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An Update: 2007

Recommended Immunization Schedules Birth to Age 18

Ellen Link, MD, Department of Pediatrics, Iowa Children's Hospital Teresa Thornton, RNC, Iowa Department of Public Health

In the last few years several new vaccines have been added to the list of recommended immunizations for infants, children and adolescents. As a result it has been necessary to update the recommended schedule. The revised schedules are provided here (see pages 5-6) for your convenience, as well as the rationale for the recently added vaccines.

The Advisory Committee on Immunization Practices (ACIP) periodically reviews the recommended immunization schedule for persons aged 0-18 years to ensure that the schedule is current with changes in vaccine formulations and reflects revised recommendations for the use

of licensed vaccines, including those newly licensed.

Changes in the new, 2007 childhood and adolescent immunization schedule include:



- Rotavirus vaccine. The recommended administration of the new rotavirus vaccine, RotaTeq, is a 3-dose schedule at ages 2, 4, and 6 months. Children should be given the first dose between the ages of 6-12 weeks. Subsequent doses should be administered at 4-10 week intervals.
- Varicella vaccine. Varicella vaccine recommendations have been updated. Children should receive the first dose at age 12-15 months. A newly recommended second dose should be administered at age 4-6 years.

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Human papillomavirus vaccine (HPV). The new human papillomavirus vaccine is recommended in a 3-dose schedule for girls. The first dose of the series may be administered to girls as young as 9 years old, with routine vaccination recommended for girls between the ages of 11-12 years. The second and third doses should be given 2 months and 6 months after the first. Catch-up vaccination is recommended for females age 13-26 years who have not been vaccinated previously or who have not completed the full series. (See also HPV, page 3.)

Two schedules. This year, the schedule of recommended immunizations has been broken into two schedules:

- Immunizations for children from birth through 6 years
- Immunizations for children from 7-18 years

A schedule for catch-up immunizations for children from age 4 months through 18 years is also available. This schedule can be used with children who are beginning immunizations late or are more than a month behind on immunization.

These schedules have been approved by the Advisory Committee on Immunization Practices, the American Acad-

emy of Pediatrics, and the American Academy of Family Physicians.

Use IRIS to Monitor Immunization Status

IRIS. Iowa's Immunization Registry Information System, helps lowa health care providers and families by consolidating immunization information into one reliable source. IRIS saves money by ensuring that children get only the vaccines they need. In addition, IRIS improves office efficiency by reducing the time needed to gather and review immunization records

Learn more about IRIS

Visit: http://www.idph. state.ia.us/adper/iris.asp

Call: IRIS Help Desk, 800-374-3958

Vaccine updates

Hepatitis A. All children should receive hepatitis A vaccine, beginning at 1-2 years of age, as part of the routine childhood schedule (MMWR May 19, 2006).

Influenza. Routine vaccination for influenza is now recommended for all children age 6 months through 5 years. Vaccination is also recommended for

household contacts and out-ofhome caregivers of all children through 5 years of age.

Pertussis. In the spring of 2005, for the first time in history, vaccines became available to protect teenagers and adults against whooping cough. Two new vaccines, for tetanus, diphtheria and pertussis (Tdap), were licensed and recommended. Adolescents 11-18 years old should receive a single dose of Tdap instead of Td, preferably at 11-12 years of age. All adults through 64 years of age, and especially adults who anticipate close contact with infants less than a year old - such as parents, child care providers, and health care professionals - should be immunized with a single booster dose of Tdap.

