



Toolkit – Hygiene, Sanitation, and Disease: Creating a Healthy Practice

In order to prevent the spread of disease, it is important to understand different types of infectious agents (also called pathogens) and common diseases, and the processes by which disease is transmitted. By understanding these key components, therapists can undertake activities to prevent disease transmission through good hygiene, sanitation methods, and the use of Universal Precautions.

Please view the webinar “Prepare Your Practice for Cold and Flu Season,” review handwashing procedures, and complete the Standards for Hygiene and Sanitation Checklist.

ABMP encourages members to create a flexible cancellation and rescheduling policy in order to protect themselves and their clients from communicable diseases. For additional resources, see the website of the Centers for Disease Control and Prevention (CDC): www.cdc.gov.



“Prepare Your Practice for Cold and Flu Season” Webinar

www.abmp.com/learn/course/prepare-your-practice-cold-and-flu-season



Proper Handwashing Procedure



Standards for Hygiene and Sanitation Checklist



Hand Washing and What Happens If You Dont

(Originally appeared in *Massage & Bodywork*, April/May 2007, page 114.)



Beating the Bugs

(Originally appeared in *ASCP Skin Deep*, November/December 2012, page 22.)



The Flu & Your Practice

(Originally appeared in *Massage & Bodywork*, January/February 2010, page 95.)



Mercy, Mercy MRSA!

(Originally appeared in *Massage & Bodywork*, July/August 2008, page 112.)



For Clients: Colds and Cancellations

(Originally appeared in *Body Sense*, Autumn 2019, page 5.)

Proper Handwashing Procedure

Proper sanitization of the hands is probably the single most important part of the sanitization protocol for massage therapists.

Five Steps to Wash Your Hands Properly

Washing your hands is easy, and it's one of the most effective ways to prevent the spread of germs. Clean hands can stop germs from spreading from one person to another and throughout an entire community—from your home and workplace to childcare facilities and hospitals.

Follow these five steps every time:

1. **Wet** your hands with clean, running water (warm or cold), turn off the tap, and apply soap.
2. **Lather** your hands by rubbing them together with the soap. Lather the back of your hands, between your fingers, and under your nails.
3. **Scrub** your hands for at least 20 seconds. Need a timer? Hum the “Happy Birthday” song from beginning to end twice.
4. **Rinse** your hands well under clean, running water.
5. **Dry** your hands using a clean towel or air dry them.

Use Hand Sanitizer When You Can't Use Soap and Water

Washing hands with soap and water is the best way to get rid of germs in most situations. If soap and water are not readily available, you can use an alcohol-based hand sanitizer that contains at least 60 percent alcohol. Check the product label for details.

Remember: hand sanitizers do NOT get rid of all types of germs; may not be as effective when hands are visibly dirty or greasy; and might not remove harmful chemicals from hands like pesticides and heavy metals.

To apply hand sanitizer properly:

- Apply the gel product to the palm of one hand (read the product label for correct amounts)
- Rub your hands together
- Rub the gel over all the surfaces of your hands and fingers until your hands are dry. This should take around 20 seconds.

Source: Centers for Disease Control and Prevention (CDC) website at www.cdc.gov.

For more information on proper handwashing procedures for health-care workers, visit:

Global Handwashing Partnership: www.globalhandwashing.org

World Health Organization (WHO): www.who.int



ABMP's Standards for Hygiene and Sanitation Checklist

Check your compliance with ABMP's Standards for Hygiene and Sanitation and identify your strengths and weaknesses.

Standard	I comply fully with this standard.	I'm currently out of compliance.
1. I understand how contagious diseases are transmitted via direct contact, indirect contact, and vehicle and vector transmission.		
2. I understand how HIV, hepatitis C, tuberculosis, H1N1 virus, influenza, and the common cold are transmitted via direct and indirect contact.		
3. I understand how infestations like mites and lice are spread in a massage practice setting.		
4. In the event that I become aware of a possible mite or lice infestation at my massage practice, I close my business until the facility can be deep cleaned.		
5. I always shower, wash my hair, brush my teeth, and rinse with mouthwash on days when I practice massage.		
6. I do not use scented body products, including antiperspirants, perfumes, colognes, aftershaves, or lotions, on the days when I practice massage.		
7. I shave or trim my beard (if applicable) on the days when I practice massage.		
8. My nails are natural, unpolished, short, and filed to smoothness. I do not wear acrylic nails or nail polish.		
9. If I tend to perspire heavily while applying massage, I wear a headband and wristbands, and use a clean towel, if necessary, to prevent perspiration droplets from falling on clients.		
10. I wear freshly laundered clothing or a freshly laundered uniform on days when I practice massage. My clothing or uniform has short sleeves.		
11. I always wear shoes when providing massage and I do not walk barefoot on flooring where clients also walk.		
12. I remove all jewelry including rings, wristwatches, bracelets, and necklaces before giving massage.		
13. I wash my hands according to the procedure described by the Centers for Disease Control and Prevention (CDC) and outlined by ABMP.		



