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The importance of hand hygiene

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ABSTRACT: Hand hygiene is well publicised as the most effective line of defence against infections in both veterinary and human hospitals, although there is better surveillance and more research in the human field. The whole veterinary team should be educated on the importance of hand hygiene, but there are barriers to implementing an establishment-wide hand hygiene policy. This article looks at those barriers and aims to give some solutions in order to help veterinary nurses (VNs) improve current policies in their own establishments.

Introduction

The topic of hand hygiene dates back to the 1840s, when Semmelweis found a reduction in the incidence of puerperal fever in maternity wards when medical students and physicians began washing their hands in chloride of lime solution before attending to the mothers (Best & Neuhauser, 2004).

Good hand hygiene is well publicised to be the single most effective line of defence against the transmission of harmful germs and hospital-acquired infections (HAIs) (World Health Organisation, 2009).

Hand hygiene is the responsibility of all staff members in an establishment whether that be reception staff, auxiliary staff, veterinary nurses or veterinary surgeons.

This article is going to look into why hand hygiene is so important, techniques that can be used and the barriers that may be faced when trying to adapt a good hand hygiene regime in your practice with solutions for how to avoid them.

Hospital-acquired infections (HAIs)

A patient can acquire HAIs during hospitalisation or up to 30 days post discharge (Binns, Coyne, & Scott Weese, 2014). Common HAIs include urinary tract infections, surgical site infections and infections associated with feeding tubes and wound drains. These infections are associated with a higher rate of morbidity

and mortality as well as increasing costs to the client and the veterinary practice (Gregory, 2005). More worrying are the reports of resistant bacterial infections in veterinary hospitals and practices, such as Methicillin Resistant *Staphylococcus aureus* (MRSA) and Methicillin Resistant *Staphylococcus pseudintermedius* (MRSP).

The true magnitude of HAIs within veterinary medicine is unknown as there is no official surveillance system in place to monitor the amounts and types that are seen. A survey carried out by Benedict et al. (2008) looked at biosecurity and infection control programmes at accredited veterinary teaching hospitals. They surveyed 38 veterinary teaching hospitals on various aspects of infection control such as hygiene, surveillance and education. They found that 82% of the hospitals surveyed had reported outbreaks of HAIs in the 5 years prior to the survey being carried out, with some hospitals even closing down sections of their facilities to stop the spread of disease. This study highlights that HAIs are a real problem even in establishments such as teaching hospitals where “gold standard” is paramount.

Ruple Czerniak et al. (2013) carried out surveillance in multiple small animal referral hospitals to estimate the occurrences of HAIs in their intensive care units. They found that 16.3% of dogs and 12% of cats had some sort of HAI-connected “event”.

These two published studies serve to prove that HAIs are a very real issue in veterinary medicine.

