We can't ignore it anymore.
Severe RSV is unpredictable. Any infant can be hospitalized in their first season.\textsuperscript{2+}

\[ \sim 72\% \]

of infants hospitalized for RSV were born at term with no underlying conditions.\textsuperscript{2+}

To learn more about the real impact of severe RSV disease, visit RethinkRSV.com

RSV, respiratory syncytial virus.
\textsuperscript{*}According to a study of pediatric hospitalizations between 1997 and 2000.
\textsuperscript{†}Surveillance data between October 2014 and April 2015. Among 1,176 RSV-hospitalized infants aged under 12 months, 851 had no reported underlying condition (prematurity was classified as an underlying condition in the study).
A special issue

You are going to be reading a lot about the children’s mental health crisis in this month’s journal. Rarely do we let one health topic dominate the content the way we have with this March issue, but we believe this crisis is important enough—and urgent enough—to command such coverage. A New York Times newsletter recently did a good job of summing up why we created this special section:

- Children have fallen behind in academics, with math and reading levels lower than normal this past fall.
- There was a declaration of a national emergency in pediatric mental health this past October, announced by the American Academy of Pediatrics, among other groups.
- Suicide attempts are up: The number of emergency department visits for suspected suicide attempts in girls aged 12 to 17 years rose by 51% from early 2019 to early 2021, according to the Morbidity and Mortality Weekly Report.
- Gun violence against children has increased: Recently, the Washington Post noted that there were 42 acts of gun violence in 2021, the most on record since 1999.
- Some schools have still not returned to normal, increasing continued academic loss and social isolation.
- Behavior problems have increased, with schools reporting an uptick in disruptive behaviors.
- The Omicron variant intensified chaos and more loss for children, with sports, plays, and other events being canceled.

For pediatric health care workers, these grim facts can leave providers feeling great despair and a sense of helplessness. Contemporary Pediatrics has taken this challenge head on, by devoting a special section in this month’s issue to the mental health crisis.

We know you are on the front lines of the battlefield to protect our children and help them flourish; on our end, we are doing, and will continue to do, everything we can to keep your arsenals packed and ready.

REFERENCES
Greetings. The number of children with mental health issues (eg, anxiety, depression, suicidal ideation, worsening attention-deficit/hyperactivity disorder) was skyrocketing for several years before the pandemic, and now, in our third year of grappling with COVID-19, these cases are expected to rise even further. This has culminated in a national mental health crisis in the pediatric population, the likes of which has never been seen before. In this month’s *Contemporary Pediatrics*, we focus on this issue in a special section. Must-read articles feature the following:

- Guiding principles in managing pediatric mental health issues. This article, written by Peter S. Jensen, MD, the founder of the REACH Institute, shares guiding principles in caring for children and adolescents with mental health issues.
- Screening adolescents for psychosocial concerns. The authors here offer validated screening measures to assess patients who are presenting with anxiety and/or depression. This piece was cowritten by one of the Editorial Advisory Board members of *Contemporary Pediatrics*, Michael S. Jellinek, MD.
- Helping children grieve the loss of a caregiver due to COVID-19. It is estimated that, to date, more than 175,000 children in the United States have lost a parent or caregiver to COVID-19. Offering important details on the support that these children need to cope with their loss, this was written by Candice Jones, MD, another member of the *Contemporary Pediatrics* Editorial Advisory Board.
- How pediatricians can help mitigate the mental health crisis. Find out how to proactively support pediatric mental health services, an underfunded area with limited resources.

Thank you for providing outstanding care to your patients during these rapidly changing times. As the title of a book by Robert H. Schuller states, “Tough times never last, but tough people do.”

Please stay safe and well. And as always, I welcome your suggestions, comments, and questions.

With warm regards,

Tina Q. Tan

email: titan@luriechildrens.org
Nina L. Alifieri, MD, MS
Instructor of Pediatrics, Feinberg School of Medicine, Northwestern University, Attending Physician, Advanced General Pediatrics, Ann & Robert H. Lurie Children’s Hospital of Chicago, Chicago, Illinois

Amin J. Barakat, MD, FAAP
Professor of Clinical Pediatrics, Georgetown University Medical Center, Washington, DC

Jane M. Carnazzo, MD, FAAP
Pediatrician for Children’s Physicians, Omaha, Nebraska, Assistant Clinical Professor, Creighton University School of Medicine, Co-editor for SIDID (Section of Infectious Diseases) newsletter, CODe (Committee on Development) member for AAP

Harlan R. Gephart, MD
Clinical Professor of Pediatrics Emeritus, University of Washington School of Medicine, Seattle, Washington

W. Christopher Golden, MD
Associate Professor of Pediatrics Neonatologist, Division of Neonatology Medical Director, Newborn Nursery, Director, Pediatrics Core Clerkship, The Johns Hopkins University School of Medicine, Baltimore, Maryland

Donna Hallas, PhD, CPNP, PPCNP-BC, PMHS, FAAN, FAAN
Clinical Professor, Program Director, Pediatrics NP, New York University Rory Meyers College of Nursing, New York, New York

Rana F. Hamdy, MD, MPH, MSCE
Assistant Professor of Pediatrics, George Washington University School of Medicine and Health Sciences; Pediatric Infectious Diseases Attending, Director, Antimicrobial Stewardship Program, Associate Director, Fellowship Training Program, Children’s National Hospital, Washington, DC

Michael S. Jellinek, MD
Professor of Psychiatry and Pediatrics, Harvard Medical School, Boston, Massachusetts

Candice Jones, MD
Board-certified general pediatrician in group practice in Orlando, Florida, former National Health Service Corps Scholar, AAP member, spokesperson and author

Colleen A. Kraft, MD, MBA, FAAP
Clinical Professor of Pediatrics, Keck School of Medicine of University of Southern California and Children’s Hospital Los Angeles California. She is the 2018 Past President of the American Academy of Pediatrics.

Russell Libby, MD, FAAP
Founder and president of the Virginia Pediatric Group, Fairfax, Virginia. He is also an Assistant Clinical Professor of Pediatrics, University of Virginia School of Medicine and The George Washington University School of Medicine and Health Sciences and a board member of the Physicians Foundation

Andrew J. Schuman, MD
Clinical Assistant Professor of Pediatrics, Geisel School of Medicine at Dartmouth, Hanover, New Hampshire

Steven M. Selbst, MD
Professor and Vice Chair for Education, Department of Pediatrics, Sidney Kimmel Medical College at Thomas Jefferson University, Philadelphia, Pennsylvania, Attending Physician, Pediatric Emergency Medicine, Nemours/Alfred I. duPont Hospital for Children, Wilmington, Delaware

Jane M. Carnazzo, MD, FAAP
Pediatrician for Children’s Physicians, Omaha, Nebraska, Assistant Clinical Professor, Creighton University School of Medicine, Co-editor for SOID (Section of Infectious Diseases) newsletter, CODe (Committee on Development) member for AAP

Colleen A. Kraft, MD, MBA, FAAP
Clinical Professor of Pediatrics, Keck School of Medicine of University of Southern California and Children’s Hospital Los Angeles California. She is the 2018 Past President of the American Academy of Pediatrics.

Bernard A. Cohen, MD
Editor for Dermcase, Professor of Pediatrics and Dermatology, Johns Hopkins University School of Medicine, Baltimore, Maryland

Jon Matthew Farber, MD
Editor for Journal Club, pediatrician, ALL Pediatrics, Woodbridge, Virginia

Carlton K. Lee, PharmD, MPH, FASHP, FPPAG
Editor for The Clinical Pharmacist’s Notebook, Clinical Pharmacy Specialist, Pediatric Pharmacy Residency Program Director, and Associate Professor, Department of Pediatrics, Johns Hopkins Medical Institutions, Baltimore, Maryland
Mental Health Special Report

18 Guiding principles in managing pediatric mental health issues

The founder of the REACH Institute offers guidelines in diagnosing and managing mental health issues in children. Peter S. Jensen MD

Behavioral Health

22 Helping children grieve the loss of a caregiver due to COVID-19

How to help your patients who have lost a key caregiver. Candice Jones, MD

25 Screening adolescents for psychosocial concerns

Everything you need to know about screening patients for anxiety and depression. Michael S. Jellinek, MD, and Taryn Benheim, BA

28 How pediatricians can help mitigate the mental health crisis

A call to action to address the national crisis in children’s mental health. Janine A. Rethy, MD, MPH, and Elizabeth M. Chavola, MD

Nutrition

17 Addressing atypical anorexia

Children of all weights can dangerously restrict their eating. Miranda Hester

Dermatology

44 Scrutinizing the psychosocial impact of skin disease

Dermatological disorders can impact a child’s quality of life. Muhammad Aamir Anees; and Bernard A. Cohen, MD

Respiratory Disorders

49 Guide parents in minimizing indoor asthma triggers

The effect of indoor allergens is sometimes underestimated. Rachael Zimlich, BSN, RN

Drugs Pipeline News

Contemporary Pediatrics Editor-in-Chief

Tina Q. Tan, MD, FAAP, FIDSA, FPIDS discusses what the latest news on the COVID-19 vaccine means and how to use it to address vaccine hesitancy.

Go to: ContemporaryPediatrics.com/pfizer-vaccine-under-5

Puzzler

14 Altered mental state in a 2-year-old boy

Why is this toddler behaving abnormally and having balance issues? Daniel DeMarco, PA-C; Melanie Stein-Etess, DO; Kirsten Saetre, DO; and Joshua Rocker, MD

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Puzzler

14 Altered mental state in a 2-year-old boy

Why is this toddler behaving abnormally and having balance issues? Daniel DeMarco, PA-C; Melanie Stein-Etess, DO; Kirsten Saetre, DO; and Joshua Rocker, MD
Take awkward off the table

Not every patient feels comfortable disclosing their sexual activity. An opt-out approach makes the conversation easier.

As providers, you know that STIs are on the rise and can happen to anyone. Not everyone is as aware of the risks, and up to 84% of chlamydia and gonorrhea infections are asymptomatic. The CDC now recommends considering an opt-out approach for young women under 25. Universal screening is an inclusive solution that is proven to decrease STI prevalence, infertility issues, and cost. Let's help protect her reproductive health today, and tomorrow.

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Routine temperature checks
Is less more?

Taking temperature at all well-child visits triggers more antibiotic prescriptions and less testing compared with not making this a standard practice. Routine temperature checks also detect incidental fever, leading to more interventions and deferred vaccination. Those were the primary findings of an analysis of data from well-child visits at a network of 24 primary care clinics in California.

Investigators categorized clinics that measured temperatures at almost all well-child visits (> 90%) as practicing “routine measurement” and those that did so at a few such visits (< 20%) as performing “occasional measurement.” Sixteen of the 24 clinics (67%) were in the former category, and the remaining 8 (33%) were in the latter. The mean patient age in both groups was 5 years. Overall, temperature was measured at more than 155,527 (58.9%) well-child visits.

Antibiotics were prescribed a bit more frequently at clinics that measured temperature routinely rather than occasionally (1.7% vs 1.4%). However, the odds of obtaining diagnostic testing, such as C-reactive protein, complete blood cell count, rapid influenza or streptococcal test, throat swab, or urine culture, were lower at routine than occasional measurement clinics (1.3% vs 1.4%). These differences remained after adjustment for confounding factors.

At 0.2% of routine measurement clinic visits, temperature taking detected fevers, 17.4% of which were classified as probable incidental fever. This finding was associated with an increase in antibiotic prescriptions and diagnostic testing. In addition, about half of such visits, vaccines were deferred, most often (in 75% of instances) until the next well-child visit.

The authors noted that although the findings showed a low overall rate of incidental fever detection, this “may trigger overuse of health care resources and unnecessary vaccine deferral.” The practice of routinely measuring temperature at well-child visits therefore merits additional consideration of harm vs benefits, they said.

When I first started in pediatrics, children received yearly hemoglobin and urinalysis tests—until we realized they were not useful. The same should probably happen with temperature readings, although the habit will be hard to break. Remember, a mild illness, including fever, is not a contraindication to vaccination, so it is not necessary to measure temperature in a well-appearing child.

REFERENCE
A structured bowel management program and good toileting behaviors can resolve rectal prolapse, regardless of patient age, according to a retrospective review of patients at a pediatric colorectal center. The findings showed that medical management alone led to resolution in 88% of patients.

To ascertain TCD screening rates at 28 sites across the country, investigators analyzed data for 5116 children with SCA who were eligible for TCD implementation assessment for at least 1 of the 4 study years (2012-2016). Rates varied widely, ranging from 30.9% to 74.7%. During the study period, 71.4% of patients had at least 1 TCD, whereas 28.6% did not have any. Among patients who should have had at least 4 TCDs, according to the guidelines, 18% had none. Investigators noted that these unsatisfactory screening rates exist in all areas of the country.