Standard	I comply fully with this standard.	I'm currently out of compliance.
14. I wash my hands directly before and after massage sessions, after eating, and after using the restroom.		
15. I use alcohol-based hand sanitizers as described by the CDC and outlined by ABMP.		
16. When I suspect I have a contagious infection, such as the cold or flu, I cancel my massage appointments until I am no longer contagious.		
17. I wipe down hard surfaces that might be touched by either myself or a client with an antiseptic, like rubbing alcohol, between clients. Hard surfaces include countertops, equipment, treatment chairs or tables, doorknobs, and handles.		
18. I clean and disinfect the shower and shower area after its use by each client.		
19. If I use specialized hydrotherapy equipment or foot-soaking basins with jets, I follow the manufacturer's directions and use an approved cleaning product to disinfect the equipment between clients.		
20. At the end of every workday, I deep clean the treatment room with a disinfectant.		
21. At the end of every workday, I vacuum, sweep, and mop all floors where clients might walk.		
22. At the end of every workday, I sanitize all hard surfaces in the reception and retail area.		
23. At the end of every workday, I deep clean and disinfect the bathroom.		
24. I store clean linens in a closed cabinet and decontaminate my hands with an alcohol-based hand sanitizer directly before taking linens out for use.		
25. I wash all linens, including massage sheets, face cradle covers, bolster and pillow covers, hair wraps, robes, slippers, towels, and blankets (and any material that comes in contact with a client's hair or skin), between clients.		
26. I sanitize lubricant dispensers between clients and never use my hands to remove products from original containers.		
27. I deep clean and dust my entire practice space (including reception and retail areas, my office, hallways, bathrooms, and the treatment room) on a weekly basis.		
28. I understand the purpose and components of Universal Precautions.		
29. I follow the CDC guidelines as outlined by ABMP in the webinar "Prepare Your Practice for Cold and Flu Season" for the use of Universal Precautions.		
30. I constantly strive to provide a clean, sanitary, healthy, and safe environment for my clients.		



Handwashing

(and what happens if you don't)

By Ruth Werner



It is well recognized that contaminated hands are perhaps the most efficient medium for the spread of common infectious agents through an environment. Our cough or sneeze-blocking hands touch switch plates, money, the family dog, computer keyboards, telephones, raw chicken, and grimy sponges, and then we pick our teeth! Since massage therapists work with a physical intimacy many other health-care professions don't, it is our particular responsibility to limit the transfer of unwanted passengers between ourselves and our clients, and between any one client and another.

To talk about good skin hygiene, it's important to review a few key concepts. Many of us remember the dermis—the “true skin”—is where new skin cells are manufactured. These squamous epithelial cells progressively fill with hard, waterproof keratin as they migrate toward the surface, called the epidermis. Various types of bacteria colonize the layers of the epidermis. Superficial colonies are called transient bacteria. These microbes can cause serious infections if they gain entry into the body, but they are easily removed with water or friction. Resident bacteria colonize deeper layers of the skin, and they are more difficult to remove. Fortunately, they also tend to be less aggressive and less likely to cause serious infections.

One feature some of us may not be aware of is a layer of intercellular lipid that serves as an anchor to the epidermis. This, along with the stratum corneum, forms what should be an impermeable barrier between the inside and the outside of the body. These mechanisms keep both resident and transient bacteria exactly where they belong: on the outside.

The goal of handwashing, then, is to remove dirt and whatever bacteria can be dislodged. But depending on the temperature of the water and the nature of the soap, frequent handwashing can actually impair the function of the lipid layer: hot water and detergents can reduce intercellular lipids and increase cell proliferation. This can interfere with the uptake of essential fatty acids that help to preserve the impermeability of the skin. In other words, too-frequent handwashing with hot water and harsh soap can actually make the skin more vulnerable to infection by compromising the shield.

An astonishing amount of research has been done to determine the best methods for handwashing. *Best* in this case means both the *most effective* and the *most practical*—these two qualities are not always synonymous. Most research projects have been done with nurses in high-volume settings, which is an accurate parallel to massage therapists trying to make a quick transition from one client to the next. Following are the results of this research.

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What is the Best Way to Wash Your Hands?

- **Use warm, running water.** Hot water can damage skin; cold water doesn't work well; standing water doesn't carry away pathogens. Wash for twenty to thirty seconds, with the hands pointing downward into the sink.
- **Use liquid, plain (non-antimicrobial) soap.** Antimicrobial soap does not offer significant, extended protection from naturally occurring colonies of bacteria, but it does tend to irritate skin more often than plain soap. Perfumed or dyed soaps have the same problem. Bar soaps can harbor colonies of bacteria, so liquid soap is preferable. Concerns about antimicrobial soap contributing to bacterial or viral resistance have not yet come to pass, but this issue is being closely watched.
- **Dry hands with a paper towel.** Use the towel to turn off the tap and the light in the bathroom. Then, dispose of it appropriately. Blown-air drying is effective, but it takes a long time to be complete.

