

EFFECTIVE HAND WASHING

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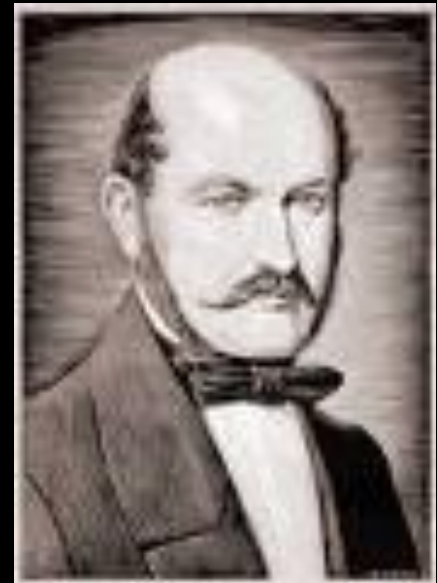
NEU MEDICAL FACULTY

INFECTIOUS DISEASES AND CLINICAL MICROBIOLOGY

History



History



Semmelweis Wien Medical Faculty

- Hand Washing: The main behaviour in the clinics today

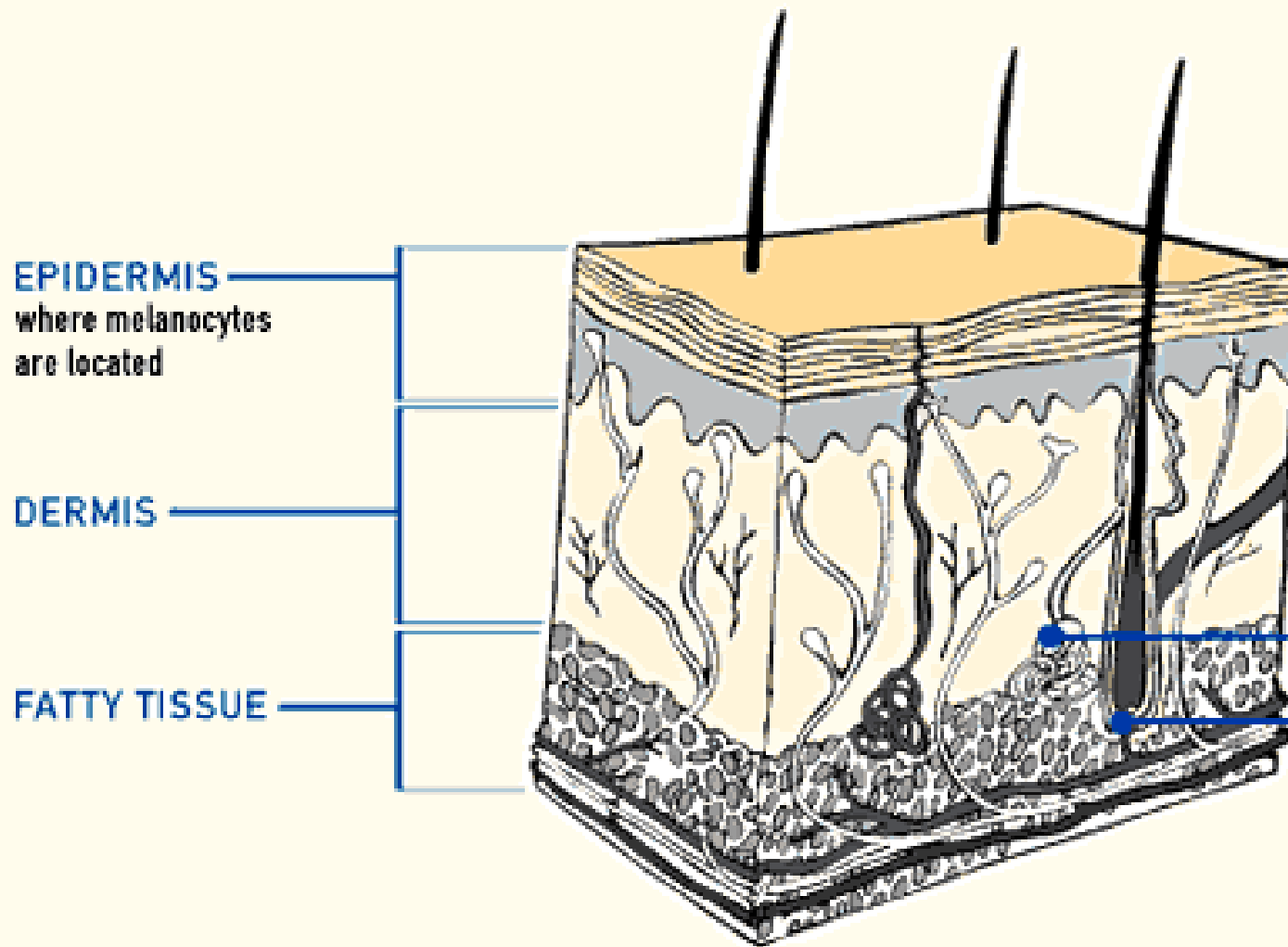


Introduction

- Human skin is colonized with bacteria
- Flora of the skin varies according to the number of bacteria
 - Hairy skin: 1×10^6 cob/cm²
 - Axilla: 5×10^5 cob/cm²
 - Abdomen: 4×10^4 cob/cm²
 - Forearm: 1×10^4 cob/cm²

 - The hands of health care personnel: $3.9 \times 10^4 - 4.6 \times 10^6$ cob/cm²

Definitions



Definitions

- TRANSIENT FLORA (epidermis)
 - Bacteria colonized on the skin
 - and can be removed from the skin surface
 - Responsible for nosocomial infections!
- PERMANENT FLORA (dermis, fatty tissue)
 - bacteria in the deeper layers of the skin
 - Can not be removed
 - Is not responsible for nosocomial infections

Germ Farm



Scrub'em!

www.1st-in-handwashing.com

Definitions

- Every day, from normal skin poured 10^6 cells which are containing live microorganisms
 - Surrounding inanimate surfaces of the patient becomes contaminated
 - The patient becomes contaminated from inanimate with close environment
 - HCWs hands is contaminated from patient after contact the patient or inanimate environment

Contaminated hands?

Cross contamination

- I am potential carrier of microorganisms
 - Hand contact with contaminated tools resulted contamination of hands
 - Contact with patients also resulted contamination of hands
 - By the way, microorganisms can change places from somewhere to another place
 - Micro-organisms can enter the bloodstream by obtained any incision, and the infection developed

Contaminated hands?

Cross contamination

- Factors affecting the spread of microorganisms with contaminated hands
 - Type of organism
 - Patient care activity time
 - Source (endogen and exogen)
 - reaches the surface (steril area)
 - Humidity level
 - Inoculum size

Contaminated hands?

Cross contamination

- Hands of nurses or HCWs
 - Patient lifting
 - To take heart rate, blood pressure
 - Temperature measurement of the patients body
 - Just touch to patient
 - Resulted with 100-1000 cfu/ml bacterial contamination

