

Hand Hygiene

History

- Hand washing is an old cultural heritage
- Served for the removal of dirt
- Delivered people symbolically from physical and moral evils

Matthew 27: 24

I'm washing my hands of responsibility for this man's death

Oliver W. Holmes

1843

**Essay on the *contagiousness of puerperal fever*
propagating hand washing for obstetricians**

Antiseptic

- Hand washing
- Soaking hands in a solution of chlorinated lime
- A disinfectant according to German and Austrian standards

Hand Washing

- History
- Terminology
- International overview
- Economical aspects
- Dermatological effects
- Efficacy
- Disadvantage of alcohol
- Conclusion

Transient skin Flora

- Microbes acquired on the surface of the skin through contact with other people, objects or the environment are known as transient skin flora.
- They are particularly easily acquired on the hands when the object touched is moist.

Common prevalent: MRSA,

Resident Skin Flora

- Organisms which live in deep crevices in the skin, in hair follicles and sebaceous glands. The type and distribution of organisms varies according to humidity, temperature, body site and person's general health

Common Micro-organisms: Staphylococci, micrococci and coryneforms.

Terminology

- Hygienic hand washing
- Hygienic disinfection
- Hand scrub
- Routine hand washing
- Health-care personnel hand washes
- Hand cleansing
- Hand disinfection
- Surgical hand scrub
- Surgical disinfection

Three levels of Decontamination of hands

- **Social Hand washing:** Soap and water (10 sec.) removes most transient micro-organisms from moderately soiled hands.
- => Before handling food, eating, and feeding the patient.
- => After visiting the toilet.
- => Before and after nursing the patient (e.g. bathing).
- => Whenever hands are visibly dirty.
- => After handling bedpans and other contaminated material.

- **Hygienic Hand washing:** An antiseptic detergent is used for washing the hands (e.g., Chlorhexidine Aqueous Solution or Hibisol) for 10-15 seconds after cleaning. This method removes or kills transient micro-organisms.
 - => Before performing invasive procedures.
 - => Before caring for susceptible patients (immuno compromised.)
 - => On entering or leaving all high risk areas / isolation rooms.
 - => Before and after wearing gloves.
- **Surgical Hand washing:** Agents are the same as for the Hygienic wash (duration 2-3 minutes). This method is used to remove and kill the transient flora and to decrease the resident organisms to prevent the risk of wound contamination when gloves become damaged.
 - => Before all surgical procedures.

Handwashing



1 Palm to palm.



2 Right palm over left dorsum and left palm over right dorsum.



3 Palm to palm fingers interlaced.



4 Backs of fingers to opposing palms with fingers interlocked.



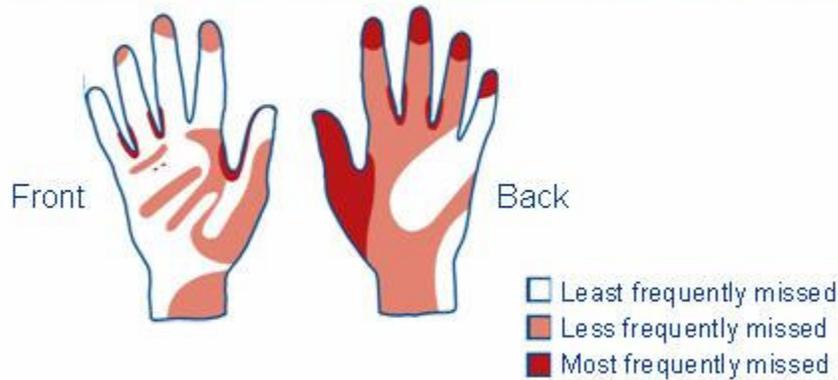
5 Rotational rubbing of right thumb clasped in left palm and vice versa.



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

Hand hygiene

Handwashing is the single most important measure for preventing infection.



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Definition According to the European Committee for Standardization

- Hygienic handwash:
... „, washing hands using a bactericidal product directed against transient microorganisms to prevent their transmission“...
- Hygienic hand-rub:
... „, rubbing hands, without the addition of water, directed against transient microorganisms to prevent their transmission“...
- Handwash: washing hands without bactericidal products

Dermatological Effects

Chronic irritant contact dermatitis

10% of population

USA 25% of nurses

Germany 25 000 new cases / year



Flammability of Alcohols

- Flash points
 - ethanol 12°C
 - isopropanol 13°C
 - n-propanol 15°C
- Special storage conditions
- Shift of flashpoint by adding alcohol with high flash point or water
- No reported accidents

Conclusion

HICPAC

Draft guideline for hand hygiene in healthcare settings

Recommendation:

I.B If hands are not visibly soiled, use an alcohol-based waterless agent for routinely decontaminating hands ... (IA)

Boyce 2001

HICPAC

Draft guideline for hand hygiene in healthcare settings

Reviewers conclusion:

Promoting increased use of alcohol-based handrubs, when combined with multidisciplinary educational programs, can lead to improved hand hygiene practices among healthcare personnel.

Boyce 2001