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Social media affect kids’ sleep duration

DR FARBER ON
Plain talk about office practices

>32 million Americans used infant formula in 2017
“Although the pediatric community often focuses on the danger of the development of diabetes in overweight and obese children, there are other important reasons to be vigilant in their care. Increasingly, hypertension is manifest in these children and pediatricians need to have the proper equipment for accurate assessment and use age-appropriate norms for evaluation.”

—Gary L Freed, MD, MPH
Percy and Mary Murphy Professor of Pediatrics, Professor of Health Management and Policy, Associate Chair, Department of Pediatrics, University of Michigan, Ann Arbor, Michigan

“Human touch is an important component of care for babies, including our most clinically fragile newborns. Ms. Hilton’s article highlights the role of “cuddlers” in the neonatal intensive care units (NICUs) for neonates affected by prematurity and neonatal abstinence syndrome—an invaluable service that may support short- and long-term neurodevelopment of these infants.”

—W Christopher Golden, MD
Assistant Professor of Pediatrics (Neonatology), Pediatric Clerkship Director, Johns Hopkins University School of Medicine, Medical Director, Newborn Nursery, Johns Hopkins Hospital, Baltimore, Maryland

—Bernard A Cohen, MD
Section Editor for Dermatology, Johns Hopkins University School of Medicine, Baltimore, Maryland

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RECOMMEND AQUAPHOR FOR BABY’S SKINCARE NEEDS

Beiersdorf
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In 1975, I published my first childcare book, *Growing Up Thin*, addressing the growing epidemic of childhood obesity. The obesity problem actually dates back to the 1950s, when there was a dramatic increase in the production of inexpensive, high-density, high-calorie foods. Sugar consumption rose by nearly 33%, due primarily to the use of high-fructose corn syrup.

The book was a huge success and received a great deal of publicity, but, sad to say, it failed to even make a dent into the prevalence of childhood obesity. In fact, there has been a significant increase in the prevalence of childhood obesity in the past few decades. A large-scale study recently published in the *New England Journal of Medicine* showed that more than 25% of children entering kindergarten were either overweight or obese, and 2 out of 3 of these children remained obese as teenagers and beyond.1 The American Academy of Pediatrics (AAP) also has pointed out a sharp rise in severe obesity among 2- to 5-year-olds as evidenced in the most recent 2-year cycle data from the National Health and Nutrition Examination Survey (NHANES), 2015-2016.2

**Quoting from my current book** *Obesity Prevention for Children: Before It’s Too Late: A Program for Toddlers and Preschoolers*, “What happened during the past 40-plus years?”

1. More and more meals are eaten in “fast-food” establishments.
2. Portions sizes are larger.
3. Besides TV, we now have computers, cellphones, and tablets for children, all of which increase sedentary time—what I call the SOB syndrome (Sitting On Butt syndrome).
4. Physical education time in schools has become more limited.
5. More safety issues are associated with outdoor play, such as increased automobile traffic and fear of abduction.

**CONTINUED ON PAGE 10**
EMVERM® is indicated for the treatment of patients two years of age and older with gastrointestinal infections caused by Ancylostoma duodenale (hookworm), Ascaris lumbricoideas (roundworm), Enterobius vermicularis (pinworm), Necator americanus (hookworm), and Trichuris trichiura (whipworm).

INDICATION
EMVERM® is indicated for the treatment of patients two years of age and older with gastrointestinal infections caused by Ancylostoma duodenale (hookworm), Ascaris lumbricoideas (roundworm), Enterobius vermicularis (pinworm), Necator americanus (hookworm), and Trichuris trichiura (whipworm).

IMPORTANT SAFETY INFORMATION
Contraindication: EMVERM is contraindicated in persons with a known hypersensitivity to the drug or its excipients (mebendazole, microcrystalline cellulose, corn starch, anhydrous lactose, sodium starch glycolate, magnesium stearate, steearic acid, sodium lauryl sulfate, sodium saccharin, and FD&C Yellow #6).

Warnings and Precautions:
- Risk of Convolusions: Convulsions in infants below the age of 1 year have been reported.
- Hematologic Effects: Neutropenia and agranulocytosis have been reported in patients receiving mebendazole at higher doses and for prolonged duration. Monitor blood counts in these patients.
- Metronidazole and Serious Skin Reactions: Stevens-Johnson syndrome/toxic epidermal necrolysis (SJS/TEN) have been reported with the concomitant use of mebendazole and metronidazole. Avoid concomitant use of mebendazole and metronidazole.

Adverse Reactions Reported in Mebendazole-Treated Subjects from 39 Clinical Trials*: anorexia, abdominal pain, diarrhea, flatulence, nausea, vomiting, rash.

Adverse Reactions Identified During Postmarketing Experience with Mebendazole*: agranulocytosis, neutropenia, hypersensitivity including anaphylactic reactions, convulsions, dizziness, hepatitis, abnormal liver tests, glomerulonephritis, Stevens-Johnson syndrome/toxic epidermal necrolysis, exantherma, angioedema, urticaria, alopecia.

*Includes mebendazole formulations, dosages and treatment duration other than EMVERM 100 mg chewable tablet.

Drug Interactions: Concomitant use of EMVERM and metronidazole should be avoided.

Pregnancy: The available published literature on mebendazole use in pregnant women has not reported a clear association between mebendazole and a potential risk of major birth defects or miscarriages. There are risks to the mother and fetus associated with untreated helminthic infection during pregnancy.


The available published literature on mebendazole use in pregnant women has not reported a clear association between mebendazole and a potential risk of major birth defects or miscarriages. There are risks to the mother and fetus associated with untreated helminthic infection during pregnancy.

Untreated soil transmitted helminth infections in pregnancy are associated with adverse outcomes including maternal iron deficiency anemia, low birth weight, neonatal and maternal death.

Lactation: Limited data from case reports demonstrate that a small amount of mebendazole is present in human milk following oral administration. There are no reports of effects on the breastfed infant, and the limited reports on the effects on milk production are inconsistent. The limited clinical data during lactation precludes a clear determination of the risk of EMVERM to a breastfed infant; therefore, developmental and health benefits of breastfeeding should be considered along with the mother’s clinical need for EMVERM and any potential adverse effects on the breastfed infant from EMVERM or from the underlying maternal condition.

Pediatric Use: The safety and effectiveness of EMVERM 100 mg chewable tablet has not been established in pediatric patients less than two years of age. Convulsions have been reported with mebendazole use in children less than one year of age.

Geriatric Use: Clinical studies of mebendazole did not include sufficient numbers of subjects aged 65 and older to determine whether they respond differently from younger subjects.

Overdosage: In patients treated at dosages substantially higher than recommended or for prolonged periods of time, the following adverse reactions have been reported: alopecia, reversible transaminase elevations, hepatitis, agranulocytosis, neutropenia, and glomerulonephritis.

Symptoms and signs of overdose: In the event of accidental overdose, gastrointestinal signs/symptoms may occur.

Treatment of overdose: There is no specific antidote.

Patient Counseling: Healthcare professionals should advise the patient to read the FDA-approved patient labeling (Patient Information) and advise patients that:
- Taking EMVERM and metronidazole together may cause serious skin reactions and should be avoided.
- EMVERM can be taken with or without food.
- You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch or call 1-800-FDA-1088. To report SUSPECTED ADVERSE REACTIONS contact Impax Laboratories, Inc. at 1-877-994-6729.

Please see Full Prescribing Information at www.EMVERMHCP.com and Brief Summary on following pages.
**EMVERM** (mebendazole) 100 mg Chewable Tablets

**BRIEF SUMMARY:** Complete information about EMVERM® can be found in the Full Prescribing Information.

**INDICATIONS AND USAGE**
EMVERM® is indicated for the treatment of patients two years of age and older with gastrointestinal infections caused by *Ancylostoma duodenale* (hookworm), *Ascaris lumbricoides* (roundworm), *Enterobius vermicularis* (pinworm), *Necator americanus* (hookworm), and *Trichuris trichiura* (whipworm).

**DOSAGE AND ADMINISTRATION**

The recommended dosage for EMVERM® is described in Table 1 below. The tablet may be chewed, swallowed, or crushed and mixed with food.

