaction (PCR) analysis.

Because children with congenital CMV often have normal hearing at birth, newborn hearing screenings fail to identify many children who will develop CMV-related sensorineural hearing loss. To appropriately target monitoring and interventions, said Shannon A. Ross, MD, FAAP, in her presentation "Diagnosis and Treatment of Neonates With Congenital CMV," identifying congenitally infected infants early—using rapid, reliable, and relatively inexpensive techniques—is crucial.

Whereas traditional culture techniques required 2 to 3 weeks to provide reliable results, the shell vial assay (a modified viral culture that involves centrifugation of a urine specimen onto a fibroblast monolayer) does so in 2 to 3 days, with comparable sensitivity and specificity. As such, rapid-culture techniques represent the gold standard for diagnosing congenital CMV infection.

commentary

Cytomegalovirus is the most common infectious cause of fetal abnormalities. Even though it's not very common, it's devastating when it happens. Pregnant women or women considering pregnancy should be screened for CMV because if they acquire it during pregnancy, it can cause everything from fetal abnormalities to fetal death as well as pulmonary, gastrointestinal, cardiac, neurological, and other malformations.

For the complete report and commentary, go to ContemporaryPediatrics.com/ConfClub2014-CMV

Adolescent Health

SCREENING FOR STIs

Sexually transmitted infections (STIs) in patients aged 15 to 24 years account for an estimated $6.5 billion of $15.6 billion in direct health expenses spent annually on STIs.[1] *Chlamydia* and gonorrhea strike this age group most frequently (39% and 49% of reported infections, respectively). To prevent such infections, and sequelae that can include impaired fertility and reproductive-tract cancers, Gale R. Burstein, MD, MPH, FAAP, advised making adolescents' sexual health a matter of routine in primary care in her presentation "How Do I Improve Screening for Sexually Transmitted Infections in My Practice?"

To that end, it's crucial not only to have systems for confidential care in place, but also to ensure that one's staff is onboard. In the former area, teen-friendly tips from the National Chlamydia Coalition include clearly posting your privacy policy, offering educational materials in private settings, and ensuring that teenagers can discuss their sexual health without parents present. Because the legal ability of minors to consent to interventions such as contraceptive services has grown dramatically, added Burstein, it's also critical to know your state's laws in these areas.

commentary

It's important for pediatricians to discuss STIs with their patients because the majority of teenagers are sexually active, and they should know about the dangers of unsafe sex. If teenagers can't practice abstinence, they need to know their partner well and use protection. In the case of the HPV vaccine, patients should get it before becoming sexually active because it's quite safe and effective.

For the complete report and commentary, go to ContemporaryPediatrics.com/ConfClub2014-STI

Palliative Care

NEUROPATHIC PAIN UNDERRECOGNIZED

Among types of pain associated with advanced or chronic illnesses in children, said Stefan J. Friedrichsdorf, MD, FAAP, pediatric neuropathic pain remains particularly underrecognized and undertreated. Its prevalence in children is unclear, but a meta-analysis showed that the proportion of children with cancer who suffer from neuropathic pain ranges from 19% to 39%.[1]

In his presentation "Pediatric Pain and Suffering: Managing Common Problems in Children With Advanced or Chronic Illness," Friedrichsdorf suggested a sequential "non–evidence-based" approach to manage neuropathic pain in pediatric palliative care:

- Treat the underlying disease process if possible and appropriate.
- Incorporate integrative nonpharmaceutical therapies such as massage and biofeedback to manage comorbidities such as anxiety and sleep disturbances.
- Consider first-line medications: amitriptyline, gabapentin, and perhaps opioids. Regarding assumptions about opioid use in children, he emphasized, tolerance does not equal addiction, and fears of oversedation are largely overblown. Nevertheless, opioids are not indicated for chronic pain or long-term use.

commentary

Neuropathic pain is one of the most commonly misdiagnosed sources of pain. There is a tendency not to recognize pain as neuropathic in nature, and a tendency to diagnose pain as neuropathic when it's not.

Every headache in the community may look like a migraine, but there are at least 6 different types of migraine, and unless you're familiar with these, often you'll misdiagnose and mistreat. The same goes for neuropathic pain. If you have not been trained and exposed to it, you can misdiagnose and consequently mismanage the patient.

