The Forum
American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™
Massachusetts Chapter
Newsletter of the Massachusetts Chapter of the American Academy of Pediatrics

PRESIDENT'S MESSAGE

Advocating for Change

It has been almost 22 years since we rushed our daughter Katie into Boston Children's for heart surgery. Katie has Down syndrome, and she was born with a complete AV canal. The memory of crossing over Rte. 128 is still fresh in my mind. Katie's heart failure hadn't responded to aggressive medical management despite a few PICU admissions, and she was on the way to surgery.

Driving in, my mind was filled with a litany of worries. The vision of all the cardiac babies I had cared for, and all their complications, played in my head. It was the era before cellphones, and I was also stressed about finding the hospital, parking, and a place to stay while Katie recovered from surgery. It never occurred to me at the time to worry about insurance. I was a doctor who worked for Kaiser, and Katie's doctor was the head of Kaiser Pediatrics. I knew that Katie was in the best hospital for her surgery and her bills would be paid. All I had to do was be there as a parent, holding her hand and reading her poetry as she recovered.

Today, parents have better technology. A GPS system in their car will direct them to the closest parking space, and their smartphone can compare hotel room rates within 50 miles of the hospital. Although it's clear that parents can now find the nearest Starbucks, it's less clear if they can navigate the complex world of medical care and health insurance. In the past it may have been enough for pediatricians to make the correct diagnosis and prescribe the appropriate treatment. In this era of complex medical care and systems, that may no longer be enough. Pediatricians have always been advocates for patients and their families, helping them get the services they

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Action Guide on ADHD: Next Steps for Patients, Clinicians, and Insurers

A new Action Guide on attention deficit hyperactivity disorder (ADHD) provides a list of specific evidence-based action steps that patients, parents, clinicians, and insurers can take to improve patient outcomes and the overall value of ADHD services.

This Action Guide is based on the results of two reports: 1) the Agency for Healthcare Research and Quality (AHRQ) review of treatment options for ADHD; and 2) a supplementary report developed by the Institute for Clinical and Economic Review (ICER) with additional analyses on ADHD. These reports supported the deliberations of the New England Comparative Effectiveness Public Advisory Council (CEPAC), an independent body made up of physicians and public representatives that provides objective guidance on how information from federally produced evidence reviews can best be used by regional decision-makers to improve the quality and value of health care services.

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EDITOR'S NOTE

It Takes a Family

In this issue of the *The Forum*, I am once again reminded of the importance of parent and pediatrician teamwork. While I often find it difficult to help guide or change the family interactions that are so critical to child development, it is clear that it takes a family — and maybe even the eponymous village — to raise a child.

Family attitudes and behaviors set the stage for a range of child health outcomes. For example, families that drink large amounts of soda and give their toddlers cola from a baby bottle may find that their youngster is overweight or fussy. For the pediatrician, changing the family's behaviors will be key to aiding the child, and any discussion of nutrition and weight will have to make the parents the key agents of change. Depending upon the parents' perceptions, these changes may be unimportant and unwelcome or informative and helpful; knowing how to stay on the latter side of the equation is key to success in virtually every well child visit.

Luckily, most parents of children with ADHD are eager to support change. As Dr. Steven D. Pearson reports in this issue's ADHD update, parental training is one of the most important pillars of ADHD treatment for preschool children. Specifically, as a part of its most recent review of the literature, the New England Comparative Effectiveness Public Advisory Council (CEPAC) "unanimously voted that the evidence is adequate to demonstrate that parent behavior training is superior to usual care in improving the outcomes of preschoolers with ADHD." In addition, this group stated that "Given the strength of evidence for parent behavior training, the uncertainty regarding appropriate diagnosis of ADHD in younger children, and potential long-term effects of medication,

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Submissions for the next issue of *The Forum* should be sent to alight@mcaap.org by December 3, 2012.

Advocating for Change

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need. With health care reform underway in the Commonwealth, pediatricians now have a duty to help create a health care delivery system that will get our patients the care they need.

We have all the heard the saying "kids are not little adults." As pediatricians we all understand how the fascinating process of development makes children totally different than adults, whether that is in their metabolism of drugs or in their social and emotional needs. The individuals designing our state's current health care reform system may not understand the unique needs of our pediatric patients, and it is critical that we articulate those needs and advocate for their coverage in reform. Not only are children small in size, but they're also smaller in number and use smaller amounts of health care dollars. The "big bucks" are spent covering the medical and surgical needs of adults, and policy makers will likely concentrate on adult systems of care as they design our future ACO system.

Unfortunately, the adult ACO model that connects a group of PCPs, specialists, and hospitals in one geographic area may not work for our pediatric patients. I practice in Springfield, and there are plenty of primary and tertiary physicians who can care for the needs of the adult population of our area. Although it is true that the vast majority of my pediatric patients could be cared for in an ACO-centered at Baystate Medical Center, there are some patients with rare disorders whose needs can only be met by high-level specialists in Boston. Since these specialists are often at different hospitals, the classic ACO model wouldn't work and needs a requirement of flexibility in care for complex childhood conditions.

