

Weaving a safety net to protect newborns from HBV

Involve health care professionals at all stages of the continuum to improve rates of hepatitis B vaccination in newborns

A woman of Asian descent presents at your delivery unit to give birth. Prenatal records you receive from her primary care physician indicate that she tested negative for hepatitis B virus (HBV). The baby is delivered safely, but no birth dose of HBV vaccine is given. Three months later, the same baby is brought to your emergency department with fever, diarrhea, and jaundice. She dies four days later of hepatic failure resulting from HBV infection. Tragically, this is not a hypothetical scenario—it occurred in a hospital in December 1999, and about 200 similar episodes of HBV testing errors occur annually.¹

According to the Immunization Action Coalition (IAC), around 19,000 women with chronic hepatitis B infection give birth each year in the United States, and at least 90% of perinatal infections can be prevented by administering the HBV vaccine within 12 hours of birth.² However, many hospitals and birthing facilities do not automatically immunize newborns. “It’s mainly a convenience issue and a cost issue,” notes Deborah Wexler, MD, executive director of the IAC. “It’s easier for the physician to give [the first dose of vaccine] in the clinic at the first wellness check than to have to track down the hospital records and find out whether the baby got a birth dose. Also, some physicians prefer to give the HBV vaccine in combination with the Hib vaccination at 6 to 8 weeks, not realizing that the birth dose doesn’t preclude the use of the combined vaccine.” The cost problem can also be a big one. “Hospitals or clinics may receive a flat rate [from insurers] for delivering a baby; a dose of hepatitis B vaccine isn’t necessarily included in that rate so they’re not being reimbursed for it.*” In addition, physicians and staff may not feel that immediate vaccination is important because they perceive their patient population as low risk for HBV infection.³

* Hepatitis B vaccine is actually one of the least expensive; some states provide it free for all babies. If your organization is concerned about the cost of providing HBV vaccine, you can enroll in Vaccines for Children (VCF) through your state immunization program. The VCF program provides free vaccine for children who are on Medicaid, are uninsured, or are Native American.

Joint Commission Expectations

CAMH: IC.6. The hospital’s infection control process is designed to lower the risks and to improve the (proportional) rates or (numerical) trends of epidemiologically significant infections.

PE.5. The assessment process for an infant, child, or adolescent patient is individualized. To the patient’s needs. The following are assessed and documented as appropriate to the patient’s age and needs: . . . the patient’s immunization status. . . . Documentation includes written evidence of immunization history or reliable oral verification that is subsequently documented by hospital staff.

Dangerous errors that can slip through

Many organizations have a standard practice of HBV immunization for infants of high-risk mothers (for example, those of Asian Pacific Islander or African descent) or mothers who have tested positive for hepatitis B surface antigen (HBsAg). However, mistakes can occur at many points along the continuum of care from initial prenatal testing to postnatal care (see box).

Because these types of mix-ups can have potentially fatal consequences, organizations such as the American Academy of Pediatrics (AAP), American Academy of Family Physicians (AAFP), American College of Obstetricians and Gynecologists, and the U.S. Public Health Service all endorse the birth dose. “Although several immunization schedules have been shown to be effective in infants and children, the AAP recommends that the first dose [of vaccine] be administered to infants before they leave the hospital,” states Tom Saari, MD, FAAP, professor of pediatrics in the Division of Pediatric Infectious Disease at University of Wisconsin Medical School. “The AAP has supported birth dosing since April 1992, and one of the main reasons is that it’s a guaranteed contact with the health system.” A CDC/University of Chicago survey (available on the IAC Web site) showed that administering HBV vaccine “on time” increases the likelihood of all immunizations being completed on schedule.²

Threads for a stronger net

As with policies in any area of your organization, your immunization policies can benefit from the input

of everyone on the multidisciplinary team. Researchers for the University of Michigan Health System studied how nursery HBV vaccination policies were developed and found that many hospitals involve nurses and pharmacists (in addition to physicians) in the processes of staying current with immunization recommendations and establishing/refining related policies.⁴ “We found that even though physicians usually head the nursery department, they’re transient; many of them rotate responsibility with other physicians,” explains Michael Cabana, MD, MPH, Child Health Evaluation and Research Unit, Division of General Pediatrics. “Our surveyors spoke with physicians who often referred them to nurses who were more familiar with day-to-day procedures in the nursery.”