There are many venues to learn how to recognize and manage neuropathic pain or pain in general in children.

For the complete report and commentary, go to ContemporaryPediatrics.com/ConfClub2014-pain

CONTINUED FROM PAGE 23

WORRISOME CHRONIC COUGH

History

Over the 2 days prior to her presentation, the patient's cough was severe and persistent. Her parents denied any drooling, shortness of breath, or dysphagia. Her vital signs were stable, and she was afebrile. Further history revealed a 6-month chronic cough unrelieved by common medications for asthma and GERD. Her mother reported that the cough was persistent and seemed to be worse in the morning. The parents denied any foreign body (FB) ingestions.

An outpatient nasopharyngolaryngoscopy had revealed a normal upper airway, and a referral to gastroenterology had included a differential diagnosis of GERD and eosinophilic esophagitis. She began treatment with omeprazole and was scheduled for repeat outpatient visits for a possible endoscopic examination. Given the persistence and severity of her cough, her parents brought her to the ED.

Physical examination

The patient's physical examination was fairly unremarkable. Her vital signs were all within normal limits. Her cardiac exam was normal, and her lungs were clear to auscultation bilaterally. She was noted, however, to have mild increased work of breathing with subcostal and supraclavicular retractions. No laboratory studies were obtained and she was scheduled for chest radiography (x-ray).

Differential diagnosis

When children present to primary care offices with a chief complaint of chronic cough, the 2 most common diagnoses are asthma and GERD. However, it is important to always keep a broad differential, and a systems-based approach is best. Common diagnoses include GERD and reactive airway disease (Table). Whereas FB ingestion is less prevalent in older pediatric patients, the diagnosis must be considered in infants and toddlers as a cause for new-onset cough.

Further testing

The patient's chest x-ray revealed an infraclavicular foreign body in her esophagus that was concerning for a button battery (Figure 1). Gastroenterology removed the object emergently in the operating room. During the endoscopy, the esophageal wall was noted to be thin and friable. The esophagus surrounding the button battery was ulcerated with abundant granulation tissue formation (Figure 2).

Discussion

Approximately 100,000 cases of FB ingestion are reported each year, of which 80% occur in children aged between 6 months and 3 years.[1] Although a majority of FBs pass through the gastrointestinal (GI) tract, 10% to 20% require endoscopic removal. Whereas coins, toys, and batteries are commonly ingested, button batteries account for about 2% of all FB ingestions.[2,3] Despite being less common, button batteries can be fatal when swallowed, making early detection imperative.[4]

Different types of button batteries are on the market, the majority composed of alkaline material.[3] Along with pressure necrosis, alkali production, mercury toxicity, and electrolyte leakage from the battery can result in catastrophic injury. If the button battery is embedded within the esophagus, emergent removal is required because in just 2 hours severe tissue damage can result.[4]

Children who have ingested an FB can present with a variety of respiratory and gastrointestinal (GI)

TABLE

DIFFERENTIAL DIAGNOSIS FOR CHRONIC COUGH

PULMONOLOGY
- Asthma
- Protracted bacterial bronchitis
- Chronic suppurative lung disease and bronchiectasis
- Congenital airway abnormality
- Foreign body
- Aspiration
- Interstitial lung disease
- Postviral cough
- Increased cough receptor sensitivity

GASTROINTESTINAL
- Gastroesophageal reflux

FUNCTIONAL DISORDERS
- Including habit cough and tic disorders

ONCOLOGIC
- Neoplasm

EXTRAPULMONARY CAUSES
- Cardiac abnormalities
- Ear conditions

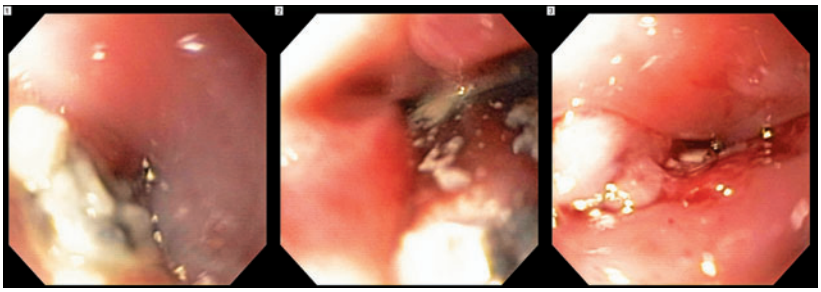

FIGURE 2 Esophagoscopy visualization of a foreign body in the middle third of the esophagus and surrounding abnormalities.