Although I am generally a proponent of reducing test use, this is an exception. You may be leaving the handling of your patients with sickle cell disease to a specialty clinic, but as a primary pediatrician, you should still check that the clinic is doing what needs to be done.

The concept of “resolved” is not well defined in this report (a certain number of consecutive days without prolapse?), and the use of frequent x-rays strikes me as excessive, but the underlying point is well made: A good bowel program to handle constipation should obviate the need for surgery in most patients.
PATIENT CASES TO TEST YOUR DX IQ

Altered mental state in a 2-year-old boy

DANIEL DEMARCO, PA-C; MELANIE STEIN-ETESS, DO; KIRSTEN SAETRE, DO; AND JOSHUA ROCKER, MD

A 26-month-old boy presents to the emergency department (ED) for mild altered mental status and balance issues following a fall the day before. The patient fell backward off a step and hit the back of his head on a rubber-matted floor. The fall was witnessed by his father, who reports that the child had no loss of consciousness or vomiting but subsequently complained of left-sided head pain. After an uneventful night, the child was noted to be less active upon waking in the morning. During a telehealth visit with the pediatrician, the patient appeared off-balance and was not acting normally, prompting a referral to the ED.

Examination and imaging studies

Upon arrival to the ED, the patient is acting normally as per his father but is holding his neck abnormally. He seems comfortable and playful during the physical examination, which shows normal vital signs. On first impression, he is noted to have a large head. He keeps his neck flexed and laterally rotated to the right, with his chin pointing left. He turns his entire body during attempts to perform rotation of the neck. There is no cervical spine tenderness. The anterior fontanelle is open about 2 cm. There is no evidence of Battle sign, raccoon eyes, or hemotympanum. The remainder of the physical examination is unremarkable.

The patient is given ibuprofen whether that improves his range of motion of the neck. A cervical spine x-ray is ordered to evaluate for subluxation; because patient positioning limits the study, C2 subluxation cannot be ruled out. A noncontrast cervical spine computed tomography shows no cervical spine injury, but the radiologist visualizes a large low-density region in the posterior fossa that appears to follow the density of cerebrospinal fluid. A noncontrast head CT reveals the cause of the patient’s signs and symptoms.

Differential diagnosis

Given the history of the fall in conjunction with the patient’s presentation of holding his head abnormally, the leading diagnosis is cervical spine subluxation, but the differential diagnosis includes torticollis, cervical spine fracture, intracranial hemorrhage, musculoskeletal injury, and intracranial mass. Additionally, his initial altered mental status, noted by the pediatrician and now resolved, was most likely secondary to a mild concussion. A significant intracranial injury is possible but less likely.

It is noted that this child has macrocephaly, defined as a large head, and his anterior fontanelle is open. The differential diagnosis of macrocephaly in infants and children includes megalencephaly, congenital hydrocephalus, acquired causes of increased cerebrospinal fluid (CSF), increased intracranial blood volume, bone thickening, increased intracranial pressure (ICP), and an intracranial mass. Common causes of macrocephaly in infants and children vary with age of onset. Benign enlargement of the subarachnoid space, known as benign extra-axial fluid of infancy or benign external hydrocephalus, is a cause of macrocephaly.

Evaluation for the etiology of macrocephaly should begin if the occipitofrontal head circumference (OFC) is greater than 2 standard deviations (SDs) above the age-related mean; serial measurements of the OFC cross at least 1 major percentile line at well-bess visits; or, in infants younger than 6 months, OFC increases more than 2 cm per month.
The evaluation of macrocephaly, including imaging, is directed by history and physical examination with special consideration of signs or symptoms suggesting elevated ICP, central nervous system (CNS) trauma or infections, syndromic features, neurodevelopmental abnormalities, and family history of neurodevelopmental or cutaneous abnormalities. If there are no syndromic features and development is normal, the OFC of first-degree relatives (parents, siblings) should be measured to assess for familial macrocephaly.

Macrocephaly and megalencephaly both present with head circumference greater than 2 SDs above the age-related mean but are differentiated in that megalencephaly is defined as increased growth of actual cerebral structures. Pediatricians often see both benign familial macrocephaly and benign familial megalencephaly.

Megalencephaly can be caused by anatomic or metabolic abnormalities or can be benign with no neurological impairment. Familial megalencephaly, the most common anatomic type, is confirmed in a child with normal development and neurologic examination, no syndromic features, no family history of developmental or neurologic abnormalities, and an OFC within the normal range, as estimated by Weaver curves. Weaver curves use parental OFC to better define ranges of normalcy for a child’s head circumference.

The differential diagnosis of persistently open anterior fontanelles includes rickets, congenital hypothyroidism, achondroplasia, trisomy 21, ICP, arachnoid cyst, familial macrocephaly, and normal anatomic variation. Median time to anterior fontanelle closure is 13.8 months. At ages 3 months, 1 year, and 2 years, the anterior fontanelle is closed in 1%, 40%, and 96% of children, respectively. Generally, the anterior fontanelle closes earlier in boys than girls. Less common causes of persistently open anterior fontanelles include other skeletal disorders, other chromosome abnormalities, congenital infections, drugs and toxins, dysmorphogenesis syndromes, and malnutrition.

**ACTUAL DIAGNOSIS**

A noncontrast head CT shows moderate to marked enlargement of the lateral and third ventricles compatible with hydrocephalus. The fourth ventricle is normal in size. A large cyst (5.8 x 3.9 x 4.4 cm) that

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**FIGURE 1.** CT of the head, axial view, demonstrates moderate to marked enlargement of the bilateral lateral ventricles compatible with hydrocephalus.

**FIGURE 2.** CT of the head, axial view, demonstrates a 5.8 x 3.9 x 4.4-cm cyst present in the left aspect of the posterior fossa anterior and lateral to the left cerebellar hemisphere.

**FIGURE 3.** CT of the head, coronal view, demonstrates a 5.8 x 3.9 x 4.4-cm cyst present in the left aspect of the posterior fossa anterior and lateral to the left cerebellar hemisphere.

**FIGURE 4.** CT of the head, sagittal view, demonstrates a 5.8 x 3.9 x 4.4-cm cyst present in the left aspect of the posterior fossa anterior and lateral to the left cerebellar hemisphere.
Differential Diagnosis

Pediatric patient with a history of fall and now abnormal head and neck positioning erythema nodosum in a 2-year-old child

- Cervical spine fracture
- Cervical spine subluxation
- Intracranial hemorrhage
- Intracranial mass
- Musculoskeletal injury
- Torticollis

is isodense to CSF is visualized in the posterior fossa. The radiologist’s overall impression is that the findings are compatible with a large posterior fossa arachnoid cyst demonstrating local regional mass effect resulting in moderate to marked supratentorial hydrocephalus.

After these data are obtained, further discussion with the father reveals that his son has always been “clumsy,” falling often, and known to have a large head. The father adds that his son frequently “keeps his head down”—but, of note, no signs of muscular or ligamentous trauma appeared on CT or the magnetic resonance imaging obtained later.

Arachnoid cysts are collections found within the arachnoid membranes, arachnoid cells lining the cyst secrete CSF. Arachnoid cysts are nonneoplastic, with 2 classifications: primary developmental, which are more common, and secondary. Primary cysts result when the arachnoid membrane splits in utero, whereas secondary cysts occur after trauma, surgery, infection, or intracranial hemorrhage.

Arachnoid cysts account for approximately 1% of all intracranial masses and occur in 2.6% of children, more commonly affecting boys; 75% of symptomatic arachnoid cysts occur in children. Intracranial arachnoid cysts are more common in certain genetic syndromes, including trisomy 21, mucopolysaccharidosis, schizencephaly, neurofibromatosis, autosomal-dominant polycystic kidney disease, acrocallosal syndrome, and Aicardi syndrome.

The most common location for arachnoid cysts is the sylvian fissure. They may also occur in the cerebral convexity, interhemispheric fissure, suprasellar cistern, quadrigeminal cistern, cerebellopontine angle, midline of the posterior fossa, spine, or any part of the nervous system where arachnoid mater is present.

Most arachnoid cysts are asymptomatic, are found incidentally, and do not require surgery. When symptomatic, the most common presentation is headache. Additional symptoms include dizziness, nausea, vomiting, mood or mental status changes, ataxia, vision changes, and hearing loss.

In patients with significant symptoms, including hydrocephalus, focal neurological deficits, localized seizures, or remodeling of the skull bones, surgery is indicated. The diagnosis of arachnoid cysts is made by CT or MR imaging. Surgical treatment, when indicated, includes cyst wall fenestration or, less commonly, a cyst-peritoneal shunt.

At this time, there is no class I evidence regarding optimal treatment of arachnoid cysts.

Management

Patient Course

Following the head CT results, neurosurgery is consulted; a brain MRI confirms the CT findings, adding no significant data. Ophthalmologic examination reveals bilateral hyperemic optic discs, without disc edema. The patient undergoes left craniotomy and cyst fenestration. The remainder of his hospital course is unremarkable, and he is discharged 5 days following initial ED presentation.

Lessons for the Clinician

- Median time to anterior fontanelle closure is 13.8 months. By age 2 years, the anterior fontanelle is closed in 96% of children. Generally, closure occurs earlier in boys than girls. Persistently open anterior fontanelles should be evaluated.
- Large head circumference warrants evaluation but must be contextualized.
- If all family members’ heads are large,
Addressing atypical anorexia

BY MIRANDA HESTER

Contemporary Pediatrics® sat down with Erin Harrop, PhD, an assistant professor at the University of Denver in Colorado and a licensed medical social worker, to talk about atypical anorexia nervosa, including diagnostic challenges.

Thinking about anorexia nervosa often conjures the image of a very thin adolescent girl staring at a scale or, perhaps, a plate holding a tiny portion of food. That picture might represent many individuals dealing with the disease but does not at all resemble others—such as those considered overweight—which can make diagnosis challenging.

Atypical anorexia occurs when a patient with anorexia has a body mass index higher than that associated with mildly severe low body weight.

In this podcast series, Harrop discusses diagnosing atypical anorexia, how the declaration of the obesity epidemic and fat bias can make diagnosis difficult, and how—regardless of the cost—weight loss in certain bodies tends to be overvalued.

For references, go to ContemporaryPediatrics.com/puzzler-0322

Melanie Stein-Etess is a pediatric emergency medicine physician at Cohen Children’s Medical Center in New Hyde Park, New York.

Daniel DeMarco is a physician assistant at Cohen Children’s Medical Center.

Kirsten Saetre is a pediatric emergency medicine physician at Cohen Children’s Medical Center.

Joshua Rocker is the division chief of pediatric emergency medicine at Cohen Children’s Medical Center.

The authors have nothing to disclose.
Sixteen years ago, 15 of my colleagues and I—with the support of the new nonprofit REACH Institute—recognized the drastic shortage of child and adolescent psychiatrists and child psychologists, 2 essential specialties for addressing pediatric mental problems. Because most children in the United States have access to a primary care clinician (PCC), we reasoned that if children's PCCs could become “first responders” to manage the most common (and treatable) pediatric mental health problems, we could begin to address the workforce shortages in child mental health. It was clear then—and even more so now—that most PCCs receive little training in pediatric mental health during their residency. Ironically, current news reports about the urgent lack of pediatric mental health services are only refocusing our national attention on the crisis identified by the US surgeon general more than 20 years ago.1

While reviewing strategies to address the problems, we learned that many traditional continuing medical education (CME) courses, useful for so much physician learning, did not prepare general pediatricians in this regard.2 Instead, we drew on training techniques from adult education and basic behavior change science.3 After 2 years of development, we launched a new, hands-on, sustained coaching program for PCCs to deliver mental health services in primary care practice.4

During program development, we realized that fear of the unknown could interfere with PCCs' willingness to address pediatric mental health problems. Ironically, we also recognized that PCCs do learn to diagnose and manage many other serious illnesses simultaneously managed by specialists (eg, asthma by pulmonologists, diabetes by endocrinologists, eczema by dermatologists). They learn about effective medicines to ameliorate these illnesses and about potential adverse effects (AEs). In any illness in children, PCCs—with family knowledge/consent—learn to prescribe medications (along with other interventions), even those with potentially severe/fatal AEs, recognizing that the illness is generally riskier than the treatment (eg, penicillin vs anaphylaxis, steroids vs cataracts or psychosis). Accordingly, we determined that for PCCs to become effective first responders for common pediatric mental illnesses, the skill elements mentioned must underpin the training.

However, consider the dilemma for a PCC who faces a new pediatric patient with chron-
ic disruptive behaviors and irritability. If this PCC does not have confidence in their skills to assess and diagnose this case, how can they know whether the child has attention-deficit/hyperactivity disorder (ADHD)? Or depression? Or if family conflict and impending divorce are affecting the child? Will treating the possible ADHD make some underlying condition worse?