When a tap with warm, running water is not available, the second-best option is to use an alcohol-based hand gel. This comes with some caveats, however. The gel must be used according to the manufacturer's suggestions: the prescribed amount must be squirted into the hands and rubbed all around the hands and between the fingers until dry. This may not be appreciably faster than using a sink and running water. Furthermore, alcohol gels can kill bacteria, but they don't remove dirt. Consequently even this time-saving option can't replace regular handwashing. Alcohol wipes are not recommended for handwashing, because the concentration is comparatively

low, and the alcohol evaporates before it can be effective.

Because we work so closely with our clients, we are extremely vulnerable to whatever they may carry on their skins—even if they are not sick. For this reason, massage therapists and bodyworkers must be extremely conscientious about taking excellent care of their health and of their hands. Open lesions like the knuckle that got a little too close to the cheese grater, or the hangnail that keeps getting snagged on your pocket, are portals of entry for career-shortening or even life-threatening infections.

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What Happens if You Don't Hand Wash

If any bacteria do breach the defenses of the skin, one possible consequence is lymphangitis, a bacterial invasion of the lymph system.

Massage practitioners have a greater chance of developing lymphangitis than most clients do. This condition is an occupational hazard for bodywork professions because repeated immersions of the hands in soapy water can lead to hangnail formation and drying and cracking of nail beds. When these injuries are exposed to the pathogens that inhabit even healthy clients' skin, the risk of infection is significant.

The pathogen involved in most cases of lymphangitis is called streptococcus pyogenes, although other bacteria, including staphylococcus, can also be



the cause. When the pathogens gain entry, they set up an infection in the lymph vessel before macrophages or other white blood cells can stop them. Infections that invade the lymph nodes are called lymphadenitis. In either case, pain, possible red streaks running from the site of infection, high fever, and general malaise are the result.

Lymphangitis is an infection of the lymph system, not the circulatory system. However, if even a few bacteria get past the filtering action of the lymph nodes, the infection can enter the bloodstream at the right or left subclavian veins. Then, the situation changes to a much more serious one: sepsis, or blood poisoning, which can be life threatening. This is why, if lymphangitis is a possibility, medical intervention in the shape of antibiotics is advisable at the earliest possible opportunity.



Simple Precautions

Massage therapists are exposed to a wide variety of pathogens that inhabit our clients' skin. However, we also have the power to protect ourselves in a multitude of ways.

- **Wash hands frequently and correctly.** Use appropriate soap, and follow with a well-tolerated lotion or emollient to prevent drying.
- **Take excellent care of hands.** Control hangnails and keep fingernails clean and short.
- **Cover open lesions.** This can be done with old-fashioned Band-Aids if the sore will not come in direct contact with the client or with liquid bandages or finger cots (small latex sheaths) that can be replaced with every client.
- **Frequently disinfect surfaces clients touch.** These include face cradles, door knobs, light switches, and bathroom facilities.
And perhaps the single most important thing we can do to protect ourselves from work-related infections involves the most difficult intervention of all:
- **Be health-wise.** Eat right, exercise, and get good-quality sleep. These precautions are probably more

effective than any others to prevent our picking up infections from clients. Like it or not, we are health-care and self-care models for our clients. Many of them look to us to see how we manage stress, work, and other factors to maintain good health. We can use this role as an opportunity to explore the discipline—and the freedom—of taking excellent care of our own health. Now ... go wash your hands! **M&B**

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Beating the Bugs

As drug-resistant bacteria increase, prevention is more important than ever

by Leslie Roste

Around the world, there is an increasing risk from highly pathogenic (disease-causing) bacteria that are quickly becoming resistant to virtually all available antibiotics. In March 2012, Margaret Chan, MD, director-general of the World Health Organization, spoke to world leaders about this risk. Her message was clear: the chance of acquiring, transmitting, and becoming seriously ill with one of these pathogens is much greater than ever before.

Estheticians have the responsibility to ensure that their clients leave as healthy and germ-free as when they walked in the door. You certainly do not want to be responsible for making anyone ill, and you also need to protect your reputation and business in today's tough economy.





The Bigger Picture

With all the rules and procedures estheticians are required to adhere to, we often start to view some of the less interesting daily tasks as little things, unworthy of our time and attention. But infection control must never be one of them.

Unfortunately, many estheticians still believe that even if they do pick up or spread an illness, it can be easily treated or cured. That is simply not true for many dangerous or debilitating bacteria and viruses. As Chan stated in her address, the stakes are becoming so much higher. The bugs are becoming more resistant and, as they do, doctors' options for treating these resistant infections are shrinking. Bacteria can bring not just illness, but permanent disability or death.

In May 2012, the media extensively covered the case of a young, healthy woman who contracted an infection through a small cut on her leg. Unfortunately for her, the bug she came into contact with was one of the highly contagious bacteria that can cause necrotizing fasciitis—the “flesh-eating bacteria.” One type is methicillin-resistant *Staphylococcus aureus*, known to all of us as MRSA. These pathogens can live on objects for several days in the right circumstances. They are becoming more prevalent and the treatment options are few. This woman ended up losing both hands, portions of her leg, and much of her eyesight. She was lucky not to lose her life.

While that particular case did not occur in a spa or esthetics practice, other cases have. The possibility that it could happen in *your* esthetics practice is very real.

As we begin to see increasing numbers of MRSA infections in the population, the risks will grow substantially in all occupations where there is a high level of hands-on contact.