One of my patients has a rare genetic neurodegenerative disease, and he is followed by a specialist in that disease at one Boston hospital. Problems with his leg led to a spine MRI that detected a tumor, and he was referred to a neurosurgeon at another hospital. The disease specialist is concerned that removal of the tumor will precipitate a rapid exacerbation of his disease, and the only treatment for that is a bone marrow transplant at a third hospital. Getting this young boy to all these hospitals

took a lot of work on the part of our medical homecare coordinator. Coordinating this care out of a small practice could be a Herculean effort. Now imagine this in a closed-system ACO based on the adult medicine referral model. You are required to use a specific set of specialists, with perhaps one designated tertiary hospital. Your efforts may be more like Sisyphus. You might be able to get the initial MRI, and maybe even the Pedi Neurology visit. But what if your ACO was designed to only go to Hospital A, but your specialist was at Hospital B, and you needed a procedure at Hospital C? You would push that boulder of paperwork and phone calls up the hill to get approval for one "Out of ACO" specialist, only to find yourself at the bottom of the bureaucratic mountain, pushing the boulder up the hill again for the next specialist or hospital.

Advocating within the health care system to help our patients is something that comes naturally to pediatricians. Creating an ACO system that works for our patients may be something we feel ill equipped to do. Luckily for all of us, the MCAAP has a dedicated group working with legislators to create a system that will work for our patients. Dr. Greg Hagan, our immediate MCAAP past president, worked tirelessly during his term on the issues of the pediatric medical homes, health care reform, and the pediatric friendly ACO. Greg and other dedicated MCAAP members developed three documents that are featured on the MCAAP website under the health care reform section. These documents are designed to inform our members, our families, and our legislators about the MCAAP positions on aspects of health care reform. Our Legislative Committee co-chairs, Drs. McManus and McAlmon, and our lobbyist, Ed Brennan, Esq., will continue to work to be sure that the needs of our pediatric patients, and the concerns of our MCAAP members, are being heard by those crafting the bills. I would urge all of you to read these documents on the MCAAP website and advocate for these positions in discussions you may have with your patients' families, your friends and community contacts, and with your local state legislators.

As Margaret Mead so famously said: "Never doubt that a small group of thoughtful, committed, citizens can change the world. Indeed, it is the only thing that ever has." I know that this small group of MCAAP members is working hard to change our future world of health care. Mead was an anthropologist and not a political scientist. If she were a political scientist she might have added: "That small group thing is great, but when attempting to influence a legislature more is better."

Some legislators may listen to our articulate MCAAP advocates, but the entire legislative body would sit up and take notice if the all the 1,700 members of the MCAAP spoke up in favor of creating a future system that meets the needs of our pediatric patients. After all, many of those same legislators look to us to give them advice about the care and upbringing of their children. Why shouldn't they listen to pediatricians when we offer them advice about the health care system that will be deciding where their children can receive care?

What about those that might not want to listen to pediatricians? They certainly would listen to their constituents, the people who vote them into office. Since the time of brave Ulysses, it has been clear that the human brain has been hard wired to

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Action Guide on ADHD: Next Steps for Patients, Clinicians, and Insurers

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Votes taken by CEPAC emphasized the strength of evidence supporting parent behavior training (PBT) as an effective first-line treatment for most preschool-age children with ADHD. For children over 6 with ADHD, CEPAC noted that the strongest available evidence supports the use of methylphenidate (e.g., Ritalin®), with or without combined behavioral interventions.

Several key considerations are also suggested for clinicians when diagnosing and treating preschoolers and school-age children. For parents, the guide contains resources for finding a qualified parent behavior therapist and information on which medications have proven effectiveness in preschool and school-age populations. In addition, the Action Guide provides examples to payers for formulary placement that could encourage the first-line use of methylphenidate as well as policies that support and encourage more collaboration between primary care providers and psychiatrists.

— Steven D. Pearson, MD, MSc, FRCP

The full Action Guide can be accessed at: http://cepac.icer-review.org/wp-content/uploads/2011/04/Action-Guide_ADHD-FINAL.pdf. For more information on CEPAC, visit: http://cepac.icer-review.org.

SAVE THE DATE

Early Childhood Outcomes: Investing in Our Future

April 5th,
Federal Reserve Bank, Boston

It Takes a Family

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CEPAC indicated that parent behavior training is an appropriate first-line treatment for most preschoolers (medication may still be more appropriate as a first-line therapy for preschoolers with severe symptoms or certain psychiatric comorbidities)."

Parental behavior training is a series of one- to two-hour sessions per week over a course of 2–5 months, focusing on modifying child behavior via rewards as opposed to punitive measures. All are currently provided by outside therapists with specific training and expertise. Many work within a specific framework, including the Positive Parenting Program®, The 4 Incredible Years® parenting program, or Parent-Child Interaction Therapy, although others may provide a combination of strategies on their own. For more information, please see Dr. Pearson's article in this issue or link directly to the full report at http://cepac.icer-review.org/wp-content/uploads/2011/04/Action-Guide_ADHD-FINAL.pdf.

