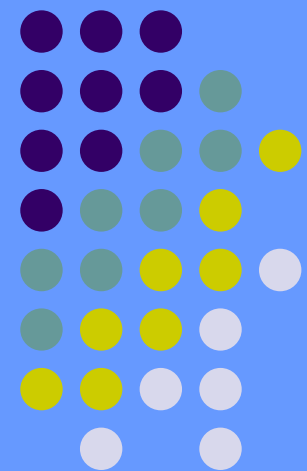


BASIC CONCEPTS OF INFECTION CONTROL

Hand Hygiene

International Federation of
Infection Control



Objectives

- Skin flora
- Impact of hand hygiene (HH) in healthcare-associated infections (HAI)
- Techniques of HH
- Compliance
- Recommendations

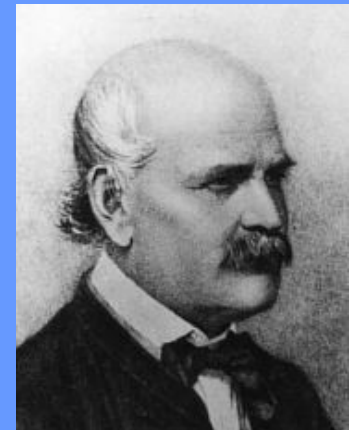


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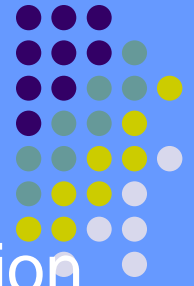


Background

- Personal hygiene and environmental cleaning associated with less illness and death
- Ignaz Semmelweis (1846) demonstrated that washing hands with antiseptic solution reduced mortality due to puerperal endometritis
- Other researchers demonstrated that healthcare workers (HCWs) can transmit infections through contaminated hands



Background



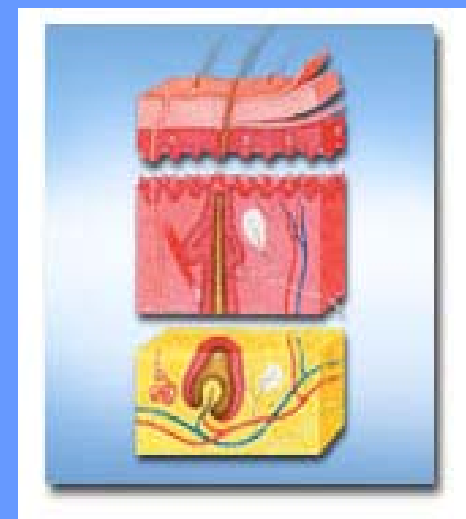
- Hands are the most frequent route of transmission for pathogens in healthcare settings
- There have been changes in hand hygiene based on rationale or evidence (mainly products)
- The main problem is how to improve compliance
 - Compliance is generally low
 - Compliance averages 40%-60%
- Combined strategies to improve compliance
 - Education
 - Supervision
 - Alcohol based products



Skin Flora



- Transient
 - Superficial layers of the skin
 - Often acquired by HCWs during contact with patients
 - Easily transmitted by contact
 - Most frequently associated with HAI
- Resident
 - Lives permanently in the deeper layers of the skin (epidermis)
 - More resistant to removal
 - Unlikely to be associated with infections (except in surgery)



Skin Flora



- Hands of HCWs may become colonised or infected with pathogens (e.g., *S. aureus*, Gram-negative bacilli, or yeast)
 - Transmitted like transient flora - constitutes a serious danger within hospitals
- Damaged or diseased skin allows multiplication of flora
 - Most dangerous of all situations
- HCWs with uncovered skin lesions should not have direct contact with patients



Techniques for Washing and Decontamination



- Fingernails, nail polish and artificial nails
 - Nails must be kept short and clean
 - Chipped nail polish support adhesion of microorganisms
 - Artificial nails implicated in outbreaks and should be avoided
- Jewelry
 - Rings, bracelets and wrist watches may not be worn
 - Skin underneath jewelry and watches more heavily colonised
 - Impossible to clean skin adequately when covered by jewelry
 - Rings and watches make donning gloves difficult



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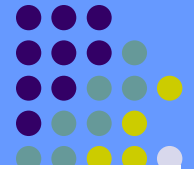
Washing and Decontamination



- Gloves
 - Use for the chosen task
 - Remove immediately after task
 - Reduce the risk of transmission of HAI from the hands of personnel by 70-80 %
 - Protects HCWs hands from patient's flora and infectious body fluids
 - Do not provide total protection or replace hand hygiene
 - Microorganisms can contaminate the HCWs hands via small defects in the gloves or during glove removal
 - Hand hygiene always must occur after glove removal



Hand Hygiene Technique

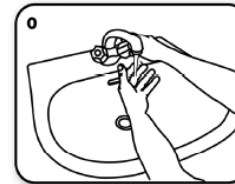


- Soap and water
 - Rub – covering all surfaces of hands and fingers
 - Rinse with water
 - Dry with disposable towel
 - Use towel to turn off faucet

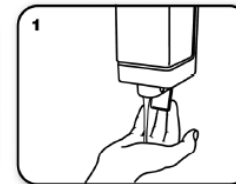
WASH HANDS ONLY WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB!



