

The Q-Net™ Monthly

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Opinion / Editorial

Discussed on page 14 is the opinion of this newsletter's editor (LFM) of what might have caused the hepatitis C virus (HCV) outbreak discussed in this issue.

What's News

An article on CJD written by this newsletter's editor appears in the August (2001) issue of *Infection Control Today* on page 28. Also, visit Q-Net's website to download back issues of this newsletter: <http://www.myendosite.com>

Editor-in-Chief

Unless noted otherwise, all articles in this newsletter are written by: **Lawrence F Muscarella, PhD, Chief, Infection Control** at Custom Ultrasonics, Inc. Ivyland, PA 18974.

What is 'Q-Net'?

Q-Net is a technology-assessment network of questions and answers. Its newsletter is *The Q-Net™ Monthly*.

Q-Net's main goal is to encourage the infection control and endoscopy communities to not only ask good questions but to also demand succinct and well referenced responses.

Q-Net addresses the needs of both the health care provider whose goal is to provide the best care possible, and the patient who deserves affordable quality health care.

Hepatitis C outbreak in NYC

~ Breaking News ~

On June 8, 2001, New York City health officials reported a nosocomial outbreak of the hepatitis C virus (HCV). At least 9 patients who underwent gastrointestinal (GI) endoscopy at a clinic in Brooklyn (NY) have tested positive for HCV.

Initial reports suggest that one of these 9 patients was infected at the clinic in January (2001), while the other 8 were infected two months later at the end of March. Whether the HCV infection in January is related to the HCV outbreak in March is unclear at this time.

Authorities are urging all patients who underwent GI endoscopy at the Bay Ridge Endoscopy and Digestive Health Center (Brooklyn, NY) between January 2000 (when the clinic opened) and May 1, 2001 (when the outbreak was discovered and the clinic closed) be tested for HCV infection.

Health officials have established a Hepatitis Hotline (212-788-2222) for more details. At risk may be as many as 2200 patients. This outbreak appears to be confined to this clinic and not a risk to the general public. When reprocessed according to standard protocol, reusable endoscopic instrumentation poses a very low risk of patient infection.

Background: The hepatitis C virus (HCV) is the most common chronic bloodborne infection in the United States¹ and can cause liver damage, cirrhosis and hepatocellular carcinoma. Symptoms of HCV infection, which may occur within

2 weeks to 6 months after exposure, include loss of appetite, nausea, fatigue, and jaundice. Immunization to HCV is currently not available.¹

Although the source and mode of transmission of HCV can be difficult to determine,² HCV infection following direct percutaneous exposure to contaminated blood has been reported.^{2,3} Medical procedures particularly at risk for HCV infection (and other blood-borne pathogens) include blood transfusions, drug injections, and hemodialysis.^{1,2}

Due to the introduction of screening programs several years ago in the United States, the risk of HCV infection from a blood transfusion is approximately 1 in 100,000.² Even though its risk is also low, HCV infection during hemodialysis has been reported.¹⁻⁴ Investigations of HCV outbreaks usually find at fault failure of the health care center to adhere strictly to published infection control practices and standard precautions.^{4,5}

HCV infection during GI endoscopy has also been reported, if only a few times.⁶⁻⁹ The causes of these few reports include: (1) inadequate cleaning and disinfection of the endoscope,⁶ (2) immersing biopsy forceps in a liquid sterilant instead of steam sterilizing them,⁶ and/or (3) using a multi-dose anesthetic vial.^{2,6,8}

Objective: The medical literature was reviewed and several recent investigations of HCV outbreaks studied by this newsletter's editor to provide insight into what might have caused or contributed to the HCV outbreak at the GI endoscopy

center in Brooklyn (NY). (See **Editorial/Opinion** Box, below.) This review revealed several factors that can increase the risk of HCV infection during GI endoscopy.