**INDICATIONS AND USAGE**
EMVERM® is indicated for the treatment of patients two years of age and older with gastrointestinal infections caused by *Enterobius vermicularis* (pinworm), *Necator americanus* (hookworm), and *Trichuris trichiura* (whipworm).

**DOSAGE AND ADMINISTRATION**

The recommended dosage for EMVERM® is described in Table 1 below. The tablet may be chewed, swallowed, or crushed and mixed with food.

**Table 1:** Dosage of EMVERM in Adult and Pediatric Patients (two years of age and older)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pinworm (enterobiasis)</td>
<td>1 tablet morning and evening for 3 consecutive days</td>
</tr>
<tr>
<td>Whipworm (trichuriasis)</td>
<td>1 tablet morning and evening for 3 consecutive days</td>
</tr>
<tr>
<td>Roundworm (ascarisiasis)</td>
<td>1 tablet morning and evening for 3 consecutive days</td>
</tr>
<tr>
<td>Hookworm</td>
<td>1 tablet, once</td>
</tr>
</tbody>
</table>

If the patient is not cured three weeks after treatment, a second course of treatment is advised. No special procedures, such as fasting or purging, are required.

**CONTRAINDICATIONS**
EMVERM® is contraindicated in persons with a known hypersensitivity to the drug or its excipients (mebendazole, microcrystalline cellulose, corn starch, anhydrous lactose, sodium starch glycolate, magnesium stearate, stearic acid, sodium lauryl sulfate, sodium saccharin, and FD&C Yellow #6).

**WARNINGS AND PRECAUTIONS**

**Risk of Convulsions**

Although EMVERM® is approved for use in children two years of age and older, convulsions have been reported in infants below the age of 1 year during post-marketing experience with mebendazole, including EMVERM®.

**Hematologic Effects**

Agranulocytosis and neutropenia have been reported with mebendazole use at higher doses and for more prolonged durations than is recommended for the treatment of soil-transmitted helminth infections. Monitor blood counts if EMVERM® is used at higher doses or for prolonged duration.

**Mebendazole Drug Interaction and Serious Skin Reactions**

Stevens-Johnson syndrome/toxic epidermal necrolysis (SJS/TEN) have been reported with the concomitant use of mebendazole and metronidazole. Avoid concomitant use of mebendazole, including EMVERM® and metronidazole.

**ADVERSE REACTIONS**

**Clinical Studies**

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

The safety of mebendazole was evaluated in 6276 subjects who participated in 39 clinical trials for treatment of single or mixed parasitic infections of the gastrointestinal tract. In these trials, the formulations, dosages and duration of mebendazole treatment varied. Adverse reactions reported in mebendazole-treated subjects from the 39 clinical trials are shown in Table 2.

**Table 2:** Adverse Reactions Reported in Mebendazole-treated Subjects from 39 Clinical Trials*

<table>
<thead>
<tr>
<th>Condition</th>
<th>Adverse Reaction(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood and Lymphatic System Disorders</td>
<td>Agranulocytosis, Neutropenia</td>
</tr>
<tr>
<td>Immune System Disorders</td>
<td>Hypersensitivity including anaphylactic reactions</td>
</tr>
<tr>
<td>Nervous System Disorders</td>
<td>Convulsions, Dizziness</td>
</tr>
<tr>
<td>Hepatobiliary Disorders</td>
<td>Hepatitis, Abnormal liver tests</td>
</tr>
<tr>
<td>Renal and Urinary Disorders</td>
<td>Glomerulonephritis</td>
</tr>
<tr>
<td>Skin and Subcutaneous Tissue Disorders</td>
<td>TEN, SJS, Exanthema, Angioedema, Urticaria, Alopecia</td>
</tr>
</tbody>
</table>

*Includes mebendazole formulations, dosages and treatment duration other than EMVERM® 100 mg tablet

**DRUG INTERACTIONS**

Concomitant use of mebendazole, including EMVERM®, and metronidazole should be avoided.

**USE IN SPECIFIC POPULATIONS**

**Pregnancy**

**Risk Summary**

The available published literature on mebendazole use in pregnant women has not reported a clear association between mebendazole and a potential risk of major birth defects or miscarriages [see Data]. There are risks to the mother and fetus associated with untreated helminthic infection during pregnancy [see Clinical Considerations]. In animal reproduction studies, adverse developmental effects (i.e., skeletal malformations, soft tissue malformations, decreased pup weight, embryolethality) were observed when mebendazole was administered to pregnant rats during the period of organogenesis at single oral doses as low as 10 mg/kg (approximately 0.5-fold the total daily maximum recommended human dose [MRHD]). Maternal toxicity was present at the highest of these doses [see Data]. The estimated background risk of major birth defects and miscarriage for the indicated populations is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2–4% and 15–20%, respectively.

**Clinical Considerations**

**Disease-Associated Maternal and/or Embryo/Fetal Risks**

Untreated soil transmitted helminth infections in pregnancy are associated with adverse outcomes including maternal iron deficiency anemia, low birth weight, neonatal and maternal death.

**Data**

**Human Data**

Several published studies, including prospective pregnancy registries, case-control, retrospective cohort, and randomized controlled studies, have reported no association between mebendazole use and a potential risk of major birth defects or miscarriage. Overall, these studies did not identify a specific
pattern or frequency of major birth defects with mebendazole use. However, these studies cannot definitely establish the absence of any mebendazole-associated risk because of methodological limitations, including recall bias, confounding factors and, in some cases, small sample size or exclusion of first trimester mebendazole exposures.

**Animal Data**

Embryo-fetal developmental toxicity studies in rats revealed no adverse effects on dams or their progeny at doses up to 2.5 mg/kg/day on gestation days 6–15 (the period of organogenesis). Dosing at ≥10 mg/kg/day resulted in a lowered body weight gain and a decreased pregnancy rate. Maternal toxicity, including body weight loss in one animal and maternal death in 11 of 20 animals, was seen at 40 mg/kg/day. At 10 mg/kg/day, increased embryo-fetal resorption (100% were resorbed at 40 mg/kg/day), decreased pup weight and increased incidence of malformations (primarily skeletal) were observed. Mebendazole was also embryotoxic and teratogenic in pregnant rats at single oral doses during organogenesis as low as 10 mg/kg (approximately 0.5-fold the total daily MRHD, based on mg/m²).

In embryo-fetal developmental toxicity studies in mice dosed on gestation days 6–15, doses of 10 mg/kg/day and higher resulted in decreased body weight gain at 10 and 40 mg/kg/day and a higher mortality rate at 40 mg/kg/day. At doses of 10 mg/kg/day (approximately 0.2-fold the total daily MRHD, based on mg/m²) and higher, embryo-fetal resorption increased (100% at 40 mg/kg) and fetal malformations, including skeletal, cranial, and soft tissue anomalies, were present. Dosing of hamsters and rabbits did not result in embryotoxicity or teratogenicity at doses up to 40 mg/kg/day (1.6 to 3.9-fold the total daily MRHD, based on mg/m²).

In a peri- and post-natal toxicity study in rats, mebendazole did not adversely affect dams or their progeny at 20 mg/kg/day. At 40 mg/kg (1.9-fold the total daily MRHD, based on mg/m²), a reduction of the number of live pups was observed and there was no survival at weaning. No abnormalities were found on gross and radiographic examination of pups at birth.

**Lactation**

**Risk Summary**

Limited data from case reports demonstrate that a small amount of mebendazole is present in human milk following oral administration. There are no reports of effects on the breastfed infant, and the limited reports on the effects on milk production are inconsistent. The limited clinical data during lactation precludes a clear determination of the risk of EMVERM® to a breastfed infant; therefore, developmental and health benefits of breastfeeding should be considered along with the mother’s clinical need for EMVERM® and any potential adverse effects on the breastfed infant from EMVERM® or from the underlying maternal condition.

**Pediatric Use**

The safety and effectiveness of EMVERM® 100 mg chewable tablets has not been established in pediatric patients less than two years of age. Convulsions have been reported with mebendazole use in children less than one year of age.

**Geriatric Use**

Clinical studies of mebendazole did not include sufficient numbers of subjects aged 65 and older to determine whether they respond differently from younger subjects.

**OVERDOSAGE**

In patients treated at dosages substantially higher than recommended or for prolonged periods of time, the following adverse reactions have been reported: alopecia, reversible transaminase elevations, hepatitis, agranulocytosis, neutropenia, and glomerulonephritis.

