Veterinarian compliance with hand hygiene is unacceptably low

Hand hygiene—a refresher
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Veterinarian compliance with hand hygiene is unacceptably low even among highly educated medical professionals such as veterinarians who learn about this basic pillar of infection control as part of their studies.

Educational level and gender have been shown to affect compliance with hand hygiene procedures

Studies have shown that being a female or a nurse yields significantly more hand hygiene procedures per patient than being male or a doctor. Striking figures obtained from video observation studies in small animal clinics reveal overall compliance with hand hygiene is as low as 14%.

In as little as 3% of cases, veterinarians were observed to perform an act of hand hygiene before examining a new patient.

We all know what we are supposed to do. The problem, however, is our lack of compliance in the everyday. The simple routine of hand hygiene is of such great importance and so easy to perform, yet we simply fail to do it. It’s all in our hands.

Hand Rubs Preferred
- When hands are not visibly soiled
- Use products with >70% methylated spirits
- Don’t forget the dorsum of your thumbs and interdigital spaces
- 30 seconds application is sufficient (meaning product needs to remain wet on your skin for that time; check manufacturer recommendations)
- A volume of at least 3mL is needed to achieve this (small versus big hands)

Hand wash
- Wash hands when they are visibly soiled
  - otherwise favour alcohol rub
- When contact with oocysts or spores is suspected (e.g. cryptosporidium)
- Do not ‘over wash’
- Use a neutral skin friendly soap; there is no need or benefit to medicated soaps (chlorhexidine or iodine) – only downsides in the long run

Skin care is an essential part of good hand hygiene
- Medicated soaps can induce allergies and dermatitis, so does ‘over washing’
- Alcohol rubs are less irritant to your skin than washing with soap and water
- Use skin moisteners frequently

Although every reasonable person understands the necessity of proper hand hygiene, compliance remains largely unsatisfactory
The Semmelweis Paradox or Effect

As Ignaz Semmelweis (1857) discovered many years ago, hand hygiene plays an important role in the prevention of transmission of disease. The dramatic decrease in puerperal fever served as proof after he introduced mandatory hand washing between the morgue and the maternity ward in Vienna. Although hugely successful, Semmelweis’ discovery directly confronted the beliefs of science and medicine in his time. His colleagues and other medical professionals refused to accept his findings mainly because they did not believe that they could be responsible for spreading infections. Still today this is known as the Semmelweis paradox or effect: a metaphor for the reflex-like tendency to reject new evidence or new knowledge because it contradicts established norms, beliefs, or paradigms.

Focus on Preventing Rather than Fighting Disease

Semmelweis’ findings were combined with Louis Pasteur’s (1864) ‘germ theory of disease’ and led to a dramatic upswing in the development of aseptic techniques. It then became very clear that instead of fighting infections we should focus on preventing them. In retrospect these findings and the development of what followed were the greatest positive factors influencing patient survival in regard to infectious diseases over any other medical advancement so far.

Hand Hygiene—the first fundamental pillar

As hospital acquired infections (HAI) were revealed to often be transferred from the hands of health care personnel to the patients, hand hygiene became the simplest, wisest and most effective way to reduce HAI’s. It is therefore unsurprising that the World Health Organisation recognizes Hand Hygiene as the first fundamental pillar in prevention of infectious diseases including strategies to reduce antimicrobial resistance in hospital settings.

These facts are no different in our veterinary environment. And it may even be more important to also protect veterinary caregivers from zoonotic diseases.

5 Moments of Hand Hygiene—Clean Hands Safe Animals (Posters & Table 1)

These are (or should be) anchored in our day-to-day routines to prevent spread of nosocomial infections in our practice of veterinary medicine. New challenges in our professional and private lives have recently come along bringing the importance of proper hand hygiene to light in our daily personal routines and social interactions.

Wet Workers

Proper hand sanitation is indisputably necessary. Yet there are some issues to be taken into account; as healthcare workers we can be considered ‘wet workers’ as our profession requires us to frequently wash and disinfect our hands.

Repeated hand washing depletes the protective layers of your skin and causes a rapid shift in your skin microbiome, eventually leading to hand eczema, or what can be regarded as occupational dermatitis in our profession.