Perhaps even more interesting than the details above is the implication of this new approach. No matter the biology of ADHD, and how many new drugs we have to treat it, at young ages working with the family has superior outcomes for the behavior of the child. While this is the simplest message in all of pediatrics, it is certainly the most important. Yet I often find that I lose this forest in the "trees" of many more minor details.

For me, working to change family dynamics and behaviors can feel like a Sisyphean task. Some families may not be motivated to change or see the benefit to their child's health. Others may be more interested in medications or alternate forms of management, and a third group may have the best of intentions but find new strategies very difficult to put into practice in the context of a busy and unpredictable life. And really, who among us can cast stones? Despite a myriad of governmental recommendations and excellent data on the importance of exercise and meditation in health, I have just one friend who exercises every day — one. And while I admire her greatly, I do not follow her lead in rising at 4:30 a.m. each day to get to the gym before work. For me, exercise is priority number 3 or 4, which means some weeks I get a lot of activity in, and others, well, not so much. And daily meditation has remained on my New Year's resolution list like the proverbial 10 pounds that won't budge — there year after year, without much improvement. Like many of the families that I work with, my intentions are good, but work and family and flat tires and the rush to get dinner on the table often seem to get in the way.

Sadly, even when my patients and their families are eager to make changes, it can be difficult to find the best way to help them. Some areas, like nutrition, have lots of online resources and support. More specific issues may require more time and expertise. In some cases, I can refer out, as with the ADHD parental trainings described above. But what about families who may need an inexpensive gentle nudge as opposed to a full-fledged intervention?

Theses constraints are what make a study reported by Marilyn Augustyn, MD, in this issue's Book Corner so interesting. In the study, providers offered families the loan of one of three children's books designed to model and encourage optimal behavioral strategies. With three different foci, these books helped parents work on sharing, getting children up in the morning, and getting them to bed at night. After just one month, 75 percent of the parents who participated in the trial reported positive improvements in their parenting style and their children's behavior. While far from conclusive, this report gives us a tantalizing hint of another way to reach families and help change their strategies: the gift of a children's book.

As usual, I close this column with no easy answers. Since there are almost as many ways to reach our families as there are families in our practices, I would love to hear your opinions. What strategies have you found work best for you? What ways have you best inspired change? Please write to us as *The Forum* at alight@mcaap.org and share. I, for one, could still use a little help.

— Anne Light, MD

BOOK CORNER

Reading That Works — For Children and Their Caregivers

Labor Day weekend I decided to do what everyone else in New England did: go to the beach for the last hurrah of the season. The weather cooperated and it was a perfect day on Cape Anne; we even got a space in the nonresident parking lot without waiting in line for an hour! Since the tide was in, our blanket spots were limited so we sat next to a large group of parents and their young children. About 20 minutes later, when I had just settled into my last beach read of the summer, I heard a loud shout: "That's 15 minutes." In response, a boy about 6 years of age yelled, "No." His now slightly pinker mom yelled, "That's 30." He then responded, "Then I'm never gonna come back 'cause all you'll do is give me a time out." "That's an hour," was her frustrated response. He started to run, and mom and big sister proceeded to chase him around our blanket — you can guess who won. From about 30 feet up the beach mom shouted at him, "Now that's two hours." His dad joined the chase and proceeded to tackle him and carry him back to the blanket where they said, "OK you are in time out for four hours. The entire time we will be here." When I looked up again about 15 minutes later he was off the blanket, playing in the waves happily and mom and dad were resting.

Hmm. Who won that one?

We all struggle with giving behavioral advice: there's no time, it's too complex to explain, cultural variation in parenting approaches — the list for why it doesn't work is endless. Luckily some very innovative colleagues recently published an intriguing pilot study — you guessed it, using books!

A group in Indiana trialed the approach in three community-based pediatric clinics serving lower income families in central Indianapolis ("A Pilot Study Using Children's Books to Understand Caregiver Perceptions of Parenting Practices," *JDBP*, June 2012, 33(5): 423430). One hundred caregivers of children 4 to 7 years of age presenting for well child care chose one of three available children's books concerning issues that the parent reported currently struggling with: "Ready to Play" (sharing toys), "Ready for the Day" (getting ready in the morning), and "Ready for Bed." The book was read aloud to the child by a trained research assistant in the parent's presence and given to the families to take home. Parents were asked about their intent to change how they interacted with their child at the visit and then again one month later.

The entire interaction took about 5 minutes — 3 minutes to read the book and 2 more minutes to discuss the follow-up. Most caregivers reported intent to change after the book reading; two-thirds were able to identify a specific technique or example from the story they would try. One month later, all caregivers remembered receiving the book and 91 percent reported reading the book to their child and/or sharing it with someone else! If we only had that success with some of our other handouts! Three-fourths of all caregivers reported a change in caregiver-child interactions one month out.

In this pilot study, the distribution of children's books with positive parenting content is feasible and showed good results warranting wider study. It's got to work better than a four-hour time out!

— Marilyn Augustyn, MD, medical director, Reach Out and Read Massachusetts

For more information about Reach Out and Read and early literacy, email Massachusetts Program Director Alison Corning-Clarke at alison.clarke@reachoutandread.org or augustyn@bu.edu.