It's also important to be aware that bacterial and viral illnesses are most contagious prior to the development of symptoms. An example of this is human papillomavirus (HPV), which is responsible for more than 90 percent of cervical cancers and virtually all cases of warts, including genital warts. Like the herpes virus, HPV is shed most heavily just prior to an outbreak of symptoms. Even if your client says they do not have any contagious medical conditions and are not showing any symptoms, always assume that it could be possible.

Fortunately, creating an environment that protects both you and the client is relatively simple.



Legal Responsibilities

Because esthetics is a profession with significant risk for transmission of pathogens, there are laws, rules, and standards for how estheticians approach infection control. At the federal level in the United States, the Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) both play a role.

From an esthetician's viewpoint, one of OSHA's most notable actions was the development of Universal Precautions in the 1980s, which led to improved education and adherence to standards designed to reduce transmission of bloodborne pathogens—notably HIV and hepatitis. OSHA requires estheticians to take certain protective measures in any service where even the *possibility* of blood exposure exists. The use of personal protective equipment, such as gloves, goggles, and/or gowns is required by law whenever blood or other body fluids may be released as a part of a service.

In addition, OSHA mandates that a Material Safety Data Sheet (MSDS) must be available for all chemicals used, and that the instructions and warnings on the chemical's label must be followed. Many of the labels on chemicals used by estheticians are also regulated by

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the EPA. Disinfectants are a major tool in the war on dangerous pathogens, so these labels are very specific in their instructions. You are required to follow those instructions to a tee.

Additional rules at the state level are typically created by each state's board of cosmetology. They can vary widely from one state to another, so it's important to stay informed and up-to-date with your local rules.

Some states define specifically what items are disposables (for single use only). Most commonly, disposables are any porous items that cannot be properly disinfected or sterilized, such as sponges and wooden spatulas. These items must be disposed of after use and often cannot be reused even on the same client. For example, spatulas used for product application must be disposed of after each dip into the product to prevent cross-contamination.

Most states view blood exposure as an unusual occurrence, but provide specific directions for how to handle the incident and what to do with any instruments involved. Make sure you are aware of these rules—not just for your safety and that of your clients, but also because inspectors often ask questions on this topic when they visit your place of business.

Finally, virtually all states have rules relating to sanitation and disinfection. Read on for the basics, but it is important to know whether your state requires specific steps, or even specific products. Contact details for every state's board of cosmetology or equivalent agency can be found at www.ascpskinicare.com/resources/legislative.php.

Keep It Safe, Simply

From a scientific standpoint, the keys to effective infection control are simple. Following these four steps (while also adhering to any specific requirements for your state) drastically reduces the risk of spreading something that could lead to illness or even death.





Wet



Soap



Wash 30 seconds



Rinse



Dry

1. HANDWASHING

You've heard it a million times—for good reason. Handwashing is the single most important thing anyone can do to reduce the risk of transmitting pathogens.

You should be washing your hands between clients, before and after eating, and before and after using the restroom. Effective handwashing involves warm (not hot) water, lots of soap suds (friction), and 30 seconds of your time. When handwashing facilities are not available or practical, hand sanitizers can be used. However, keep in mind that most hand sanitizers are alcohol-based, which can be very drying to the skin. When skin is dry, it becomes more prone to microscopic openings that make a nice place for pathogens to set up shop.

2. SANITATION

Sanitation simply means cleaning. This is the process that removes visible debris, but does not destroy any pathogens. Examples of this would be using soap and water, or a chemical cleaner, to remove visible dirt and oil from an item or surface. This step is required prior to disinfection for any instruments used in your practice.

3. DISINFECTION

Disinfection is a chemical process that, when correctly performed, will destroy most pathogens that would be of concern in an esthetician's practice. As stated above, items must be cleaned prior to disinfection.

It is important to follow the instructions on whatever disinfectant you choose, particularly as they relate to the amount or concentration of the product that should be used and when to change the solution.

The most important concept in disinfection is contact time. This is the amount of time the disinfectant must be in contact with an item or surface to be effective. Just a dip won't do! Most products require 10 minutes of immersion or moist contact to effectively destroy the most dangerous pathogens.

4. STERILIZATION

The process of using heat and pressure in an autoclave to completely destroy all microbial life is mainly used by estheticians as a matter of their own personal standards, rather than being required by law. However, a few states do require this for specific instruments. The rules in those states are clear about requiring the additional step of cleaning prior to sterilization.

If you use an autoclave, it is extremely important to test its functionality according to the manufacturer's recommended schedule. An autoclave that is not functioning properly can quickly become an incubator for growing bacteria, instead of a method of destroying them.

The threat from mutating bacteria and easily spread viruses will only continue to grow. With a very mobile population, and antibiotic resistance growing daily in developed nations, we all must understand the risks and take precautions in our own lives, our own homes, and our places of business. Following the simple steps of infection control and the regulations that govern estheticians are your best bet to keep yourself, your clients, and your business safe. §

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industry groups throughout the country and also works with textbook manufacturers as an editor for infection control material. Contact her at lroste@king-research.com.