RESOURCES

ACIP Immunization Recommendations and Schedules, 2007, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5551a7.htm

ACIP Vaccine Information Statements for childhood vaccines, http://www.cdc. gov/nip/publications/acip-list. htm

EPSDT Care for Kids Provider Web Site, http://www.iowaepsdt.org

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Guillain-Barre syndrome http://www.cdc.gov/MMWR/ preview/mmwrhtml/ mm54d1006a1.htm

Human papillomavirus-virus (HPV) http://www.cdc.gov/std/hpv/

Influenza fact sheet, http:// www.idph.state.ia.us/adper/ common/pdf/epi_manual/ influenza.pdf

Influenza Outbreak Guidelines, http://www.idph.state. ia.us/adper/common/pdf/flu/ flu home.pdf

lowa's Immunization Registry Information System (IRIS), http://www.idph.state.ia.us/adper/iris.asp

Meningitis, http://www.cdc. gov/ncidod/dbmd/diseaseinfo/ meningococcal_g.htm

Rotavirus, http://www.ccdc. gov/od/science/iso/concerns/ rotavirus.htm

Thimersol (mercury), http://www.cfda.gov/cber/vaccine/thimerosal.htm#saf

Vaccines and the diseases they prevent, http://www.cdc.gov/nip/menus/diseases.htm



Human Papillomavirus (HPV) Vaccination

Human papillomavirus (HPV) is the most common sexually transmitted infection in the United States. More than 100 types of HPV are known, and about 40 of these infect the human genital tract. HPV infects the skin, genital area, and lining of the cervix. Fifty to 75% of sexually active adults acquire at least one type of HPV during their lifetime.

Although most of these infections are asymptomatic and clear spontaneously, the FDA estimated that in 2006 more than 9,700 women in the U.S. would be diagnosed with cervical cancer, and 3,700 women would die of this disease.

In 2006 the FDA approved the HPV vaccine Gardasil, and the Advisory Committee on Immunization Practices recommended the vaccine be incorporated into the routine schedule of childhood immunizations. A quadrivalent HPV vaccine, Gardasil is 90-100% effective against:

- HPV types 16 and 18, which cause about 70% of cervical cancers
- HPV types 6 and 11, which cause about 90% of genital warts

Vaccination is recommended for girls between the ages of 11-12, and licensed for use in females between the ages of 9 and 26. Immunization is most effective when given before a girl becomes sexually active, as it then provides protection against all four HPV types.

Although the vaccine has no therapeutic affect against existing disease, sexually active young women can also benefit, as they will be protected against any of the four types of HPV which they have not yet contracted.

Routine screening using the Pap test is still vital, for Gardasil protects against only four of the more than 100 types of HPV, and does not safeguard young women who have already contracted HPV.

Meningococcal Conjugate Vaccine

In February 2005 the Center for Disease Control Advisory Committee on Immunization Practices (ACIP) recommended routine vaccination of adolescents 11-12 years of age with a meningococcal conjugate vaccine (MCV4), Menactra.

This vaccine protects against several strains of *Neisseria meningitides*, which causes bacterial meningitis -- a sudden and serious disease that can have a very rapid course. Death occurs in 10-14% of all cases; 11-19% will suffer serious sequelae that can include

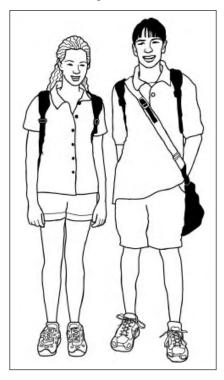
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deafness, neurologic deficit, or limb loss.

Routine vaccination with Menactra is now recommended for:

- Children age 11-12 years of age
- Adolescents entering high school
- College freshmen, especially those living in dormitories



Menactra vaccination continues to be recommended for other populations at increased risk for meningococcal disease, including people who:

- Are entering the military
- Are traveling or living in countries where N. meningititides is hyperendemic or epidemic
- Have terminal compliment deficiencies
- Have functional or anatomic asplenia
- Have HIV infection

In 2005, the FDA and CDC issued an alert about Guillain-Barre Syndrome (GBS) occurring among recipients of Menactra. GBS is a rare but serious neurologic disorder involving inflammatory demyelination of peripheral nerves. At this point, CDC is unable to determine whether Menactra increases the risk of GBS in persons who receive the vaccine, for its background rate is not precisely known.