Thus, we decided that our new pediatric workforce training program must place a strong emphasis on assessment and diagnostic skills. Furthermore, we realized that our training must help PCCs conceptualize pediatric mental health problems within the context of what is known about the biopsychosocial influences on a child’s development, including development of mental health problems.

Based on the need for a clear logical framework for the training, we developed a set of “first principles”—guiding values and practices to pilot PCCs through the process of problem identification, diagnosis, and treatment, including deciding when, whether, and how to use a medicine, along with other appropriate interventions.

In the REACH Institute’s 16-plus years’ experience of coaching, reaching more than 5000 PCCs, these principles have been well received and very effective in providing PCCs the knowledge and skills to become powerful new agents in local mental health care systems, helping them manage common pediatric mental health problems (eg, anxiety, depressive disorders, ADHD, disruptive disorders, and their combinations).1

Because these principles and practices have broad applicability, we hope that PCC training programs generally (both graduate medical education and CME programs) will consider their application. We present details of these principles and practices on page 20 (Table). Many of the principles are already consistent with how PCCs are initially trained and approach treatment of other chronic conditions, such as asthma, diabetes, and allergies.

These principles fall under 4 major categories: (1) developmental and contextual assessment and understanding; (2) team formation, communication, and shared decision-making; (3) do no harm—considerations for prescribing medications; and (4) evidence-based prescribing practices.

Developmental/contextual assessment
The first general category is a sine qua non prior to developing any appropriate mental health interventions. We find that when presented with an unfamiliar behavior or emotional problem, PCCs may cognitively freeze, forgetting to do what they do with other illnesses, and fail to inquire about all relevant aspects of the child’s and family’s life that might contribute to or precipitate the problem(s). They may forget to ask the questions “What are the current stressors for all? Why do you [parents and youth, if old enough] think this is happening? What has changed recently? What do we know about the child’s peers and school setting?” At this initial stage, the PCC should not worry about time: Most cases are not a true emergency (even if a parent feels it is), so the PCC must communicate patience and reassurance and schedule follow-up visits to obtain additional information from school records and past evaluations.

PCCs also may worry that they do not know the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) in all its complexities, but that level of knowledge is rarely needed. Instead, during an initial visit, it is more important to understand what is going on in the child’s and family’s life. DSM-5 diagnoses often become clearer over time and with more information.

Team formation and communication and decision-making
Involve the family and child in decision-making before recommending any treatments. Attempts to overpersuade the family to pursue a given treatment are ultimately ineffective. If the family is reluctant about a specific treatment, first figure out why, and determine what additional education and sup-
port are needed. Consider, for example, keeping a library of books on hand to show and recommend to families. Link them to other parents who have experienced similar difficulties by recommending that they join a parent advocacy organization, such as Children and Adults

*With Attention-Deficit/Hyperactivity Disorder* or the National Alliance on Mental Illness. Participating in such groups (via either online chat groups or local chapters) will expose them to other parents who have learned the ropes of having a child similar to theirs.

Ongoing education and support will help families learn about their child’s condition and become proactive in its management. This takes time, along with the PCC’s continuing encouragement and guidance. The training addresses several other key principles within this
category, including helping PCCs prioritize when a child has multiple problems. In addition, PCCs are taught to obtain objective evidence-based assessments (eg, rating scales) to identify and track the child’s progress.

**Do no harm: considerations for prescribing medications**

When prescribing psychiatric medications, PCCs are encouraged to remember that children and adolescents are different from adults on multiple fronts. They may have more, fewer, or different AEs. For example, younger children treated with a stimulant may cry easily for no apparent cause, a symptom that disappears as soon as the medication is stopped. Children have higher metabolic rates than adults and may require proportionally higher doses because of greater kidney clearance and higher liver to body mass ratios. These considerations warrant careful monitoring for possible AEs.

Given the somewhat greater uncertainties when using psychotropic medications in children, these medicines (if indicated) should be used at research-documented doses and durations within placebo-controlled randomized controlled trials. Fortunately, over the past 2 decades, multiple multisite, definitive, federally funded trials have shown the appropriate doses to achieve optimal responses for children with common behavioral and emotional disorders.78 These findings are taught in all graduate and CME programs.

Another principle is the common psychopharmacologic aphorism “start low, go slow, and taper slow.” If the need to discontinue a medication arises, a second (but not exclusive) rule is to taper the medication over 2 to 3 weeks, with some exceptions. Lastly, clinicians should monitor and measure possible AEs and teach parents and youth about any AEs they should watch for.

**Evidence-based prescribing practices**

The final major category, use of evidence-based prescribing practices, has multiple components. First, participants are encouraged to use only medicine supported by double-blind, randomized, controlled trials for the child’s age and diagnosis. They are encouraged to minimize use of multiple medications (polypharmacy) and maximize use of single medications. For example, a second medication for a problem such as ADHD should not be added before trying the maximum level of the initial medication.

If a child is receiving more than 1 medication and a change appears essential (due to either lack of benefit or to AEs), just 1 medication at a time should be changed, with appropriate rating scales used to monitor changes in benefits or AEs.

The benefits of modifying the child’s environment, rather than the medication, must also be considered. For example, if a child with ADHD is doing poorly in school and there is clear evidence that the child and teacher are not getting along, consider whether a classroom change might be just as helpful and possibly a better strategy.

When a medication change is indicated, PCCs are taught to carefully consider timing and avoid overlap with other changes in the child’s life. For example, changing or stopping a medication right before or during a critical event may lead to uncertainty about the cause of any subsequent behavior change. Last, PCCs are encouraged to evaluate the iatrogenic effects of medicines and determine whether any given behavioral problem could be due to the child’s medicine regimen.

**Conclusion**

We believe that if all PCCs apply these principles and practices, over the course of their professional careers, they will be able to address as many as 75% of children with mental health problems. This dramatic expansion in our pediatric mental health workforce, due to a new cadre of trained and prepared first responders—pediatricians, family physicians, nurse practitioners, and physician assistants—could largely redress the terrible insufficiencies of our current pediatric mental health care due to lack of specialists.

More than 20 years ago, the surgeon general outlined the necessity of addressing the children’s mental health crisis via training the primary pediatric workforce in critical mental health skills.77 Sadly, since then, between children’s rising mental health needs (including related to the COVID-19 pandemic) and the actual number of pediatric mental health specialists, the gap has only widened.79 We have attempted to follow the surgeon general’s advice by training many primary care colleagues through our 6-month coaching program.80

Although we have been heartened to see so many of our pediatric colleagues transform their practices to serve children with mental health problems, if we all want to look back in another 20 years and see genuine progress, much more is needed.

For references, go to ContemporaryPediatrics.com/guiding-principles
Helping children grieve the loss of a caregiver due to COVID-19

Tragically, the pandemic has taken a caregiving loved one from tens of thousands of children. How do we, as pediatric health care providers, provide care and comfort?

CANDICE JONES, MD

From April 1, 2020, to June 30, 2021, more than 140,000 children in the United States experienced the death of a primary caregiver, according to findings recently published in Pediatrics. The modeling study calculated COVID-19–associated orphanhood (death of 1 or both parents) and deaths of custodial and coresiding grandparents by using mortality, fertility, and census data. The investigators reported that for every 4 COVID-19 deaths, 1 child lost a parent or caregiver. As a pediatrician, I found that statistic, which highlights a crisis for children in the pandemic, to be profound.

Unsurprisingly, the study also uncovers disparities in COVID-19–associated death of caregivers. American Indian and Alaska Native children were 4.5 times more likely, Black children were 2.4 times more likely, and Hispanic children were 1.8 times more likely to lose a parent or grandparent caregiver than their non-Hispanic, White counterparts. These data mirror the disparate rates of COVID-19 infection and outcomes in communities of color and point to long-standing inequities, such as discrimination, barriers to health care, educational gaps, and economic instability.

The loss of a parent or primary caregiver who provides love, safety, and stability is a devastating event and has a long-term impact on a child’s health and well-being. Parental loss is identified as childhood trauma or an adverse childhood experience that, unbuffered, can lead to toxic stress, affecting the developing brain and body and increasing risks of various physical, mental, behavioral, and substance use problems in childhood and beyond.

Perhaps the most impactful element of the study is the call for a “care for children,” a comprehensive response to improve outcomes in children experiencing orphanhood. The 3-pronged approach aims to:

- prevent COVID-19–associated death of caregivers through effective and equitable policies and practices that improve access and uptake of COVID-19 vaccines;
- prepare families, offering support and services to help the child experiencing loss of a parent or primary caregiver;
- protect children through programs that build resilience in the family, enhance parenting skills, and improve family relationships.

Pediatric health care providers are uniquely positioned to help children grieving caregiver loss from COVID-19. By incorporating strategies from the study and learning from grief experts, such as the Pediatric Advance Care Team (PACT) at Children’s Hospital of Philadelphia in Pennsylvania, we can empower families to overcome traumatic loss by guiding them through the grieving process.

RESOURCES ON GRIEF

The following websites offer services and information for children going through the grieving process:

- National Alliance for Children’s Grief: childrengrieve.org
- Willow House: willowhouse.org
- What’s Your Grief: whatseyourgrief.com
- Mindfulness & Grief Institute: mindfulnessandgrief.com
- Dougy Center: www.dougy.org
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PACT highlights 3 key areas plus tips to help families navigate death and grief:

**IMPROVING COMMUNICATION:** Use age-appropriate language, and avoid euphemisms (eg, say “Mom died” in lieu of “We lost Mom”). Allow the child to ask questions, provide helpful books (www.commonsensemedia.org/lists/books-about-grief), prepare the child for what will happen next (eg, the funeral), and how they might feel in the coming weeks/months.

**RECOGNIZING THAT GRIEF DIFFERS AND VARIES AMONG CHILDREN:** Be prepared for regression (eg, bedwetting), along with sleeping problems, roller-coaster emotions, and behavioral changes (eg, anger, withdrawal).

**DEVELOPING POSITIVE COPING SKILLS:** Encourage honoring (eg, a balloon release) and remembering the loved one (eg, sharing stories, creating a memory box/scrapbook/video, keeping traditions). Grief counseling can help both the child and their current caregiver, who should also practice self-care and understand the stages of grief.

Pediatric health care providers will encounter children who are orphaned during the pandemic. Developing clinical action steps to address this pandemic-related trauma and the grief that follows is important and should incorporate the following steps:

- Screen for COVID-19 related caregiver loss: “Has this child lost a parent or other caregiver to COVID-19?”
- Assess symptoms of grief and address any maladaptive responses.
- Promote healing and resilience building by encouraging safe, stable, nurturing relationships and environments and positive childhood experiences.
- Provide referrals and resources, such as social services support, United Way 211, bereavement programs, trauma-informed mentoring programs, parenting classes, and quality childcare, as well as literature on grief.
- Advocate for federal, state, and local support of children who have lost a parent or other caregiver to COVID-19, such as coordinating efforts to identify orphans; creating a COVID-19 bereaved children’s fund; and expanding access to community-based, grief-focused, and trauma-informed mental health services.
- Amplify organizational efforts and trusted voices to reduce health disparities and promote health equity related to the pandemic, such as The Conversation Between Us, About Us, a campaign codeveloped by Kaiser Family Foundation and the Black Coalition Against COVID.
- Continue to promote COVID-19 prevention by encouraging families to practice safety measures including vaccination, mask wearing, hand hygiene, and testing, as well as advocating for community-wide layers of protection to reduce the spread of the virus and associated deaths.

Since *Pediatrics* published those study results, the number of children orphaned due to COVID-19 has risen to an estimated 200,000-plus. Health care providers play a critical role in raising awareness, protecting families, and intervening when children experience the loss of a parent or other caregiver to COVID-19.

**COMMENTS?** E-mail them to llevine@mhjlivesciences.com

*Candice Jones* is a board-certified general pediatrician in group practice in Orlando, Florida, and a member of the *Contemporary Pediatrics®* Editorial Advisory Board. She has nothing to disclose.

For references, go to ContemporaryPediatrics.com/helping-children-grieve-loss
Screening adolescents for psychosocial concerns

MICHAEL S. JELLINEK, MD; AND TALIA BENHEIM, BA

Psychosocial issues are central to the care of adolescent patients. Pediatricians routinely discuss substance use, sexual health, and accident prevention with adolescents and are likely to see specific mental health concerns in about 20% of their patients. In light of rising suicide rates and the likely consequences of COVID-19, depression is an increasingly common concern. With limited access to mental health clinicians, individual pediatricians must manage patients’ mental health needs by enhancing their own skills, collocating mental health personnel in their practices, and building trusted referral networks.

Because psychosocial screening is now an expected part of pediatric primary care, this article focuses on screening adolescent patients, including choice of tools and follow-up of positive results.

Selecting a validated screening measure

Clinicians can download several well-validated, no-cost, and brief measures to screen for both broad and specific psychosocial concerns in their patients (Table).