Using medicated soaps (those that contain ingredients like chlorhexidine, iodine, triclosan…) are far more irritating than neutral pH soaps. The added benefit of the antiseptic is also hugely debatable for a sanitary wash, yet the contraindications are clear. So, whereas the short-term, immediate benefit of washing are indisputable, the long-term consequences can be devastating for people working in our sector. Firstly, due to eczema development but also because hands with skin conditions can be difficult to disinfect, so the entire purpose is defeated. Fortunately there are solutions.

Although it may sound strange, alcohol solutions are in fact much less irritant to the skin than water and soap.

The protective fat layers, although being dissolved during the rubbing process, will not be washed away but instead reincorporated in the skin when drying. Also, those alcohol products, if of sufficient quality, do contain emollients.

In any case, regular use of hand moisturisers and hand creams is beneficial to avoid the downsides of frequent sanitation.

It is not the quantity of application here that will matter, rather the frequency. Thick application of cream on your hands before you go to bed is likely to only end up on your sheets or on your partner. Instead, apply small quantities as often as you can.

The Downside of Alcohol Hand Sanitizers

− Their efficacy is very technique dependent. Much more than that of hand washing. Areas such as the dorsum of the thumb, the interdigital spaces and tip of fingers are often missed during application. This video shows proper application of a hand rub: vettube.eu/video/how-to-perform-a-proper-hydroalcoholic-handrub/196.html
− If there is a risk of cryptosporidium contact.
or any other oocyst forming bug or spores of any kind, hand washing and thoroughly drying is needed to be safe. In this case it is the mechanical removal (the solution to pollution is dilution) and drying that will be important, not the actual disinfection component.

- Not all over the counter hand sanitizers do what they say. There are norms for efficacy testing. A good guideline is to check whether or not the product you have conforms to the prEN1500 norm or similar (EN12972 for surgical disinfection). And in the current case of COVID-19, the coronavirus being an enveloped virus (lipophilic) it is actually very sensitive to alcohol sanitizers as long as they contain a volume % over 70. Isopropanol based formulations have better activity against coronavirus. In the case of non-enveloped viruses, ethanol-based products >85% are recommended (for our dog lovers with parvo).


### Compliance and the Historical Perspective

All of those we now consider as the grandfathers of infection control and aseptic technique all suffered from the above described ‘Semmelweis effect - paradox’ during their respective era. Even supported by tangible facts and scientific proof, these great minds met great scepticism about their findings and the concurrent implementation of policies.

Things are not necessarily different now. Anno 2020, the benefits of proper hand hygiene is commonly accepted knowledge. Unfortunately, the current COVID crisis has only emphasised this. From childhood we are lectured on the fact that germs have the potential to create infections, hands carry germs and washing hands reduces microbial contamination. Yet, we largely fail to comply to do the latter.

<table>
<thead>
<tr>
<th>Moment</th>
<th>When?</th>
<th>Why?</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before touching the patient</td>
<td>Clean hands before touching the patient.</td>
<td>To protect the patient against harmful germs you carried on your hands.</td>
<td>Clinical examination, handling patient, restraining patient,...</td>
</tr>
<tr>
<td>Before a clean/aseptic procedure</td>
<td>Clean hands immediately before and after an aseptic task.</td>
<td>To protect the patient against harmful germs, including patient's own, from entering its body.</td>
<td>Blood sampling, IV catheter manipulation, intra-articular joint treatment, medication administration, catheter placement, wound care...</td>
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<tr>
<td>After body fluid exposure risk</td>
<td>Clean your hands immediately after exposure risk to body fluids and after glove removal.</td>
<td>To protect yourself and the health-care environment from harmful patient germs.</td>
<td>After contact with any body-fluid like urine, blood, nasal discharge, saliva, faeces...</td>
</tr>
<tr>
<td>After touching the patient</td>
<td>Clean hands after touching a patient and its immediate surroundings, when leaving the patient’s side.</td>
<td>To protect yourself and the health-care environment from harmful patient germs.</td>
<td>After clinical exams, after bandage changes, grooming...</td>
</tr>
<tr>
<td>After touching patient surroundings</td>
<td>Clean your hands after touching any object or furniture in the patient surroundings when leaving even if the patient has not been touched.</td>
<td>To protect yourself and the health-care environment from harmful patient germs.</td>
<td>When leaving the exam room, kennel area or the hospital.</td>
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