Because the risk for serious meningococcal disease is significant, the CDC continues to recommend Menactra vaccination for the populations above. Health care providers should talk with adolescents and their caregivers about this concern; providers should use the CDC's "Meningococcal Vaccine Information Statement," which is available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5541a2. htm?s_cid=mm5541a2_e).

While this investigation is ongoing, people with a history of GBS who are not in a high risk group for meningococcal disease should not receive Menactra.

Reporting Adverse Effects

Providers should report vaccine-related adverse effects, including GBS or intussusception, by contacting:

VAERS (Vaccine Adverse Events Reporting System)
http://www.vaers.hhs.gov
1-800-822-7967

Rotavirus Vaccine

Rotavirus is the leading cause of severe gastroenteritis in infants and toddlers. The AAP reports that nearly all children in the US will have been infected by rotavirus by the time they are 5 years old. Severe rotavirus gastroenteritis is primarily found in children age 3 months to 3 years. The CDC reports that each year in the US, rotavirus is responsible for about:

- 410,000 physician visits
- 205,000--272,000 emergency department visits
- 55,000--70,000 hospitalizations

RotaTeq. RotaTeq is a new rotavirus vaccine, licensed by the FDA for use in infants. Studies indicate that administering three doses of RotaTeq vaccine to infants 6- 32 weeks old prevents:

- 74% of all cases of rotavirus
- 98% of the most serious rotavirus infections

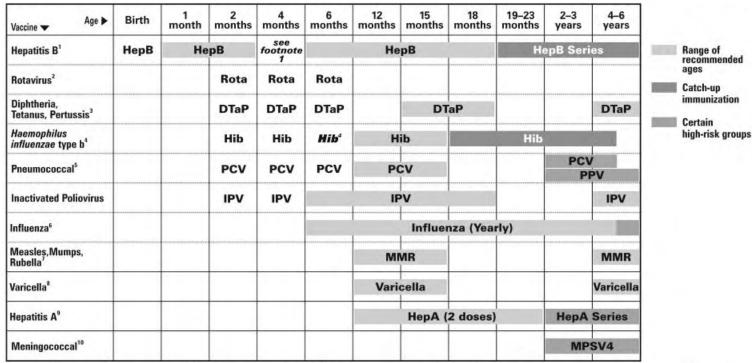
The American Academy of Pediatrics recommends routine immunization, using 3 doses of RotaTeq given orally at 2, 4, and 6 months of age. Infants must receive the first dose at between 6 and 12 weeks of age. Doses are given at 4-10 week intervals, and all three doses should be given before the infant is 32 weeks old.

Intussusception. In February 2007 the FDA notified health

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Recommended Immunization Schedule for Ages 0—6 Years UNITED STATES • 2007



This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children through age 6 years. For additional information see www.cdc.gov/nip/recs/child-schedule.htm. Any dose not administered at the recommended age should be administered at any subsequent visit when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components

of the combination are indicated and other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective ACIP statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at www.vaers.hhs.gov or by telephone, 800-822-7967.

Hepatitis B vaccine (HepB). (Minimum age: birth) At birth:

- Administer monovalent HepB to all newborns prior to hospital discharge.
- If mother is HBsAg-positive, administer HepB and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth.
- If mother's HBsAg status is unknown, administer HepB within 12 hours of birth.
 Determine the HBsAg status as soon as possible and if HBsAg-positive, administer HBIG (no later than age 1 week).
- If mother is HBsAg-negative, the birth dose can only be delayed with physician's order and mothers' negative HBsAg laboratory report documented in the infant's medical record.

Following the birth dose:

• The HepB series should be completed with either monovalent HepB or a combination vaccine containing HepB. The second dose should be administered at age 1–2 months. The final dose should be administered at age ≥24 weeks. Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody to HBsAg after completion of 3 or more doses in a licensed HepB series, at age 9–18 months (generally at the next well-child visit).

4-month dose of HepB:

 It is permissible to administer 4 doses of HepB when combination vaccines are given after the birth dose. If monovalent HepB is used for doses after the birth dose, a dose at age 4 months is not needed.

