

# Hospital Infection Control & PREVENTION

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## As hepatitis outbreaks continue, CDC may urge HBV shot for millions of diabetics

Landmark recommendation expected from ACIP

By **Gary Evans**, Executive Editor



*William Schaffner*

A key advisory committee to the Centers for Disease Control and Prevention is expected to recommend that millions of diabetics be immunized against hepatitis B virus, a move that could finally halt the recurrent and deadly HBV outbreaks linked to needles and devices used in glucose monitoring in a variety of healthcare settings, Hospital Infection Control & Prevention has learned.

The CDC Advisory Committee on Immunization Practices (ACIP), which has been mulling the issue for more than a year, will likely make the recommendation

to immunize diabetics for HBV at an October 25-26, 2011 meeting in Atlanta, says **William Schaffner**, MD, an ACIP liaison member representing the National Foundation for Infectious Diseases.

"These outbreaks of hepatitis B occurring in hospitals and other health care facilities — including nursing homes and assisted living facilities — have really come to the attention of ACIP," he says. "If that is the way the vote goes — and everybody thinks it's going that way — this [importance of HBV vaccination] will have to be intensely educated to people with diabetes and everyone taking care of patients with diabetes," he says. "It will have to be put on the list of quality assurance measures for the care of diabetic patients so we know that doctors actually do this."

In addition to HBV, outbreaks linked to blood glucose testing carry the threat of hepatitis C virus and HIV, neither of which have a vaccine. Though accurate surveillance data for these kind of outbreaks are notoriously elusive, it does appear from the ongoing outbreaks that HBV is the prime threat of being transmitted via

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reused or improperly handled equipment. HBV is the most efficient transmitter of the common bloodborne viruses, its high-titer counts in blood residue easily persisting in the environment for days on inadequately disinfected equipment and surfaces.

"In patients who have diabetes it's important that they monitor their blood glucose level in order to determine the correct concentration and frequency of insulin administration," explains **Alice Guh**, MD, MPH, a medical epidemiologist in the CDC's Division of Healthcare Quality Promotion. "The concern is when devices used to administer insulin and to check for blood glucose are not appropriately handled. That's certainly when we become concerned."

In one of the more compelling arguments to widely administer the HBV vaccine, it must be duly noted that the CDC has had a standing recommendation that glucose fingerstick devices be restricted to individual use for more than 20 years. Yet this advice is ignored all too frequently, most recently in a clinic in Madison, WI where thousands of patients are being evaluated for testing. (See *related story*, p. 116) It's a familiar, traumatic refrain. In outbreaks previously reported by *HIC*, infection control breaches included reusing spring-loaded barrels of fingerstick devices for multiple patients,

sharing the fingerstick devices among patients and/or staff routinely administering the sticks without wearing gloves or performing hand hygiene between patients.

"Insulin pens really should be viewed in the same way that we see syringes and needles — this type of equipment should be dedicated to single patients use," Guh says. "A diabetic patient — whether they are checking their blood glucose levels or if they are being assisted by someone else — the fingerstick device should really be a single use, disabling type of device where the lancet could retract and provide an extra layer of safety and [ensure] the device can't be used again." (See *CDC recommendations*, 111.)

Though the threat of other bloodborne viruses would remain, a large HBV vaccination campaign in the diabetic population could disable a great threat to patient safety.

"I think it would be very substantial — it ought to essentially eliminate many of these outbreaks," says Schaffner, chairman of the department of preventive medicine at Vanderbilt University School of Medicine Nashville.

"While we at Vanderbilt and other places are doing a better job with infection control with these glucometers, the general sense is 'OK that's very good — but it's not sufficient,'"

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## Editorial Questions

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he adds. "The number of outbreaks that have occurred — particularly among older people — both in hospitals and in other health care facilities is substantial."

While most of the reported outbreaks have occurred in non-hospital settings, state and federal authorities are ratcheting up pressure in acute care — demanding strict infection control policies with glucose monitoring equipment. Though Vanderbilt thought they had an adequate program in place, Tennessee state health department inspectors decided the hospital needed to upgrade cleaning and documentation for blood glucose meters. (See *related story*, p. 117)

"That [state] survey brought this home to us in a very explicit fashion," Schaffner says. "We knew that glucometers were being used and we made the assumption that they were being used appropriately, but we clearly had to demonstrate to the surveyors that we had a very rigorous program in place on glucometer use and glucometer disinfection between patients. We had to be able to document that. We really jumped on that and put a lot of energy into it."