ShotClock

Re-Emergence of Pertussis in Massachusetts Children

In 2012, Massachusetts reported the first infant death from pertussis since 2002 as well as an increase in cases compared to 2011. The rising number of cases (a two-fold increase in confirmed cases in the first six months compared to 2011) is consistent with reports from 45 additional departments of public health. The resurgence in pertussis is occurring despite the success of the immunization program with DTaP for adolescents, new parents, grandparents, and child caretakers. In Massachusetts, the CDC reports that 91.4 percent of children older than 10 years of age have received at least one dose of TDaP to date.

Infants presenting with apnea and children with persistent cough, with or without whoop, should be suspected regardless of vaccination status. Strategies for limiting the transmission of pertussis include:

1. Be aware of local outbreaks in your community
2. Maintain high rates of vaccination by reviewing patient charts and prioritizing those that need doses of TDaP
3. Think of pertussis in all children with cough
4. Ask about exposures and cough illness in family members
5. If early in the course of disease (first 2 weeks), culture or PCR is valuable in confirming the case and the need for prophylaxis of contacts. Culture is available from the Massachusetts State Laboratory and PCR from commercial laboratories. Culture is specific but insensitive; PCR is sensitive but false positives may occur. NP kits are available from the Massachusetts State Laboratory.
6. Serology is available and has been standardized by the Massachusetts State Laboratory. However, it is not standardized for children less than 11 years of age and is most useful after 2 weeks of illness, limiting its usefulness early in the course of illness.
7. Confirmed cases are reportable to the Massachusetts Department of Public Health.
8. Macrolides are the antibiotic of choice for both treatment and exposure.

— Stephen I. Pelton, MD, FAAP

Influenza Vaccine for Children

The influenza vaccine is recommended for everyone 6 months of age and older. During the 2010–2011 flu season, 65 percent of Massachusetts children 6 months through 17 years of age received flu vaccine, a real testament to the commitment and hard work of pediatric care providers in the state.

The 2012–2013 ACIP recommendations for the prevention and control of influenza with Vaccines can be found at www.cdc.gov/mmwr/pdf/wk/mm6132.pdf.

There are a few special considerations for administering flu vaccine to children:

Vaccine dose considerations for children 6 months through 8 years of age: Children 6 months through 8 years of age require 2 doses of influenza vaccine (administered at least 4 weeks apart) during their first season of vaccination to optimize immune response. Because of the antigenic novelty of the 2009 H1N1 pandemic virus, which is anticipated to continue circulating during 2012–2013, exposure history to this vaccine virus antigen must also be considered. Please use the algorithm below to determine which children 8 years of age and younger need two doses of flu vaccine this season.

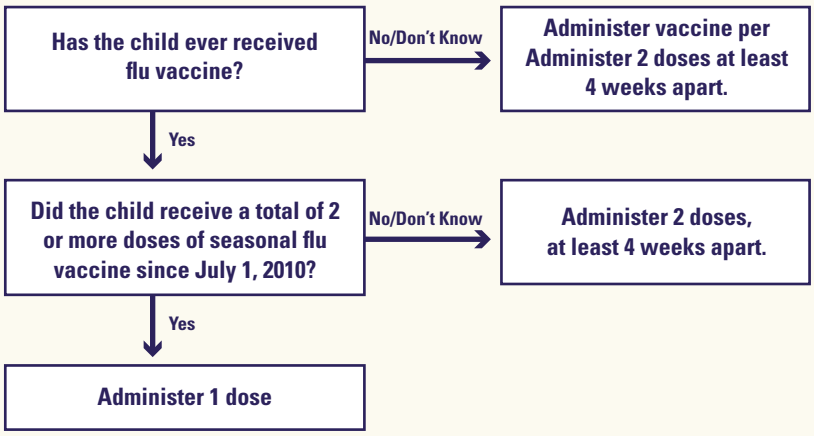
Table 1. Influenza Vaccination Rates in Massachusetts by Age 2010–2011 Influenza Season, August 2010–May 2011

Age Group	Percent Vaccinated
Everyone > 6 months	52%
Children 6 months–17 years	65%
Children 6 months–4 years	83%
Children 5–12 years	59%
Children 13–17 years	53%
Adults ≥ 18 years	49%

Source: CDC, www.cdc.gov/flu/professionals/vaccination/reporti1011/resources/2010-11_Coverage.xls.

Figure 1: Influenza vaccine dosing algorithm for children 6 months through 8 years of age 2012–2013

In situations where there is limited information about a child's influenza vaccination history, use the algorithm below to determine whether a child 6 months through 8 years of age needs one or two doses of flu vaccine this season.



For simplicity, the algorithm on the previous page takes into consideration only doses of seasonal influenza vaccine received since July 1, 2010. As an alternative approach in settings where vaccination history from prior to July 1, 2010, is available, if a child 6 months through 8 years of age is known to have received at least 2 seasonal flu vaccines during any prior season, and at least 1 dose of a 2009 H1N1-containing vaccine — i.e., either 2010–2011 or 2011–2012 seasonal vaccine or the monovalent 2009 H1N1 vaccine — then the child needs only 1 dose for 2012–2013.