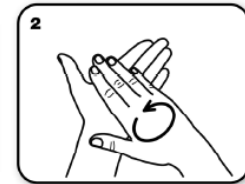
Duration of the entire procedure: **40-60 sec.**



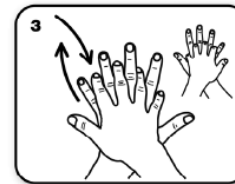
Wet hands with water



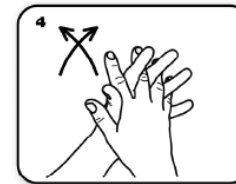
apply enough soap to cover all hand surfaces.



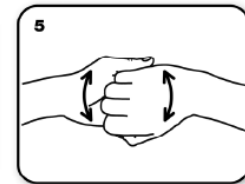
Rub hands palm to palm



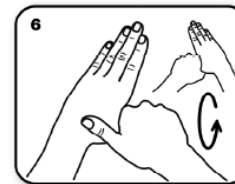
right palm over left dorsum with interlaced fingers and vice versa



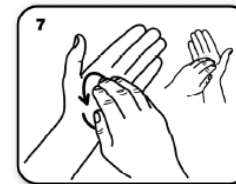
palm to palm with fingers interlaced



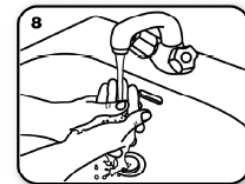
backs of fingers to opposing palms with fingers interlocked



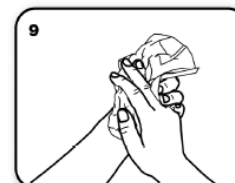
rotational rubbing of left thumb clasped in right palm and vice versa



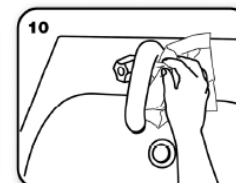
rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa.



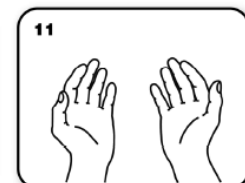
Rinse hands with water



dry thoroughly with a single use towel



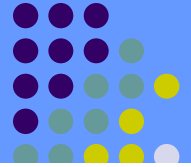
use towel to turn off faucet



...and your hands are safe.



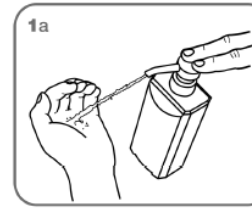
Hand Hygiene Technique



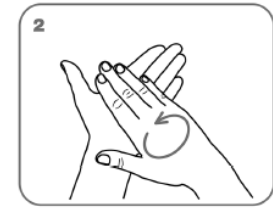
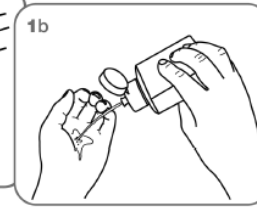
- Alcohol-based hand rub
 - Apply sufficient volume to the palm of one hand and rub hands together
 - Cover all surfaces and fingers, rub until hands are dry
 - Covering the whole surface of the hands is important



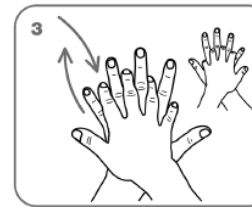
Duration of the entire procedure: 20-30 seconds



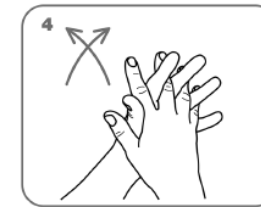
Apply a palmful of alcohol handrub in a cupped hand and cover all surfaces.



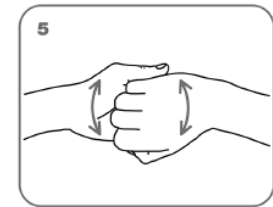
Rub hands palm to palm



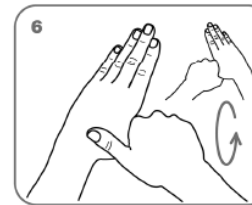
right palm over left dorsum with interlaced fingers and vice versa



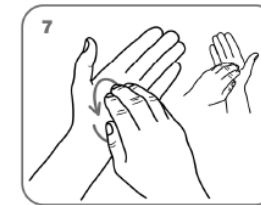
palm to palm fingers interlaced



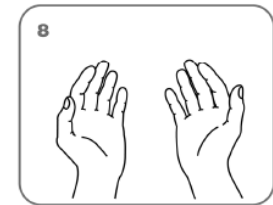
backs of fingers to opposing palm with fingers interlocked



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.