**Symptoms and signs**

In the event of accidental overdose, gastrointestinal signs/symptoms may occur.

**Treatment**

There is no specific antidote.

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**CLINICAL STUDIES**

Efficacy rates derived from various studies are shown in Table 4 below:

**Table 4: Mean Cure Rates and Egg Reductions from Clinical Studies**

<table>
<thead>
<tr>
<th></th>
<th>Pinworm (enterobiasis)</th>
<th>Whipworm (trichuriasis)</th>
<th>Roundworm (ascariasis)</th>
<th>Hookworm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cure rates mean</strong></td>
<td>95%</td>
<td>68%</td>
<td>98%</td>
<td>96%</td>
</tr>
<tr>
<td><strong>Egg reduction mean</strong></td>
<td>—</td>
<td>93%</td>
<td>99%</td>
<td>99%</td>
</tr>
</tbody>
</table>
All these factors have resulted in the significant increase in the prevalence of childhood obesity.

**Serious consequences of childhood obesity**
The consequences of childhood obesity are well known. In addition to reducing overall life span, other major problems include the development of type 2 diabetes; elevated cholesterol and lipid levels; hypertension; sleep apnea; and psychologic/social difficulties attributed to a lack of self-esteem and self-worth. Further, obese children are more likely to be bullied and socially isolated.

This epidemic of childhood obesity continues unchecked despite massive attempts to stop it or at least to slow it down. What has become increasingly clear to me is that the treatment of both school-age and adolescent obesity is almost always doomed to failure. The longer a child is obese, the less likely any treatment will be effective.

I speak as a pediatrician with more than 40 years of frustration in treating overweight and obese children of all ages. Despite my best efforts, I rarely have been successful in treating an obese teenager.

The basic problem appears to be that neither the pediatric community nor the parents of young children are taking early onset obesity seriously enough. I find it difficult to convince the parents of toddlers and preschoolers who already are overweight or obese that there even is a problem. What is more upsetting is that even in high-risk families, in which one or both parents are obese, this lack of urgency holds true.

I firmly believe that most pediatricians do not spend enough time or effort in teaching the parents of very young children how to take the proper measures to lower the risk of obesity. Of interest is the fact that in the recommendations in the AAP’s Bright Futures program, none of the well-child visits from the 2- to 4-year-old list includes diet or nutrition as a priority.

**Key to successfully treating obesity**
The bottom line is that, in my opinion, the only way to make any significant inroads into the prevalence of childhood obesity is to **NOT LET IT HAPPEN IN THE FIRST PLACE!** In other words, prevention rather than treatment is the key to success.

Parental motivation plays a strong role in predicting the effectiveness of childhood obesity intervention. Family-based intervention has been found to be most effective. The earlier this intervention is started, the greater the chance of success. This has been my experience as well as the experience of most healthcare professionals dealing with overweight and obese kids.

Pediatricians are in a position to be the strongest advocates for children. We must do more to shield and protect the next generation of infants, toddlers, and preschool children from facing the physical and emotional consequences of obesity as they grow up. We must teach the parents of young children how to prevent obesity before it’s too late.

In conclusion, follow these “10 commandments for winning the obesity battle” from the last page of *Obesity Prevention for Children*. From Eden A. Obesity Prevention for Children; 2016.

1. Monitor your child’s weight percentile regularly.
2. Encourage outdoor physical activity each day.
3. Less TV.
4. More sleep.
5. Cut down on juice.
6. No soda or sweetened fruit drinks.
7. Healthy snacks.
8. Never use food as reward.
10. Eat family meals together.

PLUSS Don’t miss “Prediabetes: How to identify children at risk” beginning on page 22
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BY MARIAN FREEDMAN

KEY TAKES ON MUST-READ STUDIES

Social media and sleep duration—there
is a connection!

Youngsters who use social media for an hour a day or longer are likely to sleep for fewer hours than their peers who don’t use social media—and as media use increases, so does this likelihood.

This was the finding of a Canadian survey of about 5400 middle and high school students aged 11 to 20 years. Asked how many hours of sleep they got on an average school night, students could choose responses ranging from 4 to 10 or more hours. Investigators also asked students how many hours a day they usually spent posting or browsing on social media websites, such as Facebook, Twitter, Instagram, and My Space. Response options ranged from less than 1 hour a day to 7 or more hours a day, use on a nondaily basis, or no use at all.

Overall, 36.4% of students met or exceeded the recommended sleep duration—9 to 11 hours per night at age 11 to 13 years, 8 to 10 hours at age 14 to 17 years, and 7 to 9 hours for those aged 18 years—while 63.6% slept fewer hours than recommended. Older students were less likely to be short sleepers than those who were younger and males were more likely than females to report short sleep duration. Sleep duration also was significantly associated with many covariates, including racial background, subjective socioeconomic status, substance use, physical activity, and self-rated mental health. About 73% of students reported using social media for at least 1 hour a day, with 16% reporting use of at least 6 hours a day. Females were more likely to use social media and to use it for longer than males.

Overall, using social media for at least 1 hour a day was associated with greater odds of short sleep duration in a dose response manner, even after adjusting for covariates. Odds ratios for inadequate sleep ranged from 1.82 for social media use of 1 hour a day to 2.98 for use of 5 hours or more a day (Sampasa-Kanyinga H, et al. Acta Paediatr. 2018;107[4]:694-700).

No surprise, right? It seems to make sense that time spent on social media needs to come from somewhere, and, for busy adolescents, time spent sleeping may be the easiest thing to give up. The authors point out that their study does not establish the direction of causality. It could be that some teenagers use more social media because they have trouble sleeping. On the other hand, social media use may cause sleep loss either by time displacement or perhaps by another mechanism such as blue light exposure from screens suppressing melatonin. Either way, for the 16.1% of surveyed teenagers who report 5 or more hours per day of social media use, a group that is 3 times more likely to lack adequate sleep than off-line peers, I feel pretty certain that this is not a good thing.
Stock photos miss the boat on safe sleep environments

An analysis of about 1590 stock photographs of sleeping babies found that infants often are not portrayed in a way that is consistent with American Academy of Pediatrics’ guidelines on infant sleep safety. Investigators obtained the photographs—from the top 3 stock photo websites—by using a variety of search terms, including “safety phrases” (such as “safe infant sleep”) and “generic phrases” (such as “peaceful baby sleeping”). They then analyzed the photos for consistency with infant sleep safety in 7 areas: sleep position, sleep location, sharing of sleep surface, presence of bedding, presence of stuffed animals, head covering, and pacifier use.

Of 1233 sleeping infants who were not being held or in a sitting position, only about half (50.8%) were supine, while 23% were prone, and 26.1% were on their sides. In 66.2% of images, sleeping infants were not sharing a sleep surface. Almost three-quarters (71.3%) of the images included bedding that is not consistent with safe sleep recommendations; indeed, almost half (49.4%) showed blankets. The photographs of sleeping infants also portrayed infants with covered heads (15.3% of photographs), accompanied by stuffed animals (10.5%), and in cribs with bumpers (3.3%).

Only 79 photographs (5%) were images of sleeping infants with all the correct basic elements of safe sleep, including supine position, not sharing a sleep surface, and no unsafe bedding, head covering, or stuffed animals. Investigators found only 5 photographs (0.3%) of an infant sleeping correctly in a crib—and with a pacifier (Goodstein MH, et al. Clin Pediatr (Phila). 2018;57[4]:403-409).

“Doctor, please don’t call me Mommy!”

Among a variety of generic titles, parents prefer being addressed as “Mom” or “Dad” rather than “Mommy/Daddy” or “Ma'am/Sir,” according to a survey of 137 parents of children being seen or admitted to a New York State children’s hospital.

Of those surveyed, 34% were fathers, 66% were mothers, and 1% were other caregivers. The vast majority of parents had been addressed by a generic title in past medical encounters: 79.9% of fathers had been called Dad or Daddy and 90% of mothers had been called Mom or Mommy.

Parents found it acceptable to be called by their first names. In fact, more than half (54%) of mothers “liked” being called by their first names as did 46% of fathers. Being called “Mrs.” or “Mr.” followed by the last name also was acceptable: 45% of mothers “liked” this appellation along with 52% of fathers. Overall, however, most parents preferred the titles Mom and Dad over the formal title of Mr. and Mrs. or their first names (Wilks-Gallo L, et al. Clin Pediatr (Phila). 2018;57[4]:398-402).