symptoms including cough, dysphagia, respiratory distress, and weight loss.[5] Most pediatric patients present within hours or days after FB ingestion; however, delayed presentation can be seen in cases of unwitnessed ingestion or subtle clinical findings. Presenting symptoms can be variable, which underscores the importance of obtaining a thorough history, examination, and radiographs when concern for FB ingestion exists.

Even if parents deny FB ingestion, medical providers must maintain a high clinical suspicion when the clinical scenario is concerning. A simple chest x-ray to rule out FB ingestion can be potentially lifesaving.[3,6] Because approximately 75% of patients with chronic esophageal FB ingestions present with respiratory symptoms, these patients are commonly misdiagnosed with asthma, respiratory viral illness, or GERD.[7] Our case demonstrates that when any chronic GI or respiratory symptoms do not respond to usual therapies, FB must be ruled out regardless of length of time from the onset of symptoms.

Treatment and outcome

Our patient's FB removal procedure was well tolerated, but the child's postoperative course was complicated. She suffered an esophageal tear and mediastinitis in the acute postoperative time period, as well as esophageal strictures that developed over several weeks. These complications required additional esophageal manipulations. She was treated with a 9-day course of intravenous antibiotics. A repeat endoscopy demonstrated no further perforation.

On postoperative day 9, her diet was advanced from parenteral nutrition to a mechanical soft diet. She was discharged home on postoperative day 11 with close follow-up with gastroenterology. At 14 weeks postdischarge, she reported dysphagia and an esophagram demonstrated an esophageal stricture. She subsequently received 2 endoscopic balloon dilations for her esophageal strictures.

The patient currently reports no dysphagia and continues to thrive after the dilations.

The literature reports over 2000 cases of button battery ingestions over the last several decades. In each case that resulted in serious complications, the FB was lodged in the esophagus.[8] Maximum reported length of time for button battery ingestion to its retrieval was 4 weeks. We present the longest case of button battery retrieval at 6 months. Because of the rarity of this length of time until diagnosis, there is a paucity of literature discussing chronic button battery ingestion, and its postretrieval clinical course.

Our case demonstrates the importance of close follow-up after the initial retrieval of the FB because of increased risk of further complications given esophageal damage. ■

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The authors have nothing to disclose in regard to affiliations with or financial interests in any organizations that may have an interest in any part of this article.

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ANDREW J SCHUMAN, MD
SECTION EDITOR

Meaningful use 2? Just say no

Consider your options carefully before embracing the next step in the meaningful use incentive program.

No matter where you turn these days you are reminded that you need to attest to your meaningful use Stage 2 requirements in order to continue to receive payments from the Centers for Medicare and Medicaid Services (CMS) Medicare and Medicaid Electronic Health Records (EHR) Incentive Program. In this article I would like to discuss "real world" meaningful EHR use. Pediatricians who have already received incentive payments should consider whether it's worthwhile to continue to participate in the program.

Incentive payments by the numbers

Healthcare reform began 5 years ago with the implementation of the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009, (passed in conjunction with the American Recovery and Reinvestment Act), developed by Congress to incentivize physicians to adopt approved EHRs.

The CMS provides payments to providers and hospitals via the EHR Incentive Program over a period of years if they demonstrate meaningful use of certified EHRs. Those participating in the program are eligible to receive up to $63,750 for Medicaid providers over 6 years or $44,000 over 5 years for Medicare providers. Additionally, Medicare providers would be penalized by a gradual reduction of up to 5% of their Medicare payments if they were not in compliance beginning in 2015.

