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Preface: Emerging from the Pandemic: Taking Up Where We Left Off with Newer Modalities, Assessment, and Treatment **xxv**

Carol D. Berkowitz

Pediatric Telemedicine: Lessons Learned During the Coronavirus Disease 2019 Pandemic and Opportunities for Growth

Sarah C. Haynes and James P. Marcín

The accelerated uptake of telemedicine during the coronavirus disease 2019 pandemic has resulted in valuable experience and evidence on the delivery of telemedicine for pediatric patients. The pandemic has also highlighted inequities and opportunities for improvement. This review discusses lessons learned during the pandemic, focusing on provider-to-patient virtual encounters. Recent evidence on education and training, developing and adapting clinical workflows, patient assessment and treatment, and family-centered care is reviewed. Opportunities for future research in pediatric telemedicine are discussed, specifically with regard to engaging pediatric patients, improving and measuring access to care, addressing health equity, and expanding the evidence base.

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Helping Our Toddlers, Developing Our Children’s Skills: Innovative Behavioral Management Training for Pediatric Residents

Heather Agazzi, Sarah Dickinson, and Rebecca M. Plant

This article describes the implementation of a behavioral management training program into pediatric and combined medicine-pediatric residencies at a large urban academic medical center in southwest Florida. We describe 2 modalities for training residents in effective behavioral modification strategies immediately useable in pediatric practice. Results indicate that residents significantly increased their knowledge of effective, evidence-based strategies and continued to use them 6 to 12 months following completion of the training.

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Childhood Hearing Health and Early Language Exposure: A Culturally Sensitive Approach

Parul Bhatia, Julie Rems-Smario, Katrin Jaradeh, and
Dylan Chan

Implementation of the universal newborn hearing screening has changed the landscape for children born deaf or hard of hearing, and with this, pediatricians must be knowledgeable about the screening and referral process, state protocols, and how to support patients and their families in their unique journeys. Early access to language—spoken, signed, both—forms the foundation for successful outcomes for the development of fluent language. For children using spoken language, early access to sound is critical and can often be achieved with the assistance of hearing devices, even in the newborn

period. For all language modalities, state-funded Deaf mentor programs allow families to have meaningful exposure to the Deaf community. The authors come from different professions in the health care and education fields, including General Pediatrics, Otolaryngology Head and Neck Surgery, and the state Department of Education, and use different languages, including spoken and American Sign Language.

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A Pediatrician’s Guide to Working with Children on the Autism Spectrum in Coronavirus Disease 2019 and Beyond: Retrospect and Prospect

Thusa Sabapathy, Megan Goss, Jessica L. Borelli, and Robin Steinberg-Epstein

The COVID-19 pandemic is an unprecedented event with devastating effects on children and families, highlighting and broadening disparities in the care of children with developmental disabilities, while simultaneously catalyzing innovation. Children are vulnerable to the impacts of COVID-19, resulting in increased stress, anxiety, isolation, and health challenges, further amplified in autistic children and children with other neurodevelopmental disabilities. These children are uniquely vulnerable due to communication impairments, comorbid medical disorders, reduced adaptability, and reliance on therapeutic interventions. Abrupt reduction in services and access to care during the pandemic compromised physical and mental health and led to missed intervention opportunities at critical times. It is important to examine the effects that the pandemic

triggered, address deficiencies, and recognize new opportunities to improve systems of care to prepare for unforeseen futures.

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Brain Surgery for Medically Intractable Epilepsy

Vincent Joris, Alexander G. Weil, and Aria Fallah

This review covers the broad topic of brain surgery in the treatment of pediatric intractable epilepsy. The authors review the latest advancements in the presurgical workup as well as the mandatory tests needed to explore the epilepsy workup in these children. They describe the different types of epilepsy from a surgical standpoint (temporal, extratemporal, multifocal, and hemispheric epilepsies) and various surgical procedures that can be proposed depending on the clinical scenario: lesionectomies, lobectomies, hemispherectomies, neuromodulation, and palliative surgeries. They also describe the key differences of the pediatric patient as compared with the adult patient in such pathologic conditions.

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Chronic and Recurrent Sinusitis in Children, as Manifestation of Immune Dysfunction and Atopic Background

Farn-Hsuan Tseng, Marissa Newman, and Charles H. Song

Rhinosinusitis in children, as in adults, can be classified by duration (acute, recurrent, and chronic) and by cause (viral, bacterial, and inflammatory) and needs to be treated accordingly after careful investigation which include through clinical history, laboratory tests, and, if necessary, nasal endoscopy and imaging studies.