One of the most common, broader screening measures, the Pediatric Symptom Checklist (PSC), has been endorsed by the National Quality Forum to assess both depression and overall psychosocial functioning, with 3 subscales reflecting internalizing, externalizing, and attention symptoms. The PSC is available in 35- and 17-item versions, in both parent and youth self-report versions, and in more than 30 languages.

Teenagers can also complete various diagnosis-specific measures. For example, the Patient Health Questionnaire Modified for Teenagers (PHQ-9M) is a 13-item screening tool for depression and suicide risk that uses language targeted toward adolescents. Generalized Anxiety Disorder-7 (GAD-7) is a 7-item self-report measure designed to identify and assess the severity of generalized anxiety disorder (not phobias or obsessive-compulsive disorders) using Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, criteria. The protocol Car, Relax, Alone, Forget, Friends, Trouble (CRAFFT) can be used to assess both substance use disorders and safety risks in patients aged 12 to 21 years—including those who do not endorse substance use—by asking about substance-related riding and driving, 2 leading causes of death in this age group.

Administering the tool

The Guidelines for Adolescent Depression in Primary Care recommend annual screening (more frequently for those with higher-risk factors; eg, family history) for all adolescents 12 years and older using a validated screening tool that includes a depression measure.

Who should complete the questionnaire? Parents can provide better historical accuracy and add a mature perspective on a youth’s daily functioning. Adolescents of-

<table>
<thead>
<tr>
<th>WHERE TO ACCESS VALIDATED SCREENING MEASURES</th>
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<tr>
<td><strong>ASQ</strong>: <a href="http://www.nimh.nih.gov/research/">www.nimh.nih.gov/research/</a> research-conducted-at-nimh/asq-toolkit-materials</td>
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<td><strong>CRAFFT</strong>: <a href="http://www.crafft.org/get-the-crafft">www.crafft.org/get-the-crafft</a></td>
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<tr>
<td><strong>GAD-7 and PHQ-9</strong>: <a href="http://www.phqscreeners.com">www.phqscreeners.com</a></td>
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<tr>
<td><strong>PHQ-9M (found in the GLAD-PC tool kit)</strong>: <a href="http://www.thereachinstitute.org/guidelines-for-adolescent-depression-primary-care">www.thereachinstitute.org/guidelines-for-adolescent-depression-primary-care</a></td>
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<td><strong>PSC</strong>: <a href="http://www.massgeneral.org/psychiatry/treatments-and-services/pediatric-symptom-checklist">www.massgeneral.org/psychiatry/treatments-and-services/pediatric-symptom-checklist</a></td>
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ASQ, Ask Suicide-Screening Questions; CRAFFT, Car, Relax, Alone, Forget, Friends, Trouble; GAD-7, Generalized Anxiety Disorder-7; GLAD-PC, Guidelines for Adolescent Depression in Primary Care; PHQ-9M, Patient Health Questionnaire Modified for Adolescents; PSC, Pediatric Symptom Checklist.
ten give more accurate insight into their internal emotional states, especially the subjective experience of depression or anxiety. Given the ease of administration, a best practice might be having both a parent- and a patient-completed screen, especially if integrated into the visit using an electronic patient portal.

Assessing positive screens
Clinicians should discuss positive screens (eg, parent PSC, adolescent PHQ-9M) with the patient individually and then with their parent(s). Clinicians can ask about specific problems noted on the screenings, gather family history of emotional disorders, and assess by interview the adolescent’s daily functioning—school, family, friends, activities, and mood.

When a patient endorses suicidal ideation, clinicians should evaluate the severity of suicide risk. The Ask Suicide-Screening Questions (ASQ) approach recommends talking with the patient about factors such as the frequency of suicidal thoughts, previous attempts or self-injury, presence of a plan, substance use, bullying, family situation, access to means (especially guns and medication), and protective factors (eg, coping and problem-solving skills, meaningful relationships, reasons for living, and access to treatment).

Because these issues can be difficult for teenagers to discuss, a valid assessment depends on a sense of trust and safety during the interview.

“Psychosocial screening is now an expected part of pediatric primary care.”

Although pediatricians and mental health clinicians are justified in feeling anxious when assessing suicidal risk because of the life-or-death concern, the expectation of accurately predicting suicidal behavior for any individual patient is unrealistic. Suicidal ideation is overwhelmingly more common than attempts, and there is, as yet, no reliable way to predict which patients with suicidal ideation will attempt or die by suicide. Still, these youths often have significant psychological distress and would likely benefit from additional assessment and a plan for managing suicidal ideation and treating their underlying psychosocial problems.

In addition to having a higher lifetime risk of suicide, adolescents struggling with psychosocial issues such as depressed mood, attentional difficulties, impulsivity, or anxiety are more likely to have poorer physical health and be involved in accidents, misuse substances, and drop out of high school. Rather than exclusively focusing on preventing imminent suicide, mental health screening is best viewed as a valuable opportunity to identify a vulnerable group of adolescents who merit follow-up with repeated screening, monitoring, and treatment planning in much the same way that pediatricians manage chronic physical illness. By advancing their own learning and with the help of more resources, primary care pediatricians can be well positioned to identify and help their adolescent patients burdened by mental health issues.

Michael S. Jellinek is a professor of psychiatry and pediatrics at Harvard Medical School in Boston, Massachusetts, and a member of the Contemporary Pediatrics® Editorial Advisory Board.

Talia Benheim is a clinical research coordinator at Massachusetts General Hospital in Boston. The authors have nothing to disclose.

For references, go to ContemporaryPediatrics.com/screening-adolescents-psychosocial

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How pediatricians can help mitigate the mental health crisis

Now that major medical organizations have declared a youth mental health crisis, what can pediatricians do to advocate for change?

JANINE A. RETHY, MD, MPH; AND ELIZABETH M. CHAWLA, MD

This past October, a declaration of a national emergency in child and adolescent mental health was published jointly by the American Academy of Pediatrics (AAP), the American Academy of Child and Adolescent Psychiatry (AACAP), and the Children’s Hospital Association. Soon after, in December 2021, Vivek Murthy, MD, the US surgeon general, issued an advisory on the youth mental health crisis. Both documents recognize the magnitude of this crisis, highlight the urgency of action and advocacy, and provide a framework for moving the needle that involves all sectors of society.

How did we get here, and what roles can we play in the pediatric community to enhance our capacity to identify and address mental health in youth and advocate for effective, sustainable models of care? How can we as pediatricians step up to Murthy’s call to engage with all the “institutions that surround young people and shape their day-to-day lives—schools, community organizations, health care systems, technology companies, media, funders and foundations, employers, and government?”

How did we get here?
All children are exposed to stressors that can affect mental health in the short term. Some children go on to have mental health conditions, and the likelihood is affected by genetics, epigenetics, and ongoing environmental factors. Just as traumatic or stressful events and experiences can increase the risk, strong and supportive relationships and institutions can offset or mitigate that risk. Moreover, if mental health conditions do develop, early and ongoing recognition and treatment can decrease associated morbidity.

The 2019-2020 National Survey of Children’s Health showed that 23% of children aged 3 to 17 years have a reported mental, emotional, developmental, or behavioral (MEDB) problem, with prevalence unevenly distributed by geographic area and social determinants of health: Forty percent of children with 2 or more adverse childhood experiences have an MEDB problem compared with 16% without an adverse experience. Children from households with an income of less than 100% of the federal poverty line are 40% more likely to have an MEDB problem than those living in wealthier households.

The decade preceding the pandemic saw a breathtaking increase in poor mental health in youth. The Youth Risk Behavior Survey Surveillance Data Summary and Trends Report: 2009-2019 shows worsening trends in most areas of mental health in high school students. In 2019, 37% experienced persistent feelings of
sadness or hopelessness and 19% seriously considered attempting suicide, a 40% and 36% increase from 2009, respectively. Vulnerable youth suicide rates in children and young adults aged 10 to 24 years increased 57% between 2007 and 2018, but the rates have since stabilized and even slightly declined in 2020.

The COVID-19 pandemic has exacerbated mental health conditions for many children for a myriad of reasons: missed or delayed opportunities for learning, socialization, sports, activities, celebrations, and marking milestones; direct stress related to COVID-19 illness, avoiding COVID-19, and protecting loved ones; and ongoing economic distress, to name a few. Beginning in April 2020, the proportion of mental health-related visits in pediatric emergency departments increased significantly for both children and adolescents. A 2021 report from the Child Mind Institute, “The Impact of the COVID-19 Pandemic on Children's Mental Health: What We Know So Far,” highlights the disproportionate negative impact on vulnerable children: those with preexisting mental health problems, especially those with limited access to treatment, racial minorities experiencing racism in the health care system and beyond, LGBTQ+ children, and families living with economic uncertainty or food insecurity.

Skill-building resources
To mitigate the level of need that has created the current crisis, it is particularly important that emerging mental health symptoms be recognized and addressed early within the pediatric medical home before they escalate to the level of crisis. Historically, however, mental health care has not been a substantial part of pediatric residency training, leaving many pediatricians feeling unprepared to care for the mental health needs of their patients. Many resources now exist, and more are being developed every year, to help pediatricians gain the knowledge and skills to care for patients’ mental health needs.

For example, the AAP has developed a mental health toolkit for pediatricians that includes materials, real-life stories, and other resources to help pediatricians address mental health needs in their patients. The AAP has also developed a mental health toolkit for pediatricians that includes materials, real-life stories, and other resources to help pediatricians address mental health needs in their patients.

As trusted professionals with a knowledgeable and powerful voice in society, pediatricians are often uniquely positioned to advocate and collaborate in all these sectors. In October 2021, the AAP-AACAP-CHA declaration of a national emergency in child and adolescent health urgently called on policymakers at all levels of government to advocate for the following (many of which are subsequently included in the Surgeon General’s advisory):

- Increase federal funding dedicated to ensuring all families and children, from infancy through adolescence, can access evidence-based mental health screening, diagnosis, and treatment to appropriately address their mental health needs, with particular emphasis on meeting the needs of under-resourced populations.
- Address regulatory challenges and improve access to technology to assure continued availability of telemedicine to provide mental health care to all populations.
- Increase implementation and sustainable funding of effective models of school-based mental health care, including clinical strategies and models for payment.
- Accelerate adoption of effective and financially sustainable models of integrated mental health care in primary care pediatrics, including clinical strategies and models for payment.
- Strengthen emerging efforts to reduce the risk of suicide in children and adolescents through prevention programs in schools, primary care, and community settings.
- Address the ongoing challenges of the acute care needs of children and adolescents, including shortage of beds and emergency room boarding, by expanding access to step-down programs from inpatient units, short-stay stabilization units, and community-based response teams.
- Fully fund comprehensive, community-based systems of care that connect families in need of behavioral health services and supports for their children with evidence-based interventions in their home, community, or school.
- Promote and pay for trauma-informed care services that support relational health and family resilience.
- Accelerate strategies to address long-standing workforce challenges in child mental health, including innovative training programs, loan repayment, and intensified efforts to recruit underrepresented populations into mental health professions as well as attention to the impact that the public health crisis has had on the well-being of health professionals.
- Advance policies that ensure compliance with and enforcement of mental health parity laws.

WHAT WE CAN DO ADVOCACY

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CALL TO ACTION

The Surgeon General’s advisory recognizes the efforts of all sectors of society to support youth mental health and well-being and lays out a framework for all of us to do more—a “whole-society effort.”

1. Recognize that mental health is an essential part of overall health.
2. Empower youth and their families to recognize, manage, and learn from difficult emotions.
3. Ensure that every child has access to high-quality, affordable, and culturally competent mental health care.
4. Support the mental health of children and youth in educational, community, and childcare settings.
5. Address the economic and social barriers that contribute to poor mental health for young people, families, and caregivers.
6. Increase timely data collection and research to identify and respond to youth mental health needs more rapidly.

Following the shared call to action are well-laid-out and action-driven sections for each sector of society: young people, family members and caregivers, educators, health care, media, community organizations, funders, employers, and government.

Enhanced screening, integrated care teams, and CPAP

The Surgeon General’s advisory includes key areas of practice enhancements and health systems transformation that have a strong evidence base. These recommendations highlight the critical mental health provider shortage as well as the expanding role of pediatric providers in mental health care. Several resources are available to help practices begin screening for mental and behavioral health concerns (for more on screenings, see “Screening adolescents for psychosocial concerns,” page 25), social determinants of health, and adverse childhood events per the AAP Bright Futures guidelines. The AAP also offers a resource to help pediatricians identify tools that best fit their practice.