Recommendations: To prevent outbreaks of HCV (HBV, HIV, and other blood-borne pathogens), strict adherence to a standardized and validated instrument reprocessing procedure is essential.^{6,10} Several studies have shown that cleaning and high-level disinfection of endoscopes (e.g., a 20 minute exposure to 2% glutaraldehyde) prevent HCV transmission.^{7,10-16} Ensuring that the reprocessing procedure accounts for all of the endoscope's surfaces (including each of its internal channels and valves) is also essential.

Several other recommendations are provided to prevent nosocomial infections from HCV (and other blood-borne pathogens) during endoscopy and other surgical procedures:

- (1) Ensure health care personnel are thoroughly educated on the potential modes for the transmission of HCV;
- (2) Ensure personnel are knowledgeable of and adhere strictly to published infection control recommendations and 'standard (universal) precautions',²⁻⁵ which recommend the use of engineering controls and barriers, such as gowns, face shields, and eyewear, to prevent exposure to potentially contaminated blood;¹
- (3) Wear new, disposable gloves when caring for each patient, particularly if performing a percutaneous procedure. Hands^{2,5,17} and gloves² have been reported to transmit HCV.¹ Also, washing hands frequently and practicing good hygiene at all times is recommended;¹⁸
- (4) Carefully use, handle, and dispose of needles and other sharp instruments;
- (5) Separate clean areas from areas where used supplies are handled and/or contaminated instruments reprocessed;¹
- (6) Clean and disinfect all surfaces that may become contaminated and therefore be a reservoir for the transmission of HCV;

MORE OR LESS? In 1985 standard precautions were recommended to prevent the transmission of blood-borne pathogens in general health-care settings.^{1,20,21} Additional and more stringent measures have been established for hemodialysis settings, including physically separating infected patients from susceptible patients.^{1,20,21} *Would applying such additional measures reduce the risk of HCV transmission in the endoscopic setting?* Not likely, as the risk of infection from blood-borne pathogens following endoscopy is already very low (provided proper infection controls are exercised).¹⁰

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- (7) If using (reusable) biopsy forceps (or other endoscopic accessories), sterilize the forceps after each use using pressurized steam.^{10,15} Whereas soaking biopsy forceps in a liquid sterilant has been linked to a HCV outbreak,⁶ no infections have been linked to cleaned and steam autoclaved biopsy forceps;¹⁹ and
- (8) Use single-dose anesthetic vials and other disposable items whenever possible.⁶ Do not puncture single-use intravenous medication vials more than once.²⁰ Also contraindicated is pooling into a single vial residual medication from two or more vials.²⁰ Reusing medicine vials, intravenous tubing lines, and syringes can increase the risk of infection from blood-borne pathogens.^{6,8,11,18,21} ■

~ Editorial / Opinion ~

New York City and State health officials are currently investigating the HCV outbreak discussed in this issue. To date, its source(s) and/or cause(s) have not been determined. Nevertheless, based on my (LFM) research, it is my opinion that the cause of this HCV outbreak will likely be linked to failure to adhere strictly to published infection control recommendations.

More specifically, if this Brooklyn clinic's practices are found to have been flawed and at fault, then I suspect this HCV outbreak will likely be due to at least one of the following: (1) sharing among patients contaminated medicine vials, intravenous supplies, tubing lines or syringes (as may be used to achieve conscious sedation);^{6,8,11,18,21,22} (2) inadequate cleaning and/or disinfection of GI endoscopes;^{6,8} (3) inadequate cleaning and/or sterilization of biopsy forceps or other endoscopic accessories;⁶ and/or (4) inadequate decontamination of the clinic's environmental surfaces.²¹ ■

The references to this article are available at:
⇒ <http://www.myendosite.com/refs0701.htm>

Thank you for your interest in this newsletter. *I have addressed each issue to the best of my ability. Respectfully, the Publisher: Lawrence F. Muscarella, PhD.* Please direct all correspondence to:

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