Using this approach, children 6 months through 8 years of age need only 1 dose of vaccine in 2013–2013 if they have received any of the following:

- 2 or more doses of seasonal influenza vaccine since July 1, 2010; or
- 2 or more doses of seasonal influenza vaccine before July 1, 1010, and 1 or more doses of monovalent 2009 H1N1 vaccine; or
- 1 or more doses of seasonal influenza vaccine before July 1, 2010, and 1 or more doses of seasonal influenza vaccine since July 1, 2010.

Children 6 months through 8 years of age who do not meet one of these conditions require 2 doses in 2012–2013.

- **Do not use Afluria for children 6 months through 8 years of age.** During the 2010–2011 influenza season, an increased risk for fever and febrile seizures in young children was identified in Australia associated with a 2010 Southern Hemisphere vaccine produced by CSL Biotherapies (up to nine febrile seizures per 1,000 doses). Because of the findings in Australia, ACIP does not recommend the U.S.-licensed CSL Biotherapies' TIV, Afluria, for children under 9 years old. Use other age-appropriate, licensed seasonal flu vaccine formulations to prevent flu in these children. If no other age-appropriate, seasonal flu vaccine is available for a child 5–8 years of age who has a medical condition that increases their risk for complications, Afluria may be given. Discuss the benefits and risks of flu vaccination with the parents or caregivers before administering Afluria.
- **Simultaneous administration of TIV and PCV13 and risk of febrile seizures.** The inactivated influenza vaccine VIS states that, "young children who get inactivated flu vaccine and pneumococcal vaccine (PCV13) at the same time appear to be at increased risk for seizures caused by fever." ACIP chose to include this statement on the VIS to inform parents of this potential risk.

  After evaluating the data on febrile seizures from the 2010–2011 influenza season, and taking into consideration benefits and risks of vaccination, no policy change was recommended for use of TIV or PCV13 for the 2011–2012 season. Findings from surveillance for febrile seizures in young children following influenza vaccine for the 2011–2012 influenza season (same formulation as 2010–2011) were consistent with the 2010–2011 influenza season (CDC unpublished data). No changes in the use of TIV or PCV13 are recommended for the 2012–2013 influenza season. **ACIP does not recommend administering them at separate visits or deviating from the recommended vaccine schedule in any way.**
- **Screen for possible reactive airway disease before using LAIV for children 2–4 years of age.** Do not use LAIV for children with asthma or a recent wheezing episode. If yes to either of the 2 questions below, use TIV.
  - History of asthma or recurrent wheezing within the past 12 months in the medical record
  - Ask parent: "In the past 12 months, has a health care provider told you that your child has wheezing or asthma?"

Egg allergies: ACIP recommends the following approach for administration of influenza vaccine to people with a history of egg allergy.

1. Individuals who have experienced only hives following exposure to egg should receive influenza vaccine with the following additional measures (Figure 2 on the next page):
   a. Use TIV rather than LAIV;
   b. Vaccine should be administered by a health care provider who is familiar with the potential manifestations of egg allergy; and
   c. Observe vaccine recipients ≥ 30 minutes for signs of a reaction following administration of each vaccine dose.

   Other measures, such as dividing and administering the vaccine by a two-step approach and skin testing with vaccine, are not necessary.
2. Persons who report having had reactions to egg involving such symptoms as angioedema, respiratory distress, lightheadedness, or recurrent emesis; or who required epinephrine or other emergency medical intervention, particularly those that occurred immediately or within a short time following egg exposure (minutes to hours) are more likely to have a serious systemic or anaphylactic reaction upon re-exposure to egg proteins. Prior to administration of vaccine, refer such individuals to a physician with expertise in the management of allergic conditions for further risk assessment.
3. Administer all vaccines in settings in which personnel and equipment for rapid recognition and treatment of anaphylaxis are available. The ACIP recommends that all vaccination providers should be familiar with the office emergency plan.
4. Some individuals who report allergy to egg may not be egg-allergic. Those who are able to eat lightly cooked egg (e.g., scrambled egg) without reaction are unlikely to be allergic. Egg allergic persons may tolerate egg in baked products (e.g. bread, cake). Tolerance to egg-containing foods does not exclude the possibility of egg allergy. Confirm egg allergy by a consistent medical history of adverse reactions to eggs and egg-containing foods, plus a skin and/or blood testing for IgE antibodies to egg proteins.
5. A prior severe allergic reaction to influenza vaccine, regardless of the component suspected to be responsible for the reaction, is a contraindication to future receipt of the vaccine.

These recommendations are summarized in the algorithm on the following page.

