Adopted 8/12

Hand Hygiene

A significant body of evidence exists to show that pathogens can be transferred from patient to health care worker. Much of this evidence details the transfer of pathogens from infected or draining wounds; however,it has also been shown that microbes from normal, intact patient skin can be transferred as well (4-8). The axillae, trunk and hands are frequently colonized with potential pathogens (6, 7, 9, 10). This is of particular relevance to chiropractic physicians who typically do not wear gloves to adjust and examine patients.

Protocol for UWS Clinics

This protocol pertains to clinicians, interns and anyone with direct patient contact.

- Whenever possible, wash your hands at the beginning of each shift for an average of 40 seconds (but no less than 10 seconds). This can be with anti-microbial soap or regular soap (see appendix I).
- Dry your hands with a paper towel (even if an air dryer is available). Use the paper to turn off the faucet and to open the rest room door.
- Alcohol–based hand rubs should be used for 20-30 seconds before and after each patient (unless your hands are dirty, in which case they must be washed). We recommend that, when possible, this be done in front of the patient (see appendix II).
- When performing higher risk procedures where you are likely to come in contact with patient fluids, use gloves and wash before and after. Higher risk procedures include for intra-oral TMJ massage, endo-nasal technique, nasal specific technique, and intra-vaginal or rectal manipulation/myofascial treatment.
- Periodically wash hands after every 10 alcohol based applications (optional).
- When possible, wash your hands at the end of each shift for an average of 40 seconds (but no less than 10 seconds). This can be with anti-microbial soap or regular soap (see appendix I).
- If you are observing or helping with a patient and it does not appear that the other member(s) of the health team (i.e., clinician, or intern) has washed his/her hands, simply say “hands?” to serve as a polite, unobtrusive reminder in front of the patient or, alternatively, ask the other provider to step out of the room so that this reminder remains private.

Hand hygiene is important to prevent transmission of microbes to patients and to prevent colonization or infection of the chiropractor caused by microbes acquired from a patient.

Usually two methods of hand hygiene are recommended to chiropractic physicians - soap and water and alcohol based hand rub. Use of alcohol based hand rubs has been shown to increase hand hygiene compliance (13). Alcohol based hand rubs contain 60-95% ethanol or isopropanol. The anti-microbial nature of alcohols is due to the denaturation of proteins. Alcohol also acts as a dehydrating agent and dissolves lipids (1^{P871}). Diluted alcohol is more effective (60-95%) because proteins do not denature readily in the absence of water.

Alcohol based hand rubs should be used between patients, if possible, at the point of contact with the patient to increase patient confidence and comfort. Some evidence suggests that alcohol has decreasing efficacy after 10 uses, likely due to the accumulation of microbes on the hands and so hands should be washed periodically (17). However, the WHO does not recommend washing and indicates that alcohol hand rubs can be used multiple times, more than 10, and washing is done only for the comfort of the physician.

Frequent application of alcohol based hand rubs and/or frequent handwashing can cause irritation or dry out skin. One possible strategy to avoid irritation is to utilize alcohol based products that contain various emollients (15). Another method to relieve dryness and improve compliance with hand hygiene protocols is to utilize an oil-containing lotion routinely twice a day (16).

When is hand hygiene indicated?

- After contact with a patient's intact skin.
- After contact with the surfaces in the immediate area surrounding the patient.
- Before and after removing gloves (e.g., blood draws, intra-oral TMJ massage, endo-nasal technique, intra-vaginal or rectal myofascial/manipulative treatment).
- Before eating and before and after using the restroom.

What type of hand hygiene?

- Alcohol-based products are more effective for reducing the number of bacteria on the hands, (9, 11, 12, 13) although alcohol based products are not appropriate when hands are visibly soiled.
- Soap and water is less effective than alcohol rubs for reducing number of bacteria.
- Antimicrobial soaps have a small, statistically significant advantage in efficacy over non-antimicrobial soaps. (14)
- Rubbing the hands while washing helps to physically remove pathogens. Drying hands with disposable paper towels may also increase physical removal of pathogens.

NOTE! Alcohol based hand rubs are recommended for routine hand hygiene in all clinical situations (except if hands are visibly dirty, in which case they must be washed).