I would have guessed that parents disliked being called “Mommy” and “Daddy,” as the terms sound too familiar to me, especially at a first patient encounter—really for any encounter. It surprised me, though, to read that more parents liked being called “Mom” and “Dad” than being addressed by their own first or last names. The best approach may be to give parents a choice and then to note it somewhere in the child’s record.
Breast milk is best, but for those babies who won’t or don’t breastfeed there are formula alternatives. Here’s a primer for how to decide which option to use for the individual child.

MARY BETH NIERENGARTEN, MA

Few things are as important in the development of human life as ensuring adequate nutrition during the first months and years after birth. The nutrition an infant receives, particularly up to the first year of life, will have lifelong effects on the growth and developmental abilities of the child as well as susceptibility to future medical illnesses.¹

Given this, parents and pediatricians alike are rightly focused on providing infants with the best nutrition possible. Without question, optimal feeding for most normal, healthy term infants comes from breast milk, and organizations such as the American Academy of Pediatrics (AAP) strongly recommend it for most, if not all, infants.

However, for some infants, breast milk may not be the best option because of specific conditions that either temporarily or categorically make the infant intolerant to the breast milk. In addition, there may be personal or medical reasons why a mother may choose not to breastfeed.

In these situations, how to choose the best formula among the many available can be daunting. In a presentation at the 2017 AAP National Conference titled “So many infant formulas: How is a pediatrician to choose?,” Jatinder Bhatia, MD, FAAP, professor and chief, Division of Neonatology, Medical College of Georgia, Augusta University, Augusta, Georgia, helped pediatricians wade through the many options available. He provided a brief primer on the types of infant formulas available, how to decide on which one to choose, and issues related to switching.

CONTINUED ON PAGE 16
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formulas and transitioning from formulas/breast milk to whole foods. However, he opened his talk with a reminder that breastfeeding remains the best option for most infants. “Breastfeeding should be the norm,” he emphasized. “If breastfeeding cannot or should not be done, then we consider infant formula appropriate for the infant.”

**How to choose a formula**

**COW’S MILK-BASED FORMULAS**

The standard choice of formula for most infants who are not breastfed is a cow’s milk-based (bovine) formula with iron (Table 1). These formulas account for up to 80% of formulas sold. Bhatia emphasized that all currently available bovine-based formulas meet the energy and nutrient requirements for healthy term infants for the first 4 to 6 months of life. After age 6 months, these formulas are used to complement the increased variety of foods introduced to infants around this age.

Bhatia, in line with recommendations by the AAP, recommended one of these formulas for any infant who is not exclusively or only partially breastfed from birth to 1 year of life. One issue that is still unknown with these formulas, according to Bhatia, is the true beneficial effect of the addition of prebiotics and probiotics that more recent cow’s milk-based formulas (as well as other formulas) have introduced as a way to prevent allergic conditions in infants. A meta-analysis that looked at whether formulas supplemented with prebiotics could prevent allergy found some evidence of a beneficial effect on the prevention of eczema. However, the study concluded that further investigation is needed to assess whether there is a benefit on other allergic diseases including asthma, as well as for which infants these formulas are best suited.

Regardless of whether breast milk or formula milk is used, Bhatia emphasized that milk should continue to be a major part of an infant’s diet through the transition to solid foods.

**SPECIALTY INFANT FORMULAS**

For the minority of infants who cannot tolerate cow’s milk, choice of other types of formulas is based on the particular condition the infant has that precludes him or her from receiving either breast milk or cow’s milk-based formulas (Table 2). Specific conditions that Bhatia highlighted in his presentation were allergies, metabolic diseases (ie, galactosemia and phenylketonuria), infectious diseases (eg, tuberculosis, hepatitis, and human immunodeficiency virus [HIV]), malabsorption, and intestinal failure.

“There are very few babies, a small percentage, that actually need all the other types of non–cow milk-based formulae,” said Bhatia.

One of the most common reasons for choosing a non–cow milk-based formula is for infants with an allergy to lactose or to prevent allergies. As shown in Table 2, soy protein-based formulas are recommended for infants with galactosemia (a condition in which they cannot tolerate lactose) or those with hereditary lactase deficiency. Soy protein-based formula also can be used in infants in families who are vegetarian. However, Bhatia emphasized that soy-based formula should not be given as a routine formula unless indicated for these relatively rare conditions.

**In the United States, an estimated 1 million infants are fed formula from birth, and by the time they are 3 months old, about 2.7 million rely on formula for at least part of their nutrition.**


To prevent allergies from developing, evidence points to the benefits of a hydrolyzed formula to reduce the incidence of atopic dermatitis, but not asthma or other allergies (Table 2). Infants born into a family with a history of allergies, specifically atopic dermatitis, are good candidates for this type of formula.

Infants who cannot tolerate hydrolyzed protein formulas, and who have an allergy to the protein in cow’s milk along with multiple food intolerances, are good candidates for amino acid-based formulas. However, Bhatia emphasized that these formulas are not intended to be used to prevent an allergy but only for the small percentage of infants (about 5%) who have an intolerance to hydrolyzed protein for-

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**TABLE 1**

<table>
<thead>
<tr>
<th>COW’S MILK-BASED FORMULAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intact bovine protein</strong></td>
</tr>
<tr>
<td><strong>Reduced lactose</strong></td>
</tr>
<tr>
<td><strong>Added rice starch</strong></td>
</tr>
<tr>
<td><strong>Prebiotics</strong></td>
</tr>
<tr>
<td><strong>Probiotics</strong></td>
</tr>
</tbody>
</table>

From Bhatia J.²

CONTINUED FROM PAGE 14

CONTINUED ON PAGE 19
Other infants for whom amino acid-based formulas may be warranted are those who cannot absorb nutrients for some reason or do not have a sufficient gut to absorb nutrients, such as infants who have undergone surgery. However, Bhatia again emphasized that this is a relatively rare situation.

For infants with other conditions, such as infections or issues with malabsorption, for which a non–cow’s milk formula may seem indicated, Bhatia discussed specific issues to keep in mind when considering a switch from a cow’s milk-based formula to a specialty formula. In some infants, only a temporary switch to a non–cow’s milk-based formula will be needed, while in others no switch at all is needed.

**Switching formulas**

Infants presenting with specific symptoms, such as diarrhea and colic, are often switched formulas based on the assumption that the symptoms are caused by the formula. For most of these infants, said Bhatia, switching formulas is needed only temporarily to help a transient problem, or it is not needed at all.

For example, infants may present with diarrhea caused by a transient intolerance to sugar. For these infants, it is reasonable to switch to another formula with reduced lactose until the symptoms resolve and then switch them back to the original formula.

"Most babies can be managed like this," said Bhatia. However, he emphasized that babies with other symptoms, such as blood in their stools, will need specialty formulas.

For infants with an infection, such as HIV or active tuberculosis, switching to a formula is also warranted until the infection clears. Once cleared, the infant can be switched back to breast milk.

Bhatia cautions, however, that symptoms of diarrhea and colic often are only temporary and not due to the formula used. "For most babies with transient diarrhea and colic, switching formulas is not needed," he said, encouraging pediatricians and parents to "wait it out."

He urges pediatricians and parents to do some "homework" to understand the potential benefits and risks of different formulas.