2. Rotavirus vaccine (Rota). (Minimum age: 6 weeks)

- Administer the first dose between 6 and 12 weeks of age. Do not start the series later than age 12 weeks.
- Administer the final dose in the series by 32 weeks of age. Do not administer a dose later than age 32 weeks.
- There are insufficient data on safety and efficacy outside of these age ranges.

3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). (Minimum age: 6 weeks)

- The fourth dose of DTaP may be administered as early as age 12 months, provided 6 months have elapsed since the third dose.
- Administer the final dose in the series at age 4–6 years.
- 4. Haemophilus influenzae type b conjugate vaccine (Hib). (Minimum age: 6 weeks)
 - If PRP-OMP (PedvaxHIB® or ComVax® [Merck]) is administered at ages 2 and 4 months, a dose at age 6 months is not required.
 - TriHiBit® (DTaP/Hib) combination products should not be used for primary immunization but can be used as boosters following any Hib vaccine in ≥12 months olds.

- Pneumococcal vaccine. (Minimum age: 6 weeks for Pneumococcal Conjugate Vaccine (PCV); 2 years for Pneumococcal Polysaccharide Vaccine (PPV))
 - Administer PCV at ages 24-59 months in certain high-risk groups. Administer PPV to certain high-risk groups aged ≥2 years. See MMWR 2000; 49(RR-9):1-35.
- Influenza vaccine. (Minimum age: 6 months for trivalent inactivated influenza vaccine (TIV); 5 years for live, attenuated influenza vaccine (LAIV)
 - All children aged 6–59 months and close contacts of all children aged 0–59 months are recommended to receive influenza vaccine.
 - Influenza vaccine is recommended annually for children aged ≥59 months with certain risk factors, healthcare workers, and other persons (including household members) in close contact with persons in groups at high risk. See MMWR 2006; 55(RR-10);1-41.
 - For healthy persons aged 5–49 years, LAIV may be used as an alternative to TIV.
 - Children receiving TIV should receive 0.25 mL if aged 6–35 months or 0.5 mL if aged ≥3 years.
 - Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by ≥4 weeks for TIV and ≥6 weeks for LAIV).

7. Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)

Administer the second dose of MMR at age 4–6 years. MMR may be administered prior to age 4–6 years, provided ≥4 weeks have elapsed since the first dose and both doses are administered at age ≥12 months.

8. Varicella vaccine. (Minimum age: 12 months)

Administer the second dose of varicella vaccine at age 4–6 years. Varicella vaccine may be administered prior to age 4–6 years, provided that ≥3 months have elapsed since the first dose and both doses are administered at age ≥12 months. If second dose was administered ≥28 days following the first dose, the second dose does not need to be repeated.

9. Hepatitis A vaccine (HepA). (Minimum age: 12 months)

- HepA is recommended for all children at 1 year of age (i.e., 12–23 months).
 The 2 doses in the series should be administered at least 6 months apart.
- Children not fully vaccinated by age 2 years can be vaccinated at subsequent visits.
- HepA is recommended for certain other groups of children including in areas where vaccination programs target older children. See MMWR 2006; 55(RR-7):1-23.

10. Meningococcal polysaccharide vaccine (MPSV4). (Minimum age: 2 years)

 Administer MPSV4 to children aged 2–10 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high risk groups. See MMWR 2005;54 (RR-7):1-21.