THE FLU & YOUR PRACTICE

Superbugs: How Scared Should We Be?

It is the thick of cold and flu season and most of you probably know we're in the midst of a pandemic of a novel swine flu virus, H1N1. This will be the first winter since the virus emerged last spring, and epidemiologists are waiting on tenterhooks to see what will happen. Swine flu has been grabbing a lot of attention in the press, but several other pathogens have also either arisen recently or become notably stronger. This has happened enough that alarming headlines are now commonplace.

Up to the early part of the 20th century, the leading cause of death in this country and around the world was infectious disease. Our grandparents and great-grandparents grew up with the constant threat of typhoid, diphtheria, scarlet fever, cholera, polio, and tuberculosis. Between the mid-1940s and the late 1970s, our health-care culture developed a conqueror's attitude toward these and other pathogens. With advanced water treatment facilities, the development of antibiotics, and the availability of vaccines for several of the most threatening childhood diseases, the menace of death by infection seemed a thing of the past.

Then, in the late 1970s, we got schooled: the worldwide appearance of human immunodeficiency virus (HIV) quickly humbled any assumptions about the human triumph over infectious diseases. AIDS was quickly followed by hepatitis B and C, and the consequences of bacteria with the power to become antibiotic-resistant began to make themselves

known. Today, we don't exactly tremble in the face of microbial invasion, but we certainly have begun to treat this possible threat with more respect.

This edition of *Pathology Perspectives* is dedicated to the discussion of a select group of pathogens that have some specific characteristics: they cause infections that are increasingly common, they're difficult to treat, they pose public health threats, or they have aspects of all three. I will provide a brief overview of some of today's headline grabbers, the "superbugs," with suggestions for finding more information in the selected sources section that follows. The purpose here is not to alarm or cause nightmares; it is to inform and educate so that readers may be better equipped to protect themselves and their clients, and to share accurate information with others. This gives us tools to avoid infection and cross-contamination—either by knowing when to cancel appointments, or by taking appropriate hygiene precautions in our work settings.

MRSA

The superbug most often referred to in today's headlines is MRSA: methicillin-resistant *Staphylococcus aureus*. This pathogen has been widely discussed, even in these pages (see "Mercy, Mercy MRSA!" *Massage & Bodywork*, July/August 2008, page 112). MRSA was first observed in hospital settings in the early 1950s—less than 10 years after the widespread implementation of the penicillin family of antibiotics. It occurs in several subtypes that can cause infections of

The constant, unceasing, sleep-ruining stress of worrying about a potential infectious threat may be more dangerous than the infection itself.



the lungs, urinary system, skin, and bloodstream. When MRSA broke out of the hospital settings in the 1980s, it became associated with boil-like skin infections that run a significant risk of turning septic—that is, of leading to life-threatening blood poisoning. MRSA is, of course, of special interest to massage therapists, because it can be spread through indirect and nonsexual contact; and, because it is resistant to most first-line antibiotics, it can be difficult to fully eradicate an infection.

VRSA

MRSA is usually sensitive to an antibiotic called vancomycin, but concern has been growing about the evolution of vancomycin-resistant bacteria. This pathogen has arrived. Called VRSA (vancomycin-resistant *Staphylococcus aureus*), it is still mostly found within hospitals, where it is responsible for endocarditis, blood poisoning, wound infections, peritonitis, and catheter contamination. VRSA is usually responsive to other antibiotics, but it can be a long and dangerous process to figure out which ones to try.

FLU

SEASONAL FLU

Of the three flu types that regularly make the headlines, the one that probably poses the greatest threat to the public health is the one that gets the least press: regular, garden-variety, type A seasonal flu. This group of viruses infects up to 15–20 percent of the general population (up to 60 million people) each year, and is responsible for the deaths of some 36,000 in the United States annually. Groups most at risk are the elderly, very young, and those with other complications, including immune suppression, asthma, cardiovascular disease, and diabetes.

AVIAN FLU

Regular seasonal flu has relatively high communicability and relatively low mortality—that is, it's easy to catch, but it isn't usually deadly. By contrast, the most virulent form of H5N1 avian flu ("bird flu") has a high mortality rate (in some settings 30–60 percent of the people who get sick die from this infection), but a very low communicability rate. It is a virus carried by wild water fowl (ducks, swans, geese) and spread to domestic poultry. People who handle dead birds may catch the virus, but so far it doesn't spread easily from one human to another: this has only been recorded in a couple of instances, and it hasn't yet broken out of immediate family groups. The epidemiologists who track avian flu are concerned that the virus may eventually go through an antigenic shift, in which genetic material from this virus combines with material from seasonal flu to carry the high communicability of one and the high mortality rate of the other. Interestingly, pigs are a reservoir where both human flu and bird flu can coexist, so this is being watched closely.

SWINE FLU

Until May 2009, swine flu (or H1N1 flu) was rarely seen in the United States. H1N1 flu is actually difficult to catch from animals, but it is highly communicable from human to human. This is seen in the fact that after one case was identified in Mexico in March 2009, within six months it had been labeled a pandemic. It also has a high morbidity rate—that is, people feel sicker for longer with H1N1 flu than with seasonal flu. Early evidence suggested that the H1N1 flu might be extremely dangerous, but its mortality rate is actually as low or lower than that of regular seasonal flu. There are some important differences though, most notably that H1N1 flu tends to affect children and young adults more severely than seasonal



H-What? N-What?

