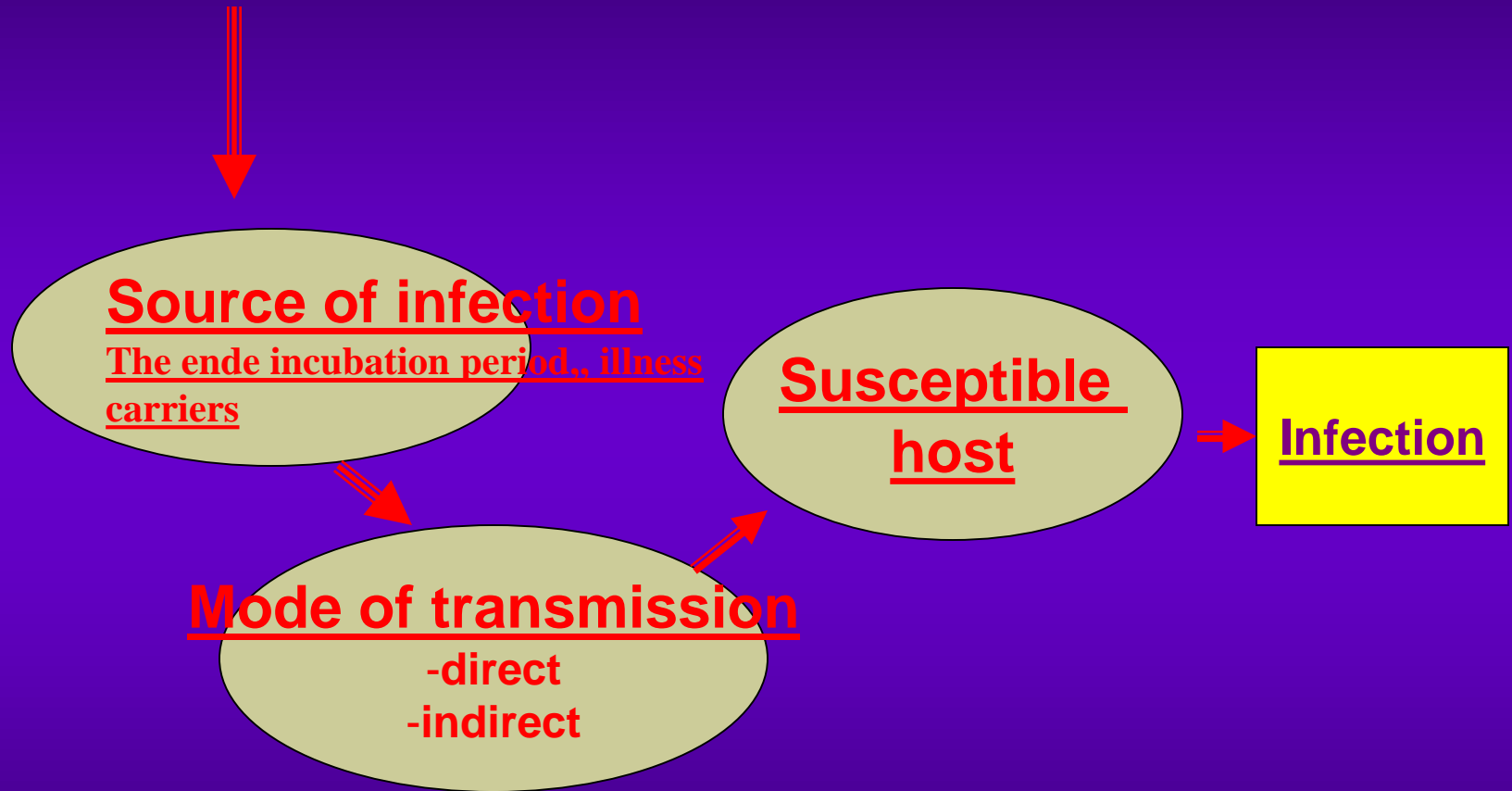


# Hospital hygiene

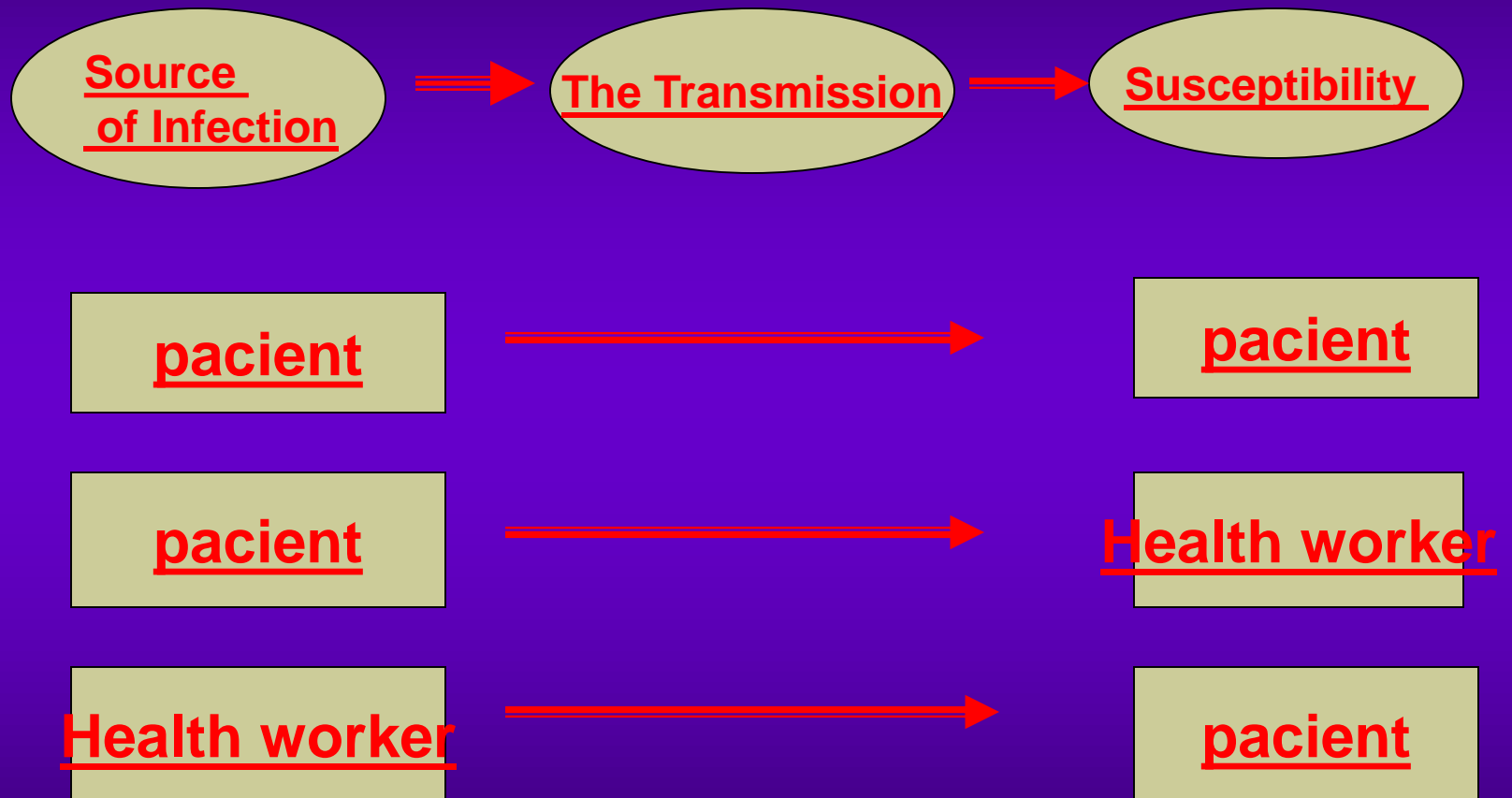
Kolářová M., Spring 2016

# Chain of Infection

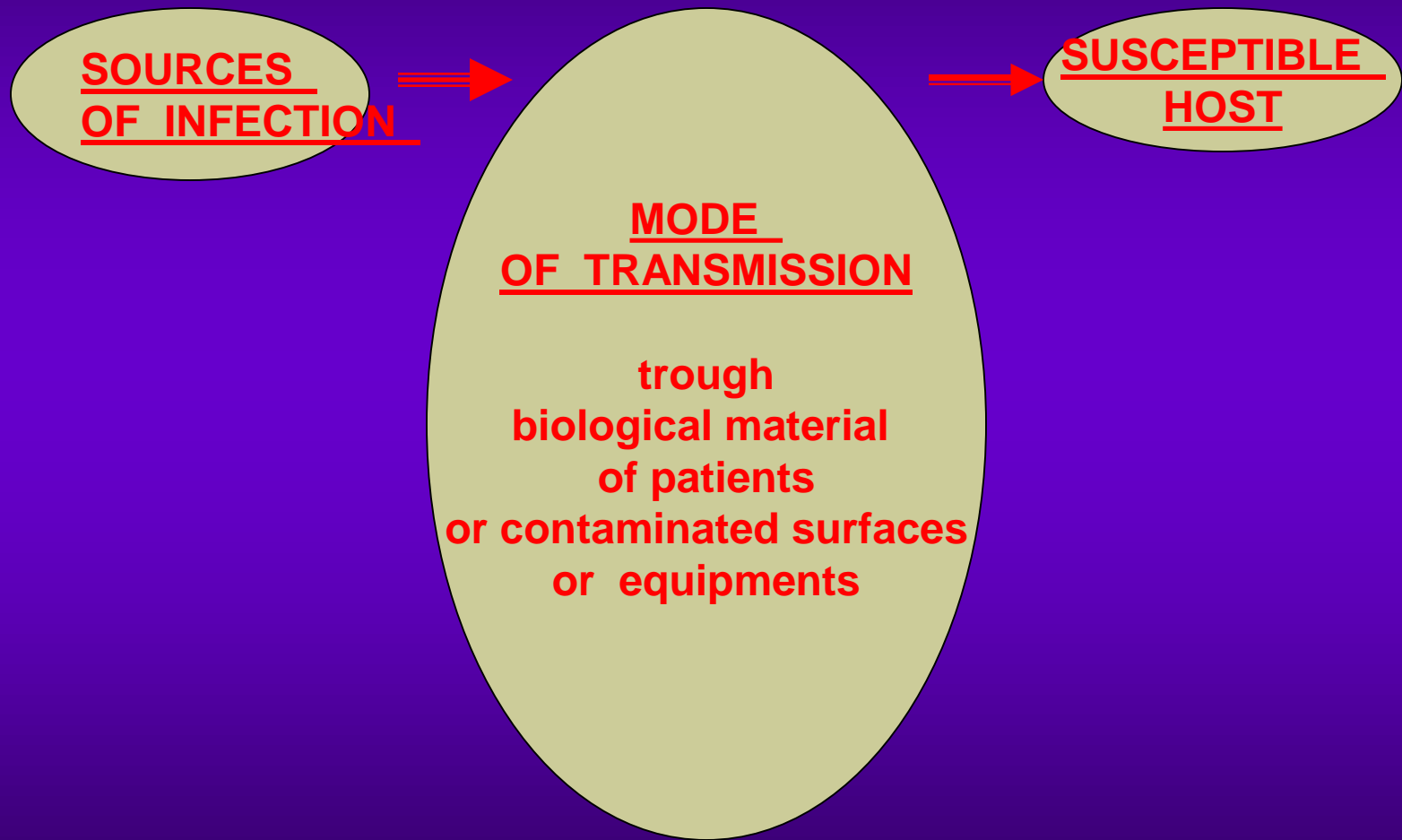
**Causative agent - bacteria, viruses,  
fungi, parasites, priony**



# Chain of Infection in Hospital Conditions



# EPIDEMIC PROCESS IN THE HOSPITAL ENVIRONMENT



## Biological materials – their infectivity

### 1. Causative agents in blood, derivatives from blood, plasma

VHB, VHC, VHA (short in the blood), HIV, CMV, rarely EBV, virus of morbilli (viremie), kandy-kandidémie, malárie - (plasmodia can survive in fresh plasma 3 – 5°C - 14 days),

*Toxoplasma gondii* - (can survive in blood - 56 days)

## Biological materials – their infectivity

### 2. Causative agents in droplets

Adenovirus, coronaviruses, enteroviruses, herpes virus, myxovirus (**influenzae**), paramyxovirus, RSV, rhinovirus, *Stafylococcus*, *Streptococcus spp.*, *Meningococcus spp.*, *Haemophilus Influenzae*, *Neisseria meningitis*, *Bordetella pertussis*, *Bordetella parapertussis*, *Mycoplasma pneumoniae*, *Pneumocystis carinii*, *Kandidy*....