Recommended Immunization Schedule for Ages 7–18 Years UNITED STATES • 2007

Vaccine ▼ Age ▶	7-10 years	11-12 YEARS	13–14 years	15 years	16–18 years	
Tetanus, Diphtheria, Pertussis¹	see footnote Tdap To			Tdap		Range of recommended ages Catch-up immunization Certain
Human Papillomavirus²	see footnote	HPV (3 doses)	HPV Series			
Meningococcal ³	MPSV4	MCV4	MCV4 ³ MCV4			
Pneumococcal ⁴	PPV					high-risk groups
Influenza ⁵	Influenza (Yearly)					
Hepatitis A ⁶		HepA Series				
Hepatitis B ⁷		HepB Series				
Inactivated Poliovirus ⁸		IPV Series				
Measles, Mumps, Rubella ⁹		MMR Series				
Varicella ¹⁰		Varicella Series				

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 7–18 years. For additional information see www.cdc.gov/nip/recs/child-schedule.htm. Any dose not administered at the recommended earlier age should be administered at any subsequent visit when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of

the combination are indicated and other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective ACIP statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at www.vaers.hhs.gov or by telephone, 800-822-7967.

FOOTNOTES

Tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap).

(Minimum age: 10 years for BOOSTRIX® and 11 years for ADACEL™)

- Administer at age 11–12 years for those who have completed the recommended childhood DTP/DTaP vaccination series and have not received a Td booster dose.
- Adolescents 13–18 years who missed the 11–12 year Td/Tdap booster dose should also receive a single dose of Tdap if they have completed the recommended childhood DTP/DTaP vaccination series.
- 2. Human papillomavirus vaccine (HPV). (Minimum age: 9 years)
 - Administer the first dose of the HPV vaccine series to females at age 11-12 years.
 - Administer the second dose 2 months after the first dose and the third dose 6 months after the first dose.
 - Administer the HPV vaccine series to females at age 13–18 years if not previously vaccinated.
- 3. Meningococcal vaccine. (Minimum age: 11 years for meningococcal conjugate vaccine (MCV4); 2 years for meningococcal polysaccharide vaccine (MPSV4))
 - Administer MCV4 at age 11–12-years and to previously unvaccinated adolescents at high school entry (~15 years of age).
 - Administer MCV4 to previously unvaccinated college freshmen living in dormitories; MPSV4 is an acceptable alternative.
 - Vaccination against invasive meningococcal disease is recommended for children and adolescents aged ≥2 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high risk groups. See MMWR 2005;54 (RR-7):1-21. Use MPSV4 for children aged 2–10 years and MCV4 or MPSV4 for older children.
- Pneumococcal polysaccharide vaccine (PPV). (Minimum age: 2 years)
 - Administer for certain high-risk groups. See MMWR 1997; 46(RR-08);
 1–24 and MMWR 2000; 49(RR-9):1-35.
- Influenza vaccine. (Minimum age: 6 months for trivalent inactivated influenza vaccine (TIV); 5 years for live, attenuated influenza vaccine (LAIV)

- Influenza vaccine is recommended annually for persons with certain risk factors, healthcare workers, and other persons (including household members) in close contact with persons in groups at high risk. See MMWR 2006; 55(RR-10);1-41.
- For healthy persons aged 5–49 years, LAIV may be used as an alternative to TIV.
- Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by ≥4 weeks for TIV and ≥6 weeks for LAIV).
- 6. Hepatitis A vaccine (HepA). (Minimum age: 12 months)
 - The 2 doses in the series should be administered at least 6 months apart.
 - HepA is recommended for certain other groups of children including in areas where vaccination programs target older children. See MMWR 2006; 55(RR-7):1-23.
- 7. Hepatitis B vaccine (HepB). (Minimum age: birth)
 - Administer the 3-dose series to those who were not previously vaccinated.
 - A 2-dose series of Recombivax HB® is licensed for 11–15 year olds.
- 8. Inactivated poliovirus vaccine (IPV). (Minimum age: 6 weeks)
 - For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if third dose was administered at age ≥4 years.
 - If both OPV and IPV were administered as part of a series, a total of 4 doses should be given, regardless of the child's current age.
- Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)
 - If not previously vaccinated, administer 2 doses of MMR during any visit with ≥4 weeks between the doses.
- 10. Varicella vaccine. (Minimum age: 12 months)
 - Administer 2 doses of varicella vaccine to persons without evidence of immunity.
 - Administer 2 doses of varicella vaccine to persons aged <13 years at least 3 months apart. Do not repeat the second dose, if administered ≥28 days following the first dose.
 - Administer 2 doses of varicella vaccine to persons aged ≥13 years at least 4 weeks apart.

care providers and consumers about reports of intussusception following administration of RotaTeq. It is not known whether these incidents are vaccine-related; CDC unpublished data show that the number of cases reported to date does not exceed the number expected based on background rates.