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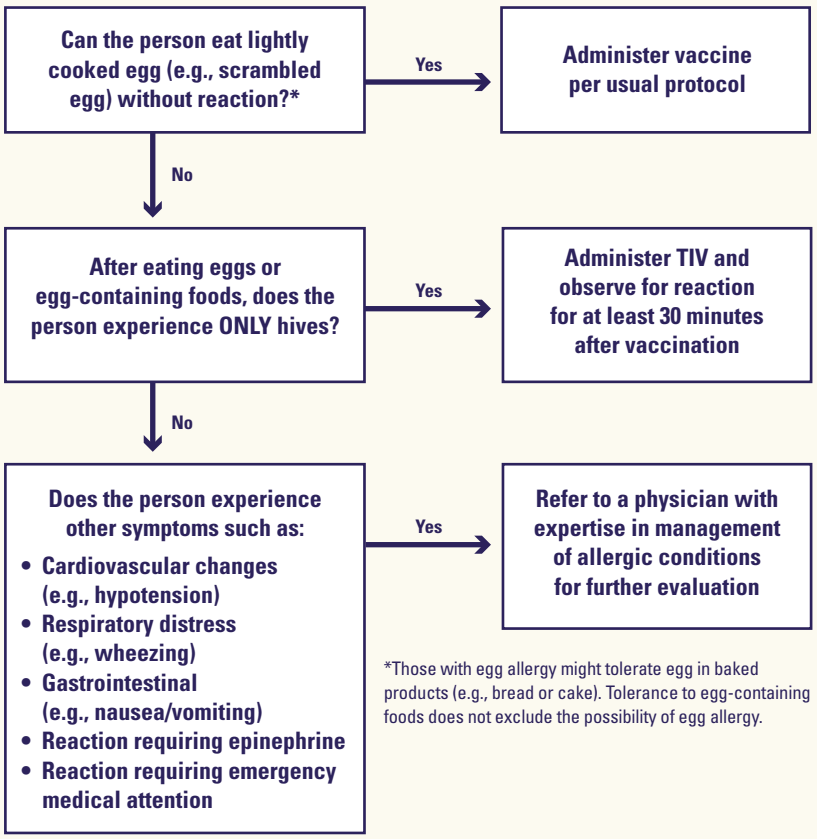
Figure 2. Recommendations Regarding Influenza Vaccination for People Who Report Allergy to Eggs, 2012–2013 Flu Season.



*Those with egg allergy might tolerate egg in baked products (e.g., bread or cake). Tolerance to egg-containing foods does not exclude the possibility of egg allergy.

Influenza Vaccine for Children

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- **H3N2v:** Over the past several months, CDC has confirmed human infection with a novel strain of influenza A (H3N2) virus (referred to as influenza A(H3N2)v for "variant") in a number of people. Formerly called swine-origin triple reassortant influenza A (H3N2), it is an influenza virus that contains genes from human, avian, and swine origins. To date, investigations of these cases revealed human infections with these viruses following contact with swine, particularly during agricultural fairs, as well as limited human-to-human transmission.
- To date, H3N2v has appeared to be similar to seasonal flu in terms of duration (3–5 days) and severity of illness; risk groups; infectious period (7 days from onset); and clinical management. Providers should consider prompt presumptive antiviral treatment of suspect cases. However, to date human-to-human transmission of H3N2v has been limited. No cases of H3N2v have been reported in Massachusetts as of August 28, 2012. — ***Donna Lazorik, RN, MS, Immunization Program, Massachusetts Department of Public Health***

For more information, see the Massachusetts Department of Public Health website at www.mass.gov/eohhs/docs/dph/cdc/immunization/alerts-flu-h3n2-recommendations-providers-patients.pdf and the CDC website at www.cdc.gov/flu/swineflu/h3n2v-clinician.htm.

Coming Soon: Online Vaccine Ordering — Register Now!

The Massachusetts Department of Public Health (MDPH) Immunization Program is transitioning to a new online system for vaccine ordering and annual provider enrollment in early 2013. This new online ordering and enrollment system will be part of a comprehensive **Vaccine Management Module** that will be integrated into the **Massachusetts Immunization Information System** (MIIS). Benefits will include:

- Online ordering through a user-friendly interface — no more faxing vaccine order forms and usage reports
- Ability to view vaccine shipping information
- Online annual re-enrollment
- Comprehensive vaccine management functionality allowing you to track vaccine inventory and usage of all vaccines, including private purchase
- Full integration with the MIIS Vaccine Administration Module allowing for real-time vaccine decrementing from inventory and automatic vaccine usage tracking

The MDPH Vaccine Unit will still continue to review and approve all vaccine orders and requirements for reporting of inventories and vaccine usage and submission of temperature logs will not change, but much of it will now be automated.

In advance of this transition and to be able to continue ordering vaccine from MDPH, we are asking providers who receive state-supplied vaccine to register now with the MIIS to ensure that you will be able to access the online vaccine ordering system when it goes live in early 2013.

To register, please visit the Contact MIIS Resource Center (www.contactmiis.info), click the "Enrollment" tab, scroll down and click the black "Provider Enrollment" button. Registration forms are generated once all required enrollment information is entered. Print the forms, follow the instructional sheet, and send them to the MIIS. Training for vaccine ordering will be coming in early 2013 — MDPH will be in touch!

For questions regarding registration, contact the MIIS Help Desk: (617) 983-4335 or miishelpdesk@state.ma.us. For questions regarding vaccine ordering, contact the Vaccine Unit at (617) 983-6828.

