1. TITLE SLIDE: DISCUSS HAND HYGIENE AND PERFORM HAND ANTISEPSIS. Hands are one of the most common sources of the spread of pathogenic microorganisms. Hand hygiene practices are a primary infection control procedure for oral health care workers. Wearing gloves for patient treatment does not take the place of hand hygiene. The warm, moist environment between the hand and glove is an ideal environment for growth of bacteria and other microorganisms. The increased microbial growth under gloves can cause skin irritation. Hand hygiene procedures are performed prior to putting on gloves to remove microorganisms from your skin and after removing gloves to reduce the number of microorganisms that have increased, as well as to remove those microorganisms that may have contaminated the hands during patient treatment through defects in the gloves.
Types of Microbial Flora on the Hands

- Transient
- Resident

2. Word slide: Types of Microbial Flora on the Hands

Hand hygiene is performed to reduce the microbial count on the skin. Microorganisms found on the hand can be divided into transient or resident microorganisms.

Transient microorganisms contaminate your hands when you touch other surfaces. Transient microorganisms are more likely to be a source of disease transmission because they are more likely to be pathogens (depending upon how the hands have become contaminated). Transient flora only stay on the hands for short periods of time and can be effectively removed by a routine handwashing. Alcohol-based hand rubs and handwashing with an antimicrobial soap removes transient microorganisms from the surface of the skin and minimizes the number of resident micro flora.

Resident microorganisms are the microbes that live permanently on the skin. They are always there and can never be totally removed even with a thorough handscrub. However, their numbers can be reduced. Resident microorganisms are less likely to cause disease transmission than are transient microorganisms.
3. **Word slide: Hand Hygiene Procedures**

- handwashing with plain soap
- hand antisepsis
  - antiseptic handwashing
  - alcohol-based hand rub
- surgical hand antisepsis

Methods used to decontaminate hands include handwashing, hand antisepsis (handwashing with an antimicrobial soap and water or alcohol-based rubs), or surgical antisepsis.

Handwashing with plain (non-antimicrobial) soap and water removes of soil and loosely attached transient microorganisms from the hands.

Hand antisepsis removes or destroys microorganisms using an antiseptic and is effective in removing many transient, as well as resident, microorganisms from the top layer of your skin. Hand antisepsis includes the antiseptic handwash (handwashing with an antimicrobial soap and water; or the antiseptic hand rub (waterless alcohol-based hand rub).

Surgical hand antisepsis is performed before surgical procedures to eliminate transient microorganisms and reduce the number of resident microorganisms.

The recommended method of hand hygiene depends upon the degree of hand contamination, the antimicrobial effect that is desired, and the type of dental procedure performed.
4. Word slide: Hand Hygiene

- When to use an alcohol-based hand rub

Studies have shown that using an alcohol-based hand rub is more effective in reducing the microbial count than handwashing with plain or antimicrobial soap. The Centers for Disease Control and Prevention (CDC) now recommends alcohol-based rubs over soap and water for routine hand hygiene. Alcohol-based hand rub products are acceptable, but not required, options for routine hand decontamination in dentistry. However, an alcohol-based hand rub is not an acceptable substitute for handwashing in all situations. Do not use an alcohol-based hand rub when hands are visibly dirty or visibly contaminated with blood or other body fluids.
When do you perform a handwash?

- When hands are visibly dirty or contaminated
- At the beginning of the day
- Before eating
- After using the restroom
- As an alternative to the alcohol hand rub before gloving & after removing gloves

5. **Word slide: Hand Hygiene**

- **When to perform a handwash**

  Alcohol-based hand rubs are not appropriate for use when hands are visibly dirty or visibly contaminated with blood or other body fluids. When hands are visibly dirty or contaminated, wash hands with either a non-antimicrobial soap and water or an antimicrobial soap and water. Other times to use handwashing for decontamination include at the beginning of the day, before eating, and after using the restroom.

  Wearing gloves does not eliminate the need for hand hygiene. If an alcohol hand rub product is not available at your workplace, handwashing with soap and water is required before and after donning gloves.
6. The area under the nail is a common area for dirt, secretions and associated microorganisms. Long finger nails can protect dirt and pathogens, puncture treatment gloves and impinge on the patient’s sensitive oral mucosa. Keep your fingernails short and clean; fingernails should be less than ¼ inch long. Whether or not wearing rings compromises the effectiveness of hand hygiene procedures is not known. However rings and other decorative jewelry can make putting on gloves more difficult, and they can cause gloves to tear more easily. Any jewelry worn must not interfere with glove functioning.
7. Remove all jewelry from your hands and forearms. Rings and bracelets can compromise glove protection by harboring microorganisms and puncturing gloves. Even a smooth wedding band may harbor microorganisms.
8. The equipment needed to perform the handwash includes a sink, liquid soap and disposable towels. To minimize cross-contamination, the sink should be equipped with a faucet activated by a foot or knee pedal, or “electric-eye”.
9. The handwashing product used for either handwashing (non-antimicrobial soap) or antiseptic handwashing (antiseptic soap) should be a liquid soap. Bar soap is never used because it easily becomes contaminated after-use. The soap product used for antiseptic handwashing should contain an antimicrobial agent with substantivity (have persistent activity). Antimicrobial agents with persistent activity inhibit the growth of microorganisms for extended periods after the handwash is performed and require repeated use throughout the day to attain maximum effectiveness. The antimicrobial soap shown in this slide contains chlorhexidine. Chlorhexidine provides better persistent activity than any of the other antiseptic agents used for hand decontamination.