Another way pediatricians can build skills while ensuring a more secure safety net for patients is to partner with local mental health providers. Several models of these partnerships have emerged in the past decade, including integrated clinic models and state-run phone consult services. Pediatric practices can establish a variety of integrated care models from colocated care to truly collaborative care. Integrated clinic models bring mental health providers into the primary care setting, improving access to care for patients and increasing collaboration between mental health and primary care providers. Not only can these models decrease potential barriers for patients in accessing mental health care, they also offer a unique opportunity for mental health and primary care providers to
learn skills from one another, providing a more consistent circle of care for patients. Many states now support pediatric mental health phone consult services modeled after the Massachusetts Child Psychiatry Access Program (MCPAP), the original CPAP, which provides quick access to psychiatric phone consultation for

WHAT WE CAN DO

PEDiatric Subspecialists

Expanding our understanding of youth mental health care includes recognizing the importance of the entire medical team. Especially for children with complex or chronic medical conditions, pediatric subspecialists are often among the most important members of their care team. Ensuring a secure safety net for youth mental health means all members of the medical team, including and especially pediatric subspecialists, are equipped with the tools to respond to mental health concerns as they arise. Recognizing this need, the American Board of Pediatrics (ABP) has invested in this future vision through the Roadmap Project. The project platform provides open-access resources and tools for pediatric subspecialists to learn to recognize, screen for, and respond to mental health concerns of patients and families. Following a recent successful pilot in 9 children’s hospitals across the United States, the ABP is now working on ways to reach all pediatric subspecialists while leaders in medical education are working to incorporate the tools into pediatric subspecialty fellowship training in a variety of specialties.

WHAT WE CAN DO

PEDIATRIC TRAINEES AND TRAINING PROGRAMS

We must continuously expand mental health training for pediatric residents and fellows if we are to build a brighter future for children, in which mental health is an essential part of overall health. This will require a competent pediatric workforce, one that is able to “assess and manage patients with common behavioral/mental health problems,” as defined by the ABP’s entrustable professional activity on mental health care (EPA 9 for General Pediatrics). Many pediatric training programs have piloted creative curricula and partnerships to improve the mental health training for their residents, but if we are to make significant progress on a national scale, we need to ensure all pediatric residents in the United States have access to sufficient training. To that end, a multiorganizational collaboration has recently formed, including the AACAP, the Society for Developmental and Behavioral Pediatrics, and the Society for Adolescent Health and Medicine and spearheaded by the Association of Pediatric Program Directors, to create a national mental health curriculum for pediatric trainees. As this curriculum continues to be developed and implemented, pediatric trainees and training programs will be important voices in the conversation to ensure we are providing adequate education and training for our future pediatricians.

It takes a village

Pediatricians can improve youth mental health in America in many ways: within practices, communities, specialties, health systems, and states or in the national dialogue. It will require all sectors of society working together toward a shared vision to support mental health, address complex root causes, and provide access to high-quality, consistent, sustainable care. As a trusted voice for families, communities, and health systems, pediatricians have a unique opportunity to be the catalyst for real change.

Each one of us will need to take a step out of our own comfort zones to make this happen. We have the tools and must play our part.

For references, go to ContemporaryPediatrics.com/call-to-action/mitigate

Janine A. Rethy is the division chief of community pediatrics at MedStar Georgetown University Hospital and an associate professor of pediatrics at Georgetown University School of Medicine in Washington, DC.

Elizabeth M. Chawla is codirector of the Integrated Mental Health Clinic at Medstar Georgetown University Hospital and an associate professor of pediatrics and associate director of the residency program at Georgetown University School of Medicine.

The authors have nothing to disclose.
Indication for PEDIARIX
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• The tip caps of the prefilled syringes contain natural rubber latex, which may cause allergic reactions
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References:
1. Prescribing Information for PEDIARIX.
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2 DOSAGE AND ADMINISTRATION

2.1 Preparation for Administration

Shake vigorously to obtain a homogeneous, turbid, white suspension. Do not use if suspension does not occur with vigorous shaking. Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration, whenever solution and container permit. If either of these conditions exists, the vaccine should not be administered.

Attach a sterile needle and administer intramuscularly.

The preferred administration site is the anterolateral aspect of the thigh for children younger than 1 year. In older children, the deltoid muscle is usually large enough for an intramuscular injection. The vaccine should not be injected in the gluteal area or areas where there may be a major nerve trunk. Gluteal injections may result in subcutaneous hepatitis B immune response.

Do not administer this product intravenously, intradermally, or subcutaneously.

2.2 Recommended Dose and Schedule

Immunization with PEDIARIX consists of 3 doses of 0.5 mL each by intramuscular injection at 2, 4, and 6 months of age (at intervals of 6 to 8 weeks, preferably 8 weeks). The first dose may be given as early as 6 weeks of age. Three doses of PEDIARIX constitute a primary immunization course for diphtheria, tetanus, pertussis, and poliomyelitis and the complete vaccination course for hepatitis B.

4 CONTRAINdicATIONS

4.1 Hypersensitivity

A severe allergic reaction (e.g., anaphylaxis) after a previous dose of any diphtheria toxoid-, tetanus toxoid-, pertussis antigen-, hepatitis B-, or poliovirus-containing vaccine or any component of this vaccine, including yeast, neomycin, and polymyxin B, is a contraindication to administration of PEDIARIX [see Description (11) of full prescribing information].

4.2 Encephalopathy

Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures) occurring within 7 days of administration of a previous dose of a pertussis-containing vaccine that is not attributable to another identifiable cause is a contraindication to administration of any pertussis-containing vaccine, including PEDIARIX.

4.3 Progressive Neurologic Disorder

Progressive neurologic disorder, including infantile spasms, uncontrolled epilepsy, or progressive encephalopathy, is a contraindication to administration of any pertussis-containing vaccine, including PEDIARIX. PEDIARIX should not be administered to individuals with such conditions until the neurologic status is clarified and stabilized.

5 WARNINGS AND PRECAUTIONS

5.1 Fever

In clinical trials, administration of PEDIARIX in infants was associated with higher rates of fever relative to separately administered vaccines [see Adverse Reactions (6.1)].

5.2 Guillain-Barré Syndrome

If Guillain-Barré syndrome occurs within 6 weeks of receipt of a vaccine containing tetanus toxoid, the decision to give PEDIARIX or any vaccine containing tetanus toxoid should be based on careful consideration of the potential benefits and possible risks.

5.3 Latex

The tip caps of the prefilled syringes contain natural rubber latex which may cause allergic reactions.

5.4 Syncope

Syncope (fainting) can occur in association with administration of injectable vaccines, including PEDIARIX. Syncope can be accompanied by transient neurological signs such as visual disturbance, paresthesia, and tonic-clonic limb movements. Procedures should be in place to avoid falling injury and to restore cerebral perfusion following syncope.

5.5 Adverse Reactions following Prior Pertussis Vaccination

If any of the following reactions occur in temporal relation to receipt of a vaccine containing a pertussis component, the decision to give any pertussis-containing vaccine, including PEDIARIX, should be based on careful consideration of the potential benefits and possible risks:

- Temperature of ≥40.5°C (104°F) within 48 hours not due to another identifiable cause
- Collapse or shock-like state (hypotonic-hyporesponsive episode) within 48 hours
- Persistent, inconsolable crying lasting ≥3 hours, occurring within 48 hours
- Seizures with or without fever occurring within 5 days.

5.6 Children at Risk for Seizures

For children at higher risk for seizures than the general population, an appropriate nonpyrogenic may be administered at the time of vaccination with a vaccine containing a pertussis component, including PEDIARIX, and for the ensuing 24 hours to reduce the possibility of post-vaccination fever.

5.7 Apnea in Premature Infants

Apnea following intramuscular vaccination has been observed in some infants born prematurely. Decisions about when to administer an intramuscular vaccine, including PEDIARIX, to infants born prematurely should be based on consideration of the individual infant's medical status and the potential benefits and possible risks of vaccination.

5.8 Preventing and Managing Allergic Vaccine Reactions

Prior to administration, the healthcare provider should review the immunization history for possible vaccine sensitivity and previous vaccination-related adverse reactions to allow an assessment of benefits and risks. Epinephrine and other appropriate agents used for the control of immediate allergic reactions must be immediately available should an acute anaphylactic reaction occur.

6 ADVERSE REACTIONS

6.1 Clinical Trials Experience

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a vaccine cannot be directly compared to rates in the clinical trials of another vaccine and may not reflect the rates observed in practice.

A total of 23,849 doses of PEDIARIX have been administered to 8,088 infants who received 1 or more doses as part of the 3-dose series during 14 clinical studies. Common adverse reactions that occurred in ≥25% of subjects following any dose of PEDIARIX included local injection site reactions (pain, redness, and swelling) and fever, drowsiness, irritability/fussiness, and loss of appetite. In comparative studies (including the German and U.S. studies described below), administration of PEDIARIX was associated with higher rates of fever relative to separately administered vaccines [see Warnings and Precautions (5.1)]. The prevalence of fever was highest on the day of vaccination and the day following vaccination. More than 96% of episodes of fever resolved within the 4-day period following vaccination (i.e., the day of vaccination and the next 3 days).

In the largest of the 14 studies conducted in Germany, safety data were available for 4666 infants who received PEDIARIX administered concomitantly at separate sites with 1 of 4 Haemophilus influenzae type b (Hib) conjugate vaccines (GliaxaSmithKline [licensed in the United States only for booster immunization], Wyeth Pharmaceuticals Inc. [no longer licensed in the United States], Sanofi Pasteur [U.S.-licensed], or Merck & Co, Inc. [U.S.-licensed]) at 3, 4, and 5 months of age and for 768 infants in the control group that received separate U.S.-licensed vaccines (INFANRIX, Hib conjugate vaccine [Sanofi Pasteur SA], and oral poliovirus vaccine [OPV] [Wyeth Pharmaceuticals Inc.; no longer licensed in the United States]). In this study, information on adverse events that occurred within 30 days following vaccinating was collected. More than 95% of study participants were white.

In a U.S. study, the safety of PEDIARIX administered to 673 infants was compared with the safety of separately administered INFANRIX, ENGERIX-B [Hepatitis B Vaccine (Recombinant)], and IPV (Sanofi Pasteur SA) in 335 infants. In both groups, infants received Hib conjugate vaccine (Wyeth Pharmaceuticals Inc.; no longer licensed in the United States) and 7-valent pneumococcal conjugate vaccine (Wyeth Pharmaceuticals Inc.) concomitantly at separate sites. All vaccines were administered at 2, 4, and 6 months of age. Data on solicited local reactions and general adverse reactions were collected by parents using standardized diary cards for 4 consecutive days following each vaccine dose (i.e., day of vaccination and the next 3 days) Telephonic follow-up was conducted 1 month and 6 months after the third vaccination to inquire about serious adverse events. At the 6-month follow-up, information also was collected on new onset of chronic illnesses. A total of 638 subjects who received PEDIARIX and 315 subjects who received INFANRIX, ENGERIX-B, and IPV completed the 6-month follow-up. Among subjects in both study groups combined, 69% were white, 18% were Hispanic, 7% were black, 3% were Oriental, and 3% were of other racial/ethnic groups.

Solicited Adverse Reactions

Data on solicited local reactions and general adverse reactions from the U.S. safety study are presented in Table 1. This study was powered to evaluate fever >101.3°F following Dose 1. The rate of fever ≥100.4°F following each dose was significantly higher in the group that received PEDIARIX compared with separately administered vaccines. Other statistically significant differences between groups in rates of fever, as well as other solicited adverse reactions, are noted in Table 1. Medical attention (a visit to or from medical personnel) for fever within 4 days following vaccination was sought in the group who received PEDIARIX for 8 infants after the first dose (1.2%), 1 infant following the second dose (0.2%), and 5 infants following the third dose (0.6%) (Table 1). Following Dose 2, medical attention for fever was sought for 2 infants (0.6%) who received separately administered vaccines (Table 1). Among infants who had a medical visit for fever within 4 days following vaccination, 9 of 14 who received PEDIARIX and 1 of 2 who received separately administered vaccines, had 1 or more diagnostic studies performed to evaluate the cause of fever.

(continued on next page)
The following is a brief summary only; see full prescribing information for complete product information.

- Temperature of ≥40.5oC (105oF) within 48 hours not due to another identifiable cause;
- Persistent, inconsolable crying lasting ≥3 hours, occurring within 48 hours;
- Seizures within 7 days of vaccination.