### TABLE 2

<table>
<thead>
<tr>
<th>TYPES</th>
<th>DESCRIPTION</th>
<th>INDICATIONS</th>
</tr>
</thead>
</table>
| Hydrolyzed*            | Cow’s milk proteins that are extensively or partially subjected to hydrolysis to reduce the allergenicity of the milk proteins. Formulas available include partially hydrolyzed whey and extensively hydrolyzed casein. | Partially hydrolyzed 100% whey:  
  - Infants at high risk of allergy who are *not exclusively breastfed*. When given in the first 6 months, may reduce the risk of atopic dermatitis.  
  Extensively hydrolyzed casein:  
  - Infants who are *not exclusively breastfed*. Reduces the risk of developing atopic dermatitis.  
  No indication:  
  - Use of hydrolyzed formulas only, to the exclusion of breastfeeding. |
| Soy protein-based      | Supports normal growth and development in the term infant.                  | Infants with galactosemia.  
  - Infants with hereditary lactase deficiency.  
  - Parental preference (vegetarian).  
  Should not be given:  
  - Infants with colic.  
  - Infants with cow milk-protein allergy (cross-reactivity).  
  - Milk protein-induced enterocolitis, intestinal blood loss. |
| Amino acid-based       | Hypoallergenic infant formula made from the simplest forms of individual amino acids. | Infants with cow’s milk-protein allergy and multiple food intolerances who cannot tolerate hydrolyzed-protein formulas (only about 5% of infants). |
| Organic formula (both cow’s milk-based and soy-based) | Safe and acceptable but with no added health benefits. | |

*Organizations including the American Academy of Pediatrics recommend use of extensively hydrolyzed formulas in high-risk infants for allergy treatment and acknowledge that partially hydrolyzed formulas may play a potential role in the primary prevention of atopic disease.1 From Bhatia J.2*
stand better why an infant may have diarrhea or colic. One major cause of these symptoms in infants, he said, is the introduction of new foods into the diet. This occurs often between the ages of 4 to 12 months when infants are transitioning to solid foods while still using breast milk or formula as complementary nutrition.

“Just by switching formulas, the pediatrician and parent may miss something easy that is going on that is responsible for the symptom like diarrhea or colic,” he said.

Figure 1 provides an algorithm developed by Bhatia to help guide pediatricians on the feeding of term infants and the transition to solid food.

**Summary**

Breast milk is recommended as providing the best nutrition for most term infants. For infants for whom breast milk is not tolerated or in situations where formula is preferred, a variety of formulas are commercially available based on specific need. Most infants are fed cow’s milk-based formulas, all of which meet the energy and nutrient requirements for healthy term infants during the first 4 to 6 months of life. For the relatively few infants who require specialty formulas, soy-based and hydrolyzed formulas are available, each indicated for specific situations only and not recommended as a routine feeding alternative for otherwise healthy term infants. Amino acid-based formulas are also available for specific indications.

For infants who experience transient intolerance to breast milk or cow’s milk-based formula, switching to a different formula until symptoms such as diarrhea or colic clear is a reasonable option. For many situations, switching is not needed as the symptoms may be due to something other than the formula (ie, introduction of new foods). Pediatricians and parents can take a wait-and-see approach to better understand what may underlie a symptom such as diarrhea or colic to ensure the underlying cause is accurately identified and not simply masked over by switching formulas.

**FIGURE**

**FEEDING ALGORITHM FOR TERM INFANTS**

Abbreviation: IgE, immunoglobulin E.
Adapted from Gamble Y, et al.1

*On a clinical basis, differentiation of IgE-mediated or non–IgE-mediated cow’s milk-protein allergy is difficult and there is a cross-reactivity. Therefore, feeding a protein hydrolysate formula is suggested.

For additional resources, go to ContemporaryPediatrics.com/infant-formulas

By 2020, the retail value of the global baby milk formula market is forecast to reach approximately $62.5 billion.

~ Statista.com; 2018.
Can the locum tenens process be simplified?
Will my malpractice be paid for?
When will my travel itinerary be confirmed?
When will the job I want become available?
Will everything be taken care of?

It already is.
As the number of young persons developing type 2 diabetes (T2D) increases, so has the awareness of clinicians on the importance of identifying children at risk to help prevent the deleterious effects of diabetes once established. Studies in adults with T2D have identified specific risk factors for disease development, and a great deal of focus has been on identifying prediabetes in an attempt to improve prevention.

For both children and adults, obesity remains one of the key risk factors for developing T2D. Children who are overweight or obese, therefore, are seen as potentially at risk of developing diabetes.

To date, little data are available on how to assess children at risk of developing T2D. Assessment, therefore, has relied on data derived from adult studies and extrapolated to children. As such, the evidence base on which assessing risk of diabetes in children is limited at best and should be looked at with some caution.

This was an underlying message in a talk presented at the 2017 American Academy of Pediatrics (AAP) National Conference by Philip Zeitler, MD, PhD, professor of Pediatrics and Clinical Science, and section head, Endocrinology, University of Colorado School of Medicine Anschutz Medical Campus, Aurora, Colorado, titled “Not yet diabetes: Assessing and managing children at risk.” In his presentation, Zeitler emphasized that although T2D is on the rise in adolescents, it is still rare and not the main complication that clinicians should be focusing on when they see a child who is obese.

“Glucose is not the most common problem in obese kids; in fact, it is pretty darn rare,” Zeitler said, emphasizing that other disorders associated with obesity such as elevated triglycerides, fatty liver, and high blood pressure are much more common. “People should be thinking about these other more common conditions and not get too lost looking for prediabetes,” he said.

In his talk, Zeitler spoke about ways to assess and manage prediabetes in children.
while underscoring this main message that diabetes is not the most important potential disease risk for obese children and of the need to address obesity in all children regardless of their potential diabetes risk. To help clinicians get a better footing as to the real problem of prediabetes in children, he opened his talk by defining what prediabetes is and the limits of its utility in children.

**Prediabetes is a concept, not a thing**

Zeitler began with a brief overview of the pathophysiology of prediabetes, citing a number of studies in children that looked at impairments in glucose homeostasis in overweight children.

Overall, he underscored the difficulty of establishing prediabetes in children based on measures such as fasting plasma glucose (FPG) and the oral glucose tolerance test (OGTT) to assess risk factors predictive of impaired fasting glucose (IFG) or impaired glucose tolerance (IGT)—the intermediate phase between normal glucose tolerance and T2D identified as prediabetes in adults. For example, some data suggest that impairments in insulin resistance and declining β-cell function may indicate children at heightened risk of developing T2D, but these data are based on glucose testing measured against the specific cutoff threshold of less than 140 mg/dL established as defining prediabetes in adults.

This cutoff point, he cautioned, is defined in adults only and does not necessarily translate to children.

Compounding the difficulty of identifying prediabetes is the evolving criteria for diabetes itself. Zeitler reminded the audience that diabetes is defined by an increased risk for microvascular complications. Initially, he said, diabetes was based on a correlation of fasting glucose with increased incidence of retinopathy. In 1979, this correlation was based on a random or OGTT of greater than 200 mg/dL or FPG test of greater than 140 mg/dL, and in 1997 this changed to a FPG of greater than 126 mg/dL and the same OGTT. In 2009, the hemoglobin A1C test became standardized with a cutoff point of greater than 6.5 indicative of diabetes.

### TABLE 1

**TESTS FOR PREDIABETES**

<table>
<thead>
<tr>
<th>Glucose Tolerance</th>
<th>impaired fasting glucose (IFG)</th>
<th>impaired glucose tolerance (IGT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPG</td>
<td>normal</td>
<td>abnormal</td>
</tr>
<tr>
<td>OGTT</td>
<td>normal</td>
<td>abnormal</td>
</tr>
<tr>
<td>A1C</td>
<td>normal</td>
<td>abnormal</td>
</tr>
</tbody>
</table>

Abbreviations: FPG, fasting plasma glucose; OGTT, oral glucose tolerance test.

From Zeitler P!

### ICD-10 CODES FOR DIAGNOSING DIABETES

The following are suggested ICD-10 codes for the diagnosis and treatment of prediabetes and diabetes in children. Check with your contracted plan and individual state Medicaid program for coverage policy.

