Health officials are underlining the need to follow safe injection practices after a recent hepatitis outbreak in Nevada. Reuse of syringes and medication vials is believed to be the source of 6 cases of hepatitis C in patients who had procedures at the Endoscopy Center of Southern Nevada in Las Vegas.

Some 40,000 patients treated at the center over 4 years were sent letters telling them they may have been exposed to hepatitis B and C and HIV, state officials announced Feb 27. A seventh case was linked in March to a sister facility, the Desert Shadows Endoscopy Center in Las Vegas.

The Centers for Disease Control and Prevention (CDC) said it is the largest notification of its kind.

Five of the infected patients had procedures and received injected anesthetics on the same day. Genetic testing on 4 cases identified that the cases likely came from a common source. Officials said they did not think the exposures resulted from the endoscopy procedures themselves.

The investigation led to closure of the center and limited operations for other locations owned by the Gastroenterology Center of Nevada.

Search warrants served

A criminal probe was also reportedly underway. Search warrants were served on the practice’s 6 locations on March 10 by the FBI, state attorney general, and US Health and Human Services Inspector General. Officials were said to be investigating possible Medicare and Medicaid fraud and possible criminal wrongdoing.

Five certified registered nurse anesthetists (CRNAs) reportedly voluntarily surrendered their licenses because of the incident. The center’s majority owner, Dipak K. Desai, MD, agreed to stop practicing medicine until the state medical board completes its investigation. The Endoscopy Center of Southern Nevada is not accredited.

Meanwhile, state inspectors fanned out to survey all of the state’s 50 ambulatory surgery centers (ASCs). The state has been criticized for falling behind in inspections, news reports said.

As of March 20, 26 ASCs had been inspected, with infection control deficiencies found at some, including problems with injection safety and endoscope reprocessing. In all, 32 of the ASCs are accredited by an organization such as the Accreditation Association for Ambulatory Health Care or the Joint Commission, but 18 are not accredited.

Adhere to basic principles

The state urged clinicians to review proper use of needles, syringes, and medication vials. The Southern Nevada Health District posted a diagram of how it believes the contamination occurred (illustration).

The state’s epidemiologist, Ihsan Azzam, MD, said, “We believe this outbreak could have been prevented by adherence to basic principles of aseptic technique for preparation and administration of parenteral medications.”

He referred to recommendations from the CDC (sidebar). The American Society of Anesthesiologists and the American Association of Nurse Anesthetists (AANA) also have guidelines for injections (resources).
The president of the Nevada State Society of Anesthesiologists, Jonathan Zucker, MD, told *OR Manager* the incident has nationwide lessons: “Anything that carries a ‘single-use’ or ‘do-not-reuse’ label simply should not be reused. Quite simply, syringes are ‘do-not-reuse’ items under all circumstances.”

**What the state found**

In a Jan 17 inspection at the Endoscopy Center of Southern Nevada, state surveyors noted that the charge nurse said propofol was used from a multidose vial and discarded at the end of the day. Two CRNAs said propofol bottles were used on more than one patient.

The state found the center in violation of accepted standards of practice, referring to instructions from propofol’s manufacturer, AstraZeneca, which state that the drug is single use. The state also referred to the CDC’s recommendations, which say single-dose vials are never to be used for more than one patient.

Similar problems were found at the Desert Shadow Endoscopy Center, also owned by the Gastroenterology Center of Nevada. A CRNA there told the surveyor that the unused portion of propofol vials was given to the next patient with a new syringe. The nurse manager said the CRNAs had been instructed to use single-use propofol vials. But there was no evidence of a written policy or documentation that the CRNAs had carried it out.