Table 1: Percentage of Infants with Solicited Local and General Adverse Reactions within 4 Days of Vaccinationa at 2, 4, and 6 Months of Age with PEDIARIX Administered Concomitantly with Hib Conjugate Vaccine and 7-Valent Pneumococcal Conjugate Vaccine (PCV7) or with Separate Concomitant Administration of INFANRIX, ENGERIX-B, IPV, Hib Conjugate Vaccine, and PCV7 (Modified Intent-to-Treat Cohort)

<table>
<thead>
<tr>
<th>Adverse Reaction</th>
<th>PEDIARIX, Hib Vaccine, &amp; PCV7</th>
<th>INFANRIX, ENGERIX-B, IPV, Hib Vaccine, &amp; PCV7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose 1</td>
<td>Dose 2</td>
<td>Dose 3</td>
</tr>
<tr>
<td>Pain, any</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Pain, Grade 2 or 3</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Pain, Grade 3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Redness, any</td>
<td>25c</td>
<td>37</td>
</tr>
<tr>
<td>Redness, &gt;5 mm</td>
<td>6c</td>
<td>10c</td>
</tr>
<tr>
<td>Redness, &gt;20 mm</td>
<td>1</td>
<td>1c</td>
</tr>
<tr>
<td>Swelling, any</td>
<td>17c</td>
<td>27c</td>
</tr>
<tr>
<td>Swelling, &gt;5 mm</td>
<td>6c</td>
<td>10c</td>
</tr>
<tr>
<td>Swelling, &gt;20 mm</td>
<td>2</td>
<td>3c</td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>667</td>
<td>644</td>
</tr>
<tr>
<td>Fever*, &gt;100.4°F</td>
<td>28c</td>
<td>39c</td>
</tr>
<tr>
<td>Fever*, &gt;101.3°F</td>
<td>7</td>
<td>14c</td>
</tr>
<tr>
<td>Fever*, &gt;102.2°F</td>
<td>2c</td>
<td>4</td>
</tr>
<tr>
<td>Fever*, &gt;103.1°F</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Fever*, M.A.</td>
<td>1c</td>
<td>0</td>
</tr>
</tbody>
</table>

- Drowsiness, any | 57 | 52 | 41 | 54 | 48 | 38 |
| Drowsiness, Grade 2 or 3 | 16 | 14 | 11 | 18 | 12 | 11 |
| Drowsiness, Grade 3 | 3 | 1 | 1 | 4 | 1 | 2 |
| Irritability/Fussiness, any | 61 | 65 | 61 | 62 | 62 | 57 |
| Irritability/Fussiness, Grade 2 or 3 | 20 | 28c | 25c | 19 | 21 | 19 |
| Irritability/Fussiness, Grade 3 | 3 | 4 | 4 | 3 | 3 |
| Loss of appetite, any | 30 | 31 | 26 | 28 | 27 | 24 |
| Loss of appetite, Grade 2 or 3 | 8 | 6 | 6 | 5 | 3 | 5 |
| Loss of appetite, Grade 3 | 1 | 0 | 0 | 1 | 0 | 0 |

Hib conjugate vaccine (Wyeth Pharmaceuticals Inc.; no longer licensed in the United States); PCV7 (Wyeth Pharmaceuticals Inc.; IPV (Sanofi Pasteur SA). Modified intent-to-treat cohort = All vaccinated subjects for whom safety data were available.

n = Number of infants for whom at least 1 symptom sheet was completed; for fever, numbers exclude missing temperature recordings or tympanic measurements. M.A. = Medically attended (a visit to or from medical personnel).

Grade 2 defined as sufficiently discomforting to interfere with daily activities.

Grade 3 defined as preventing normal daily activities.

Within 4 days of vaccination defined as day of vaccination and the next 3 days.

Local reactions at the injection site for PEDIARIX or INFANRIX.

A rate significantly higher in the group that received PEDIARIX compared with separately administered vaccines (P value <0.05 [2-sided Fisher Exact test] or the 95% CI on the difference between groups [Separate minus PEDIARIX] does not include 0).

Serious Adverse Events

Within 30 days following any dose of vaccine in the U.S. safety study in which all subjects received concomitant Hib and pneumococcal conjugate vaccines, 7 serious adverse events were reported in 7 subjects (1% [7/673]) who received PEDIARIX (1 case each of pyrexia, gastroenteritis, and culture-negative clinical sepsis and 4 cases of bronchiolitis) and 5 serious adverse events were reported in 4 subjects (1% [4/335]) who received INFANRIX, ENGERIX-B, and IPV (urteropic junction obstruction and testicular atrophy in 1 subject and 3 cases of bronchiolitis).

Deaths

In 14 clinical trials, 5 deaths were reported among 8,088 (0.06%) recipients of PEDIARIX and 1 death was reported among 2,257 (0.04%) recipients of comparator vaccines. Causes of death in the group that received PEDIARIX included 2 cases of Sudden Infant Death Syndrome (SIDS) and 1 case of each of the following: possible streptococcal sepsis, congenital immunodeficiency with sepsis, and neuroblastoma. One case of SIDS was reported in the comparator group. The rate of SIDS among all recipients of PEDIARIX across the 14 trials was 0.25/1,000. The rate of SIDS observed for recipients of PEDIARIX in the German safety study was 0.21/1,000. The reported rate of SIDS in the U.S. infants born prematurely should be based on consideration of the potential benefits and possible risks.

Seizures

In the U.S. safety study in which all subjects received concomitant Hib and pneumococcal conjugate vaccines, 21 subjects (3%) who received PEDIARIX and 14 subjects (4%) who received INFANRIX, ENGERIX-B, and IPV reported new onset of a chronic illness during the period from 1 to 6 months following the last dose of study vaccines. Among the chronic illnesses reported in the subjects who received PEDIARIX, there were 4 cases of asthma and 1 case each of diabetes mellitus and chronic neutropenia. There were 4 cases of asthma in subjects who received INFANRIX, ENGERIX-B, and IPV.

7.875” x 10.75”
Black

**Table 2: Percentage of Infants with Seizures (with or without Fever) within 8 Days of Vaccination and Medically-Attended Fever within 4 Days of Vaccination with PEDIARIX Compared with Historical Controls**

<table>
<thead>
<tr>
<th>Adverse Reaction</th>
<th>PEDIARIX</th>
<th>Historical DTaP Controls</th>
<th>Difference (PEDIARIX–DTaP Controls)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>% (95% CI)</td>
<td>Number</td>
<td>% (95% CI)</td>
</tr>
<tr>
<td>All Seizures (with or without fever)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dose 1, Days 0-7</td>
<td>40,000</td>
<td>0.02 (0.01, 0.04)</td>
<td>39,232</td>
</tr>
<tr>
<td>Dose 2, Days 0-7</td>
<td>40,000</td>
<td>0.01 (0.00, 0.02)</td>
<td>37,405</td>
</tr>
<tr>
<td>Dose 3, Days 0-7</td>
<td>40,000</td>
<td>0.02 (0.01, 0.03)</td>
<td>40,000</td>
</tr>
<tr>
<td>Total doses</td>
<td>120,000</td>
<td>0.01 (0.01, 0.02)</td>
<td>116,637</td>
</tr>
</tbody>
</table>

**Medically-Attended Fever**

| Dose 1, Days 0-3 | 7,500 | 0.19 (0.11, 0.30) | 7,500 | 0.19 (0.11, 0.30) | 0.00 (−0.14, 0.14) |
| Dose 2, Days 0-3 | 7,500 | 0.25 (0.22, 0.48) | 7,500 | 0.20 (0.11, 0.33) | 0.13 (−0.03, 0.30) |
| Dose 3, Days 0-3 | 7,500 | 0.28 (0.17, 0.43) | 7,500 | 0.25 (0.15, 0.39) | 0.03 (−0.14, 0.19) |
| Total doses | 22,500 | 0.27 (0.20, 0.34) | 22,500 | 0.21 (0.16, 0.28) | 0.05 (−0.01, 0.14) |

**6.3 Postmarketing Spontaneous Reports for PEDIARIX**

In addition to reports in clinical trials for PEDIARIX, the following adverse reactions have been identified during postapproval use of PEDIARIX. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to vaccine exposure.

- **Cardiac Disorders**
  - Cyanosis
  - Gastrointestinal Disorders
  - Diarrhea, vomiting
  - General Disorders and Administration Site Conditions
  - Fatigue, injection site cellulitis, injection site induration, injection site itching, injection site nodule/tumor, injection site reaction, injection site vesicles, injection site warmth, limb pain, limb swelling
  - Immune System Disorders
  - Anaphylactic reaction, anaphylactoid reaction, hypersensitivity
  - Infections and Infestations
  - Upper respiratory tract infection
  - Nervous System Disorders
  - Bulging fontanelle, depressed level of consciousness, encephalitis, hypotonia, hypotonic-hyporesponsive episode, lethargy, somnolence, syncope
  - Psychiatric Disorders
  - Crying, insomnia, nervousness, restlessness, screaming, unusual crying
  - Respiratory, Thoracic, and Mediastinal Disorders
  - Apnea, cough, dyspnea
  - Skin and Subcutaneous Tissue Disorders
  - Angioedema, erythema, rash, urticaria
  - Vascular Disorders
  - Pallor, petechiae.

**6.4 Postmarketing Spontaneous Reports for INFANRIX and/or ENGERIX-B**

The following adverse reactions have been identified during postapproval use of INFANRIX and/or ENGERIX-B in children younger than 7 years but not already reported for PEDIARIX. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to vaccine exposure.

- **Gastrointestinal Disorders**
  - Abdominal pain,
  - Intussusception,
  - Nausea
- **General Disorders and Administration Site Conditions**
  - Asthenia,
  - Malaise
- **Hepatobiliary Disorders**
  - Jaundice
- **Immune System Disorders**
  - Anaphylactic shock,
  - Serum sickness–like disease
- **Musculoskeletal and Connective Tissue Disorders**
  - Arthralgia,
  - Arthritis,
  - Muscular weakness,
  - Myalgia
- **Nervous System Disorders**
  - Encephalopathy,
  - Headache,
  - Meningitis,
  - Neuritis,
  - Neuropathy,
  - Paralysis
- **Skin and Subcutaneous Tissue Disorders**
  - Alopecia,
  - Erythema multiforme,
  - Lichen planus,
  - Pruritus
- **Vascular Disorders**
  - Vasculitis

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PDRJRNA210007 May 2021

Produced in USA.
Anxiety and depression were relatively common in children and adolescents before the COVID-19 pandemic; not surprisingly, study findings suggest that these conditions’ prevalence has increased. ¹ Typical support systems for children and adolescents—friends, family, school, and extracurricular activities—look much different during the current pandemic. With these factors in mind, it is reasonable to consider the question of when to use medication to help alleviate these symptoms. Medication can be extremely helpful, but several considerations are important prior to prescribing. Be clear about the diagnosis

The first step: Take a thorough history, supported by diagnostic questionnaires. The Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) provides diagnostic criteria that form a road map for taking histories.² In general, medication is reserved for the diagnosis of an actual disorder, such as major depressive disorder or anxiety disorder.

Medication for depression is typically considered when a diagnosis of major depressive disorder is warranted and symptoms are in the moderate range; according to DSM-5, symptoms of depression must be present for 2 or more weeks and negatively affect a child’s level of functioning.

There will likely come a time when a patient’s symptoms fall outside a pediatrician’s expertise. Being prepared allows clinicians to be more agile when these situations arise.

DSM-5 describes a number of anxiety disorders, but all have a similar theme: significant levels of worry, with accompanying behavior change, that impair functioning and cause significant distress and have been present for 6 or more months. ³ Generalized, social, and separation anxiety disorders are some of the more common types in the pediatric population.

The presenting symptoms of anxiety disorders and major depressive disorder—irritability, low mood, sadness, and worry—can also occur with other conditions that can be discerned by a comprehensive history. Disturbances in sleep and nutrition can contribute to these types of symptoms and also be disrupted when depression or anxiety disorders occur. Other important aspects of the history include questions about trauma, abuse, and other potential stressors that can mimic or exacerbate depression and anxiety. Substance use can also present similarly and may co-occur, sometimes due to an effort to alleviate underlying symptoms.

Consider nondrug approaches

In many cases, pediatricians see patients with symptoms of depression or anxiety that don’t rise to the level of major depressive disorder or an anxiety disorder. In those situations, nonpharmacologic interventions should be considered. Even though a prescription may not be indicated, a pediatrician can take several steps to support patients who are struggling with these symptoms. Offering hope, empathy, partnership, and other communication strategies...
have been shown to improve care. Statements such as “What you’re going through sounds really hard” and “I’m confident that we can figure out a plan together to help you feel better” can be therapeutic. Talking with families to identify stressors and brainstorming ways to reduce them can help make overwhelming problems seem more manageable and provide a sense of control over difficult situations.

Referral for counseling should be considered and is typically recommended prior to the use of or, for more moderate to severe symptoms, in conjunction with medication. Cognitive behavioral therapy helps children and adolescents recognize negative thinking patterns and engage in behavioral change to improve their mood or reduce worry. Having an embedded mental health professional in the office can help reduce barriers to care.

