

STERILIZATION AND DISINFECTION

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STERILE TECHNIQUE

▶ **COMMONLY USED IN THE OPERATING ROOM AND DELIVERY ROOM**

▶ **NURSING PROCEDURES THAT ARE INVASIVE**



PURPOSE

- ▶ **ELIMINATE ALL MICROORGANISMS THAT WILL COME INTO CONTACT WITH BODY TISSUES.**
- ▶ **PROTECT PATIENTS FROM POSSIBLE INFECTION WHEN NATURAL DEFENSES ARE NOT NORMAL**

PROCEDURES REQUIRING STERILE TECHNIQUE

- ▶ **PROCEDURES WHEN UNDERLYING
TISSUES ARE BEING EXPOSED**
- ▶ **INTERNAL BODY AREAS ARE
NORMALLY STERILE**



STERILIZATION

- ▶ **COMPLETE DESTRUCTION OF MICROORGANISM**
- ▶ **ITEMS MUST NOT ONLY BE FREE FROM MICROORGNISM BUT ALSO UNDAMAGED**
- ▶ **ITEMS MUST FIRST BE CLEAN BEFORE STERILIZED**

METHODS OF STERILIZATION



THERMAL

CHEMICAL

IONIZING RADIATION

THERMAL

- ▶ **MOIST HEAT (STEAM UNDER PRESSURE)**

- **HIGH PRESSURIZED STEAM REACHED A HIGHER TEMPERATURE TO DESTROY MICROORGANISM**

EX. AUTOCLAVE



▶ **HOT AIR (DRY HEAT)**

- **STERILIZED PETROLEUM PRODUCTS,
ANHYDROUS OILS AND POWDERS**

▶ **MICROWAVES**

- **USES LOW – PRESSURE STEAM ALONG
WITH THE NONIONIZING RADIATION**





AUTOCLAVE



HOT AIR



MICROWAVE



CHEMICAL

▶ ETHYLENE OXIDE GAS

- ITEMS THAT ARE SENSITIVE HEAT/
MOISTURE.



- ▶ HIGHLY FLAMMABLE!!!
MONITOR!!!

▶ **HYDROGEN PEROXIDE PLASMA VAPOR**

- **STERILIZATION IS ACHIEVED THROUGH LOW - TEMPERATURES**



SAFE AND NON-TOXIC

▶ OZONE GAS

- **EXPENSIVE AND EASY TO OPERATE**



CORROSIVE!!!

**NOT USED FOR ITEMS MADE OF STEEL
BRASS AND ALUMINUM**

**▶ LIQUID CHEMICAL STERILANT –
PERACETIC ACID**

- **LIQUID STERILANT**
- **SUITABLE FOR STERILIZING HEAT –
SENSITIVE ITEMS**
- **RINSE IN STERILE WATER BEFORE USING**
- **CAN BE USED IMMEDIATELY**



IONIZING RADIATION

▶ EXPOSURE TO IRRADIATION

- IRRADIATION STERILIZATION IS SUITABLE FOR HEAT AND MOISTURE SENSITIVE ITEMS



DISINFECTION

- ▶ **the process of killing pathogenic organisms**
- ▶ **used when items cannot be sterilized or situations where no method of sterilization is available**



TYPES

▶ LOW – LEVEL DISINFECTANTS

- FOR HOUSEKEEPING AND NON – CRITICAL ITEMS THAT DOES NOT TOUCH THE PATIENT'S SKIN

EX.



▶ **INTERMEDIATE LEVEL DISINFECTANTS**

- **FOR SEMI – CRITICAL ITEMS THAT COMES IN CONTACT WITH THE SKIN**

• **EX.**



▶ **HIGH LEVEL DISINFECTANT**

- **FOR CRITICAL ITEMS THAT COMES IN CONTACT WITH THE BODY TISSUES OR BELOW SKIN MEMBRANES**



TYPES OF DISINFECTANTS

- ▶ **CHEMICAL DISINFECTANTS**
- ▶ **PHYSICAL DISINFECTANTS**



PHYSICAL DISINFECTANTS

▶ **BOILING WATER**



▶ **ULTRAVIOLET RAYS**

• **THE RAYS COMES IN CONTACT WITH THE ORGANISMS**



**WEAR PROTECTIVE
SKIN COVERING!!!**

INDICATORS OF STERILITY

▶ STERILE TAPES



▶ PACKAGE WITH STERILE INDICATORS



► EXPIRATION DATE



GENERAL PRINCIPLES

1. MICROORGANISMS MOVE THROUGH SPACE IN AIR CURRENTS
2. MICROORGANISMS ARE TRANSFERRED FROM ONE SURFACE TO ANOTHER WHEN A NONSTERILE OBJECT TOUCHES OTHER OBJECTS
3. MICROORGANISM MOVE FROM ONE OBJECT TO ANOTHER AS A RESULT OF GRAVITY WHEN A NON-STERILE ITEM IS HELD ABOVE ANOTHER ITEM

4. MICROORGANISMS TRAVEL RAPIDLY ALONG ANY MOISTURE THROUGH A WICKING ACTION

5. MICROORGANISMS MOVE SLOWLY ALONG A DRY SURFACE

6. MICROORGANISMS ARE RELEASES THROUGH THE AIR ON DROPOLET NUCLEI WHENEVER A PERSON BREATHES OR SPEAKS

**7. MICROORGANISMS ARE IN
CONSTANT MOTION IN A VARIETY OF
WAYS**

**8. THE EDGE OF THE STERILE FIELD IS
POTENTIALLY CONTAMINATED BY
MICROORGANISMS MOVING IN FROM
THE OUTSIDE**



ALWAYS REMEMBER!!!

**WHEN IN DOUBT OF STERILITY
DISCARD!!!**

MA'AM MICHELLE ANNE