At another Las Vegas facility with different ownership, Gastrointestinal Diagnostic Clinic, surveyors found infection control deficiencies. In observing patient care, they saw an anesthesiologist draw up propofol from the same vial for 2 patients, according to the state’s report. The report said they never observed the anesthesiologist opening new syringes. The anesthesiologist told the surveyors he thought it was OK to use a single-use propofol vial for more than one patient because he believed the purpose of the single-use vial was to prevent bacterial growth in cases that take a long time. Asked what he would do when he used the same vial for more than one patient, he said he would change the needle and reuse the same syringe. He said he thought it was safe to reuse the syringe because the drug was injected through a high port on the IV line. But a surveyor observed that when patients were transferred to the procedure room, their IV bags were laid on the gurney. In one case, blood flowed back into the IV tubing, which would have contaminated the IV line.
Reusing syringes is contrary to the CDC guidelines. The ASA guidelines state that after entering or connecting with a patient’s IV line, the syringe and needle should be considered contaminated and used for only one patient. Several state reports cited centers for not having appropriate policies and/or for failing to ensure policies and procedures were followed. In some cases, the centers lacked documentation that they were verifying employee orientation and training, reviewing privileges, and assessing the quality of care according to their own policies.

**A well-known hazard**

The Nevada case is the most recent of a number of incidents in which patients have been infected because of reused syringes and vials. There have been 600 reports of HCV transmission in health care settings in the past 15 years, many from unsafe injection practices (sidebar).

In November 2007, it was reported that an anesthesiologist in New York State was being investigated for reusing syringes to draw up medication from multiuse vials. The state contacted more than 9,000 patients he had treated, recommending that they be tested for hepatitis and HIV.

In 2003, the CDC reported on more than 200 patients who likely were infected with hepatitis B and C because of unsafe injections in 4 outpatient facilities in New York, Oklahoma, and Nebraska. One outbreak was traced to a CRNA in a pain clinic in Norman, Oklahoma. More than 100 patients were diagnosed with HBV or HCV. According to the CDC, the CRNA used a single needle and syringe to give sedative drugs to up to 24 patients. The CRNA’s license was revoked and a $99,000 fine levied.

The CDC issued its safe injection recommendations in response.

In 2002, a phone survey by the American Association of Nurse Anesthetists (AANA) found 3% of anesthesiologists responding said they reused needles and/or syringes on multiple patients. Reuse was reported by 1% of CRNAs, other physicians, nurses, and oral surgeons.

From these results, AANA estimated about 1,000 providers might have exposed millions of patients to contaminated needles and syringes.

**Resources**

**American Association of Nurse Anesthetists**

AANA Infection Control Guide. [www.aana.com](http://www.aana.com). Look under Resources.

**American Society of Anesthesiologists**


**Centers for Disease Control and Prevention**

**Guidelines for injection safety**

Review the CDC’s safe injection practices with your nursing and medical staff:

- Use a sterile, single-use, disposable needle and syringe for each injection and discard intact in an appropriate sharps container after use.
- Use single-dose medication vials, prefilled syringes, and ampules when possible. Do not administer medications from single-dose vials to multiple patients or combine leftover contents for later use.
- If multiple-dose vials are used, restrict them to a centralized medication area or for single patient use. Never re-enter a vial with a needle or syringe used on one patient if that vial will be used to withdraw medication for another patient. Store vials in accordance with manufacturer’s recommendations and discard if sterility is compromised.
- Do not use bags or bottles of intravenous solution as a common source of supply for multiple patients.
- Use aseptic technique to avoid contamination of sterile injection equipment and medications.

*Adapted by Nevada State Health Division from Transmission of hepatitis B and C viruses in outpatient settings—New York, Oklahoma, and Nebraska, 2000-2002. MMWR. 2003;52(38):901-906*

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**Not an isolated incident**

The Nevada incident is not isolated. In the past 15 years, there have been more than 600 reports of HCV transmission in health care settings. Almost all have a common culprit—unsafe injections. And most are from developed countries: the US, Europe, Australia, and Japan, writes infection control expert Miriam Alter in the January *Journal of Hepatology* (2008;48:2-4).

Some examples:

- multidose vials and saline bags contaminated by reuse of needles/syringes
- use of a single needle or syringe to give IV medications to multiple patients
- use of a single spring-loaded fingerstick device without changing the platform to monitor blood glucose.

All types of settings were involved—inpatient units, oncology and hematology units, inpatient and outpatient surgery, GI labs, emergency departments, and so on.

Alter recommends that all clinical staff have regular in-service education on injection safety.