Choosing the right medication
Selective serotonin reuptake inhibitors (SSRIs) are considered first-line treatment for anxiety or depression. Four medications in particular—fluoxetine (Prozac), escitalopram (Lexapro), sertraline (Zoloft), and fluvoxamine (Luvox)—have either a US Food and Drug Administration (FDA) indication or significant data to support their use. Anxiolytic medications such as benzodiazepines are rarely used due to the risk of dependency and diversion, their lack of efficacy, and their adverse effect (AE) profile. More recently, a serotonin and norepinephrine reuptake inhibitor, duloxetine (Cymbalta), was approved for the treatment of generalized anxiety disorder. When comparing AEs, the SSRIs win out, and duloxetine is typically considered second line—that is, after an unsuccessful trial of 2 SSRIs.

For treating major depressive disorder in children, fluoxetine and escitalopram have FDA approval starting at ages 8 and 12 years, respectively. Treatment of anxiety requires looking at both FDA approval and foundational studies that have helped shape our understanding of effective treatment. Fluoxetine, sertraline, and fluvoxamine are approved to treat children with a related condition, obsessive compulsive disorder, starting at ages 7, 6, and 8 years, respectively. Although these medications don’t carry an FDA indication for anxiety disorders per se, they have shown efficacy in large, randomized, controlled trials for treatment of anxiety disorders in children and adolescents.7,8

Put the plan into action
UNDERSTAND PATIENT AND FAMILY PERSPECTIVES
Patients and their families have unique priorities. Some wish to avoid medication altogether, whereas others are eager to get started. There are many misconceptions about psychotropic medications and stigmas because of mental health problems in general. Before recommending a particular therapy, it’s best to understand the perspective of the patient and family, including goals for treatment and how best to meet them. This approach helps foster shared decision-making and partnership and provides an opportunity to address misinformation or biases that may interfere with treatment.

SET REASONABLE EXPECTATIONS
Although medication can be helpful, it won’t make difficult feelings disappear. Experiencing strong emotions is an integral part of the human condition, so worry and sadness will occur even when major depressive disorder or an anxiety disorder is treated. The goal of treatment is to decrease the distress associated with emotions that are extreme or interfere with functioning.

Before prescribing medication, have a frank conversation about AEs, including the boxed warning.
for suicidal ideation. Discuss the way in which these medications are prescribed: starting low, titrating slowly, and waiting around 6 weeks for peak efficacy before making further adjustments. A clear explanation can help avoid frustration or confusion when “the medicine isn’t working” a week or two into treatment.

**IDENTIFY RESOURCES AND LIMITATIONS**

For some pediatricians, using these medications is a new endeavor. Others have dabbled in prescribing but don’t yet feel comfortable. Pediatricians who want to learn more can turn to an increasing number of resources. Many states have child psychiatry access hotlines (see https://www.nncpap.org) that pediatricians can call to ask about treating mental health disorders; these programs often provide regional resources and, sometimes, facilitated referral. National organizations such as the American Academy of Pediatrics and the American Association of Child and Adolescent Psychiatry have developed resources to help pediatricians feel more comfortable with offering mental health care, and groups such as The REACH Institute offer postgraduate training programs that provide education and ongoing support. As can happen with other medical conditions, there will likely come a time when a patient’s symptoms fall outside a pediatrician’s expertise. Being prepared allows pediatricians to be more agile when these situations arise. See “Resources for More Information” for suggested readings.

Rebecca Baum is a clinical professor of pediatrics at the University of North Carolina in Chapel Hill, North Carolina. She has nothing to disclose.

Matthew Biel, MD, discusses the crisis in mental health

Last fall, the American Academy of Pediatrics, the American Academy of Child and Adolescent Psychiatry (AACAP), and the Children’s Hospital Association declared a national state of emergency in child and adolescent mental health.1 To learn more about the current state of emergency and what pediatricians can do to help address this national crisis, Contemporary Pediatrics® spoke with Matthew Biel, MD, an AACAP member and an assistant professor of clinical psychiatry and director of child and adolescent psychiatry at MedStar Georgetown University Hospital in Washington, DC.

Why call this a national emergency and why now? “From my perspective, we could no longer refrain from declaring what we are seeing,” Biel explained. “There has been a massive level of crisis affecting children across the country percolating for a long time, not just for months, but for years. It has been defined by rising rates of distress in young people, marked by depression, anxiety, loneliness, suicidal thoughts, and suicide attempts, that have been rising for almost a decade.” The problem is exacerbated, Biel said, by challenges to getting needed help. “There have been long-standing difficulties in children and families accessing mental health care. We haven’t had enough access for training clinicians. We haven’t had enough mental health care providers [or] enough access, as a result of issues with payments and insurance and a lack of parity in coverage. We see schools overwhelmed by these needs as well. All that has happened since 2020 is [that] the combination of COVID-19 and a real national reckoning around racism and equity have combined to raise this to a capital C crisis.”

REFERENCE

A final review: How are our children doing right now?

Two pediatric health care providers assess the mental and academic health of our pediatric population as we mark year 3 of the pandemic.

HOPE RHODES, MD, MPH; AND NATHANIEL BEERS, MD, MPA

As noted several times in this special mental health issue of Contemporary Pediatrics®, the COVID-19 pandemic has had a profound impact on children and adolescents. In caring for our pediatric patients, we will continue to live with the fact that the disruptions have not been uniformly felt, with increased impact on Black and Brown children and those living in poverty; additionally, levels of access to routine pediatric health services have varied throughout the pandemic.¹

For all children, though, we have to make up much lost time when it comes to physical, mental, and academic concerns, as well as socialization issues.

Because schools provide another resource for identifying and addressing mental health concerns, the complete or partial shift to virtual learning likely compounded the mental health crisis. Families have also experienced greater financial challenges leading to an increase in adverse childhood experiences, which are associated with chronic medical conditions—including mental health pathology—long after the initial insult has passed. According to one study, “the prevalence of depression and anxiety symptoms during the COVID-19 pandemic has doubled, compared with pre-pandemic estimates."¹

Impacts based on socioeconomic levels

The data have begun to come in regarding COVID-19’s impact on varying communities. In Washington, DC, Goyal et al recognized the disproportionate number of positive COVID-19 cases among ethnic minorities from communities with lower socioeconomic status based on data from the first pediatric drive-through COVID-19 testing site in the United States.² This trend continued to be consistent when looking at rates of hospitalizations, intensive care needs, and cases of multisystem inflammatory syndrome in children.²

Impacts based on age groups

Similarly, the pandemic’s effects on growth and development, including socioemotional development, vary based on age.

Early childhood: A profound degree of development takes place from birth to 5 years of life. Because of the pandemic, children 5 years and younger have spent all or a significant portion of their lives in social isolation alongside parents or caregivers. These decreased social interactions could lead to behavioral and developmental changes, including more separation anxiety and potential developmental delays.

Decreased developmental and behavioral screening results in delayed diagnosis and management. Early detection and intervention are critical for overcoming delays in this young age group. Some early-intervention programs, as in New York, New York, have seen a drop in early-intervention referrals.³ Developmental services were also interrupted for children with existing developmental delays. An effort to pivot support services to virtual had varying levels of success, based on the child’s age and the parent’s capacity to as-

CONTINUED ON PAGE 43
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For the first time in nearly 80 years, there is a clinically studied generic hypoallergenic formula that delivers comparable tolerance as a leading brand in patients with confirmed CMA.¹

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In-person learning for children and adolescents provides many benefits; however, schools now face an increased demand in pediatric behavioral health needs, which many schools are ill-equipped to meet. A comprehensive approach will be critical to address the long-lasting effects of COVID-19 on children of all ages. Working across sectors may optimize outcomes. Pediatric health care systems must partner with schools and other organizations that routinely engage with children. It may also prove beneficial to incorporate nontraditional modes of care, such as mobile medical services to provide place-based care where children live and learn. Schools should focus on the following key areas:

1 Mental health staff
Staffing schools with mental health specialists, including psychologists and licensed independent clinical social workers, will be helpful. Given the demand for services, it might also be beneficial to train all staff on how to recognize signs and symptoms of mental health pathology in children of all ages. Increased training is also important for school-based health center staff who have access to consultative support from mental health professionals.

2 Telehealth
The COVID-19 pandemic hastened the expansion of telehealth services, particularly in the area of mental health. As children and adolescents return to school, school nurses can be a link to telehealth services, giving students greater access to services with less disruption to the school day.

3 Support for children with disabilities
During the pandemic, many children with disabilities have struggled with major breaks in services because of lack of access to in-person aid or inadequate supports for virtual help. These gaps put children at increased risk of not only further delays but also additional behavioral challenges in school. As schools review needs of students, it is important to consider whether those with disabilities require more support now than before the pandemic. Pediatricians should ask families whether any changes in behaviors or development should be supported by services outside of school.

4 Cross-sector partnerships
The United Health Foundation is supporting an innovative partnership at Children’s National Hospital in Washington, DC, between a pediatric primary care medical home, pediatric mobile medical services, schools, early childhood development centers, and other community organizations.7 School absenteeism can be an early marker for children’s untreated medical and behavioral issues as well as family stressors. School absenteeism data are shared with primary care pediatricians to determine whether these same children have gaps in health care. Mobile medical units are then leveraged to provide place-based care, including mental health screeners and services, in addition to comprehensive well care, routine pediatric vaccines, and COVID-19 vaccines.

5 Resources for basic needs
Screening families to ensure that they have access to essential social resources during the pandemic is critical. Addressing basic needs like access to healthy food, shelter, and financial resources helps improve stability. Schools may also have opportunities to partner with organizations that help address various social determinants of health, like food and clothing banks. The United Health Foundation has facilitated the hiring of community health workers to perform confidential social screening and coordinate resources when schools connect with mobile medical services.
CONTINUED FROM PAGE 40

sust during virtual sessions and digital access.

School age: The impact of virtual instruction on children has been substantial and not uniform. Disparities in math and reading between White students and Black and Latinx students have grown during the pandemic. As students returned to in-person instruction, behavioral-related needs in school increased, placing additional pressure on teachers and schools looking to close academic gaps created by the pandemic. School-age children thrive on routine, and students and their families experienced substantial disruptions because of COVID-19 exposure and illness. These disruptions led not only to additional academic losses but also challenges in navigating the school day. A lack of routine can cause dysregulated sleep and the subsequent behavioral impact.

Adolescence: Marked by a desire for independence and peer relationships, adolescence also is notable for experiential learning. The pandemic has been profoundly disruptive for teenagers. Suicidal ideation among teenagers has increased. The inability to engage with peers face-to-face and move in social circles without fear of contracting COVID-19 has been challenging, as has social isolation with parents and family. Despite being able to pivot adolescent visits to telemedicine, difficulties around privacy and confidentiality stifled the ability to keep teenagers connected to comprehensive care, including mental health services, with a 24% reduction in mental health services in the first year of the pandemic by children participating in Medicaid and the Children’s Health Insurance Program.

“In caring for our pediatric patients, we will continue to live with the fact that the disruption [from the pandemic] has not been uniformly felt.”

The good news is that as a country, we have come a long way from the early months of this pandemic, and children have returned to school and many of their normal activities. However, the past 2 years cannot be erased, and we must work together to make up for all that has been lost.

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

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Hope Rhodes is medical director of the Children’s Health Center at Town Hall Education Arts Recreation Campus and Mobile Health Program at Children’s National Hospital in Washington, DC.

Nathaniel Beers is president of the HSC Health Care System and a clinical professor of pediatrics at the George Washington University School of Medicine and Health Sciences in Washington, DC.
Scrutinizing the psychosocial impact of skin diseases

MUHAMMAD AAMIR ANEES AND BERNARD A. COHEN, MD

Acne, molluscum, atopic dermatitis, and other dermatological disorders can be detrimental to quality of life for children and their families.

Introduction
Pediatric dermatology involves not only treating patients’ skin but also managing the psychosocial impact a disease has on children and their families, which can be significant. Many skin conditions have a quality-of-life (QOL) effect similar to that of systemic diseases such as renal disease, cystic fibrosis, and asthma. Skin diseases also can have emotional and social repercussions on the parents and caregivers of children with dermatology disorders. For pediatricians to provide optimal patient care, family support is essential.

The widely used Children’s Dermatology Life Quality Index (CDLQI), which was developed in 1995, gives the practitioner an understanding of QOL issues in children aged 4 to 16 years. The latest cartoon version is easier and faster for children to complete and was shown to have a score similar to the original scale. The questionnaire, which uses a recall period of 1 week, assesses various issues including feelings of sadness or self-consciousness, impact on friendships, bullying as a result of the disease, effects on going out or playing sports, interference with sleep, and response to treatment. Based on the scoring of the responses, the effect on QOL is stratified as none (0-1), small (2-6), moderate (7-12), very large (13-18), or extremely large (19-20). Findings from a 2016 meta-analysis of all studies using CDLQI, which included data from 7798 children with more than 20 conditions, concluded that most skin diseases have a major impact on QOL in a small proportion of children. However, further review of the literature demonstrates that skin disease has a significant impact for many children and their families.