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### ***At the top of the agenda***

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The HBV immunization issue tops the agenda for the upcoming ACIP meeting, with the first two items listed being "HBV risk among adults with diabetes" and "assisted blood glucose

monitoring." The latter term may essentially be a surrogate for higher risk of infection, as "assisted monitoring of blood glucose is typically performed in healthcare settings such as clinics, hospitals, and long-term care settings (e.g., skilled nursing facilities and assisted living facilities). Individuals who perform blood glucose monitoring either for themselves or on others must be aware of basic safe practices to protect against infection transmission," the CDC states. (See *Q&A* p. 114)

There have been numerous jarring exceptions to that rule, resulting in at least 16 outbreaks of HBV infection in the United States since 2004 — all linked to sharing or other inappropriate reuse of blood glucose monitoring equipment in assisted-living facilities.<sup>1</sup> However, earlier this year the CDC reported an outbreak that may have tipped the scales. To put it bluntly, six diabetics who died of HBV complications would likely be alive today if they had been vaccinated against the virus. On October 12, 2010, the North Carolina public health officials were alerted by a local hospital that they had four residents of a single assisted-living facility admitted with suspected acute HBV infection. The resulting investigation found unsafe practices at the facility, including sharing of reusable fingerstick lancing devices approved for single patient use only and shared use of blood glucose meters without cleaning and disinfection between patients. And here,

## **CDC recommendations for HBV vaccination**

Who should be vaccinated against Hepatitis B? The Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices currently recommends that the following persons be vaccinated against Hepatitis B:

- All infants, beginning at birth
- All children aged <19 years who have not been vaccinated previously
- Susceptible sex partners of Hepatitis B surface antigen (HBsAg)-positive persons
- Sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., >1 sex partner during the previous 6 months)
- Persons seeking evaluation or treatment for a sexually transmitted disease
- Men who have sex with men
- Injection drug users
- Susceptible household contacts of HBsAg-positive persons
- Health care and public safety workers at risk for exposure to blood or blood-contaminated body fluids
- Persons with end-stage renal disease, including predialysis, hemodialysis, peritoneal dialysis, and home dialysis patients
- Residents and staff of facilities for developmentally disabled persons
- Travelers to regions with intermediate or high rates of endemic HBV infection
- Persons with chronic liver disease
- Persons with HIV infection
- All other persons seeking protection from HBV infection — acknowledgment of a specific risk factor is not a requirement for vaccination ■

another telling point: None of the 25 residents who had not been assisted with blood glucose monitoring were infected. However, eight of the 15 residents whom facility staff had assisted with blood glucose monitoring had HBV infections. Note the staggering attack rate of greater than 50%, and again six patients died.

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### ***HBV prevalence across broad spectrum***

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In the North Carolina case, safety single-use devices were required at the facility and HBV vaccine was offered to all susceptible residents. Now ACIP is poised to recommend that CDC do the same thing nationally, but something has also bubbled to the surface as the data were gleaned. While one of the original discussion points on this issue was whether to just vaccinate diabetics in long-term care, ACIP has found a striking HBV prevalence throughout age groups.

"As they have investigated this further, [ACIP found] that at every age going down to young adulthood, diabetics have a higher rate of HBV than their non-diabetic counterparts, [even when] controlled by age, demographics and every other way you can control," Schaffner says.

Why? One possibility has something to do with the small part of an iceberg at its highest point above water. As infection preventionists are well aware, the reported outbreaks of HBV and HCV are certainly dwarfed by the unreported ones and the sporadic transmission moving under the radar. These infections may be counted among hepatitis cases of unknown origin, though some health departments and IPs at times make heroic efforts to try to find a health care connection. For example, the CDC reports that in 2006, national viral hepatitis surveillance data revealed that 50% of patients with acute HBV and HCV were reported without accompanying risk factor data.<sup>2</sup> Among patients for whom risk factor data were reported, 56% with acute HBV infection and 32% with acute HCV infection could not specify a known risk factor for their infection (such as injection drug use, sexual or household contact with another infected person, occupational exposure to blood, or needlestick injury.) A published CDC review of outbreak information revealed 33 outbreaks in nonhospital health care settings in the prior decade, including 12 in outpatient clinics, six in hemodialysis

centers, and 15 in long-term care facilities, resulting in 448 people acquiring HBV or HCV infection.<sup>3</sup> The data did not include specific information of the subset of diabetics, but one is tempted to conclude that much of the HBV prevalence in the population may be linked to healthcare settings.