<table>
<thead>
<tr>
<th>Type 2 diabetes:</th>
<th>Obesity:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E11</strong> Type 2 diabetes mellitus; codes are selected based on associated complications.</td>
<td><strong>E66.09</strong> Other obesity due to excess calories.</td>
</tr>
<tr>
<td><strong>E11.9</strong> Type 2 diabetes mellitus without complications.</td>
<td><strong>E66.01</strong> Morbid (severe) obesity due to excess calories.</td>
</tr>
<tr>
<td><strong>E66.3</strong> Overweight.</td>
<td></td>
</tr>
</tbody>
</table>

Body mass index (BMI) codes should be reported in addition to the obesity diagnosis codes, if the BMI is known:

| **Z68.51** BMI pediatric, <5th percentile for age. | **R03.0** Elevated blood-pressure reading, without diagnosis of hypertension. |
| **Z68.52** BMI pediatric, 5th percentile to <85th percentile for age. | **E78.1** Pure hyperglyceridemia (elevated triglycerides). |
| **Z68.53** BMI pediatric, 85th percentile to <95th percentile for age. | **K76.0** Fatty liver, not elsewhere classified. |
| **Z68.54** BMI pediatric, ≥95th percentile for age. | |

Prediabetes in adults (data based on glucose testing in adults may not translate to children):

| **R73.01** Impaired fasting glucose (IFG). | **R73.02** Impaired glucose tolerance (IGT). |
| **R73.03** Prediabetes. | |

Metabolic complications associated with obesity in children:

| **R73.01** Impaired fasting glucose (IFG). | **R73.02** Impaired glucose tolerance (IGT). |
| **R73.03** Prediabetes. | |

**Plus** Are you familiar with various infant formula alternatives? See page 14
“Prediabetes is even more squishy than diabetes,” said Zeitler. “Diabetes is based on future cardiovascular risk, but prediabetes is based on the future risk of diabetes.”

Emphasizing that all the measures currently used to define diabetes are based solely on data derived from studies on adults, Zeitler underscored the need to recognize that prediabetes risk may not be the same for children. “The future risk of diabetes is not the same if you use the same criteria in children,” he said, highlighting as well that a “high-normal” glucose and A1C may be normal in puberty.

For example, he said that although the data suggest that adults with an A1C between 5.7% and 6.5% have increased risk for development of future diabetes, he highlighted data showing that an A1C of less than 6% in children actually indicates a nearly 0% chance of progressing to diabetes in a reasonable amount of time. This is important because many children with elevated A1C or glucose levels are likely to spontaneously regress without any intervention because of changes in insulin resistance in puberty. (This is described more fully in the section “Management of prediabetes” below.)

All said, Zeitler questioned whether prediabetes is a useful concept when applied to children because of the high regression rate in children without any intervention. More useful, he suggested and emphasized, is recognition of the other more common metabolic complications associated with obesity in children, including high blood pressure, elevated triglycerides, and fatty liver.

Assessment of children at risk
Despite his reservation on the utility of using a diagnosis of prediabetes in children, Zeitler spent time addressing a main question that many clinicians have when considering how to assess the diabetes risk in children. That is: What is the best measure to use for this assessment? Table 1 lists the current measures used.

Saying there is a lot of noise in the literature about which test is better, Zeitler said that none of these current tests can be considered standard in children because they were extrapolated from adults,” he said.

With that understanding, he nonetheless noted that both a glucose tolerance test and A1C test can be used, as some people advocate, but he cautioned that such an approach is expensive “for what turns out to be a pretty rare disorder.”

Instead, Zeitler recommended using the A1C test, citing it as an imperfect but efficient test for evaluating high-risk kids. Table 2 lists several practical benefits of the A1C test over glucose tol-

### Table 2 | HBA1C Testing

<table>
<thead>
<tr>
<th>Practical Benefits of HBA1C Testing</th>
<th>Disadvantages of HBA1C Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>- A1C &gt;6% suggests an increased risk for progression.</td>
<td>- May miss cases of acute onset of diabetes, such as Type 1.</td>
</tr>
<tr>
<td>- Fasting is not required.</td>
<td>- Certain diseases alter HbA1C results, such as anemia, cystic fibrosis, sickle-cell disease, thalassemia, and other hemoglobinopathies.</td>
</tr>
<tr>
<td>- A return visit to the clinic is not required.</td>
<td>- Variation of HbA1C results among ethnic populations.</td>
</tr>
<tr>
<td>- Less variability and is more reproducible than glucose tolerance testing.</td>
<td>- May be more costly ($70.40 vs $25.09 for FPG and $46.09 for OGTT).</td>
</tr>
<tr>
<td>- Less subject to acute changes.</td>
<td></td>
</tr>
<tr>
<td>- Number of children who receive at least some screening increases.</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviation: FPG, fasting plasma glucose; HB, hemoglobin; OGTT, oral glucose tolerance test. From Zeitler P.1

### Table 3 | AAP Evidence-Based Recommendations on Weight Loss

<table>
<thead>
<tr>
<th>Dietary Interventions</th>
<th>Activity Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Eliminate liquid calories.</td>
<td>- Reduce sedentary time/screen time.</td>
</tr>
<tr>
<td>- Reduce or eliminate eating out.</td>
<td>- Encourage attainment of recommended activity goals.</td>
</tr>
<tr>
<td>- Reduce portion sizes.</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviation: AAP, American Academy of Pediatrics. From Zeitler P.1

Continued on PAGE 26
The new FilmArray® Respiratory Panel (RP) EZ uses a molecular syndromic approach to accurately detect and identify a wide range of pathogens—not just Flu A and B. As a healthcare provider, this means your patients can receive the right treatment the first time, potentially leading to higher patient satisfaction and lower costs. And as the name implies, it’s easy and can be performed right in your office or clinic.¹

¹ CLIA Certificate of Waiver required to perform testing.

**FilmArray RP EZ Pathogens**

<table>
<thead>
<tr>
<th>Viruses</th>
<th>Bacteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenovirus</td>
<td>Bordetella pertussis</td>
</tr>
<tr>
<td>Coronavirus</td>
<td>Chlamydophila pneumoniae</td>
</tr>
<tr>
<td>Human Metapneumovirus</td>
<td>Mycoplasma pneumoniae</td>
</tr>
<tr>
<td>Human Rhinovirus/Enterovirus</td>
<td>Influenza A/H1</td>
</tr>
<tr>
<td>Influenza A</td>
<td>Influenza A/H1-2009</td>
</tr>
<tr>
<td>Influenza A/H3</td>
<td>Influenza B</td>
</tr>
<tr>
<td>Parainfluenza Virus</td>
<td>Respiratory Syncytial Virus</td>
</tr>
</tbody>
</table>

**Syndromic Testing:** The right test, the first time.

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erance testing. However, he also cautioned that, similar to measurement of glucose tolerance, the use of A1C is limited in that it will identify prediabetes in some kids but not others. “Both glucose tolerance testing and the A1C will identify overlapping but not identical populations,” he said, emphasizing the heterogeneity of children at risk of developing diabetes. Other disadvantages of the A1C test for which clinicians should be aware are listed in Table 2.

As to the value of measuring insulin, Zeitler recommended against it, saying it is a waste of time outside the research setting as it doesn’t provide any additional information about insulin resistance that is not already found on other labs. In addition, he cited problems with the test itself because it is not standardized and may measure insulin metabolites of uncertain significance, making it unreliable as a measure of insulin resistance. Also, he emphasized that the results of the test can be misleading as often insulin levels fall right before the onset of diabetes.

“I think there is a misunderstanding among pediatricians that they should be measuring insulin levels,” he said, “but it doesn’t tell you anything you need to know.”

Management of prediabetes

As to how to manage children at risk of developing diabetes, Zeitler emphasized one thing only: lose weight. “There is no magic to treating this,” he said. “It is weight loss.” The basic recipe to do this is to reduce caloric intake and increase caloric expenditure. Zeitler cited recommendations by an expert committee of the AAP on the prevention, assessment, and treatment of overweight or obese children (Table 3).

Regarding the use of metformin, Zeitler emphatically discouraged its use, saying that there is no clear evidence for pharmacologic treatment of prediabetes in children. “A lot of people think they are supposed to [ prescribe metformin], but there is no evidence supporting its use in kids,” he said. Although some small studies suggest a minor benefit of metformin either alone or in conjunction with lifestyle interventions in select children, Zeitler underscored that the true benefit of metformin or any pharmacologic treatment of prediabetes in children needs to be weighed against the fact that most kids with high glucose or A1C levels will have spontaneous regression back to normal levels without any intervention.

“Progression rates of prediabetes are much different in children than in adults,” he said. “About 60% of kids with prediabetes will reverse on their own, so why would you start them on a drug?”

Unfortunately, Zeitler said, conducting a study to test the true benefit of metformin in children is almost impossible given this high incidence of spontaneous regression that would require a very large sample population.