To qualify for full incentive payments, pediatricians must have at least 30% of their visit encounter volume within a 90-day period provided to patients enrolled in Medicaid, whereas those with at least 20% will qualify for partial incentive payments. Pediatricians who meet the 30% Medicaid threshold will qualify for an incentive payment of $21,250 for the first year and $8500 per year for the next 5 years. Those who meet the 20% Medicaid rate would qualify for an incentive payment of $14,167 for the first year and $5567 per year for the next 5 years. Incentive payments to eligible hospitals are based on a number of factors, beginning with a $2 million base payment.

> ***"I'm as mad as hell and I'm not going to take this anymore!"***
>
> —Howard Beale, in *Network* (1976)

According to the CMS, "The concept of meaningful use is strongly supported by consumers and purchasers because it supports critical goals," which include:

- Increasing care coordination and fostering better

doctor-patient communication;
- Reducing medical errors and improving patient safety;
- Supporting delivery of evidence-based care;
- Reducing disparities by recording demographic information;
- Improving quality of care, while fostering more cost-effective delivery;
- Advancing payment reform (by supplying needed data on provider performance);
- Providing patients with their own portable health information.

In order to continue to receive incentive payments (or avoid reduction of payments in the case of Medicare providers), users would transition the way they use their EHRs; ie, in 3 sequential stages over the course of the program.

STAGE 1: Adopting EHR certified technology and using the technology in a meaningful manner, including electronic prescribing (e-prescribing).

STAGE 2: Demonstrating the capability of exchanging electronic health information to improve quality.

STAGE 3: Submitting information on clinical quality measures.

As you are likely aware, in order to receive incentive monies, practices must "attest" to meaningful use, and report to CMS that "objectives" are being met. Stage 1 requires reporting on 13 core objective and 5 of 10 menu objectives, while Stage 2 (Table) requires reporting on 17 core objectives and 3 of 6 menu objectives. Both Stage 1 and Stage 2 meaningful use also require that practices and hospitals report on a number of quality measures. (See "Renovating your medical home," *Contemporary Pediatrics*, July 2014.)

By the way, in case you were wondering, meaningful use measures were developed by the National Quality Forum (NQF)

TABLE

STAGE 2 MEANINGFUL USE: CORE AND MENU OBJECTIVES

17 CORE OBJECTIVES

1. Use computerized provider order entry (CPOE) for medication, laboratory, and radiology orders.
2. Generate and transmit permissible prescriptions electronically (eRx).
3. Record demographic information.
4. Record and chart changes in vital signs.
5. Record smoking status for patients aged 13 years or older.
6. Use clinical decision support to improve performance on high-priority health conditions.
7. Provide patients the ability to view online, download, and transmit their health information.
8. Provide clinical summaries for patients for each office visit.
9. Protect electronic health information created or maintained by certified EHR technology.
10. Incorporate clinical lab-test results into certified EHR technology.
11. Generate lists of patients by specific conditions to use for quality improvement, reduction of disparities, research, or outreach.
12. Use clinically relevant information to identify patients who should receive reminders for preventive/follow-up care.
13. Use certified EHR technology to identify patient-specific education resources.
14. Perform medication reconciliation.
15. Provide summary of care record for each transition of care or referral.
16. Submit electronic data to immunization registries.
17. Use secure electronic messaging to communicate with patients on relevant health information.

6 MENU OBJECTIVES

1. Submit electronic syndromic surveillance data to public health agencies.
2. Record electronic notes in patient records.
3. Imaging results accessible through CEHRT.
4. Record patient family health history.
5. Identify and report cancer cases to a state cancer registry.
6. Identify and report specific cases to a specialized registry (other than a cancer registry).

Abbreviations: CEHRT, certified electronic health record technology; EHR, electronic health record.
From Centers for Medicare and Medicaid Services. Stage 2 Overview Tipsheet. Available at: http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Stage_2.html. Updated August 2012. Accessed October 20, 2014.

at the request of the Office of the National Coordinator for Health Information Technology. The full final report can be found on the NQF website.