Flu viruses are packets of genetic material wrapped up in a protein coat. Flu viruses can be identified by markers on these coats. Two surface glycoproteins are called hemagglutinin and neuraminidase. Hemagglutinin binds to receptors on infected body cells, while neuraminidase promotes the spread of viral particles, or virions. Both of these markers are targets for antibodies to attack and disable the viruses. So far, 16 types of hemagglutinin have been identified, and nine types of neuraminidase. Flu viruses are sometimes labeled by these markers, hence the term H5N1 for avian flu, and H1N1 for swine flu.

flu, and the communicable period can last 7–10 days after symptoms develop. Pregnant women appear to be at highest risk for hospitalization and death with the H1N1 virus.

XDR-TUBERCULOSIS

First, there was tuberculosis: a slow-growing, spore-bearing bacillus that is spread through airborne mucus droplets. A deep breath pulls it into the lungs where as few as 10 microorganisms are sufficient to set up an infection site. About 90 percent of the world's 2 billion people with tuberculosis exposure stop here: the infection is isolated inside a small cyst in the lungs and it never reactivates. But about 10 percent of those exposed will develop primary tuberculosis disease and be able to spread the infection to others. A six-month course of antibiotics clears the infection (this has made TB much less of a threat for us than for our grandparents), but misuse or incomplete use of the drugs leads to drug-resistant forms of TB. Multidrug-resistant TB (MDR-TB) requires much more hazardous and expensive drugs, for 18–24 months. When this regimen fails, another pathogen can develop: XDR-TB, or extremely drug resistant tuberculosis. This infection resists almost all antibiotics, and it has a survival rate of only 30 percent. And the kicker: a person with active MDR or XDR tuberculosis can share their

more dangerous infection type with others when they sneeze, cough, or even just speak. Statistics on MDR and XDR tuberculosis are difficult to gather, but MDR-TB has been diagnosed in almost every state, and XDR has been identified all over the globe.

OTHERS TO WATCH

Other pathogens that should probably be on our watch list include the following:

CRYPTOSPORIDIUM

This is a paramecium similar to giardia that has become resistant to chlorine. It is common in recreational water (public pools and fountains), as well as streams, lakes, and rivers. “Crypto” can cause abdominal pain, watery diarrhea, and dangerous dehydration. It is spread easily through indirect oral-fecal contamination.

CLOSTRIDIUM DIFFICILE

This anaerobic spore-bearing bacterium is common in the gastrointestinal tract, where it is often found in peaceful balance with other intestinal flora and fauna. But when that environment is disrupted by antibiotic use, this particular group of bacteria appears to flourish, leading to painful diarrhea and dehydration. In the worst cases, the toxins excreted by the bacteria can cause acute inflammation and patches in the colon (pseudomembranous colitis) and even cause the colon to become dangerously enlarged (toxic megacolon), which puts the patient at risk for perforation or rupture and subsequent peritonitis. “C-diff” sometimes clears if the triggering antibiotic use is stopped, but sometimes it must be treated with its own antibiotics. It is a stubborn, long-lasting, hospital-based infection that can be spread through indirect oral-fecal contamination.



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NECROTIZING FASCIITIS

This infection (usually with group A hemolytic *Streptococcus aureus*, but occasionally with other bacteria) causes the death of subcutaneous soft tissue. Also called “flesh-eating bacteria,” it is an aggressive, rapidly spreading pathogen that moves along deep fascial planes, destroying soft tissue as it goes. These infections can start with tiny nicks or cuts to the skin: needle pricks, paper cuts, and torn hangnails are all possible portals of entry. The best outcome for necrotizing fasciitis is early diagnosis, intravenous broad-spectrum antibiotics, and aggressive removal of damaged tissue (which can mean amputation).

STRATEGIES FOR THE FUTURE

As we scan our environment for new and old pathogenic threats, we are having to reevaluate our arsenal a bit. Many of our old standbys, especially in the realm of antibiotics, have lost their potency. Even some of the brand-new antiviral medications aren't standing up to the newer varieties of flu. The future of infection control may look significantly different from the past. Some of the innovations we are considering include the production of synthetic bacteria-killing viruses (bacteriophages) that target specific infections. If phage therapy fulfills its promise, viruses will be adapted and manufactured to keep up with bacterial resistance. Phages are already in use for humans in other countries, and applications for infection control in farm animals are under investigation here. Because phages are different from standard drug therapies, however, it will be a long road to figure out a way to get FDA approval for use in the United States.

Other out-of-the-box thinking for tough bacteria includes the use of “blue lights” to kill MRSA bacteria. Several minutes of exposure to non-dangerous levels of targeted blue light (without ultraviolet radiation)

appears to kill up to 80 percent of these extremely tough pathogens. The exact mechanism isn't yet understood, so whether MRSA can develop blue light resistance is still an open question.