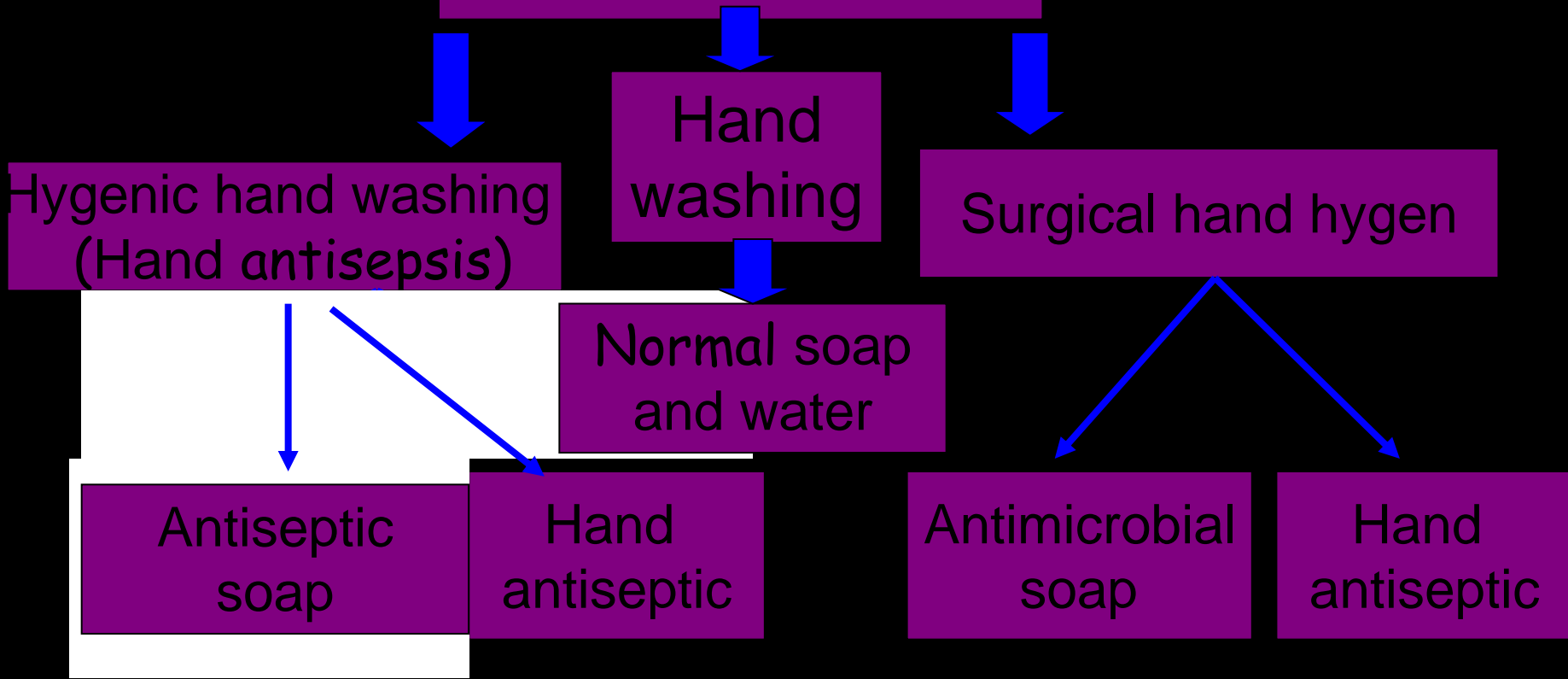
Indications for hand washing

- In the presence of visible contamination on hands must be wash with
 - Nonantimicrobial soap and water
 - Antimicrobial soap and water
- If there is no visible contamination on hands,
 - Alcohol-based hand antiseptics is enough

What is the visible dirty?

- to feel it self-dirty

Hand Hygen



Hand washing

Hand washing with water and soap:

reduction in the number of bacteria on the skin depends of the washing time

15 seconds by $0.6-1.1 \log^{10}$

30 second $1.8-2.8 \log^{10}$

1 minute $2.7-3.0 \log^{10}$

When used alcohol-based hand antiseptics:

30 seconds; $3.4-5.8 \log^{10}$

Table 1. Comparison of recommendations for hand hygiene: 1981, 1995, 2002

Topic	1981 ⁶	1995 ⁸	2002 ⁵²
Indications for hand hygiene	<p>Before invasive procedures, taking care of susceptible patients</p> <p>Before and after touching wounds</p> <p>After hands are contaminated or taking care of infected patient</p> <p>Between patient contacts</p>	<p>When visibly soiled</p> <p>Before and after patient contact</p> <p>After removing gloves</p>	<p>When hands are dirty or contaminated</p> <p>After contact with patient's intact skin, body fluids, nonintact skin, inanimate objects in patient vicinity</p> <p>If moving from a contaminated to clean body site</p> <p>Before caring for neutropenic patients, donning sterile gloves, inserting catheters</p>
Products	<p>Plain soap "unless otherwise indicated"</p> <p>"Antimicrobial handwashing product" before care of newborns, between high-risk patients, before care of immunocompromised patients</p>	<p>Plain soap for general patient care</p> <p>Antisepsis before invasive procedures, when persistent activity is desirable, to reduce resident flora.</p>	<p>Plain or antimicrobial soap only if hands are dirty or have proteinaceous material</p> <p>Otherwise, use a waterless antiseptic agent such as alcohol in all other clinical situations*</p>
Surgical hand preparation	No recommendations	Use either antiseptic detergent or alcohol-based preparation	Use either antiseptic detergent or alcohol-based preparation Avoid use of a brush*
Skin care	No recommendations	Use lotions to prevent skin dryness	Provide lotions or creams*
Fingernails	No recommendations	Keep nails short	Keep nails short No artificial nails*
Education and motivation	No recommendations	"Efforts to improve handwashing should be multifaceted"	Educate personnel regarding rationale, indications, techniques, skin health, expectations of managers, indications and limitations of glove use*
Administrative measures	No recommendations	"Unit clinical and administrative staff should be involved in compliance"	Make hand hygiene compliance an institutional priority* Implement multidisciplinary program to improve compliance*