How Using the QuikRead CRP Test and Mandatory Follow-Up Phone Calls May Prevent Serious Bacterial Infections

The July 12 *New York Times* article, "An Infection, Unnoticed, Turns Unstoppable," is about a 12-year-old boy who died from irreversible septic shock caused by *Streptococcus pyogenes* (Strep A sepsis). The day before he became ill he had scraped his arm on a gymnasium floor. The next day he developed vomiting and severe leg pain, and he was seen by his pediatrician and referred to a New York hospital's ER. The boy received two bags of intravenous fluids and an injection of Zofran. He also had blood work done that included a white blood count and differential.

When the boy's symptoms improved, the ER physician discharged him. The blood report that had an abnormal number of immature neutrophils (bands) was printed out three hours after the boy and his parents had left the ER. Neither the emergency room physician nor the referring pediatrician was apprised that there was an elevated band count.

The boy's unfortunate outcome was not only a tragedy for the family, but must have had depressing repercussions on those who were involved in the case. I imagine that there are few pediatricians who have practiced for any length of time who have not missed a diagnosis that has left them with a heightened level of anxiety when dealing with sick patients.

There are approaches, not too difficult to implement, that would have lessened the likelihood of a serous infection being overlooked. One is that a system has to be in place that mandates that all sick patients be contacted by phone or by an outreach worker after they are discharged from a clinician's care. A series of letters to the editor of *The New York Times* in response to the article appeared on July 17. One letter that I wrote stated, "It is fairly routine to have a doctor's office call to remind one of an appointment. But it is equally important to contact the patient after an appointment to learn if the patient that had been treated is having any new problems and if the patient is getting better."

Unfortunately the hospital did not contact the family. According to the article, the physicians involved in the case were never made aware of the high band count. Perhaps if the physicians were informed of the abnormal high number of bands, the boy would have been referred back to the hospital and the appropriate treatment would have begun to prevent the development of irreversible septic shock.

There are 34 substantiated markers of infectious disease besides the customary CBC and differential. Among the indicators of bacterial infection that have recently been used are procalcitonin (PCT), Interleukin-6, and lipopolysaccharide binding protein (LPB) (IL-6).

The erythrocyte sedimentation test (ESR) for many years in the United States has been the most common test of an acute phase reaction and is commonly used in the NEJM CPC's as the test used in discussing case reports. However, numerous articles have shown that it has limited test value. The ESR rises and falls slowly in response to an infection. It basically measures the level of the large fibrinogen molecule, has variable results dependent on blood shapes and anemia, and is a time consuming test that exposes lab personnel to blood.

By contrast, the medical literature, especially the Scandinavian, indicates that C-reactive protein (CRP) is the most reliable indicator of an acute phase reaction responding to inflammation. A recent article (July 2012) in the *Scandinavian Journal of Infectious Diseases* from the Karolonska Institute in Sweden describes the results of 404 adult patients admitted from the emergency department to the hospital with infections. "When compared to the clinicians ability to make accurate antibiotic decisions all variables tested had inferior diagnostic accuracy except CRP.

Orion Diagnostic in Espoo, Finland, has developed a simplified CRP test named QuikRead CRP. Holyoke Pediatric Associates, where I practiced for 45 years, has recently used this test extensively along with a CBC and differential to evaluate sick patients. In 2011 the lab performed 844 QuikRead CRP tests, and the year before, the lab did 904 tests.

The test requires only 20μl (one drop of blood) and takes less than 5 minutes to run. The cost of the test is $4.50. The QuikRead CRP is FDA approved for modified complexity labs. One drop of blood sample has been validated to have the same results as serum samples by several articles in the literature as well as by the

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Baystate Health reference lab that the HPA lab uses.

C-reactive protein is a five-ringed protein (pentaxin) that is synthesized in the liver as part of the acute phase reaction process. After being stimulated by an infectious process, T cells produce interleukins that signal the liver to produce C-reactive protein. The CRP binds to the phosphocholine molecule of the polysaccharide capsule (the letter C refers to capsule). CRP is dependent on calcium as a cofactor. One suggested mechanism of action of CRP is to operate in concert with complement to destroy the capsule wall of bacteria.

Levels of CRP can be detected six hours after an infection has occurred. CRP has a half-life of 19 hours and levels as high as 1,000 times normal have occurred after a severe infection. The decline of the CRP after the infectious process has finished is an excellent indicator of when antibiotic therapy can be stopped. When the CRP level has returned to normal it is safe to discontinue antibiotics, for example, in infants who have been treated for neonatal sepsis. Needless to say this information has significantly reduced the use of antibiotics.

Low-grade inflammation like that seen in atherosclerosis and obesity will cause slight elevations of C-reactive protein that cannot be measured using QuikRead CRP. Instead, a special measurement technique is utilized called High Specificity CRP. hsCRP Levels > 3 mg/L are considered abnormal while >8 mg/L is abnormal for the QuikRead CRP test.