The fly in the ointment

In previous Peds v2.0 articles, I've discussed how to best comply with government requirements and how to improve office efficiencies while maximizing revenue. In my view, the population view of healthcare is misdirected as well as mismanaged. I have suggested that pediatricians should embrace what I call the "Golden Rule of Pediatric Practice"—simply treat the patient as you would like to be treated yourself. In practice, this means that we treat *one patient at a time* to achieve the best outcome for that patient and family. It means listening thoughtfully; providing diagnostic and treatment options; using technology to improve care; educating the patient; and assisting patients in navigating what has become an extremely complicated healthcare system.

This is not to say that there is not a role for population health in identifying trends and making suggestions for reform. However, no one would want a "population doctor" as his or her personal physician. Challenging physicians to comply with meaningful use (in addition to numerous other healthcare mandates) while we strive to provide quality care just makes our job that much more difficult.

Problems with EHRs and meaningful use

I believe that EHRs, when used correctly and efficiently, can improve the healthcare we provide patients. Just the acquisition of an EHR is itself quite "meaningful" in regard to increasing the quality of care provided to patients. However, EHRs are very expensive, and very few are expertly designed to expedite documentation. There are just too many buttons to click and data fields requiring input to complete in a simple office visit. So, over time we learn to be nimble with our EHRs, using templates and voice dictation to speed documentation and macros to populate fields quickly.

Realistically, it will take several years for all EHRs to mature to the point where they improve rather than hinder productivity and help us achieve all those noble "meaningful" goals outlined above. Just by producing readable notes (versus handwritten notes in paper charts), EHRs improve care and can reduce (but not eliminate) medical errors. Facilitating an updated medication list and problem list improves the quality. On the other hand, e-prescribing is a mixed bag. When it works correctly it's wonderful, but it has its own set of problems and annoyances. For example, there is no way to retrieve a prescription sent electronically when a patient wants the prescription sent to a different pharmacy than the one he or she approved a moment ago. Few EHRs have correct insurance formularies and many don't caution you regarding harmful drug interactions. Another enormous benefit of EHRs is that it provides practices the ability to benchmark operations to see how they are performing compared with national averages (see "Renovating your medical home," *Contemporary Pediatrics*, July 2014) so that problems can be identified.

In an era of growing EHR use, physicians need to streamline their notes. We must document correctly to justify the level of service, but excessive documentation wastes time. I long for the time when we establish a new, shorter standard of medical documentation and our EHRs have the ability to extract information from our notes to populate discrete data fields that can be used for benchmarking purposes.

Consequences of meaningful use

Healthcare reform, including meeting meaningful use requirements, has had a profound effect on physicians. A recent survey of more than 20,000 physicians performed by the Physicians Foundation, revealed some chilling information:

- 81% of physicians consider themselves either overextended or at full capacity (compared with 75% in 2012);
- 44% of physicians are considering retiring, changing jobs, or cutting back on patient access;
- 35% of physicians are in private practice (down from 49% in 2012);
- 85% of those surveyed have adopted EHRs (an increase from 69% in 2012), however, 45% indicate the EHR has detracted from their efficiency;
- 26% of surveyed physicians participate in an Accountable Care Organization (ACO), but only 13% believe that ACOs will improve quality and reduce cost.

To read more of what Dr Schuman has to say, go to **bit.ly/meaningful-use-2**

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A potassium hydroxide scraping from the advancing border was negative, as was a fungal culture. Subsequently, a 4-mm skin punch biopsy was performed that showed periodic acid-Schiff-positive fungi within hairs in an endothrix pattern. This is typical of Majocchi granuloma, a dermatophyte infection involving the dermis and subcutaneous tissue causing a deep folliculitis. Another fungal culture from the border grew *Trichophyton tonsurans*.

Etiology

The commonest cause of Majocchi granuloma in both immunocompetent and immunosuppressed individuals is *Trichophyton rubrum*.[1] Several other organisms also have been reported, mostly in the *Trichophyton* genera. The dermatophyte may enter into the dermis following occlusion of a hair follicle or damage to the skin.

Clinical findings

Majocchi granuloma has various clinical presentations. In the most common form in normal hosts, a localized area of pruritic grouped erythematous papulopustules or an annular plaque is noted in a hair-bearing area. In immunocompromised patients, there also may be abscesses and subcutaneous nodule formation, although some of these patients may develop only minimal inflammation.[2,3]

Classically, the infection presents in women who, having shaved their legs, develop papules and pustules in a follicular distribution. Although Majocchi granuloma tends to affect the extremities, scalp, and beard area, it can present anywhere on the body.