# Biological materials – their infectivity

## 3. Causative agents in stool

Enterovirus (VHA, poliomyelitis), VHE, coxsackievirus, Adenovirus,

**Enterobacteriaceae** (*E.coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Proteus spp.*, *Citrobacter*, *Enterobacter*, *Serratia* **apod**)

*Listeria monocytogenes*, *Clostridium perfringens*, *Clostridium tetani*, *Pneumocystis carinii*

## Biological materials – their infectivity

### Causative agents in:

#### 4. URINE

Virus of measles, parotitis, CMV, VHB, papovavirus, *Listeria monocytogenes*, *Candidae*

#### 5. LIQUOR

HIV, **different causative agents of** meningitid

#### 6. Salive

VHB, HIV, CMV, EBV, herpes virus hominis typ 1,2, virus of measles, rubella



# Biological materials – their infectivity

## 7. TEARS, EYE - SECRET

VHB, HIV, adenoviruses, Enterovirus typ 70, Coxsackie A 24, *Staphylococcus aureus*, hemophilus, pneumokoky, moraxely, chlamydie

## 8. VAGINA AND CERVIX - SECRET

HIV, VHB, rare VHC, herpes virus hominis typ 1,2, *Streptococcus agalactiae*, *Neisseria gonorrhoea*, *Haemophilus Ducreyi*, *Treponema pallidum*, *Trichomonas vaginalis*, *Chlamydia lymfogradulomatosis*, *Chlamydia trachomatis*