"It has been a struggle to understand this — obviously diabetics as a group have much more exposure to needles," Schaffner says. "There is this sense of needle sharing, [is that] where does this increased risk of HBV come from? That remains an enigma, but every way you parse it — to everyone's surprise — these investigations have found the increased risk remained."

With the nation's obesity epidemic expected to fuel a continuing increase, there are some 26 million diabetics in the U.S. — roughly 8% of the population — and 7 million of them have yet to be diagnosed. The prevalence of HBV in diabetic populations will no doubt be detailed at the ACIP meeting, but unpublished CDC data provided to the committee previously reveals that diabetics comprise some 10% of all HBV infections in adults age 25 years and older. The other compelling factor for vaccination is the bad outcomes in patients where these diseases converge. Increases in liver-associated hospitalizations and all-cause mortality with chronic HBV, are reported among adults with diabetes and hepatitis. Knowing that at least some of these disturbing patient outcomes were caused by viral transmission in medical or long term care settings, puts an ethical onus on ACIP to act. For Schaffner, it's a no brainer. Hepatitis vaccination should include diabetics and everybody else.

"There isn't any doubt about it — we ought to immunize young adults [for HBV] universally," he says. "We have kind of a schizophrenic immunization policy in the United States. Up until the 19th birthday we immunize universally for HBV and then beyond that it remains a traditional risk-based immunization program."

Though the latest CDC recommendations state that anyone can be immunized that wants to get the vaccine, Schaffner says for all practical purposes a perfectly good vaccine has been historically undermined by unnecessary risk assessments prior to administration.

"You have to, in effect, 'qualify' for hepatitis B immunization," he tells *HIC*. "It seems kind

## IC recommendations for glucose, insulin

The Centers for Disease Control and Prevention recommends the following infection prevention measures for blood glucose monitoring and insulin administration.

### Fingerstick Devices

- Restrict use of fingerstick devices to individual persons. They should never be used for more than one person. Select single-use lancets that permanently retract upon puncture. This adds an extra layer of safety for the patient and the provider.

- Dispose of used lancets at the point of use in an approved sharps container. Never reuse lancets.

### Blood Glucose Meters

- Whenever possible, blood glucose meters should be assigned to an individual person and not be shared.

- If blood glucose meters must be shared, the device should be cleaned and disinfected after every use, per manufacturer's instructions, to prevent carry-over of blood and infectious agents. If the manufacturer does not specify how the device should be cleaned and disinfected then it should not be shared.

### General

- Unused supplies and medications should be maintained in clean areas separate from used supplies and equipment (e.g., glucose meters). Do not carry supplies and medications in pockets.

### Insulin Administration

- Insulin pens should be assigned to individual persons and labeled appropriately. They should never be used for more than one person.

- Multiple-dose vials of insulin should be dedicated to a single person whenever possible.

- If the vial must be used for more than one person it should be stored and prepared in a dedicated medication preparation area outside of the patient care environment and away from potentially contaminated equipment.

- Medication vials should always be entered

with a new needle and new syringe.

- Dispose of used injection equipment at point of use in an approved sharps container. Never reuse needles or syringes.

**Hand Hygiene** (Hand washing with soap and water or use of an alcohol-based hand rub)

- Wear gloves during blood glucose monitoring and during any other procedure that involves potential exposure to blood or body fluids.

- Change gloves between patient contacts. Change gloves that have touched potentially blood-contaminated objects or fingerstick wounds before touching clean surfaces. Discard gloves in appropriate receptacles.

- Perform hand hygiene immediately after removal of gloves and before touching other medical supplies intended for use on other persons.

### Training and Oversight

- Review regularly individual schedules for persons requiring assistance with blood glucose monitoring and/or insulin administration.

- Provide a full hepatitis B vaccination series to all previously unvaccinated staff persons whose activities involve contact with blood or body fluids.

- Establish responsibility for oversight of infection control activities. Provide staff members who assume responsibilities for fingersticks and injections with infection control training.

- Assess adherence to infection control recommendations for blood glucose monitoring and insulin administration by periodically observing staff who perform or assist with these procedures and tracking use of supplies.

- Report to public health authorities any suspected instances of a newly acquired bloodborne infection, such as hepatitis B, in a patient, facility resident, or staff member.