Tracking the rise or leveling off of CRP has been an important way to monitor the progression of an illness. In a 1988 *Journal of Pediatrics* article, H. Peltola and J. Kaalola followed 64 children with positive blood culture and elevated CRP levels over time to determine the course of their illness. Their conclusions were: "We concluded that if the history of illness is at least 12 hours and 2 or more CRP values (taken a few hours apart) are negative, invasive bacterial disease is very unlikely."

At HPA a paradigm that was used was to have patients with borderline elevations of CRP return for a follow-up visit in 6 to 12 hours. If the CRP rose then cultures of urine and blood were done or if there were respiratory symptoms with a rising CRP than a chest X-ray may have been ordered.

To see how the QuikRead CRP test is performed, look up "C-reactive Protein Rapid Test by Interactive Medical Technologies"; on YouTube or Google "Tervis … ICAL-DEC.ppt" for a PowerPoint presentation done in 1985 by an Estonian physician. ***— Robert M. Abrams, MD***

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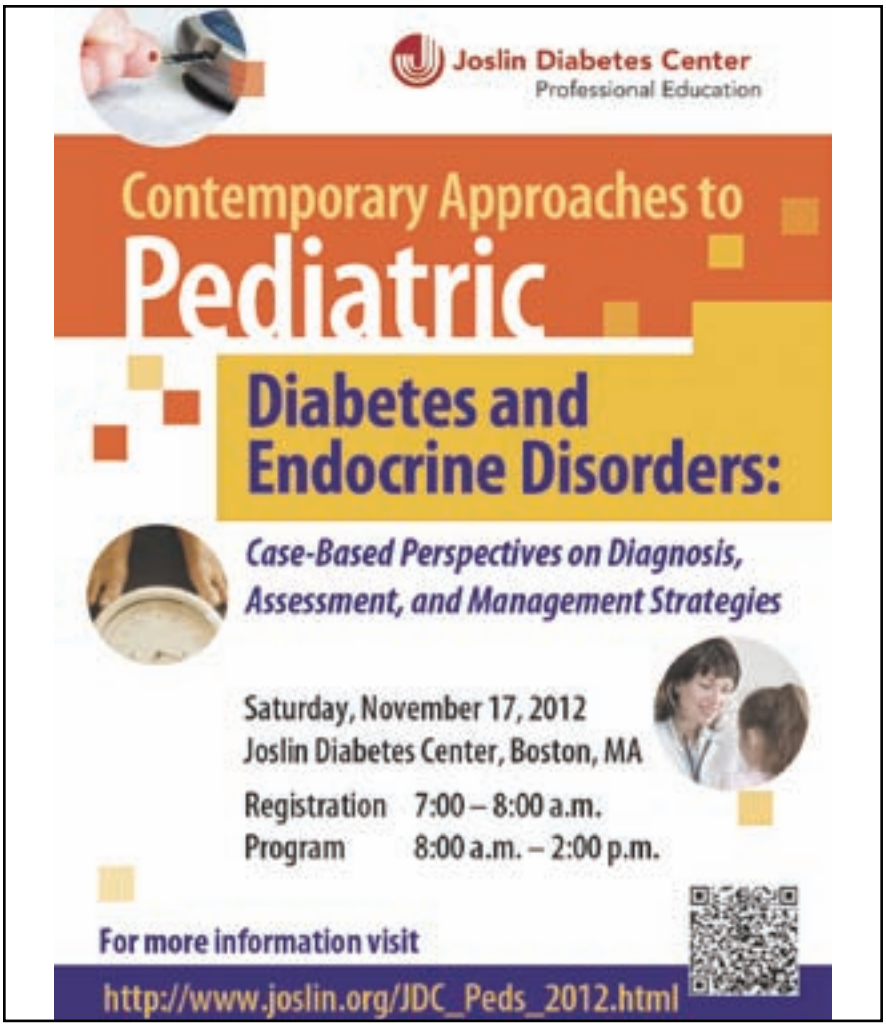

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Advocating for Change

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listen to stories. As pediatricians we all have stories of how the health care system has helped or harmed our patients as they have sought to receive care. We all know articulate parents who can tell compelling stories about their struggles with the system. I would ask all our members to begin to write down these stories and send them along to MCAAP Executive Director Cathleen Haggerty. There may be a time when your patient's stories will catalyze legislative action.

So what should our 1,700-member-strong group of dedicated pediatricians do to change our future health care system? Get informed by going to the MCAAP website and reading the updates from the legislative committee about what is happening on Beacon Hill and elsewhere. Get involved by contacting Haggerty and letting her know how you would like to help with this important cause. Raise your voice and begin conversations within your practices, within your communities, and with your state representatives. Tell your (and your patients') stories. Stories are the most powerful tool we may have to inform the public and persuade legislators.

I think Margaret Mead's insight is correct. I believe that our group of thoughtful and committed pediatricians can change the world, and create a health care system that will benefit the next generation of patients and pediatricians. I will fight to help Katie and my young patient with adrenoleukodystrophy. Who will you be fighting for? I look forward to working together to achieve our goal of a health care system that meets the needs of all of our pediatric patients and all the people who care for them.

— John O'Reilly, MD, FAAP