Differential diagnosis

Differential diagnosis includes granuloma annulare, acne keloidalis nuchae, eosinophilic pustular folliculitis, and erythema induratum. These can be distinguished by symptoms, clinical findings, culture results, and, when necessary, histologic findings.

Workup

Potassium hydroxide preparations may be negative for hyphae because the fungus may only be present below the stratum corneum.[1,4,5] Thus, confirmation of this condition may need to be done via skin biopsy. In order to identify the causative organism, a tissue culture can be performed. When the diagnosis is suspected, empiric therapy may also help confirm clinical diagnosis.

Management

In both immunocompetent and immunocompromised patients, oral antifungals are the preferred treatment. A 2- to 4-week course of oral terbinafine (250mg/day) has been used.[6,7] Griseofulvin and itraconazole treatment regimens have also been proposed.[8] Topical antifungals alone may be ineffective because of their inability to penetrate the skin deeply enough. There have been cases of treatment via local excision.[9,10]

The patient

Following diagnosis, the patient was started on oral terbinafine, 250 mg daily for 4 weeks, with rapid improvement in clinical findings. ■

Mr Perera is a fifth year medical student at King's College, London, United Kingdom. **Dr Cohen**, section editor for Dermcase, is professor of pediatrics and dermatology, Johns Hopkins University School of Medicine, Baltimore, Maryland. The author and section editor have nothing to disclose in regard to affiliations with or financial interests in any organizations that may have an interest in any part of this article. Vignettes are based on real cases that have been modified to focus on key teaching points. Images also may be edited or substituted for teaching purposes.

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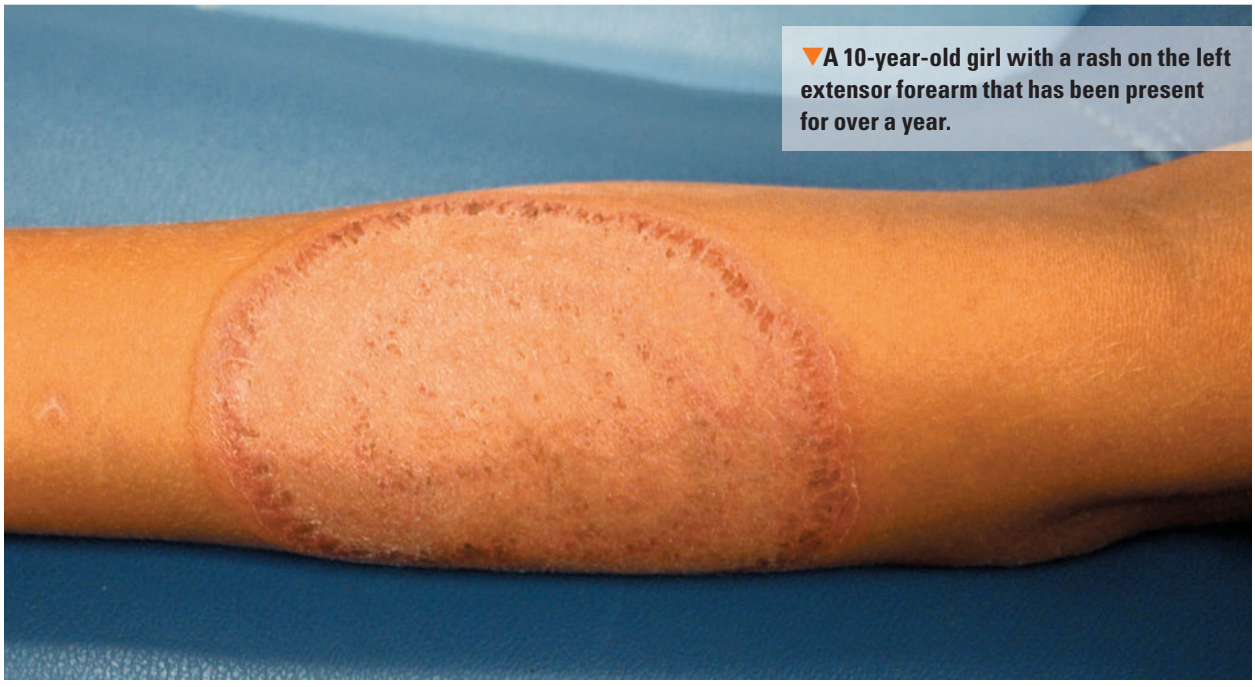

▼A 10-year-old girl with a rash on the left extensor forearm that has been present for over a year.