Ultimately, for massage therapists and everyone else, infection control comes down to the most basic common sense applications. Washing hands frequently, covering any possible portals of entry for infection, turning our heads away to cough or sneeze, using disposable tissues, practicing good hygiene at home and in the office, and—perhaps above all—staying away from others when we're sick, will provide the best possible protection for ourselves and our clients that we can offer.

A legitimate argument could be made that the constant, unceasing, sleep-ruining stress of worrying about a potential infectious threat may be more dangerous than the infection itself. Because the best defense in this situation is information, I urge all massage therapists to gather the clearest, most accurate information they can find on the pathogens that they encounter the most. Then, use it to stay healthy, make careful choices, and move joyfully forward with the knowledge that you have controlled the things you can control, and you can let go of the rest. **m&b**

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MERCY, MERCY MRSA!

In this July/August issue dedicated to the tangible and intangible aspects of massage and bodywork, *Pathology Perspectives* will focus on an extremely tangible part of the life of any health-care provider who comes in close contact with other people: skin infections. Specifically, this article addresses a pathogen called methicillin-resistant *Staphylococcus aureus*, or MRSA.

MRSA has become a hot health topic, partly because statistics recently compiled by the *Journal of the American Medical Association (JAMA)* indicate that both the incidence and the mortality associated with this pathogen are higher than previously thought.¹ Because MRSA can be spread through skin-to-skin contact, it is important for massage therapists to be well-informed about public health issues like this that put us and our clients at risk for a potentially life-threatening infection.

WHAT IS MRSA?

MRSA is a type of staph bacteria that colonize human skin and sinus passages. They are resistant to a group of antibiotics called beta-lactams, which includes amoxicillin, methicillin, oxacillin, and penicillin.

Widespread testing indicates that up to 30 percent of the US population is colonized with some kind of staph. But only about 1 percent of us carry the MRSA types of bacteria.² It is important to point out that colonization is not the same as active infection, although a person who carries MRSA can spread it to other people who may be vulnerable if good hygienic practices aren't followed.

HA-MRSA VERSUS CA-MRSA

Staphylococcus bacteria have probably been around longer than humans. These bacteria can infect nearly every body system, invading healthy cells and producing corrosive toxins. Drug-resistant forms of staph were noted in the 1950s and 1960s, just a few years after the introduction of antibiotics, which shows how efficiently bacteria mutate to adjust to their environmental challenges. The first strains of drug-resistant staph were confined to hospital settings and thus called nosocomial, or hospital-acquired methicillin-resistant *Staphylococcus aureus* (HA-MRSA). These infections were usually related to contaminated devices like catheters, dialysis equipment, or ports; pneumonia; surgical wounds; and urinary tract infections. HA-MRSA is still prevalent, and is considered a leading cause of hospital-acquired infections (especially pneumonia), resulting in nearly 90,000 deaths each year.³

Since the development of the first MRSA bacteria, however, it has evolved into at least three distinct strains, each with unique strengths and weaknesses—and not all of them are hospital-based pathogens anymore. As far back as the 1980s, there have been reports of drug-resistant staph infections in people who had *not* recently been in a hospital or other health-care setting. It wasn't until the current decade, however, that the incidence of these *community-acquired*

infections got a lot of attention. These bacteria are referred to as CA-MRSA.

CA-MRSA has some distinct differences from HA-MRSA, and because massage therapists are particularly vulnerable to the community-acquired form, it is important to make note of them (See chart to the right).

WHAT DOES A CA-MRSA INFECTION LOOK LIKE?

Most community-acquired MRSA infections look like a large pimple or boil: a large red pustule develops in the skin, often where an open sore or lesion provided a portal of entry. It is hot and painful and may drain some fluid. Many people assume that the lesion is a spider bite. Left untreated, the bacteria may invade into deeper tissues and even set up infections in the lungs (causing an extremely aggressive form of pneumonia) or the bloodstream (causing life-threatening sepsis).

In rare situations, MRSA skin infections can be atypical; they may look like flattened ulcers or folliculitis. The only way to be sure what type of infection is present is to culture it (take a sample and grow it in a lab), which can take 48 hours or more. Unfortunately, this is becoming an increasingly important step in order to take the right drug for the right bug—using the wrong antibiotics only contributes to the risk of developing more resistant strains. This is why many emergency room doctors now recommend draining of the lesion thoroughly instead of depending on antibiotics to clear the infection.

HOW CAN CA-MRSA BE PREVENTED?

The Centers for Disease Control promote Five Cs for CA-MRSA control:⁴

Clean, clean, clean. Keep yourself and the things you touch clean.

Contact. MRSA can be spread through direct skin-to-skin contact, so avoid this if any infection is suspected.

Contaminated items and surfaces. Avoid them.

Crowding. Be especially careful in crowded living circumstances.

Cuts and sores. These are portals of entry for pathogens. Keep them covered.

WHAT ABOUT MASSAGE AND MRSA?

MRSA, whether it is community or hospital acquired, needs to figure into the hygiene planning for every massage therapist. When we take universal precautions, we operate under the supposition that all of our clients might be carrying a communicable disease.