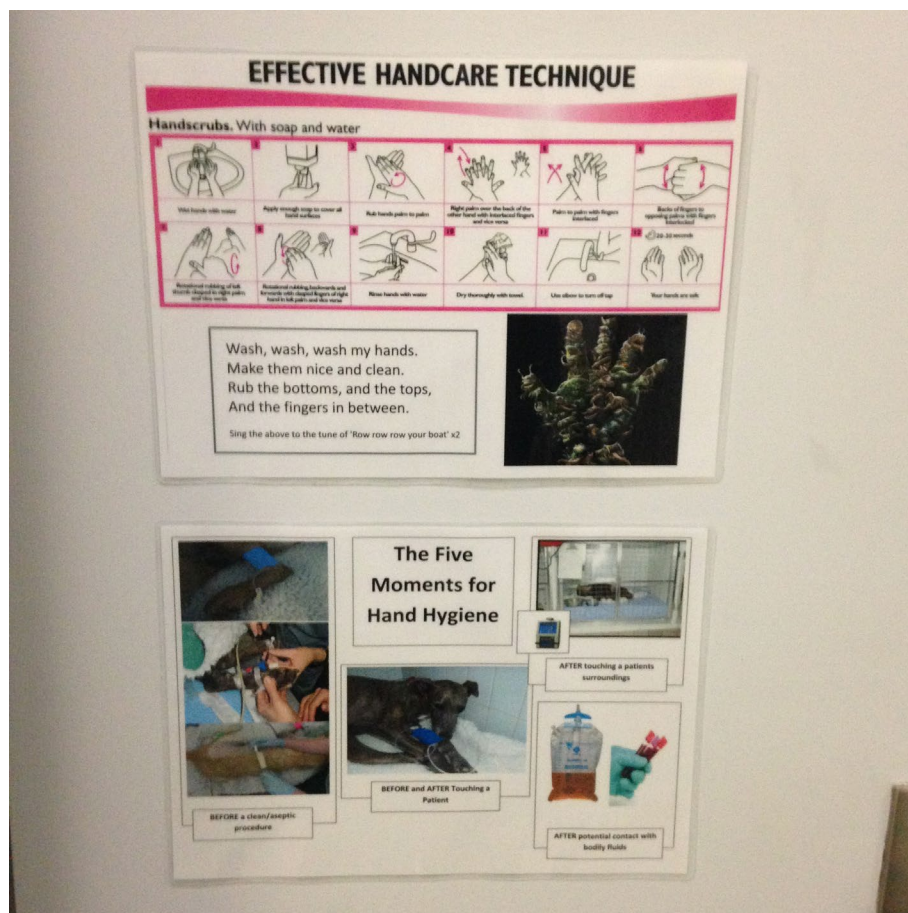


Figure 1. Adaptation of WHO documents for use in a veterinary hospital

Hand hygiene

There are two groups of bacteria associated with our skin flora: transient and residual. Transient bacteria live on the surface of the skin and are transmitted by touching objects or patients. These bacteria can be eradicated by hand-washing. Residual bacteria naturally occur in our skin flora and because of this we cannot rid the skin of this, but we can control levels of it with hand-washing. However, these bacteria are rarely a problem unless the skin is broken.

Many veterinary establishments with set hand hygiene protocols may have adapted them from the World Health Organisation (WHO). They were at the forefront of a worldwide campaign to promote good hand hygiene by publishing information on the “Five moments for hand hygiene” and “The Six Steps of Handwashing”. Figure 1 shows how these can be adapted for use in veterinary practices.

Barriers to effective hand hygiene

Being too busy was the most common reason for non-compliance in a

study carried out into hand hygiene in veterinary support staff (Nakamura, Tompkins, Braasch, Martinez, & Bianco, 2012). Evidence for the use of alcohol hand gels when appropriate helps with the barrier of time. According to the National Institute for Health and Care Excellence (NICE, 2012), hand decontamination is best carried out by being bare below the elbows (BBE, see later) and using hand rubs (which conform to British standards), such as Sterilium (BODE Chemie). When hands are visibly soiled, contaminated with bodily fluids or where there is the potential for the spread of alcohol-resistant organisms, hand soap should be used such as Chlorhexidine Gluconate (CHG).

Whether using soap or alcohol, another barrier to effective hand hygiene stated in Nakamura et al. (2012) is availability of resources. Hand-washing stations are of high value in veterinary establishments, especially in those areas where patient contact is high, such as ward and preparation areas (Figure 2). It should be the responsibility of named persons to ensure that these resources are always kept available.

Education is another important factor in hand hygiene, one of the reasons being that it involves all members of the team. Education should begin with how pathogens are transmitted via the hands from patient to patient to stress the importance of hand hygiene (Pittet et al., 2006). In order for pathogens to be transmitted there is a sequence of events: pathogens are on the patient or have been shed onto the patient's surroundings (bedding, drip pump, kennel door); next, a member of staff comes into contact with either the patient or the environment; their hand-washing technique is either non-existent or inadequate and they then go to see another patient and the pathogens are spread (Boyce & Pittet, 2002). Regarding reception and administration staff, they are often in contact with what are called “high touch areas” such as telephones and computer keyboards; therefore, hand hygiene involves them also. As an aside, it is also very important that daily disinfecting of these “high touch areas” takes place.

Going one step further in education of the veterinary team, hand-washing methods can be assessed by the use of ultraviolet light and special hand creams which show under the light. This is a very important aspect of education, but also can make it a bit more lighthearted and visual. This method is used as a teaching tool for undergraduate students at the authors' workplace.

Being BBE is a policy which some establishments may adopt to aid with hand hygiene, and general infection control policies. It involves the following points:

- No long sleeves below the elbows
- Removing wrist and hand jewellery
- Making sure that fingernails are short, clean and free of nail polish
- Covering cuts and abrasions with waterproof dressings

(NICE, 2012)

Historically, this ruling was bought in to human hospitals in January 2008 by then health secretary Alan Johnson. The introduction of the rule was a way of tackling the increasing problem of HAIs. It was, however, very controversial, with concerns being raised that the decision lacked evidence and was made hastily in response to much media attention around the subject of infection control at the time (Hebert, 2008).