Girl's itchy rash resists repeated treatments

JAMES PERERA, BSC, MS5

THE CASE

You are asked to evaluate a minimally itchy rash that has been present for over a year on the arm of a 10-year-old girl. It started as a small red bump and was initially treated with topical antifungal cream without improvement. More recently, the bump was treated with topical steroid cream for 2 months when it began to expand again. FOR MORE ON THIS CASE, TURN TO PAGE 45. ▶

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DERMCASE *diagnosis* } MAJOCCHI GRANULOMA

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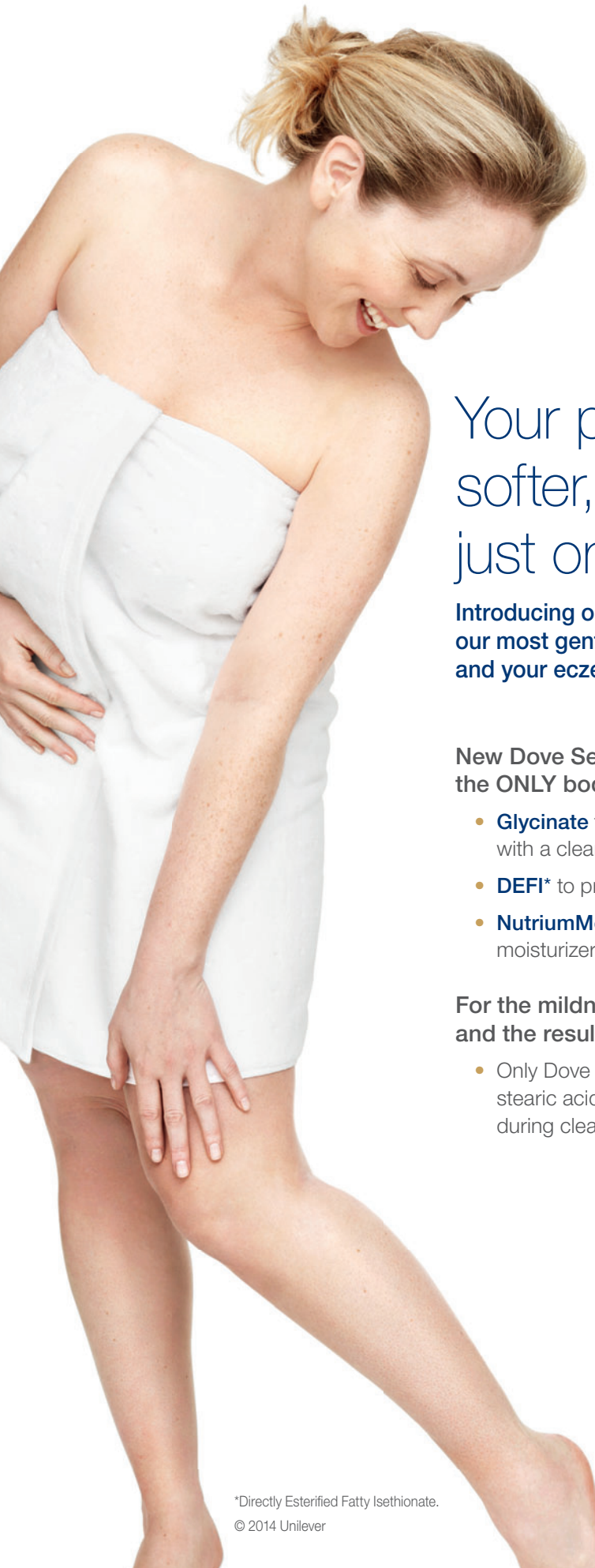

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