- Check with state authorities for specific state and federal regulations regarding laboratory testing. ■

of paradoxical because young adults are just entering that period of more widespread sexual activity. You have to go to the doctor and say I have multiple sex partners or one thing or another. You have to qualify by having had some exposure before you can get immunized."

Despite such concerns, he concedes that ACIP is not likely to go beyond diabetics in

recommendations to the CDC. "I don't think ACIP is ready yet to just advance universal immunization until age 30 or 40 or whatever it might be established more or less arbitrarily," Schaffner says. "But [a recommendation to immunize diabetics] would extend the protection against HBV to a very large and obviously growing segment of the population."

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## Q&A on blood glucose monitoring

The following FAQs summarize inquiries from healthcare personnel received by the Centers for Disease Control & Prevention regarding best practices for performance of assisted blood glucose monitoring and insulin administration.

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### Fingerstick/Lancing Devices

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*My facility uses reusable fingerstick devices. If we change the lancet and disposable components and clean and disinfect the device after use, is it okay to use this device for multiple patients? Single-use, auto-disabling lancets are more expensive.*

No. Fingerstick devices must never

be used for more than one person. Due to failures to change the disposable components, difficulties with cleaning and disinfection of reusable components after every use, and their link to multiple hepatitis B virus (HBV) infection outbreaks, the CDC and the FDA recommend that these devices never be used for more than one person. Use of fingerstick devices for more than one person unnecessarily compromises patient safety, as demonstrated by numerous HBV infection outbreaks and resulting deaths. Despite

perceived cost-savings from multi-patient use of reusable fingerstick devices, facilities should also consider the additional costs of testing, treatment, and legal action that result from such outbreaks and patient notifications.

*Some of the newer fingerstick devices come with cartridges that have multiple lancets pre-loaded. Is it acceptable to use this type of device for multiple patients so long as you remember to advance to a new lancet each time?*

No. These devices are not approved nor safe for use on multiple patients. Even if the device is advanced and a new lancet is used for each fingerstick procedure, unused lancets could become contaminated through contact with blood remaining on the end cap or the device barrel. At least one outbreak of HBV infection resulting from multi-patient use of these devices has occurred in recent years.

*My facility uses reusable fingerstick devices. However, we dedicate them for single-patient use. Is this acceptable?*

CDC recommends the use of single-use, auto-disabling fingerstick devices in settings where assisted blood glucose monitoring is performed. This practice prevents inadvertent reuse of fingerstick devices for more than one person. Additionally, the use of single-use, auto-disabling fingerstick devices protects healthcare personnel from needlestick injuries. If reusable fingerstick devices are used for assisted monitoring of blood glucose then they should be treated in a manner similar to other personal care items (e.g., razors and toothbrushes) and must never be shared. Facilities must take steps to assure that fingerstick devices are clearly labeled and stored in a manner to prevent inadvertent use for the wrong patient and cross-contamination from the surface of one fingerstick device to another.

*Residents at our assisted living facility do their own blood glucose monitoring and prefer to use the reusable fingerstick devices. Is this acceptable?*

Reusable fingerstick devices are appropriate for individuals who perform all steps of testing themselves. However, this equipment should be labeled with their name and these individuals should be educated that this equipment should be treated like other personal care equipment (e.g., razors, toothbrushes) and must never be shared. Transmission of HBV infection has been described in residential settings when individuals shared their personal blood glucose monitoring equipment with friends or family.

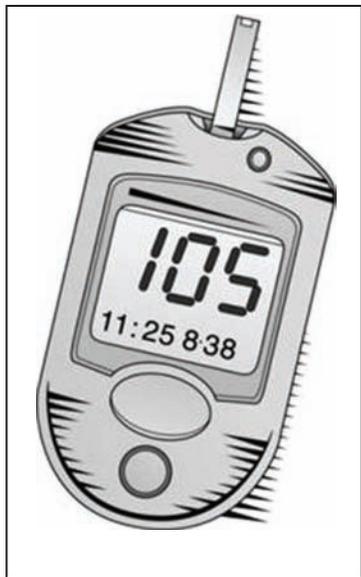
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## Blood Glucose Meters

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*How can hepatitis B virus (HBV) be transmitted through the meter? If the blood glucose meter never touches the patient, why does it need to be cleaned and disinfected after each use?*

Infectious agents, such as HBV, can be transmitted through indirect contact transmission, even in the absence of

visible blood. Indirect contact transmission is defined as the transfer of an infectious agent (e.g., HBV) from one patient to another through a contaminated intermediate object (e.g., blood glucose meter) or person (e.g., healthcare personnel hands). With some blood glucose meters that require pre-loading of the test strip, the device may come into direct or close contact with the patient's fingerstick wound. If blood is transferred from the patient to the meter, and the meter is not cleaned and disinfected after use, subsequent patients can be exposed to this blood when the meter is used on them.

