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Back to Table of Contents
Previous Next

Eurosurveillance, Volume 8, Issue 27, 01 July 2004

Articles

Citation style for this article: Doherty L, Mitchell E, Smyth B. Investigation of the decontamination arrangements for endoscopes in Northern Ireland. Euro Surveill. 2004;8(27):pii=2499. Available online: http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=2499

Investigation of the decontamination arrangements for endoscopes in Northern Ireland

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At the beginning of June 2004, a hospital in Northern Ireland announced that the arrangements for cleaning and disinfecting one of their endoscopes were not fully in accordance with necessary standards [1]. Following a detailed risk assessment the hospital undertook a patient notification exercise in relation to over 400 patients which involved

1. identifying patients who had undergone an endoscopy using this scope and
2. contacting these patients to invite them for testing for blood borne virus infection.

To date, the results from this exercise have shown no cause for concern.

In response to this incident the Department of Health, Social Services and Public Safety (DHSSPS) in Northern Ireland initiated a formal audit involving a detailed observational assessment of all endoscopes in use at hospitals in Northern Ireland. This audit has identified a number of issues in relation to the decontamination of a small number of endoscopes (16 in total, including gastroscopes, duodenoscopes and colonoscopes) at four hospitals. The specific issues in relation to the cleaning and disinfection of these endoscopes fall into two groups:

1. In a small number of endoscopes, one narrow channel on the endoscope **was not** fully cleaned or disinfected despite going through the normal cleaning and disinfection process.
2. In a second group, all the channels in the endoscope had been fully cleaned but one channel **may not have been** disinfected despite going through the normal cleaning and disinfection process.

In response to this incident, DHSSPS convened a regional team to manage this issue. The team involved specialists in public health, decontamination, endoscopy, infection control and virology. It was supported and advised by England and Wales' Health Protection Agency (HPA) which convened an expert advisory group to advise on the risk assessment for the transmission of bloodborne viruses associated with the endoscopy cleaning and the disinfection issues identified. It is estimated that the prevalence of bloodborne viruses in Northern Ireland (population is 1.7 million) is less than 3 per 1000.

In this risk assessment, the expert advisory group determined that:

1. For the first group of endoscopes, the risk of transmission of bloodborne viruses was very low; nevertheless, a patient notification exercise would be required for all patients who had endoscopy with these instruments.
2. For the second group of endoscopes, the risk of transmission of bloodborne viruses was extremely low and it was therefore recommended that, where the endoscope was possibly in recent contact with a bloodborne virus, only a limited number of patients should be notified and offered testing.

In the interests of reassuring the public, the local regional team concluded that all patients who were examined with endoscopes from the second group should be contacted, made aware of the situation, and offered reassurance and advice. In addition, a regional 24 hour helpline was established and was supported by local helplines set up in each of the four hospitals. To date over 1700 patients have been included in a patient notification exercise; this includes patients involved in the notification exercise at the first hospital. Approximately 1300 patients have received letters offering reassurance and advice. These incidents have attracted substantial media coverage in Northern Ireland. An independent review of the situation in Northern Ireland has been commissioned by DHSSPS: this review will commence shortly and will report by end of October 2004.

The Medicines and Healthcare products Regulatory Agency has issued an alert to National Health Service (NHS) Trusts in England, asking all staff involved in purchase, purchase, reprocessing and use of endoscopes to carry out an assessment of all endoscope decontamination processes [2]. The alert also includes advice on procedures that need to be followed to ensure that endoscopes are properly decontaminated. Assessments of reprocessing facilities and equipment should involve

the infection control team, risk manager, health and safety advisor, and the hospital decontamination lead person. The National Assembly for Wales has asked all hospitals in Wales to review practice, and similarly, the Scottish Executive Health Department have asked for an urgent review of practice in Scotland. The HPA has formed a UK task force to coordinate activity across the United Kingdom, and an expert advisory group to give independent advice on management, should any further incidents come to light.

There is little documented evidence in the international literature of transmission of bloodborne virus infection at endoscopy. Limited evidence is available from case reports [4-7] and would indicate that to date there have only been five documented cases worldwide of an association between endoscopy and transmission of bloodborne viruses. Four of these relate to transmission of hepatitis C virus infection at endoscopy, each of which was associated with a decontamination failure or a breakdown in general infection control precautions [4-6]. One report documents the endoscopic transmission of hepatitis B virus [7].

Endoscopes are complex, multichannelled instruments, and some of the channels require manual cleaning and disinfection procedures, but it is important to stress that the risk of acquiring any form of infection from an endoscope is very low. Evidence from the literature would suggest that the risk of transmission of any infection is 1 in 1.8 million procedures [3]. The most common infections transmitted by endoscopy are salmonella, pseudomonas, and mycobacteria species. The main reasons for transmission appear to be improper cleaning and disinfection procedures; the contamination of endoscopes by automatic washers/ reprocessors; and an inability to decontaminate endoscopes, despite the use of standard disinfection techniques, because of their complex channel and valve systems. There are no reports in the published literature of HIV transmission at endoscopy. Concern about the decontamination of endoscopes in the United States prompted the issuing of a US Food and Drug Administration alert and the development of multisociety guidelines [8,9]. Technical advice is already available from the British Society for Gastroenterology [10].

As there is a paucity of information in the international peer reviewed literature on this issue, we would be interested to hear from colleagues in other countries who have had similar experiences. Please contact Lorraine Doherty (Lorraine.Doherty@dhsspsni.gov.uk).

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back to top

Back to Table of Contents

Previous Next

To top | Recommend this page