Disease-specific scoring systems have also been developed, such as the Cardiff Acne Disability Index, the Psoriasis Area Severity Index (PASI) and Physician Global Assessment, the Infants’ Dermatology Quality of Life, the Childhood Atopic Dermatitis Impact Scale, the Quality of Life Index for Atopic Dermatitis, and the Dermatitis Family Impact questionnaire. These scoring systems not only help with assessing severity of disease but also give insight into QOL issues that are important for physicians to address.

This brief review discusses the QOL impact of a number of skin conditions compared with other chronic systemic diseases.

Bernard A Cohen, MD, section Editor for Dermcase, Professor of Pediatrics and Dermatology, Johns Hopkins University School of Medicine, Baltimore, Maryland

CONTINUED ON PAGE 46
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CONTINUED FROM PAGE 44

Psoriasis

Psoriasis is a chronic inflammatory disease of autoimmune etiology that is not completely curable. Seen in an estimated 0.7% of children, psoriasis has a negative impact on QOL for not only children but also their parents and caregivers, even in the presence of mild disease. Results show that 36% of parents and caregivers of children with psoriasis have anxiety and depressive symptoms.

Compared with systemic diseases using the corresponding Children’s Life Quality Index (CLQI), psoriasis was found to have a greater impairment in QOL compared with enuresis, diabetes, and epilepsy. Psoriasis was also found to have a negative influence on physical activity, self-esteem, bullying, and stigmatization.

Investigators of another study concluded that improvement in CDLQI scores to imply no effect (0-1) was associated with a PASI score of > 90%, (a decrease in body surface area [BSA] involvement). As a consequence, this may be advised as a reasonable therapeutic goal. It was also noted that systemic therapy including biological and conventional drugs has a better outcome compared with topical agents.

Thus, physicians are advised to follow a combined approach including clinical therapy and QOL assessment to evaluate improvement or impairment, family counseling, and support.

Atopic dermatitis

With an estimated increasing global prevalence of 15.5% to 20.0% among children, atopic dermatitis (AD) is a chronic skin disease with relapses and remissions characterized by a wide array of clinical presentations that vary with age, environmental triggers, and genetic predisposition. The impact on QOL was found to be greater in children with AD compared with children with systemic diseases including renal disease, cystic fibrosis, asthma, and chronic urticaria. AD commonly arises in early childhood, with hallmark pruritic lesions that often worsen at night. Those with active AD alone had nearly 50% greater odds of reporting sleep-quality disturbances throughout childhood compared with 80% of children who also had asthma and/or allergic rhinitis. Consequently, early diagnosis and therapeutic interventions are needed to address QOL issues.

Recent findings also revealed a relative risk of 1.4 for learning disabilities among children with AD, an association independent of sociodemographic factors and other atopic and neurodevelopmental disorders. Significant positive association of atopic disease and childhood AD with memory impairment, developmental delay, and cognitive dysfunction has also been identified.

Acne

With a global prevalence of 9.38% and as one of the most common skin conditions among adolescents (findings reveal prevalence from 35% to close to 100%), acne vulgaris is rightly described this way by Sulzeberger and Zaidens: “There is probably no single disease which causes more psychic trauma, more maladjustment between parents and children, more general insecurity and feeling of inferiority and greater sums of psychic suffering than does acne vulgaris.”

The point estimate from 5 studies using the CDLQI to assess QOL in children with acne is 5.3; that corresponds to a small impact, but research results reveal a significant impact in terms of self-esteem, relationships, and body image. Further, it is noted that children with truncal and facial acne were twice as likely to report the impact as “very large” or “extremely large” on the CDLQI questionnaire compared with children with only facial acne.

Acne profoundly affects self-perception, socialization, emotional health, and occupational opportunities as well as body dissatisfaction. It is also associated with depression and suicidal ideation. With these factors in mind, it is crucial for the primary care physician to provide not only dermatological care but also psychological support and counseling.
Muhammad Aamir Anees is a medical student at Kanachur Institute of Medical Sciences in Mangalore, India. He is passionate about child empowerment, global health, and international relations. He has nothing to disclose.

**Warts**

The human papilloma-virus causes warts, a benign, common skin disease that may appear on any part of the body. Per the CDLQI scoring, in children who had lesions greater than 6 months, it was seen that nearly a third had a small effect on QOL, whereas in 5% of the children, warts had an extremely large effect. It was also noted that the greatest negative effect was seen on the symptoms and feeling scores.29

The dermatology QOL indices clearly demonstrate the importance of early diagnosis and treatment of skin disease in children. As a result, practitioners should have a low threshold to refer patients early in their course for diagnosis and management of persistent dermatologic findings.

**Molluscum contagiosum**

A skin condition of viral etiology, molluscum contagiosum most commonly affects children. It is commonly asymptomatic but may present with erythema and pruritus. On some occasions, bacterial superinfections with pain and inflammation may be seen.27

In a British study the mean time to resolution was 13.3 months which confirms its chronic nature and the need to consider impact on QOL.28 Molluscum contagiosum had a small effect on quality of life for most participants, although for 33 (11%) of 301 participants it had a very severe effect (CDLQI score >13). A greater number of lesions and secondary infection was associated with a greater effect on quality of life (H=55.8, p<0.0001).

In conclusion, 1 in 10 children with molluscum contagiosum is likely to have a major issue with their QOL, and treatment should be considered for these children especially those with a large number of lesions at visible sites. It is also important to reassure parents about the course of their children’s disease.

**Vitiligo**

The most common cause of depigmentation worldwide, vitiligo is an acquired disorder of unknown origin and undoubtedly immunologically mediated. The disease is associated with widespread stigmatization and psychological impairment.25 Investigators who used the CDLQI questionnaire to assess QOL impairment reported a median score of 3.0.26 They also found that nearly 45.6% of children aged 0 to 6 years and 50% of participants aged 7 to 14 years were not bothered by the lesions, but 95.9% of adolescents aged 15 to 17 years were troubled. Involvement of the face and legs was most bothersome for parents. The authors concluded that self-consciousness, difficulty with friendships and schoolwork, and teasing and bullying were associated with lesions involving more than 25% BSA. Lesions on the face and arms were associated with teasing and bullying.26 Further, other investigators reported that 42% of caregivers of pediatric patients with vitiligo were reported to have anxiety symptoms, whereas 26% had depression.26

Thus, to improve QOL and create a safe environment for children with vitiligo, it is important to not only provide care for these patients and their parents but also play a larger role in educating and sensitizing the public and peer groups in schools and communities to destigmatize the condition.
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Guide parents in minimizing indoor asthma triggers

RACHAEL ZIMLICH, BSN, RN

Pollen and other outdoor allergens garner a lot of attention for their role in triggering seasonal allergies and exacerbating chronic conditions such as asthma; however, the contribution of indoor allergens is sometimes underestimated.

More than 5 million children in the United States alone have asthma, making it the most common childhood chronic disease, according to the Asthma and Allergy Foundation of America (AAFA), and people spend more time indoors than out, especially when factoring in time spent sleeping. Managing the condition requires preventing exacerbations and avoiding triggers, which can be difficult for children in trigger-laden home environments.

“What we need to understand is that 70% to 90% of children who are asthmatic [have a condition] triggered by allergies, and a lot of children spend 8 to 12 hours in these indoor environments,” said Mayank Shukla, MD, a pediatric pulmonologist and sleep specialist in New York, New York.

Almost half of all children with asthma experience at least 1 severe attack every year, according to the AAFA. The biggest—and sometimes overlooked—indoor triggers include dust, mold, and animal dander.

Pediatricians need to ask every patient or parent of a child with asthma about the home environment. Some types of molds are easily spotted, but triggering factors such as poor air circulation and cockroach dander can be more difficult to pinpoint. A discussion about the family’s living quarters, including types of furniture, can help.

Identifying the threat
Dust mites are virtually everywhere, and these microscopic allergens can settle into fabrics and furniture, carpeting, and even bedding. Dander from other unwelcome creatures can cling to the same surfaces, posing a possibly underestimated threat, Shukla said. Cockroaches and rodents are highly allergenic and a common source of triggers for patients with asthma who live in cities and apartment buildings. Although those critters are uninvited, cats and dogs—which live in about a third of all American households—can cause just as many problems, Shukla said.

"Molds are another threat," Shukla said. “There are more than 10 types of household molds that are known to trigger asthma. Molds can form anywhere there is high humidity, so areas like bathrooms and basements are known high-risk areas.” Molds can also grow in areas such as heating, ventilating, and air-conditioning (HVAC) systems and under carpeting. One underestimated source, according to Shukla: holiday decorations stored in attics and other moist, poorly ventilated areas. Unpacking these items can easily spread mold spores throughout the home.

Tackling the problem
Once patients and their families have identified hidden triggers, removal poses another challenge. Ideally, carpeting will be removed and upholstery replaced with leather or vinyl. When ripping out carpeting or getting new furniture isn’t possible, frequent carpet cleaning with a shampooper...
and using dustproof covers can help. Dustproof covers are particularly important for mattresses, which children spend so much time on but can’t be washed regularly, Shukla said. Laundering bedding weekly is usually sufficient. Stuffed animals, another often-overlooked and ever-present threat—kids may carry them everywhere, even to bed—must also be cleaned. If a stuffed toy can’t be washed, Shukla advises that parents place it in a deep freezer for a few hours on a regular basis to kill dust mites.

When addressing pet dander, Shukla suggests that caregivers who are unwilling or unable to remove pets from the home at least keep them out of sleeping areas and perform animal grooming or bathing outdoors. Designating an area where the animal can spend most of its time can help reduce the amount of allergens in the house, too. Remind caregivers that even when animals are removed from an area, the allergens left behind can linger for months, Shukla added.

Regular cleaning and using air purifiers with high-efficiency particulate air filters can help fight dust, animal dander, and—to some degree—mold.

Mold removal often requires even more labor. Shukla emphasized the importance of keeping patients with asthma away from affected areas during cleaning and mold removal because spores released into the air can trigger an attack. Black and green molds that are common in wet areas can be easy to spot, but spores coming out of heating and cooling systems or other sources may be harder to see. Mold testing services will assess levels in the home, but families can also purchase swab kits to help identify where mold may be hiding, Shukla said.

Ensuring good ventilation and keeping humidity levels below 50% can help prevent the mold growth, Shukla said, adding that this can be a problem in older buildings such as schools or recreation centers with poor air circulation.

Advocating for asthma prevention
Preventing exacerbations is an important part of asthma management. Outside of reviewing prevention and cleaning practices with families, pediatricians can serve as a resource for schools and other facilities where children spend a lot of time. Melanie Carver, chief mission officer of the AAFA, says the organization provides resources that pediatricians can offer parents, schools, and other organizations to help prevent asthma attacks.

To reduce triggers at home, the AAFA suggests the following:

- Improve airflow. Open interior doors, and run exhaust fans in bathrooms and kitchens.
- Avoid harmful products such as bleach and other harsh cleaners as much as possible.
- Use certified asthma- and allergy-friendly products such as bedding, vacuums, cleaning products, flooring, and paint. These products are tested and proved to meet strict standards set by the AAFA.
- Establish regular cleaning routines to remove dust, pollen, animal dander, and mold.
- Measure indoor humidity level and keep it below 50%, using a dehumidifier if necessary.
- Keep windows closed during peak pollen season or periods of high outdoor pollution.
- Remove strongly scented items, such as candles.
- Replace carpets with solid surface flooring if possible.
- Maintain HVAC systems and replace air filters as recommended by the manufacturer.
- Use portable air cleaners (air purifiers) in rooms where the family spends the most time.
- Quit smoking. Second- and thirdhand pollutants from smoking are harmful to children. Opening windows is not enough protection. Many smoking-cessation programs are available.

For schools and school districts, the AAFA has the following suggestions:

- Have an asthma action plan for students and an individualized health plan for school.
- Observe students’ right to carry and have access to their asthma medicines.
- Enforce indoor air quality management (IAQ) policies and conduct periodic inspections of HVAC systems and other items important in asthma/allergy management.
- Use integrated pest management techniques or ban pesticide use inside school.
- Notify parents of upcoming pesticide applications.
- Limit school bus idling time and establish proximity restrictions.
- Prohibit smoking in school buildings, on school grounds, and on school buses.
- Retrofit diesel school bus engines or switch to electric vehicles.
- Require tobacco-use prevention in health education curriculum.
- Require tobacco-use-cessation programs are available.
- Use environmentally preferable construction materials, pollutants source controls, durable and easy-to-clean surfaces and floors, and moisture/mold controls in facility design standards.

**Rachael Zimlich** is a freelance medical writer in Cleveland, Ohio. She has nothing to disclose.
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\(^2\)From whey protein concentrate composed of fats and proteins.