Indirect contact transmission can also occur even if the patient never directly contacts the meter. Healthcare personnel hands can become contaminated with blood at various points while performing assisted blood glucose monitoring including pricking the patient's finger or handling the test strip. Blood can then be transferred to the meter when healthcare personnel handle the meter to obtain the reading. If the meter is not cleaned and disinfected after use, the blood remaining on the meter can be transferred to subsequent patients via healthcare personnel hands when they handle the meter and then assist with fingerstick procedures. Numerous outbreaks have implicated this mechanism in the spread of HBV infections.

Contamination of equipment and transmission of HBV can also occur if healthcare personnel fail to change their gloves and perform hand hygiene between patients. A multi-hospital study

of blood glucose meters found that 30% were contaminated with blood; contamination was identified at the test strip insertion site as well as on the outside surfaces of meters. Further, HBV has been demonstrated to remain infectious in dried blood on environmental surfaces for at least 7 days. For these reasons, blood glucose meters should be cleaned and disinfected after each use, unless they are dedicated to a single patient and appropriately stored to prevent inadvertent contamination.

*What products are acceptable for cleaning and disinfection of blood glucose meters?*

FDA has recently released guidance for manufacturers regarding appropriate products and procedures for cleaning and disinfection of blood glucose meters. This guidance, including a link to the Environmental Protection Agency (EPA) website can be found at the FDA website: <http://1.usa.gov/pH8qzj>.

*If blood glucose meters are dedicated for single-patient use, where should they be stored?*

Blood glucose meters dedicated for single-patient use should, ideally, be stored in the patient's room in a manner that will protect against inadvertent use for additional patients and cross-contamination via contact with other meters or equipment. An evaluation of instrument storage areas in hospitals found that 20% of areas where blood glucose meters were stored were contaminated with blood. If facilities are not able to safely store meters in patient rooms, they need to take steps to ensure that meters are not inadvertently used for the wrong patient and that cross-contamination from the surface of one meter to another does not occur. If the blood glucose meter becomes contaminated through inappropriate storage, subsequent patients could be exposed to infectious agents, even if the meter itself does not have direct patient contact.

*If blood glucose meters are dedicated for single-patient use, do they need routine cleaning and disinfection? If so, how often?*

If meters are dedicated for single-patient use and facilities have taken steps to assure that they are stored in a location to prevent inadvertent use for the wrong patient and/or cross-contamination, then meters should be cleaned and disinfected according to manufacturer's instructions and, at a minimum, anytime they are being reassigned to a different patient. Facilities are reminded, however, that if the manufacturer of the device in use does not specify how the

device should be cleaned and disinfected, then it should not be shared or reassigned to a different patient. Care must be taken by personnel handling meters, whether designated for multi- or single-patient use, to remove gloves and perform hand hygiene after each patient use and after cleaning and disinfecting meters.

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## Insulin Pens and Insulin Administration

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*My facility uses insulin pens. If we change the needle and/or insulin cartridge, is it okay to use this device for multiple patients?*

No. Insulin pens are approved and labeled only for single-patient use. Under no circumstances may they be used for more than one person. Part of safe injection practices includes

never using the same syringe for more than one patient. Changing only the needle and reusing the cartridge of an insulin pen is a form of syringe reuse that represents a serious medical error. Changing the cartridge does not protect against contamination and does not make these devices safe for multi-patient use.

If insulin pens are in use in a facility, they should be clearly labeled with the patient's name and stored in a manner to prevent inadvertent use for more than one person and/or cross-contamination. Failure to do so has resulted in large scale patient notifications and an alert from FDA reminding consumers and healthcare personnel that these devices must never be used for more than one person.

*My facility uses multi-dose vials of insulin. Can these vials be used for more than one person?*

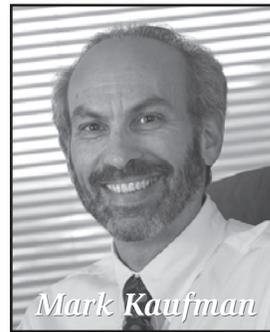
Multi-dose vials should be dedicated to a single patient whenever possible. If they must be used for more than one person, they should not be stored or accessed in the immediate patient treatment area. This is to prevent inadvertent contamination of the vial through direct or indirect contact with potentially contaminated surfaces or equipment that could then lead to infections in subsequent patients. If a multi-dose vial enters the immediate patient treatment area

(e.g., patient room), it should be dedicated to that patient only.