Brookdale University Hospital and Medical Center in Brooklyn, New York, enlisted the participation of all involved staff—including nurses, physicians, pharmacists, lab technicians, and infection control experts—to review their immunization processes and improve rates of administration of hepatitis B vaccine/hepatitis B immune globulin (HBIG) to high-risk infants before discharge. “Communication was definitely the biggest problem,” states Linda Jendresky, MT, MPH, CPHQ, team leader of the improvement project. “Not only are some mothers self-referred with no prenatal care, we have a substantial private physician community and many ambulatory clinics as well, and we have to get all their prenatal records prior to delivery.” Nurse manager Thelma Martin, RN, MSN, agrees: “The population we serve is nomadic, so it was very difficult to track down their information. We recognized that we needed some new technology to improve communication.”

Among the improvements Brookdale instituted was universal software that allows communication between hospital units, the laboratory, and clinics. Nurses can download information about a mother’s hepatitis B status directly from the lab, and anyone without documentation of third trimester screening is tested for HBsAg in the labor and delivery (L&D) unit. Fax machines were also made available for faster communication with physician practices and transmission of prenatal records. Staff also

Be on Alert!

Common errors can keep a high-risk newborn from getting a birth dose of HBV vaccine

- A pregnant woman tests positive for HBsAg, but her status is not communicated to the hospital’s newborn nursery.
- A pregnant woman with chronic hepatitis is given the wrong test for HBsAb (antibody to hepatitis B surface antigen) instead of HBsAg, resulting in a “negative” test.
- A pregnant woman tests positive for HBsAg, but the test results are misinterpreted or transcribed incorrectly in her prenatal record or her infant’s chart.
- A woman is not screened for HBV or is screened early in her pregnancy and then develops HBV infection in her second or third trimester.
- A high-risk woman is HbsAg negative, but soon after birth her baby is exposed to HBV from another family member.

How Well Informed Are You?

The following Web sites provide up-to-date information on recommended immunization practices, schedules, vaccination rates, and advice for health care professionals in all settings:

American Academy of Pediatrics

www.aap.org/new/immpublic.htm

Centers for Disease Control and Prevention

www.cdc.gov/nip/vacsafe

Immunization Action Coalition

www.immunize.org

National Network for Immunization Information

www.immunizationinfo.org

National Task Force on Hepatitis B Immunizations:

Focus on Asian Pacific Islanders

www.aapihp.com

addressed the need to communicate with patients about the importance of vaccination, something that prenatal care may not explain thoroughly. Women entering L&D are given an informational pamphlet about how infants may be put at risk for HBV infection, the importance of vaccination, and recommended schedules.

The key to success in any improvement project is getting buy-in from those involved, and improving newborn care with higher vaccination rates is something the members of your team will probably be able to back wholeheartedly. “You’re protecting infants from a possible human error,” attests Wexler. “You just have to look at what’s more important—cost and convenience or saving lives.”

References

1. Fasano N: Infant dies of fulminant hepatitis B, 1999. *Needle Tips*, Spring/Summer 2000. Available at www.immunize.org/stories/story34.htm.
2. Wexler D: Give the birth dose! Providing all infants with hepatitis B vaccine at birth saves lives. [Letter] www.immunize.org/birthdose/letter.htm. Oct 9, 2001.
3. Hurie MB, Saari TN, Proctor ME, Davis JP: Hospitals’ responses to universal hepatitis B vaccination recommendations. *Pediatrics* 96(5):875–79, Nov 1995.
4. Cabana MD, Aiken KD, Clark SJ: Newborn hepatitis B vaccination policy in hospital nurseries. *Pediatrics* 109(2):E21–E26, Feb 2002.