Guidelines for health-care workers make the following suggestions to help control the spread of MRSA and other potentially infectious agents. They have been extended below to apply to massage therapy settings as well:⁵

- Use a 10 percent bleach solution to clean surfaces. This can include door knobs, massage tables and face cradles, switch plates, and anything else that a client might touch. Bleach solutions lose their potency quickly, so these need to be remixed weekly at least.
- Wash hands in running warm (not hot) water with plain (not antimicrobial) soap. Hot water and antimicrobial soap are more likely to cause skin irritations that actually increase, rather than decrease, the risk of picking up an infection.
- When warm running water and plain soap are not available, use an alcohol-based cleansing gel. Use the amount recommended, and rub hands until it has all been absorbed or evaporated. This is a poor second to standard handwashing, but it is sufficient as a short-term solution.

- Wash linens (also bolster covers, heating pad covers, pillow cases, or any other fabrics that clients encounter) in hot water, and dry them on high heat. Bleach can damage fabrics, and it can cause reactions in users if it isn't all rinsed out, so it is not always practical.
- Sanitize any other equipment that clients touch, including hot and cold stones, hot or cold packs, and massage tools.

In my role as a go-to person for questions about massage and pathology, I get letters fairly frequently from massage therapists who are legitimately concerned about community-acquired MRSA. The good news is that most of these questions have relatively simple answers:

What if my client is a MRSA carrier?

Remember that to be colonized by staph does *not* mean that an infection is current or threatening. About a third of us are carriers of some kind of staph; MRSA carriers just have a tougher variety.

What if I am a MRSA carrier?

As long as you follow basic hygiene rules you will not share your staph with others. Be especially careful about touching your face or wiping your nose, as these bacteria can congregate in the sinuses.

How long is a person contagious after an infection? Skin infections with MRSA usually have a good prognosis if they are treated correctly (this means with incision and draining, and/or the correct antibiotics). The best person to consult on this question is the treating doctor, because the answer may be different with a person's immune system activity, age, the size and location of the lesion, and other variables.



What if I am exposed and I don't know? If your client has an active MRSA infection on the surface of their skin and you pick up some passengers, you may never know, and you may never be in any danger. Assuming you have covered any open lesions, the bacteria will be sloughed off the next time you wash your hands. But this is yet another good reason to take excellent care of your hands, from trimming fingernails and cuticles, to covering the scrape where your knuckle got too close to the cheese grater last night.

What if I think of another question later? Go to your phone book. Call the main number of your nearest hospital, and ask to be connected to the infection control department. You'll probably get a machine, but every time I have used this very valuable resource I have received a return call from a helpful, knowledgeable infection control specialist within a couple of days.

DON'T PANIC!

We are bombarded by pathogens on a daily basis, and we hardly ever get sick. This is because our nonspecific and specific immune defenses usually do a truly remarkable job of protecting us from the threat of invasion. Our best defense is knowledge, and now you know even more reasons to take excellent care of your own health and the hygiene of the space where you work. **m&b**

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	HA-MRSA	CA-MRSA
Who gets it?	Anyone in a chemotherapy or dialysis clinic, hospital, or nursing home within the past two years; immunosuppressed people; older people.	Anyone living in close quarters with poor hygiene; anyone who shares razors, sporting equipment, or towels; athletes; prisoners; young people.
How is it spread?	Through contaminated equipment (catheters, ports, tubes) and unwashed hands.	Through contaminated personal hygiene items (razors, towels), sporting equipment, and surfaces (benches, wrestling mats, etc.).
Symptoms	Systemic and internal infections: blood poisoning, necrotizing pneumonia, urinary tract infections.	A large hot pustule on the skin; it is painful and may drain fluid.
Treatment	Only a few antibiotics are effective; different ones are used for infections in different locations.	Several antibiotics may be effective, but many doctors now prefer incision and thorough draining to antibiotics in order to slow further development of antibiotic resistance.

NOTES

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For Clients:

Colds and Cancellations

It's that time of year when the cold and flu bug starts knocking on our doors. What should you do if you get sick on the day of your massage appointment?

While your massage therapist wants to see you, they don't want to see you if you're sick—for many reasons. Not only does your massage therapist want to avoid your buggy germs for themselves, they also don't want you exposing their other massage clients to your sickness.

WHEN SHOULD I CANCEL MY APPOINTMENT?

What are the protocols for when to cancel an appointment? Each massage business has its own business policies on cancellations, but your therapist will most likely be grateful for your cancellation, even on the day of the appointment.

Massage therapist and blogger Allissa Haines says these are symptoms she would ask you to stay home with:

Fever and related symptoms

- Aches
- Chills
- Unusual fatigue

Respiratory issues

- Coughing
- Sneezing
- Sore throat
- Very runny and/or stuffy sinuses

GI issues

- Diarrhea
- Nausea
- Vomiting

If you are visited with any of these symptoms, it's best to cancel, Haines says. With cold or sinus issues (even if you are no longer contagious), if you are still deeply congested, lying face-down in the face cradle might make you even more miserable. Reschedule your appointment and give yourself a chance to feel better. Your massage therapist will thank you for it. 