For CDC information and full references for these questions go to: <http://1.usa.gov/dj3QE5>. ■

## Patients warned after devices misused

*Barrels of pens, lances apparently reused*



A clinic in Madison, WI has contacted 2,345 patients to advise them they may have been exposed to bloodborne pathogens after finding an employee was inappropriately using insulin pens and finger stick devices during patient training.

An internal review found that a former Dean Clinic employee was inappropriately using the devices during some patient visits between 2006 and 2011. The clinic patients are receiving phone calls and letters from Dean, which has a team ready to answer patients' questions. The clinic released a statement saying it takes responsibility for any needed testing and will coordinate follow-up care and support patients' needs.

In response to request for more information by *Hospital Infection Control & Prevention*, **Mark Kaufman**, MD, Chief Medical Officer at Dean Clinic provided the following answers via email:

*HIC:* Just to clarify, are you recommending that all of these 2,345 patients be tested or that they contact you for consultation about the need to be tested?

Kaufman: "Before making any testing recommendations, we first wanted to interview these patients. To date, we have reached out to 100% of the patients potentially impacted and we have interviewed 92%. After conducting initial patient interviews, we have determined that 25% of those we spoke with do not need testing for hepatitis B, hepatitis C or HIV.

*HIC:* The press release mentions this as an "isolated incident," but notes that the facility is "reeducating patient care staff on the proper use of these types of devices, enhancing our auditing and monitoring procedures related to these devices and improving our process for routinely observing the clinical practices of our staff." Was

there some kind of educational gap that resulted in this worker improperly using and/or reusing the devices? What level of training did this person have?

Kaufman: "The former employee is a registered nurse who was also certified in diabetes education. An internal review found this was the result of one employee acting outside of standard nursing practice. While we do not believe there was an educational gap, we are taking the time to ensure that every staff member is clear on the proper handling of these devices."

*HIC*: What kind of program was this? Were these patients considered diabetics or thought to be at risk of diabetes?

Kaufman: "The former employee saw patients with diabetes or at risk for diabetes to help them gain the knowledge and skills needed to modify their behavior and successfully manage the disease and other conditions related to it. The former employee was using both insulin demonstration pens and finger stick devices. An insulin demonstration pen is intended to be used on a pillow-like item to show how to inject insulin. The finger stick device is used to obtain a blood sample to monitor blood sugars."

*HIC*: What specifically was the "inappropriate use" and how was it discovered in the internal review?

Kaufman: "An insulin demonstration pen, when used correctly, is intended to be used on a pillow-like item to show how to inject insulin. A demonstration pen is not intended for human use. The former employee did use these at times on patients. While the former employee always changed needles with each use, the same barrel of the demonstration pen may have been used on multiple patients. The finger stick device is used to obtain a blood sample to monitor blood sugars. While the former employee always changed the lancets (sharp end that pierces the skin) with each use, the individual may have used the same barrel of the finger stick device on more than one patient. The finger stick devices, including the barrel, are meant to be 'single patient use' instruments. The 'inappropriate use' was brought to our attention by a fellow employee. We then conducted an internal review."

*HIC*: What specific policies have been changed as a result of this incident?

Kaufman: "The issues involved are basic nursing and infection control principles. We have reviewed our existing policies. This includes our

bloodborne pathogen policies and our injection policies. Those policies have been assigned to be re-reviewed by all clinical staff members. We have also pulled out the basic principles and policy specifics that were relevant to this incident and had all clinical staff attest that they have read and understood." ■

## IPs adopt comprehensive policy for glucometers

*State inspection prompts rapid action*

Infection preventionists at Vanderbilt Medical Center in Nashville have developed a comprehensive glucometer cleaning protocol that other IPs may want to emulate as regulators respond to outbreaks of hepatitis B virus in diabetics and other patients.

Indeed, state and local health departments are becoming more attuned to the issue, as evidenced by their interest in Vanderbilt's program in an otherwise routine inspection last year. During the visit, surveyors raised concerns about potential transmission of blood from one patient to another during blood glucose monitoring, explained Vanderbilt IP **Kathie Wilkerson, RN, CIC**. Again, there was no report of transmission to any patient via the equipment, but the state inspectors were obviously aware of the numerous reports of HBV outbreaks linked to improper use of glucose monitoring devices.