▲ **Figure 2.** An example of a hand-washing station

The aims of the BBE policy are twofold. First, to enable thorough hand-washing to be carried out, including the wrists; and second, to stop contamination of patients from long sleeves and jewellery that may be harbouring bacteria.

A study carried out by Trick et al. (2003) found that the wearing of rings has been found to increase bacterial counts 10-fold as well as being a barrier to effective hand hygiene. In this study, ring-wearing increased hand contamination with all bacterial categories apart from one and there was an increase in contamination as the number of rings worn increased. The hands were 1.6 times more likely to still be contaminated with transient organisms after decontamination with soap and water and 2.3 times more likely to still be contaminated after the use of an alcohol hand gel. Studies regarding the BBE rule are often conflicting. For example, Burger, Wijewardena, Clayson, and Greatorex (2011) studied two groups of human healthcare workers who were either BBE or not BBE (38 and 28, respectively) and compared whether there was any significant difference in the number of colonies after hand washing between

the two groups. In the case of this study, BBE referred to the wearing of wrist-watches and jewellery. They did confirm that hand-washing produces a significant reduction in bacterial colonies on the fingers, palms and dominant wrist, but did not find any significant difference between the two groups. They did, however, find that before hand-washing there were more bacterial colonies found on the group who were not BBE compared to those who were BBE but again, this was not significant.

The subject is very contentious and the decision to adopt the policy often comes with some defiance from those who wish to see very solid evidence for something. However, it should be borne in mind that there is also the issue of professionalism and it could be argued that being BBE gives a better image to the public and our colleagues.

Conclusion

In conclusion, VNs should be aware of the importance of hand hygiene and what may occur should this not be adhered to. Knowledge about bacteria and how they spread can also help to understand the

importance. There are barriers to effective hand hygiene and these should be identified if they occur in an establishment so that all the veterinary team can adhere to hand hygiene policies.

As with any new policy, looking at current evidence is crucial and although much evidence at the moment is in the human field, this can easily be transferred, as hand hygiene is the same regardless of which industry you work in. There is certainly scope for VN-led research in this area, which will help to educate fellow VNs further and help to promote this important issue.

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Multiple Choice Questions

1. The topic of hand hygiene dates back to the 1940s

- (a) True
- (b) False

2. A patient can develop a HAI up to how many days post discharge from hospital?

- (a) 30
- (b) 40
- (c) 60
- (d) 80

3. Bendict et al. (2008) found that which percentage of veterinary teaching hospitals had reported outbreaks of HAIs?

- (a) 38%
- (b) 55%
- (c) 82%
- (d) 91%

4. Ruple Czerniak et al. (2013) found that which percentage of dogs in small animal referral

hospitals had HAI connected events?

- (a) 10%
- (b) 12%
- (c) 16.3%
- (d) 22%

5. Residual bacteria naturally occur on the skin flora:

- (a) True
- (b) False

6. The most common barrier for non-compliance with hand hygiene in veterinary staff is reported to be:

- (a) Laziness
- (b) Being too busy
- (c) Availability of resources
- (d) Lack of education

7. Trick et al. (2003) concluded that wearing rings did not increase bacterial counts and was therefore not a barrier to hand hygiene:

- (a) True
- (b) False

8. Which of the following would not form part of the NICE bare below the elbow policy?

- (a) Wearing long sleeves
- (b) Removing wrist and hand jewellery
- (c) Making sure fingernails are short, clean and free of polish
- (d) Covering cuts with waterproof dressings

9. How can effective hand sanitising methods be best assessed in practice?

- (a) Visibly inspecting hands of all staff
- (b) Watching staff to see if they sanitise their hands after patient contact jewellery
- (c) Using Ultraviolet light and special hand creams
- (d) Swabbing hand touch surfaces

For the answers to the MCQs, please go to: <http://www.bvna.org.uk/publications/veterinary-nursing-journal>



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'Veterinary Nursing Awareness Month' helps create awareness of the importance of the veterinary nursing profession and the provision of responsible pet care.



It's an ideal time for you & your practice team to organise events to promote your profession by holding an open day so current clients and potential clients have a chance to see the services you offer and the level of care provided by your practice team. Further information will be available shortly via the BVNA website www.bvna.org.uk

Join us in celebrating our amazing profession!