The AAP continues to recommend the routine use of RotaTeq. Providers should talk with parents about risks and benefits, and ask them to contact the provider immediately if their child shows signs of intussusception. Symptoms of intussusception, which can appear several weeks after vaccination with RotaTeq, are:

- Blood in stool
- Change in bowel movements
- Diarrhea
- Stomach pain
- Vomiting

For more information, visit "About Intussusception and RotaTeq Vaccine," http://www.cdc.gov/od/science/iso/concerns/rotavirus.htm.



Coming Your Way...

Public-Private Partnerships for Early Childhood Healthy Mental Development

Teresa Thornton, R.N.C., Iowa Department of Public Health Sonni Vierling, Iowa Department of Public Health

Have you ever:

- Made a referral and then wondered, "Did the family make the call?
- Worked with a family who continually misses wellchild visits due to family stress?
- Not asked probing questions about parental depression because you weren't sure whether community resources existed for referral?

If these questions are familiar, public-private partnerships can help. They offer a streamlined process, from identification of developmental and social-emotional concerns to coordination of referrals and follow-up.

lowa's Assuring Better Child Development (ABCD II) project has made real progress in infusing healthy mental development principles and practice into lowa's Medicaid EPSDT system. The last issue of this newsletter highlighted the screening standards resulting from this three-year project (www.iowaepsdt.org/Screening

Resources/Standards.htm); another critical component is a public-private system of collaborative practice (www.iowaepsdt.org/EPSDT News/2007/LinkingToFamily Resources.htm).

The Public-Private Partnership promotes healthy mental development by enhancing the referral process and linking with effective services for children at risk. Medical providers who participated in the ABCD II project acknowledge that the expertise of local public health agencies is often the key to effective referrals for families and children.

The fall '07 EPSDT Care for Kids Newsletter will feature creative strategies that public-private providers have developed to serve families better through more effective referral and follow-up.

PLEASE NOTE new email address: To contact Kris Tiernan for information about opportunities available to your practice for ABCD II training and technical assistance, email kristintiernan@uiowa.edu.

What's in this issue

If you have questions about **billing** related to EPSDT Care for Kids services, please call Provider Services: **1-800-338-7909**

If you have questions about **clinical issues** and EPSDT Care for Kids services, please call

1 - 800 - 383 - 3826

Please note: Due to budget restraints, the *EPSDT Care for Kids Newsletter* is sent to offices and organizations, rather than to individuals.

The newsletter is also available online at http://www.iowaepsdt.org/EPSDTNews/

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The EPSDT Care for Kids Newsletter is published three times a year, in print and online, as a joint effort of the Iowa Prevention of Disabilities Policy Council, the Iowa Department of Human Services, the Iowa Department of Public Health, and the Center for Disabilities and Development, which is nationally designated as Iowa's University Center for Excellence on Disabilities. The goal of this newsletter is to inform lowa health care professionals about the EPSDT Care for Kids program, to encourage them to make use of this important resource, and to provide them with information about a wide range of developments in the field of health care.

NEWSLETTER STAFF

Executive Editors

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Editorial Board

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Any correspondence concerning the newsletter should be addressed to:

Claibourne I. Dungy, MD, MPH or Ellen Link, MD Family Care Center – Pediatrics University of Iowa Hospitals and Clinics 200 Hawkins Drive 01212 - PFP Iowa City, IA 52242-1083



Children's Hospital of Iowa Center for Disabilities and Development University Center for Excellence on Disabilities 100 Hawkins Drive Iowa City IA 52242-1011 PRSRT STD US Postage PAID Permit 45 Iowa City, Iowa