

Hand Hygiene Webinar: Dr. William Jarvis

December 17, 2019

1. Question: Jennifer Ellison: How do you determine how much foam is dispensed?

Jennifer Ellison: foam expands...so it looks larger

Jen: perhaps its the foam prior to dispensing

Answer: One approach is to weigh the foam to see how much has come out of the dispenser (e.g., capture 10 full dispenses and divide that by 10 to get an average grams per full dose), then divide that by the density (g/ml – determined by good analytical chemistry testing) – that gives the ml per dose.

2. Question: Lyndsay Hodgson: Do all automatic ABHR dispensers dispense the correct volume?

Answer: If correct volume is defined as the amount of the agent to meet the in vitro current ABHR efficacy standards (i.e., 3 log microbial reduction with one application or 3 log microbial reduction with 10 applications per Health Canada requirements), then the answer is no. It is important to ask your manufacturer for the specific test data to determine if the amount dispensed meets the efficacy standard.

3. Question: Maureen B: Do you know of any literature that shows a difference in SSI rate in VP (ventricular peritoneal) shunt insertion procedures based on hand hygiene method-Avanguard vs traditional CHG and water scrub?

Answer: I am not aware of any published study of the method of operating room/surgical personnel pre-operative hand hygiene impacting VP shunt SSI rates. I believe the adherence to strict aseptic technique during VP shunt insertion (including pre-operative hand hygiene) and during post-operative manipulation of the VP shunt (again including hand hygiene) are the critical elements for reducing VP shunt-related infections.

4. Question: Brockville General Hospital: Should we continue to promote purchasing ABHR products with a minimum 70 % concentration?

Answer: As illustrated in my presentation, the ABHR products show the ability to kill Gram-positive or negative organisms at 35-45 %ethanol v/v by *in-vitro* methods. However, the formulation matters more than the specific ethanol concentration. More important than simply focusing on the % ethanol would be to ask each manufacturer for their data on the microbial reduction efficacy of their product using the *in-vivo* Health Care Personnel Hand Washing (HCPHW) methodology (i.e., the American Society of Testing Methods [ASTM] E1174, per U.S. Food and Drug Administration and Health Canada).

5. Question: Rohit Sachdeva: Is it important to use soap and water after multiple ABHR applications as it sometimes feel like a slimy layer is formed on hands?

Answer: Depending upon the product and the formulation (esp. the emollients and moisturizers that are added), there may be build-up on the hands. In such instances, it may feel more comfortable to periodically wash one's hands with soap and water. In such instances, it may be useful to ask the manufacturer for their data on *in vivo* efficacy at reducing the microbial burden at one and 10 applications (using the Health Care Personnel Hand Wash methodology; HCPHW, ASTM E1174, per the U.S. FDA). Furthermore, a well-formulated ABHR should not create what feels like a "slimy layer" – try to identify and weed those products out in subjective unit trials.

6. Sinai Health: To answer the foam question at Sinai - we primed the pump then pumped 10 pumps into a container, you let the ABHR foam dissipate until its liquid and measure the volume (ml) and divide by the 10 pumps. The vendor should be able to provide you the ml of ABHR that should be provided with a manual dispenser.

Answer: This looks like a good method. Just need to be sure to measure that volume seconds after the foam settles, because alcohol evaporates relatively quickly. Agree that the vendor should be able to provide their average ml per full dispense and the range / standard deviation.

7. Question: SHN: From my understanding, hospitals are recommended to have at least 70% alcohol in order to kill Norovirus.

Answer: Norovirus is a whole different can of worms – just because a ABHR contains 70% alcohol, does not mean it will work/kill/remove Norovirus – formulation matters. If there is a Norovirus outbreak, it is recommended to follow the CDC- and WHO-recommended *C. difficile* approach/guidance: personnel protective equipment and hand-washing after infected patient contact. Don't remove the hand sanitizer (ABHR) – just be aware it will have limited efficacy.

8. Question: Dan: What is your opinion on "mechanical" hand hygiene products that bind to skin and last for an extended period of time?

Answer: I am not aware of any published good data documenting the efficacy of "mechanical" hand hygiene products. The promise of extended efficacy (e.g., lasts for 24 hours) is enticing, but usually those products have very little data and the efficacy is likely more to keep microbes from going, not able to deal with a large burden if hands touch a contaminated surface. Again, it is important to ask the vendor for their evidence and assess that critically. In the United States, that type of claim requires a New Drug Approval.