Simple guide

To help pediatricians approach assessment and management of a child they suspect may have prediabetes, Zeitler offered a simple guide (Table 4). He underscored the need to avoid being too “glucose centric” and to recognize that prediabetes is frequently a transient disorder in children that may not require intervention. In addition, he stressed the importance of recognizing and evaluating the more common abnormalities associated with obesity, such as hypertension, hepatic steatosis, sleep disturbances, mood disorders, and other complications. Finally, he stressed the need to address obesity in all children through lifestyle intervention.

For reference and additional resources, go to ContemporaryPediatrics.com/identifying-prediabetes
Today’s high-tech neonatal intensive care units (NICUs) buzz with staff doing what they can to ensure the smallest and sickest of newborns survive. Yet amid the machines, equipment, and attentive nurses and doctors, there might be ordinary people, called cuddlers, softly singing to, talking to, cuddling, and gently rocking the preemies and convalescing newborns with neonatal abstinence syndrome (NAS), known as opioid withdrawal.

As it turns out, low-tech cuddling, or hugging, also plays a role in helping these babies to survive, and even thrive, according to Edmund F. La Gamma, MD, chief of Newborn Medicine and professor of Pediatrics, Biochemistry and Molecular Biology at Maria Fareri Children’s Hospital, New York Medical College, Valhalla, New York.

“This whole concept of human contact is something that we often don’t pay attention to in the environment of a hospital and intensive care unit. Often, we become focused on lab values and blood gases because that’s keeping patients alive,” La Gamma says. “Sometimes, the aspect of humanness . . . is lost in the shuffle of intensive care.”

The need for touch is especially important for babies born prematurely or addicted to drugs.
like opioids. Take the babies who are born at weights below 1000 grams and earlier than 28 weeks’ gestation, for example. In the best case scenarios, those babies will be hospitalized for 2 to 3 months in order to grow from their extremely small size, La Gamma says.

These babies are exposed to many sounds, lights, and external stimuli not normally experienced in utero during normal brain development and often have problems with organization of motor function, he notes.

“Normally, they would be in the uterus, rolled up like a ball, nice and quiet and in the dark,” La Gamma says. “But no matter how you provide services in intensive care, there is going to be light and much more disruption. The hugging is calming and tends to focus their attention, decrease motor activity, and embrace the sound to a human voice.”1,2

Nurses on these units are often busy with lifesaving measures and care, and parents can’t always be there to provide that nurturing touch. So, to address the softer side of care for patients in NICUs, pediatric inpatient units and sometimes birthing pavilions and hospitals nationwide are offering cuddling programs, in which volunteer trained cuddlers maintain cuddling when parents and staff can’t.

“Volunteer cuddler programs have the potential to enhance the human caring aspects of complex technological nursing care provided premature infants,” according to a paper published in 1990.3

“Although the fragile premature infant may not always appear to respond overtly, the weight gain and social and mental development of the cuddled babies give testimony to the effectiveness of human attention. The infants’ improved well-being and subsequent earlier hospital discharge as a result of cuddling are convincing rationale to implement a cuddler program,” the study authors write.

Addressing the need

In 2015, Kimberly-Clark Corporation (Dallas, Texas), manufacturer of the Huggies diaper brand, worked with the Canadian Association of Pediatric Health Centers to summarize the evidence of the powerful and positive impact a caregiver’s touch can have on babies’ comfort and development of brains and bodies, according to Aric Melzl, Baby and Child Healthcare general manager in North America. The resulting Huggies-funded white paper, The Power of Human Touch for Babies, cites research suggesting human touch offers many benefits for babies—from improved physiologic stability and regulation to enhanced immune system development and improved parent-baby bonding.4

“It became clear that too few babies, especially those in neonatal intensive care units (NICUs), receive the optimal amount of beneficial touch from parents or caregivers. Volunteer hugger programs can help fill this important need. And so, the No Baby Unhugged grant program launched in Canada in 2015 and was brought to the United States in 2016,” Melzl says.

No Baby Unhugged provides $10,000 grants to hospital NICUs for hugging/cuddling programs. So far, 19 hospitals (15 in the United States and 4 in Canada) have received money to launch new volunteer hugging programs or enhance existing ones (Figure 1). “Huggies will continue to award grants in 2018, and hospitals interested in applying can visit HuggiesHealthcare.com to complete an application,” Melzl says.

The need for hugging programs could be on the rise, as the number of US babies who could benefit from such programs grows. During the past 25 years, preterm births in the United States have increased more than 35%, according to a study published in 2010.5

Thanks to advances in care, infants can survive at 22 weeks’ gestation, but the result is spiraling healthcare costs. This makes it imperative, the CONTINUED ON PAGE 30

FIGURE 2 Boriana Parvez, MD, IBCLC, FAAP, a neonatologist and director of the donor milk program at the Maria Fareri Children’s Hospital, New York Medical College, Valhalla, New York, is shown here with the donor breastmilk analyzer.
same authors suggest, for hospitals to focus on making clinical improvements that not only result in healthier babies but also help to manage costs.5

“Volunteer hugger programs can facilitate improved overall development of baby, improved parent-baby connection, and shorter stays in the NICU—in addition to freeing up time for nurses to continue their vital duties,” according to Melzl.

Grant recipients share stories
No Baby Unhugged grant recipient Maria Fareri Children’s Hospital used the $10,000 to enhance its existing cuddler program, according to Boriana Parvez, MD, IBCLC, FAAP, a neonatologist and director of the hospital’s donor milk program (Figure 2).

“We used [the grant] to develop a detailed education program, dedicated to the cuddlers. It’s specifically to educate them about the needs of these patients—how to pick up when the patient is becoming unstable, so they’re obviously no longer suitable to be held; how to respond to the baby’s general cues,” Parvez says. “We also used the funds to purchase new reclining chairs. Obviously, these chairs are used by the cuddlers during the day, but they’re also utilized by the parents when they come to visit their babies. We also find that these chairs are comfortable for promotion of breastfeeding.”

Although Maria Fareri Children’s Hospital, which received the Huggies’ grant in August 2017, hasn’t conducted studies looking at program outcomes, Parvez says that, anecdotally, nurses have told her they can better concentrate on the medical needs of the patients when huggers are there.

“At the same time, they feel the other needs of the babies are met. The babies are receiving the warmth and human touch that they need while their parents are not at the bedside,” Parvez says.

Parvez says the need for cuddlers is heightened for what she says are growing numbers of babies born to opioid-using
mothers. In many cases, these mothers are incarcerated or they might live too far away to visit daily. Sometimes, families have to go back to work and can’t be at the bedside day and night. In other cases, family members simply need a break to take a nap or to go home, and cuddlers can relieve them.

Children’s Hospital at Dartmouth-Hitchcock, Lebanon, New Hampshire, also received the Huggies’ grant in August 2017 and used the grant to expand an existing cuddler program, according to Deirdre Sheets, RN-C, MSN, quality practice patient safety nursing specialist and cuddler program coordinator at Children’s Hospital at Dartmouth-Hitchcock.

“Our infant cuddler program had initially begun in the summer of 2013 on the inpatient pediatric unit to help support our moms and babies who were going through withdrawal. About 9 months after we started there, the intensive care nursery approached me about expanding the cuddler program, with a particular focus on the babies who were going to be there for a longer-term hospitalization, which could be anywhere from a few weeks to a few months,” Sheets says.

The grant money helped the hospital to buy special chairs, which are comfortable, and rock, recline, and slide, for the intensive care nursery. Having the right chair is important, Sheets says. Cuddlers are encouraged to read and sing to the babies, while rocking or gently moving in the chair. The soothing motion, she says, helps to calm the babies.

The grant to Children’s Hospital at Dartmouth-Hitchcock was also used to buy compact disc players and soothing music, including lullabies and soft piano, as well as snuggle wraps, which are fairly tight wraps that help to soothe the babies who are going through withdrawal, according to Sheets.

“Music has also been demonstrated to help lower respiratory rates and pulses when a baby is upset,” Sheets says.

A recent study found that premature infants in a NICU who were exposed to music had lower respiratory rates, while heart rates increased in the no-music control group.6

Sheets says that although the hospital has not conducted studies on whether the program helps, the fact that staff and families are requesting additional cuddlers on weekends and evenings suggests the program is a win for clinicians and patients’ families.

Words of wisdom for a good cuddler program

Training, beyond regular volunteer training at a hospital, is important for cuddlers, according to Sheets. “Our cuddlers go through regular volunteer training, but then they spend between 6 to 8 additional hours training specifically to be able to cuddle the babies,” she says.

