Chapter 5

THE POTENTIAL IMPACT OF WATERLESS HAND SANITIZERS IN VETERINARY SETTINGS

5.1 General Summary

Nosocomial infections have been cited as the "second most frequent adverse effect of hospitalization". Between 2 to 5 million patients acquire nosocomial infections annually (Brown *et al.*, 2002). A large number of these infections often go unnoticed due to the difficulty involved in attempting to detect and diagnose them. A modest estimate of known nosocomial infection costs reaches into the billions of dollars per year (Brown *et al.*, 2002; Gaynes *et al.*, 2001). The Centers for Disease Control and Prevention reports "hand washing is the single most important means of preventing the spread of infection" (CDC, 2003). Because of this fact, infection control professionals have tried various methods, such as alcohol-based waterless hand sanitizer (WHS), in order to increase compliance with hand hygiene protocols and eliminate the occurrence of these preventable infections.

After the introduction of WHS into human healthcare facilities, investigators noted increases in hand hygiene compliance as well as decreases in bacterial contamination on the hands of healthcare workers. Decreases in nosocomial infection rates would be expected to follow (Graves, 2004). The CDC has also endorsed the use of WHS in human healthcare settings due to their ability to address some of the obstacles healthcare workers face (CDC, 2003).

The integration of WHS in veterinary and animal agricultural settings will most likely provide the same benefits as those seen in human healthcare facilities. In Chapters 3 and 4, WHS proved itself to be useful at reducing bacterial contamination on the hands of large animal teaching hospital personnel and children visiting a petting zoo. WHS has the potential to greatly reduce the transfer of infectious organisms from animal to animal (with the vector being human hands), animal to human and human to animal (*e.g.,* methicillin-resistant *Staphylococcus aureus*). Making WHS available to visitors of petting zoos, open farms, fairs, etc., will most likely reduce the number of outbreaks caused by zoonotic organisms such as *Salmonella* spp. and *E. coli*.

Usually, testing of drugs, surgical techniques, etc., is performed first in context of veterinary medicine and is then tested and applied to human medicine. In this instance, WHS was first found to be effective in human healthcare and with the present studies, in veterinary settings. Veterinary medicine now has the opportunity to follow the example of human medicine and integrate WHS into their hand hygiene practices. Professionals in veterinary medicine should quickly embrace this change so that they too can begin to reap the benefits of improved infection control and decreased nosocomial and zoonotic disease while also being assured that they are providing the best possible healthcare to their patients.

However, because WHS was initially developed for use in human healthcare it does not address some of the problems met by veterinary professionals. Future experimentation with WHS in regard to veterinary and animal agricultural settings should plan to address some of these obstacles by performing efficacy studies against specific bacterial, fungal, parasitic and viral pathogens of veterinary importance. The development of an enhanced WHS product that can be used despite the presence of accumulated organic material or by persons at risk of encountering hard-to-kill zoonotic organisms like *Ehrlichia, Leptospira,* and *Cryptosporidium* spp. should be explored.

5.2 References

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