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Management of Pediatric Obstructive Sleep Apnea After Failed Tonsillectomy and Adenoidectomy

Abhay Varun Sharma, Tapan Padhya, and Sagarika Nallu

Pediatric obstructive sleep apnea (OSA) represents a different entity from its adult counterpart and therefore requires a different therapeutic approach. Adenotonsillectomy (AT) is the primary treatment of pediatric OSA, and evidence shows it is very effective. However, there is a growing understanding that residual OSA is common, and next steps for patients who fail primary AT are less certain. This article reviews current methods of evaluating and treating these complex patients.

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The Antiphospholipid Syndrome in the Pediatric Population

Elizabeth E. Sloan and Deborah McCurdy

Pediatric antiphospholipid syndrome (APS) is characterized by autoantibodies directed against protein complexes on cellular membranes and leads to a

prothrombotic, proinflammatory state. A child with APS may present with venous, arterial, or small vessel thrombosis. Other manifestations of APS include nonthrombotic manifestations, such as hematologic and neurologic symptoms. APS may be a primary condition or related to other autoimmune diseases. If APS-related thrombosis is unrecognized, the child may suffer recurrent thrombotic events after the withdrawal of anticoagulation. Thus, it is important to consider APS as a cause of thrombosis in children. Appropriate testing confirms the diagnosis and directs further care.

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Pediatric Chronic Kidney Disease

Valerie Panzarino, Jake Lesser, and Frank Ayestaran Cassaini

Chronic kidney disease (CKD) in children has a significant impact on morbidity, mortality, and quality of life. The degree of renal dysfunction should be calculated using pediatric-specific formulas and the degree of CKD staged; this allows for appropriate dosing of medications based on renal function and monitoring for progression

and comorbid conditions including metabolic acidosis, bone disease, anemia, cardiovascular complications, malnutrition and electrolyte abnormalities, growth failure, and psychosocial issues. Treatment strategies include treating the underlying disease and using general renal protective measures. Effective management of these complex issues requires a specialized multidisciplinary team approach.

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Advances in Hemophilia A Management

Sukjoo Cho, Ashley M. Perry, Anna M. Cheng, Carrie Wang, and Juan Felipe Rico

Hemophilia A is an inherited insufficiency of Factor VIII (FVIII), one of the critical clotting factors. The gold standard for the management of moderate-to-severe hemophilia A is prophylaxis using regular replacement therapy with clotting factor concentrates. Compared with conventional treatment, extended half-life products reduce the burden of frequent factor replacement injections. Of note, up to 30% of patients with hemophilia A receiving prophylactic factor infusions develop “inhibitors,” neutralizing anti-FVIII autoantibodies. Therapeutic options for patients with hemophilia A and inhibitors include the immune tolerance induction (ie, eradication of inhibitors) and the management of acute bleeds with bypassing agents and/or emicizumab. Emicizumab is a biphasic monoclonal antibody mimicking activated FVIII, approved for patients with hemophilia A with/without inhibitors. Gene therapy is an emerging therapy for hemophilia A, essentially curing patients with hemophilia A or transforming them to a milder phenotype by establishing continuous endogenous expression of FVIII after one-time treatment.

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Genital Herpes Simplex Virus—An Updated Review

Saida Omarova, Aileen Cannon, Wendy Weiss,
Adrienne Bruccoleri, and Joseph Puccio

The herpes virus was named by the Greek physician Hippocrates who called it herpes because the lesions appeared near each other and were vesicular. Alphaherpesvirinae, Betaherpesvirinae, and Gammaherpesvirinae are subfamilies of the human herpes virus family. The Alphaherpesvirinae subfamily includes the simplex viruses—HSV-1 and HSV-2—and varicellovirus—varicella zoster virus. There are more than 200 members of the Herpesviridae family capable of infecting different species, 8 of which are known to cause disease in humans. The simplex viruses can cause lifelong genital infections, and despite the prevalence of HSV-1 and HSV-2 infections in the United States decreasing in the past 20 years, infections with these viruses continue to contribute to significant clinical and psychological morbidities.