It is also important to have buy-in from the hospital’s volunteer services department on the cuddler program, according to Sheets.

“Volunteer services definitely has a part to play in this and does a lot of the background checks. They do the initial orientation piece, as far as patient confidentiality, hand hygiene—some of those hospital-wide things that volunteers need to know,” Sheets says.

Nurses at the Children’s Hospital then teach volunteers about what they’ll need to do on the unit with the tiny babies. Volunteers learn how to change diapers, do appropriate bottle feedings, and more.

Finally, not every well-meaning person is cut out to be a cuddler, according to Sheets. “These are very special babies. They have a lot of needs. The cuddlers are not going to be holding a baby that’s going to sleep the whole time. That’s an important piece for people out in the community to understand,” she says. “So, the screening of the cuddlers, here, is initially done by volunteer services, but all cuddlers have to interview with somebody from one of the nursing units that’s involved. Then, we can really help them to understand what it is that they’re going to be doing when they’re here.”

Note to pediatricians

The importance of human touch isn’t a new concept to physicians, according to La Gamma. “The hand on the shoulder—it’s taught in medical schools,” he says. “But if we think about it, we can all relate to those feelings of personal touch—the hug you get from a loved one. There’s something about that human contact that is very necessary to anchor us in our humanity.”

For references, go to ContemporaryPediatrics.com/
hospital-zone-0518

“IIf we think about it, we can all relate to those feelings of personal touch—the hug you get from a loved one. There’s something about that human contact that is very necessary to anchor us in our humanity.”

—Edmund F. La Gamma, MD
Halo nevus is a benign melanocytic nevus surrounded by a ring of well-demarcated hypopigmentation or depigmentation. It is commonly associated with vitiligo and probably represents a similar autoimmune process. Both vitiligo and halo nevus show mononuclear cell infiltrates around the melanocytes with the majority of them being CD8+ T cells.

In the presence of complete depigmentation, the differential diagnosis includes chemical or drug-induced (eg, imatinib) leukoderma, post-inflammatory depigmentation, melanoma-associated leukoderma, and pityriasis versicolor.

Management
Isolated halo nevi can be monitored clinically and usually do not require treatment. Vitiligo poses a major quality-of-life issue particularly for older children and adults. The objectives of treatment include stabilizing pigment loss and triggering factors that need to be considered before choosing a treatment modality, including extent of depigmentation, location, age, skin type, and willingness to adhere to the treatment plan.

After a treatment plan has been started, it takes a minimum of 2 to 3 months to assess the effectiveness of the therapy. Treatment options include topical corticosteroids, topical calcineurin inhibitors such as tacrolimus, narrowband ultraviolet (UV) B, and psoralen plus UVA. Supplementing children with oral vitamin D while receiving topical therapy such as tacrolimus has been shown to be more effective in achieving repigmentation.

A number of new topical and systemic agents including Janus kinase (JAK) inhibitors are also being considered. The JAK inhibitors have been shown to stabilize the autoimmune process driving the depigmentation, but addition of low-level light is required to achieve repigmentation.

Patient outcome
The patient began treatment with a medium-potency topical steroid applied to the patches on his arms and legs. He was also advised to control sun exposure during the summer.

Ms Jobarteh is a fourth-year medical student at Howard University College of Medicine, Washington, DC. Dr Cohen, section editor for Dermcase, is professor of Pediatrics and of Dermatology at Johns Hopkins University School of Medicine, Baltimore, Maryland. The author and section editor have nothing to disclose in regard to affiliations with or financial interests in any organizations that may have interest in any part of this article. Vignettes are based on real cases that have been modified to allow the author and editor to focus on key teaching points. Images also may be edited or substituted for teaching purposes.
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Boy’s white patches signal pigmentedary disorder

RUTH JOBARTEH, MS4

A 9-year-old boy presents for evaluation of white spots on his hands, elbows, knees, and legs. There is also a ring around a mole on his back. The patient’s parents first noted areas of depigmentation on his trunk and extremities, and his lesions have spread particularly in areas of trauma. The lesions were most noticeable in the summer when tanning increased the contrast between the involved and uninvolved areas of his body.

Discussion

Vitiligo is an acquired pigmentedary disorder characterized by depigmented macules and patches that result from the absence of epidermal melanocytes secondary to destruction by autoimmune processes. Approximately 0.5% to 2% of the general population is affected, with onset from early childhood to adulthood.

Vitiligo can affect any part of the body, but usually favors areas that are more darkly pigmented and often traumatized by normal activities including the face, dorsum of hands, elbows, and knees. The development of new lesions in areas of trauma is referred to as a Koebner or isomorphic phenomenon, which is commonly noted in vitiligo.

Segmental and nonsegmental vitiligo are the 2 major forms. Segmental vitiligo usually does not cross the midline whereas nonsegmental lesions are usually symmetric and more widely disseminated. Nonsegmental vitiligo is the most common type seen in the pediatric population. Children with a family history of vitiligo have been shown to have an onset as early as age 7 years.

For more on this case, turn to page 32.
Dr Farber Says

Plain talk about office practices

This month I share some observations on office practices and provide useful websites for patient care.

1. If a child has had severe respiratory syncytial virus (RSV), or a febrile seizure, the parents will be very worried the next time their child is ill. Acknowledge this fear, let them know what to watch for, and assure them that after a few benign illnesses, and seeing that their child does well, they will be less anxious in the future.

2. For night terrors, scheduled awakenings can be of benefit. After determining when the terrors are likely to occur, the parent can awaken the child shortly before the expected time, for several nights in a row. This apparently interrupts the cycle and can relieve the problem.1

3. Showing parents reliable images online of what you are diagnosing (eg, urate crystals in the diaper) or not diagnosing (the actual rash of erythema chronicum migrans when the family is worried about Lyme disease) is very helpful.

4. Infants and young children are much smarter than we are in some ways. Thus, an adult who has hurt his neck might try to convince his doctor that he is not really hurt, but not so for youngsters. If a child is moving his or her neck freely after an injury, he or she has not suffered a serious spinal injury, and will not need x-rays.

5. The Oralflo cup (Oralflo Technologies; Raritan, New Jersey), or others, can be useful for helping children to swallow pills.

6. TGuard, formerly ThumbGuard, devices (MED et al, Incorporated; Matthews, North Carolina) can be useful for thumb-sucking. Bitter-tasting products that are applied to the thumb seem less likely to work, unless the child is motivated to stop. That is, they appear to operate more as a reminder to take the thumb out, rather than as an actual deterrent.

7. I post tidbits about children where they can be seen whenever I open the chart. Examples of items that might go here include how to pronounce names, the child’s accomplishments/interests, if the family brought me homegrown tomatoes, and if a parent has a medical condition. Electronic health records have an easy way to do this.

8. Update your equipment when needed. Stethoscopes develop cracks that can interfere with listening. The MacroView otoscope (Welch Allyn; Skaneateles Falls, New York) is vastly superior to the ones of the previous generation.

Reference


Jon Matthew Farber, MD, is a pediatrician in Woodbridge, Virginia. He has nothing to disclose in regard to affiliations with or financial interests in any organizations that may have an interest in any part of this article.

Read more from Dr Farber’s treasure chest of pediatric “pearls” and “gems.” Find the popular series at: ContemporaryPediatrics.com/practical-pediatrics

USEFUL WEBSITES

Here are various websites that clinicians might find helpful for information to pass along to patients and their families.

US Department of Health and Human Services: Stopping smoking
www.smokefree.gov

Centers for Disease Control and Prevention: New drivers
www.cdc.gov/parentsarethekey

National Highway Traffic Safety Administration: Car safety
www.safercar.gov

US Department of Agriculture: Obesity/nutrition—a useful website, especially for children aged 6-12 y
www.choosemyplate.gov/kids

CredibleMeds: Drug interactions/long QT
www.crediblemeds.org

American Academy of Pediatrics: Guidelines for using media
www.healthychildren.org/English/media/Pages/default.aspx

Center for Young Women’s Health: General and specific health issues for teenaged girls (eg, PCOS)
www.youngwomenshealth.org
MAYBE YOU NEED A BETTER TEST FOR NEXT FLU SEASON

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3 Roche cobas® Liat® Influenza A/B Package Insert.