El sırtı



**El
ayası**

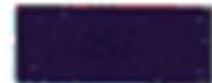
**En sık yıkanmayan
bölgeler**



**Daha az sıklıkta
yıkanmayan bölge**



**Yıkanan
bölge**



Effective handwashing technique

- Remove jewelers/watch and move sleeves up over wrists
- Turn on the faucet and adjust water temperature
- Wet hands with water
- Apply enough soap to cover all hand surfaces (3-5 ml)
 - Take 3-5 ml soap to the hands
 - Hands rubbed for at least 15 seconds
 - Be sure you have covered the entire surface of the

Right hand washing technique

- Hands must be rinsed water
 - Take 3-5 ml soap to the hands
 - Hands rubbed for at least 15 seconds
 - Be sure you have covered the entire surface of the hands and fingers
 - Hands rinsed with water and fully dried

Wet your hands



Take 3-5 ml soap



Rubbed your hands



Right palm over left dorsum with
interlaced fingers and vice versa



Back of fingers to opposing palms with
fingers interlocked



Palm to palm with fingers interlaced



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



Rinse well



Dry hands



With a single use towel



Use towel to turn off faucet



Used towel goes to rubbish



Effective hand washing

- Avoid using hot water
 - Risk of dermatitis
- Suitable option to use liquid soap
- Partially added soap to the dispenser is not suitable
- Reusable towels are not suitable

Hand antisepsis



Hand antiseptic using

- Alcohol-based hand antiseptic is applied to the hands and before donning gloves hands must be completely dried
- Keep in mind that hand antiseptic is volatile and flammable

Hand antiseptic using

- Nails must be short cutted
- Artificial nails can not accetable at hospital



Indications of using for gloves

- Be limited!
- Contact with blood and / or body fluids
- In case of contact with skin or mucous membranes having disrupted
- Clean and non-sterile gloves can use before entering the isolated patient's room
- Gloves should be on sleeve cuffs of the apron

Using of gloves

- Wrong sense of security!
- Reduce compliance of hand hygiene practice!
- Hand hygiene should do before and after use of gloves
- Gloves should not be washed
- Gloves should not be used again
- Antiseptic solution is not used on gloves

Using of gloves

- Gloves are removed after contact with the patient
- To another patient is not suitable to contact with same glove
- Patient's actions should be done from clean area to contaminated area
- The transition to a clean area of the body from contaminated area gloves should be changed in the same patient

How is hand hygiene compliance ?

- Made a very large number of research on wards and ICUs:
 - Baseline compliance: % 4-50
 - Improvements after the education: % 40-80

Reasons for non-compliance with hand hygiene

- An insufficient number or inappropriate localized sink or alcohol-based hand antiseptics
- Lack of soap and paper towels
- Intensity of work
- Inadequate training
- The use of gloves
- Lack of role model
- Forgetfulness

Compliance with hand hygiene

- Argentina, Brasil, Colombia, Morocco, Turkey
- Result of the observe
 - About 163 doctor-patient care observed during the activity and after 573 questionnaires
 - Average of 57% compliance with
- Sections significant difference between
 - internal branches 80%
 - anesthetists 23%

Compliance with hand hygiene

- Students better adapt to
 - Professor or consultant physician: 49%
 - Fellow or assistants: 57%
 - Medical students: 79%

Compliance with hand hygiene

- Those who need to perform hand hygiene after glove removal

– 30%

Unsufficient hand hygiene

- Lack of knowledge and awareness
- Lack of expectations
- Disorder of motivation
- Excessive workload
- Features of units
- Skin irritation
- Lack of institutional policy

جہاں ہے وہاں ہے