Like sink faucets, “hands-free” soap dispensers (foot operated or “electric eye”) are preferred to minimize cross-contamination.
There are many antimicrobial handwashing products available for use; important characteristics include that the agent is safe (non-irritating to the skin), broad-spectrum, fast-acting, and if possible, have persistent activity. Three of the common antiseptic agents used in handwashing products are compared in this table. Chlorhexidine (also known as chlorhexidine gluconate) has widespread antimicrobial activity, is relatively fast-acting and has prolonged antimicrobial effect. Allergic reactions to this antiseptic are rare. Parachlorometaxylenol (PCMX), also known as chloroxylenol, is not as rapidly active as chlorhexidine or iodophors, and most studies show that its residual activity is inferior to chlorhexidine. The majority of iodophor preparations used for hand hygiene contain povidone-iodine. Iodophors have good antimicrobial activity, but usually does not have residual activity and when used often, may cause severe drying of the skin.
11. If needed, an orange wood stick or nail brush can be used to clean under the nails. The orange wood stick can be disposed of after each use or autoclaved and reused. The nail brush can be disinfected and reused.
12. Put on your face mask and eye protection before beginning the hand antisepsis procedure.
13. The following slides will demonstrate the protocol for hand antisepsis using an antimicrobial soap and water. Begin the handwashing procedure by wetting your hands with water. Adjust the water flow and temperature. Use lukewarm water. Hot water opens skin pores and can remove protective oils from the skin, causing irritation. Cold water closes skin pores.

Wet your hands and lower arms thoroughly with water.
14. Dispense a “nickel sized” amount of lotion soap on your hands.
15. Spread the soap on your hands and wrists and work up a lather.
16. Wash all surface of your hands thoroughly; lace your fingers and thumbs together and rub the palms and back of the hands with a circular motion. Scrub each finger with the other hand.
17. Rub your right hand and wrist with your left hand. Rub vigorously; friction is needed to loosen dirt and bacteria.
18. Rub your left hand and wrist with your right hand.
19. **Word slide: Areas Requiring Direct Attention**

- thumbs and fingertip areas
- your dominant hand
- fingernails

Studies have shown that health care workers frequently miss these areas when performing a handwash. Be sure that you clean your thumbs and fingertips and the areas between your fingers, these areas are frequently washed poorly or not at all. Spend equal amounts of time cleaning both of your hands, the dominant hand is generally washed less thoroughly than the other hand. Finally, make sure that you clean under your fingernails; studies have found that a high number of microorganisms remain under the nails even after surgical scrubs.
20. If needed, remove the dirt from under your fingernails by using a brush or orange wood stick. Avoid the routine use of a brush to clean your hands. Your skin is a natural barrier; routine use of a brush to scrub your skin can cause dermatitis.
21. Rinse wrists first, then hands, and finally your fingertips. Rinse for 10 seconds, keeping your hands down and elbows up.
22. Dry your hands and arms completely with a disposable paper towel. Dry in this order: fingers first, then hands and wrists, and finally forearms. The rationale for drying in this order is to dry from the cleanest area (fingertips) to the least clean (forearms) to avoid contamination. Dry hands thoroughly; drying hands prevents skin chapping. Chapped, dry skin cracks easily, creating a portal of entry for pathogenic microorganisms. Dry, chapped hands make you more susceptible to infection.
23. If using a hand operated faucet, use the towel to turn off the water. Dispose of your used towel in the proper container. Do not touch any part of the container or sink. If your hand touches the container, your hands are contaminated and you must repeat the handwash procedure.
Advantages of Using An Alcohol-Based Hand Rub

- gentle on the hands.
- fast acting and effective.
- waterless

24. The advantages of using an alcohol-based hand rub include:
- gentle on the hands. Repeated, vigorous handwashing can cause dry, irritated hands. Alcohol-based hand rubs are proven to less drying and irritating than soaps.
- fast acting and effective. Within 15 seconds it decreases the bacteria count on your hands by 10,000 fold. (less than of the 0.0001% of original count)
- requires no water facilities. The procedure is waterless, and no sink or towels are needed.
25. Like soap dispensers, “hands-free” alcohol dispensers are preferred to minimize cross-contamination. Dispense the alcohol product into the open palm of one hand.
26. Rub hands together vigorously, covering all surfaces of your hands and fingers. Continue rubbing until your hands are dry.
27. Put on patient treatment gloves. Be sure your hands are completely dry before putting on gloves.
   This ends the slide presentation.