DATE: July 7, 2014

QUESTION: I have been asked to discover evidence on whether it is appropriate to heat multi use containers of skin prep for urology cases. Currently these bottles are being immersed in warm water to heat them for perineal prep for urology cases. Both chlorhexidine and betadine prep are heated. Do you know of any literature, or manufacturer’s recommendations? Do you know if it is more acceptable for single use containers or sponges?

RESPONSES:

1. Name of Sender: Coleen Reiswig
   Email address of Sender: Coleen.Reiswig@interiorhealth.ca
   Response: Best to go back to the manufacturer always to get the answers to these type of questions. They are the ones you need the answers from to cover yourself in any such recommendations. Just my two cents (guess that’s Five cents now).

2. Name of Sender: Ian Kudryk
   Email address of Sender:
   Response: I kind of chuckled when I read your question. We had exact same problem when we acquired a new urology service over a year ago. They were using a crock pot with tap water. We stopped the practice immediately and involved our medical director as we deemed this an immediate high risk. The problem with the warm water bath holding for antiseptics is that the warm water itself becomes the reservoir. In fact, we spotted filming on the surface of the water by the end of the day. The organisms that are tracked onto the external surface of the bottle (especially if multiuse) can make their way down the bottle via drops of water and rest upon the edge of the opening. Literature ABOUNDS stating that solutions are less contaminated than the edge of their dispensers, droppers or openings (that’s how outbreaks happen). Search ophthalmology lit, SSI lit and pharmacy lit (also APIC).

   The surgeons and nurses from the acquired urology service were very offended that we deemed their practices high risk and refused to grant them privileges should they continue. So the surgeons even polled colleagues at conferences (N=200) and found that over 50% use warm water baths for heating. I was horrified, so was my medical director. This is unfortunately a practice in which every surgeon tells you he does it, because every one else does it.

   To correct the issue, we had them purchase dry heat antiseptic warmers and only use single use containers or antiseptic (you can’t argue with a couple hundred dollars in extra cost) and place them in the warmers only 1 hour prior to use.

   If you are trying to find literature on the chemical stability of CHG and PI, good luck, nothing much out there. In fact I recall some studies saying slightly warmed CHG may be more effective against microbes. However, there is no excuse for making a warm water bath in the OR and using multiuse antiseptic bottles. Many urology sx is technically considered sterile (i.e. sterilizing our scopes and cutting into sterile tissue), so this practice is clearly unacceptable.
3. **Name of Sender:** Gwen Cerkowniak  
**Email address of Sender:**  
**Response:** I have very definite thoughts that this practice is not acceptable but I will go over the documents that I have collected instead.

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12.1.6 Prep solutions and irrigations shall not be warmed unless recommended by the manufacturer.

Heat may change the chemical properties and efficacy of the antiseptic agent.
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The first document from WRHA is fairly self-explanatory, the 2nd is an article from the Nursing Times of England, commentary from APIC about the preference to single use and certainly not warming and also raises the concerns that solutions may not be sterile to begin with, #4 is from the Association of Surgical Technologists and the 8th standard of practice talks about warming and storage of skin antiseptics.

The last is a clipping from the ORNAC standards and guidelines: They don’t talk about single use but warming unless it is recommended by the manufacturer. The AORN Standards recommendation IX under Patient Skin Antisepsis raises a number of concerns about multi-use containers and the strong possibility of contamination and again reiterate concerns about warming.

Also if you are familiar with the recommendation about concerns regarding ultra sound gel warming and reuse – it was recommended for sterile procedures and contact with mucous membranes that only single use sterile gels be used.

4. **Name of Sender:** Jim Gauthier  
**Email address of Sender:**  
**Response:** I would think you have to ask the manufacturer this question: they may (or may not) have evidence of whether you can do this or not.
5. **Name of Sender:** Mary Lu Sample  
   **Email address of Sender:** msample@psfdh.on.ca  
   **Response:** I don’t think it is ever appropriate or acceptable to heat open bottles of antiseptic - especially in water where there is a huge risk of contamination. We did the same for urology cases here when I first came to this organization (2006) and I stopped the practice. I did allow unopened bottles to be kept in the blanket warmer - I would have to check to see if they still do this as this practice may not meet accreditation standards. As well, all opened bottles must be discarded by the end of the day. I wish I could remember the reference for this?? It may have been AORN/ORNAC guidelines? FDA? CINA? From what I can recall, if the manufacturer provides directions on how to warm a product then it may be acceptable.

6. **Name of Sender:** Chris Cohoon  
   **Email address of Sender:** Christine.Cohoon@HorizonNB.ca  
   **Response:** I spoke with our clinic that does Cystoscopies and they do not warm the solution any more. They used to but were advised by Infection Control not to do so as it interferes with the stability of the solution. This was before my time and on my searching for the evidence in our files I found the attached information from Winnipeg.  
   Hope this is helpful in some way.

7. **Name of Sender:** Betty-Jean Macdonald  
   **Email address of Sender:** bmacdonald@lakeridgehealth.on.ca  
   **Response:** Warming with solutions promotes the growth of water associated pathogens. New warming technologies (waterless systems) have been developed and prevent growth, but I don’t know any specific manufacturer’s. APIC text talks about warming fluids with water and discourages it, but also says if you do it you must have policies for changing of the water and definitely consult manufacturer recommendations. It won’t be different for single use containers or sponges. You’ll have to check with the manufacturer you use.  
   **References:**  
   3. APIC Text on line Chapter 115 Water systems issues and prevention of waterborne infectious disease in healthcare facilities.
Regarding the stability of Baxedin® 2% - 70%, please note that the product remains stable when exposed to temperatures up to 35°C for the duration of the product’s shelf-life.

However, if you wish to heat the product at temperatures higher than 35°C (up to 40°C), please note that although we have not completed any studies on the product’s stability at such temperatures, we believe that Baxedin® 2% - 70% can be heated up to 40°C, but for a limited time only; any remaining solution should subsequently be discarded as we cannot guarantee its efficacy or stability.

For precautionary reasons, please also note that heating solutions containing high concentrations of Isopropyl Alcohol, such as Baxedin® 2% - 70%, may cause olfactory discomfort as well as possibly increase the product’s flammability.