Glucometers at the hospital are used in areas where bedside blood glucose monitoring is performed, including inpatient units, clinics and emergency rooms, she explains. The meters are shared equipment, while safety lancets are disposable, one-time use devices. Cleaning and documentation of meter cleaning was being done according to policy and manufacturer's guidelines, she says. The policy at the time stated that glucometers were to be cleaned every 24 hours and when visibly soiled, but the state mandated that the hospital begin cleaning them after every use and document the program more thoroughly. And they wanted it done yesterday.

"We had to have a response in place very shortly," Wilkerson says. "I think they came in June and by that September we were up and running.

Training more than 5,000 health care work-

## Glucometer Cleaning

MC 0827 (9/2010)

<p>Between Patients EXTERNAL</p>	 <p>Clean outside of meter with Sani-Cloth wipe. Allow 2 minutes to dry</p>	 <p>After use with isolation patients, clean outside of meter with bleach wipe. Allow 2 minutes to dry, then wipe with water-dampened cloth.</p>	
<p>Daily Cleaning with QC and PRN INTERNAL and EXTERNAL</p>	 <p>Remove test strip holder</p>	 <p>Clean with Gluco-Chlor towelette</p>	 <p>Rinse with tap water Dry with cloth or tissue</p>
 <p>Clean lens area and contact points with cotton swab dampened with water</p>	 <p>Clean outside of meter with Gluco-Chlor towelette, then with water-dampened cloth or tissue</p>	 <p>Clean and dry barcode scanner with water-dampened cloth or tissue</p>	 <p>Document in meter (select "cleaned meter") and per unit policy when applicable</p>

Source: Vanderbilt University Medical Center

ers was daunting to say the least, but the Vanderbilt team developed several innovations to move the process forward. For example, an on-line tutorial was developed and assigned to direct care-givers with responsibility for bedside glucose testing. Hospital educators assisted in the staff retraining. As a visual aid and learning reinforcement, a pictorial guide was developed and placed in every glucometer case for a step-by-step quick reference. (See *cleaning guide, above*)

"Each of the glucometers comes with a case which contains the solutions that you need to use to test for glucose and a bottle of the strips," Wilkerson explains. "All of this comes in a case so everything is contained and together, and we put the [visual aid] on the inside cover of the case. When you open the case you see exactly what to do. If they need any reminders or help — it's right there."

The project was directed by a task force of key stakeholders that included members of nursing, education, infection control, laboratory, and accreditation and standards. The glucometer manufacturer was contacted for guidance on cleaning products, something that she recommends as a first step for any one undertaking

such a program. Nursing leadership and infection prevention monitored compliance with the new policy through direct observation.

Ongoing monitoring of this process has demonstrated continuing compliance, she notes. However, an unexpected finding was the need to replace several glucometers, Wilkerson explains. Increased use of a chlorine-based agent caused clouding of the screen even with wiping the meter with a water dampened cloth as a last step. Several glucometers have been replaced, emphasizing the importance of continued communication with vendors to ensure the best methods and appropriate solutions are being used to clean equipment. ■

## CDC boils down egg allergy on flu vaccine

*Hives not a contraindication*

As mandatory flu immunization policies continue to gain momentum in health care settings, egg allergy — one of the classic exemptions to the vaccine — is being redefined by

public health officials.

As a result, fewer health care workers may receive exemptions from flu vaccine mandates, based on recent recommendations from the Advisory Committee on Immunization Practices (ACIP), which provides expert consultation to the Centers for Disease Control and Prevention.<sup>1</sup>