Technique for hand hygiene - alcohol based rub (See appendix II)

- Ensure that hands are dry.
- Follow the product directions for the amount of product to use.
- Apply product to the palm of one hand and rub hands together. Cover surfaces of both hands and fingers (including between fingers), continue rubbing until dry (20 to 30 seconds).
- Ensure again that the hands are dry.

Technique for hand hygiene - soap and water (See appendix I)

- Wet hands with water.
- Apply amount of soap recommended by manufacturer and rub hands together briskly for at least 10 seconds; however, the CDC and WHO recommend 30-40 seconds (e.g., approximately the time it takes to sing Happy Birthday" twice).
- Rinse hands with water.
- Dry with disposable towel.
- Use towel to turn off faucet to open the rest room door. If using an air blower is an option, choose paper towels instead because the additional friction provided by drying with paper is thought to be helpful in dislodging pathogens.

Other considerations relating to hand hygiene

- Do not wear artificial nails or nail tips.
- Keep natural nails less than ¼ inch long.
- Apply lotion twice daily to prevent drying and cracking of the skin.
- Avoid touching your face when with patients.

Compliance

One of the greatest limitations to the effectiveness of hand washing is physician compliance. Regular reminders and explicit orientation for new interns is recommended.

Additional procedures

Hand hygiene should be complemented by appropriate table decontamination between patients as well as cleaning the heads of stethoscopes and other equipment (e.g., IASTM) after use.

Rationale and Evidence

Washing hands with soap and water has long been known to be an important part of personal hygiene. The idea of washing hands to prevent transmission of disease-causing agents from patient to patient emerged in the 19th century. Ignaz Semmelweis was one of the first physicians to note a relationship between handwashing and infection control. He observed that women whose babies were delivered by doctors previously performing autopsies were more likely to contract a disease called puerperal (childbed) fever. He insisted that physicians begin washing their hands with chlorine water prior to attending births. The maternal mortality rate subsequently dropped dramatically (1 p.14). Due to the work of Semmelweis and others, handwashing is now accepted as an important way to control transmission of pathogens.

Human skin and mucosa harbor a variety of microorganisms. These can be divided into two categories: 1. the resident flora; this consists of established microbes that if disturbed reestablish themselves, and 2. transient flora; this consists of nonpathogenic or potentially pathogenic microbes that reside on the skin for minutes, hours, or days and that do not establish permanently. Transient flora is most frequently associated with healthcare acquired infections (2). It has been shown, however, that the hands of health-care workers (HCWs) have become persistently colonized with pathogenic flora that may cause infection in patients (3).

In order for colonized pathogenic flora or more likely, transient pathogenic flora, to be transferred from the HCW to the patient a series of events must occur:

- Microbes on a patient's skin or microbes from the patient that have been shed onto fomites (i.e., inanimate objects such as tables, instruments) must be transferred to the hands of the HCW.

- Microbes must survive on the skin of the HCW.

- Hand hygiene is inappropriate or omitted.

- The contaminated hands of the HCW come into direct contact with the patient or with the table or with instruments applied to the patient.

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Appendix I

Hand Hygiene Technique with Soap and Water

Duration of the entire procedure: 40-60 seconds

0

Wet hands with water;

1

Apply enough soap to cover all hand surfaces;

2

Rub hands palm to palm;

3

Right palm over left dorsum with interlaced fingers and vice versa;

4

Palm to palm with fingers interlaced;

5

Backs of fingers to opposing palms with fingers interlocked;

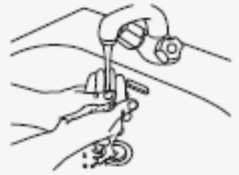
6

Rotational rubbing of left thumb clasped in right palm and vice versa;

7

Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

8

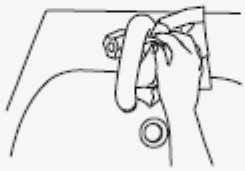


Rinse hands with water;

9

Dry hands thoroughly with a single use towel;

10



Use towel to turn off faucet;

11

Your hands are now safe.

Appendix II

Hand Hygiene Technique with Alcohol-Based Rub

Duration of the entire procedure: 20-30 seconds

Apply a palmful of the product in a cupped hand, covering all surfaces;

Rub hands palm to palm;

Right palm over left dorsum with interlaced fingers and vice versa;

Palm to palm with fingers interlaced;

Backs of fingers to opposing palms with fingers interlocked;

Rotational rubbing of left thumb clasped in right palm and vice versa;

Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

Once dry, your hands are safe.