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Vaccine Hesitancy in Pediatrics

Andrea Lafnitzegger and Claudia Gaviria-Agudelo

Vaccine hesitancy is a growing complex and multifaceted phenomenon. It encompasses a wide spectrum of context-dependent attitudes and beliefs. Multiple factors influence parental decision-making including knowledge, sources of information, risk perception, trust, and individual experiences among others. This review focuses on describing the most common reasons that contribute to vaccine hesitancy among parents. Social media and the Internet have been described as major elements that can negatively influence parental decision-making regarding vaccines. The next focus is describing effective interventions that clinical providers can apply.

Nonconfrontational and open discussions along with trusting and strong relationships between parents and providers seem to create a solid foundation toward vaccine acceptance. In addition, motivational interviewing is a helpful tool that has proven to be effective during these discussions. Ultimately, an individualized approach tailored to a specific community will likely be most effective in addressing vaccine hesitancy.

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Turner Syndrome: An Update

Margaret Steiner and Paul Saenger

Turner syndrome is the most common sex chromosome abnormality in women. Infertility and short stature are the most striking findings seen in these patients. Unfortunately, many girls are still being diagnosed too late and therefore early diagnosis and treatment key. Turner syndrome affects many systems of the body; therefore, a comprehensive approach is key for therapeutic intervention.

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Clinical Indications for Growth Hormone Therapy

Melinda Danowitz and Adda Grimberg

Growth hormone (GH) is an injectable medication originally used to replace the deficiency of the hormone, but has expanded to treating conditions that may reduce growth and adult height even when the body maintains endogenous GH production. In the United States, there are 8 Food and Drug Administration (FDA)-approved indications for pediatric GH therapy: GH deficiency, Prader-Willi Syndrome, small for gestational age (SGA) without catch-up growth, idiopathic short stature, Turner syndrome, *SHOX* gene haploinsufficiency, Noonan Syndrome, and chronic renal insufficiency. We characterize the growth patterns and effects of GH treatment in each of these indications. We also review patterns of growth that warrant referral to a pediatric endocrinologist, as well as safety updates. This review is intended to guide practitioners on the initial evaluation and management of patients with short stature, and the indications for GH therapy.

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Update on Pediatric Hyperthyroidism

Priya Vaidyanathan

Typical symptoms which should lead to suspicion of hyperthyroidism are unintentional weight loss, tachycardia, and palpitations, heat intolerance, and hyperactivity. It is diagnosed by suppressed thyroid-stimulating hormone (TSH) with elevated thyroid hormone (TH) levels. Graves' disease (GD) due to

antibodies stimulating the TSH receptor is the leading cause, and first-line treatment is with methimazole (MMI). Emerging data suggest MMI treatment, up to 8 years is effective and safe in improving the rate of remission. Radioactive iodine (RAI) and thyroidectomy offer definitive treatment and induce permanent hypothyroidism. Thyroid storm is a life-threatening condition with systemic decompensation and hyperpyrexia. Neonates of mothers with current or past GD are at risk for neonatal hyperthyroidism (NH). Appropriate identification and follow-up of at-risk neonates will reduce complications.

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Updates on the Management of Pilonidal Disease

Amelia T. Collings and Beth Rymeski

This article reviews the current practices and evidence on the management of pilonidal disease in the pediatric population. Medical management, use of laser epilation, and minimally invasive surgical options are highlighted with a brief review of more invasive surgical options for refractory disease.

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Current Management of Adhesive Small Bowel Obstructions in Children

Nathan S. Rubalcava and K. Elizabeth Speck

Adhesive small bowel obstructions are a common cause of morbidity in children who underwent prior abdominal surgery. The concept of partial versus complete bowel obstruction is outdated and lacks precision to be clinically useful. Identifying patients with indications for immediate operative intervention is critical and must be recognized to limit morbidity. Clinical protocols and contrast challenge algorithms have attempted to identify patients that will resolve their bowel obstruction nonoperatively; there has been slow uptake in the pediatric patient population versus adults until recently. Incorporating predictive models and standardized contrast challenge protocols will help reduce interpractitioner variability and improve clinical outcomes.

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Postoperative Opioid Prescribing, Use, and Disposal in Children

Marjorie Odegard and Lorraine I. Kelley-Quon

This article provides an overview of postoperative opioid prescribing, use, and disposal patterns in children and also identifies gaps in knowledge and areas for improvement. We present evidence that there is a need to tailor prescriptions to specific procedures to reduce the number of excess, unused prescription opioid pills in the home. We also explain the need to provide culturally competent care when managing a child's pain after surgery. Finally, we discuss the need for widespread provider and caregiver education about safe prescription opioid use, storage, and disposal.

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