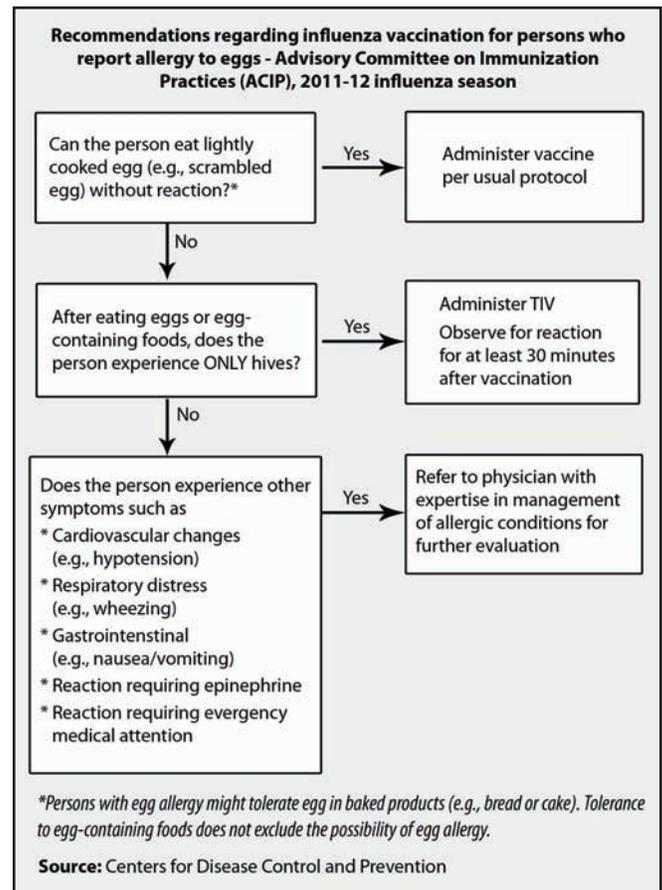
The panel listed trivalent inactivated vaccine (TIV) as a possible alternative for some people with mild reactions. (See *algorithm, right*) Some package inserts for the trivalent inactivated vaccine no longer list hypersensitivity as a contraindication, although severe allergic reaction, such as anaphylaxis, remains a contraindication, says **Lisa Grohskopf**, MD, a medical officer with CDC's influenza division.

"We are recommending in these guidelines that essentially only individuals who have hives — specifically, only hives — as a symptom as their allergy, [can] go ahead and receive vaccine without some further risk stratification," she says. "It's possible for a health-care worker to be stratified for the risk."

People who experience only hives following exposure to eggs should be monitored for at least 30 minutes for signs of reaction. Other people with more severe reactions should be referred to a physician "with expertise in management of allergic reactions," the guidelines state. The vaccine should be administered in a setting where there can be rapid recognition and treatment of anaphylaxis, CDC says. If someone has previously had a severe reaction to any component of the influenza vaccine, they should not receive the vaccine, the guidelines state.

## REFERENCE

1. Centers for Disease Control and Prevention. Prevention and Control of Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2011. *MMWR* 2011; 60(33):1128-1132 ■



## CNE/CME Instructions

To earn credit for this activity, please follow these instructions.

1. Read and study the activity, using the provided references for further research.
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## COMING IN FUTURE MONTHS

■ Joint Commission updates on MRSA, CAUTIs

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■ Empowering nurses to remove catheters: Some pain, a lot of gain

## CNE/CME Questions

1. According to Alice Guh, MD, MPH, a medical epidemiologist at the Centers for Disease Control and Prevention, why is it important to regularly monitor the blood glucose level of a diabetic?
  - A. Rapid glucose increase could indicate a bloodborne infection
  - B. To meet Joint Commission requirements for testing glucose after every meal provided by the health care facility
  - C. In order to determine the correct concentration and frequency of insulin administration
  - D. All of the above
2. Which of the following infection control breaches have been commonly reported in the recurrent outbreaks of hepatitis among diabetic patients and residents?
  - A. Reusing spring-loaded barrels of fingerstick devices on multiple patients
  - B. Sharing the fingerstick devices among patients
  - C. Staff routinely administering sticks without wearing gloves or performing hand hygiene between patients.
  - D. All of the above
3. The CDC recommends the use of single-use, auto-disabling fingerstick devices in settings where assisted blood glucose monitoring is performed. This practice prevents inadvertent reuse of fingerstick devices on more than one person while protecting health care workers from needlestick injuries.
  - A. True
  - B. False
4. What did the Advisory Committee on Immunization Practices recommend as a possible alternative for people with mild egg reactions?
  - A. A standard half-dose of the regular seasonal flu shot
  - B. Trivalent inactivated vaccine
  - C. If hives appear worker must be furloughed for 48 hours
  - D. All of the above

## CNE/CME Objectives

Upon completion of this educational activity, participants should be able to:

- Identify the clinical, legal, or educational issues encountered by infection preventionists and epidemiologists;
- Describe the effect of infection control and prevention issues on nurses, hospitals, or the health care industry in general;
- Cite solutions to the problems encountered by infection preventionists based on guidelines from the relevant regulatory authorities, and/or independent recommendations from clinicians at individual institutions. ■

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