Improving Compliance

- Have a clear written policy
- Should be followed by all HCWs
- Easy access to hand hygiene facilities
- On-going promotion campaigns to increase awareness of all staff including the executive level
- Monitor technique and provide performance feedback
- Careful selection of products
 - Staff will not use products damaging to their skin or difficult to use



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Basic Recommendations

- If hands not visibly soiled, use an alcohol-based hand rub for routine antisepsis
- Wash hands before starting work, entering the operating room, eating, after using a restroom and when hands are visibly soiled
- Keep nails short and clean
- Do not wear artificial fingernails, nail polish or jewelry
- Do not wash or disinfect gloves between uses on different patients

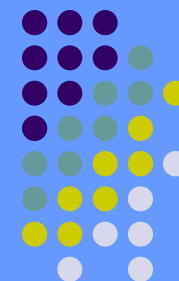


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Basic Recommendations

- Multiple-use cloth towels not recommended
- Liquid soaps in dispensers preferred
- Do not add soap to a partially empty liquid soap dispenser
- Hand hygiene products should have low irritancy
- Ask personnel for input regarding the tolerance of any products
- For surgical scrub - preferably use an alcohol-based hand rub



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Basic Recommendations

- Use hand lotions frequently to minimize irritant contact dermatitis
- Encourage personnel to report any adverse event related to a hand hygiene product to the infection control person and to the Occupational Health Department



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Surgical Hand-Scrub

- When using an alcohol-based product, pre-wash with soap once a day before starting surgery and when hands are soiled (glove perforation) or sweaty
- Brushes are not necessary and can be a source of contamination
- Hand washing immediately prior to every rub does not improve its efficacy
- Scrub for 1-5 minutes according to the manufacturer's recommendation
- After application, rub till hands are dry



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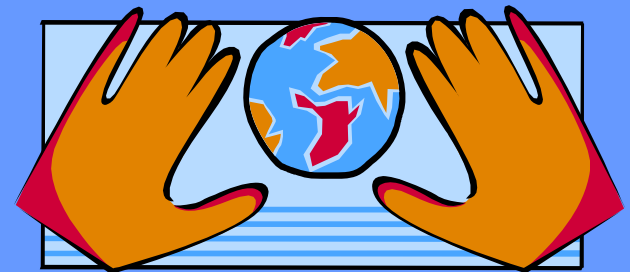
Improving Hand Hygiene



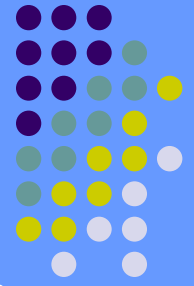
- Educate personnel continuously
- Administrative support and financial resources
- Readily available alcohol-based hand rub
- Provide HCWs with alcohol-based hand-rub in individual pocket-sized containers



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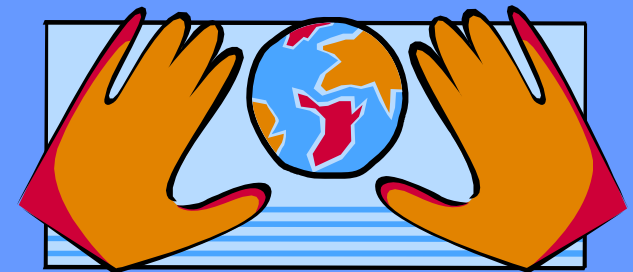
Improving Hand Hygiene

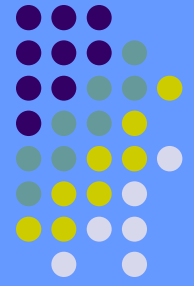


- Provide HCWs with hand lotions or creams especially in critical areas
- Provide diagrams on how to use a rub
- Monitor HCWs' adherence with local recommendations and provide feedback
- Evaluate adherence to hand hygiene using a performance indicator



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Key Points

- Hand hygiene is the most important way to prevent HAIs
- Long nails, polish, rings, bracelets and wrist watches should not be worn
- All personnel should follow hand hygiene guidelines
- Alcoholic hand rub is a safe method to reduce skin flora



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Key Points

- Alcoholic hand rub can replace handwashing and surgical scrub if hands are not visibly soiled
- Gloves should only be worn for specific tasks
- Continuous education and regular audits can improve hand hygiene compliance



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References and Further Reading

- Centers for Disease Control and Prevention (CDC). Hand Hygiene in Healthcare Settings [online]. 2002 [cited 2007 August 10]. Available from: URL: <http://www.cdc.gov/handhygiene/>
- Dutch Working Party Infection Control (WIP), WIP Guidelines Hand hygiene [online]. 2004 [cited 2007 August 10]. Available from: URL: www.wip.nl

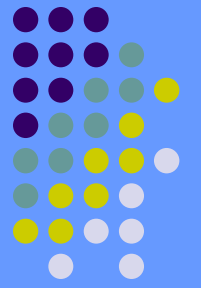


References and Further Reading



- World Health Organization. WHO Guidelines on hand hygiene in health care. (advanced draft) [online]. 2005 [cited 2007 August 10]. Available from: URL: http://www.who.int/patientsafety/events/05/HH_en.pdf
- Ministry of Health and Long term Care of Ontario. PIDAC Provincial Infectious Diseases Advisory Committee Fact Sheet Hand hygiene [online]. 2006 [cited 2007 August 10]. Available from: URL: http://www.health.gov.on.ca/english/providers/program/pubhealth/handwashing/hw_about.html





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