## 9. EJACULAT

VHB, HIV, rare VHC, CMV,

# Chain of Infection in Hospital Conditions



**HANDWASHING, DISINFECTION OF HANDS**

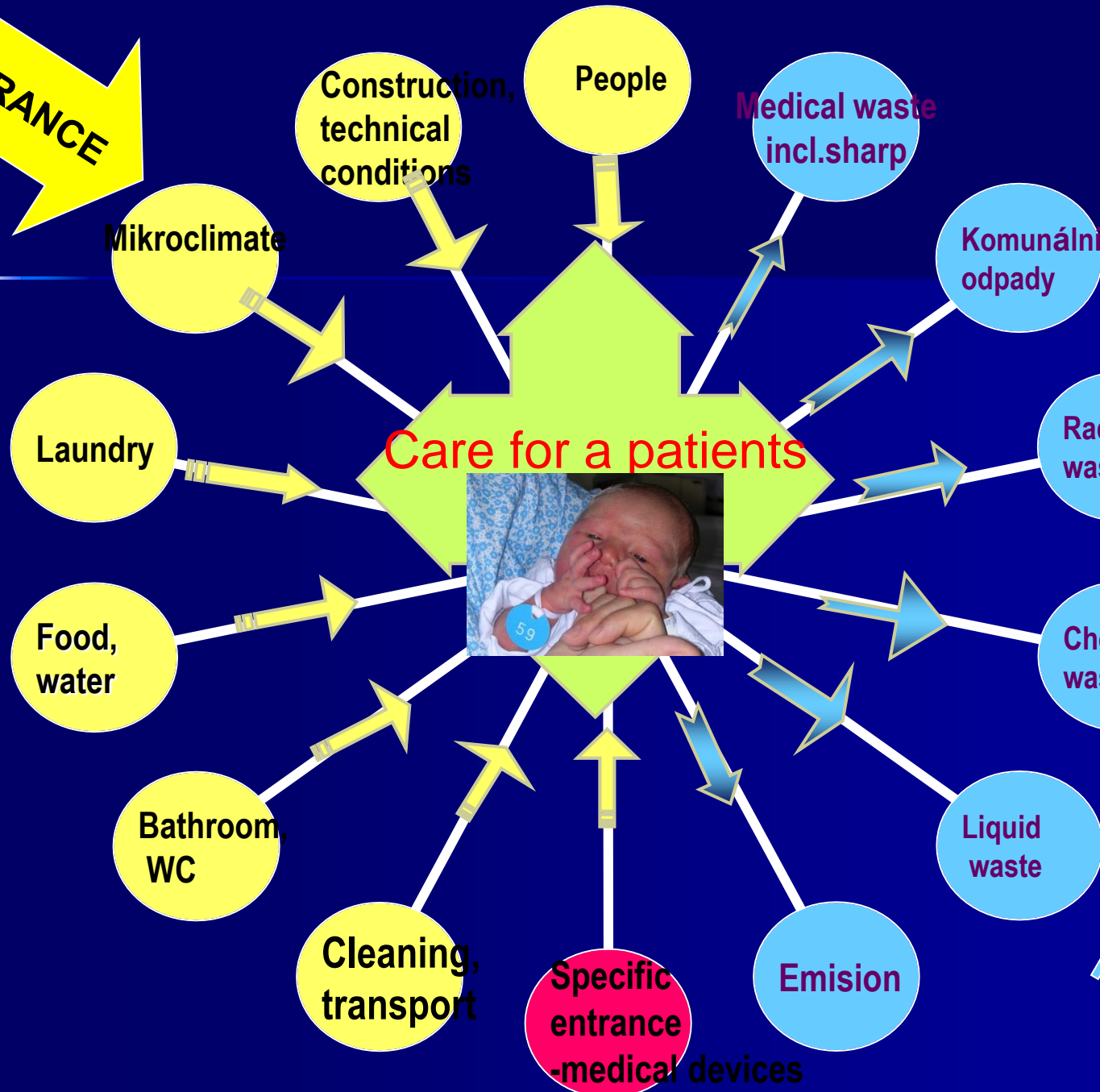
**LINEN WASHING,  
CLEANING**

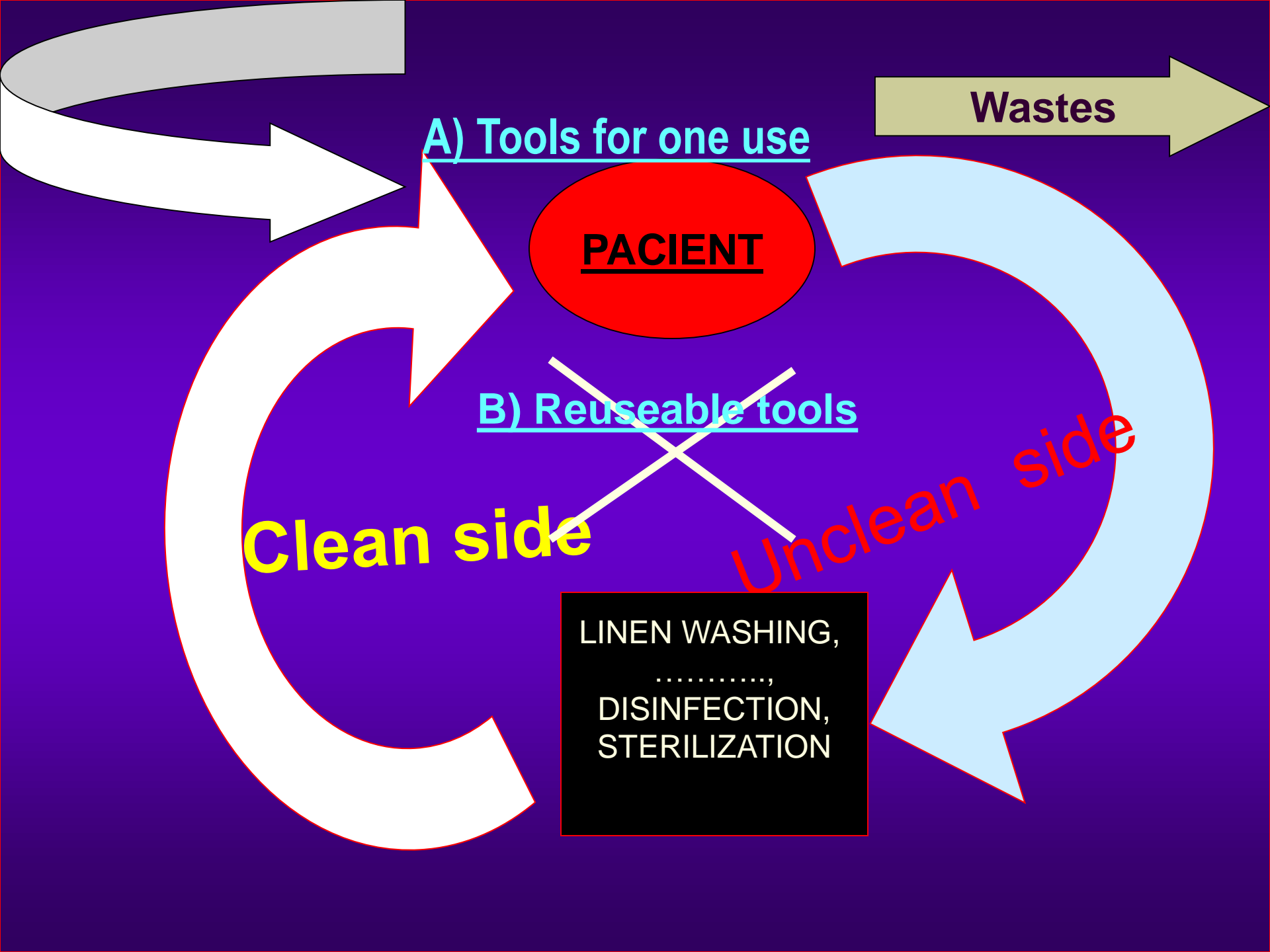
.....,

.....

**DISINFECTION**

**STERILIZATION**





Wastes

A) Tools for one use

PACIENT

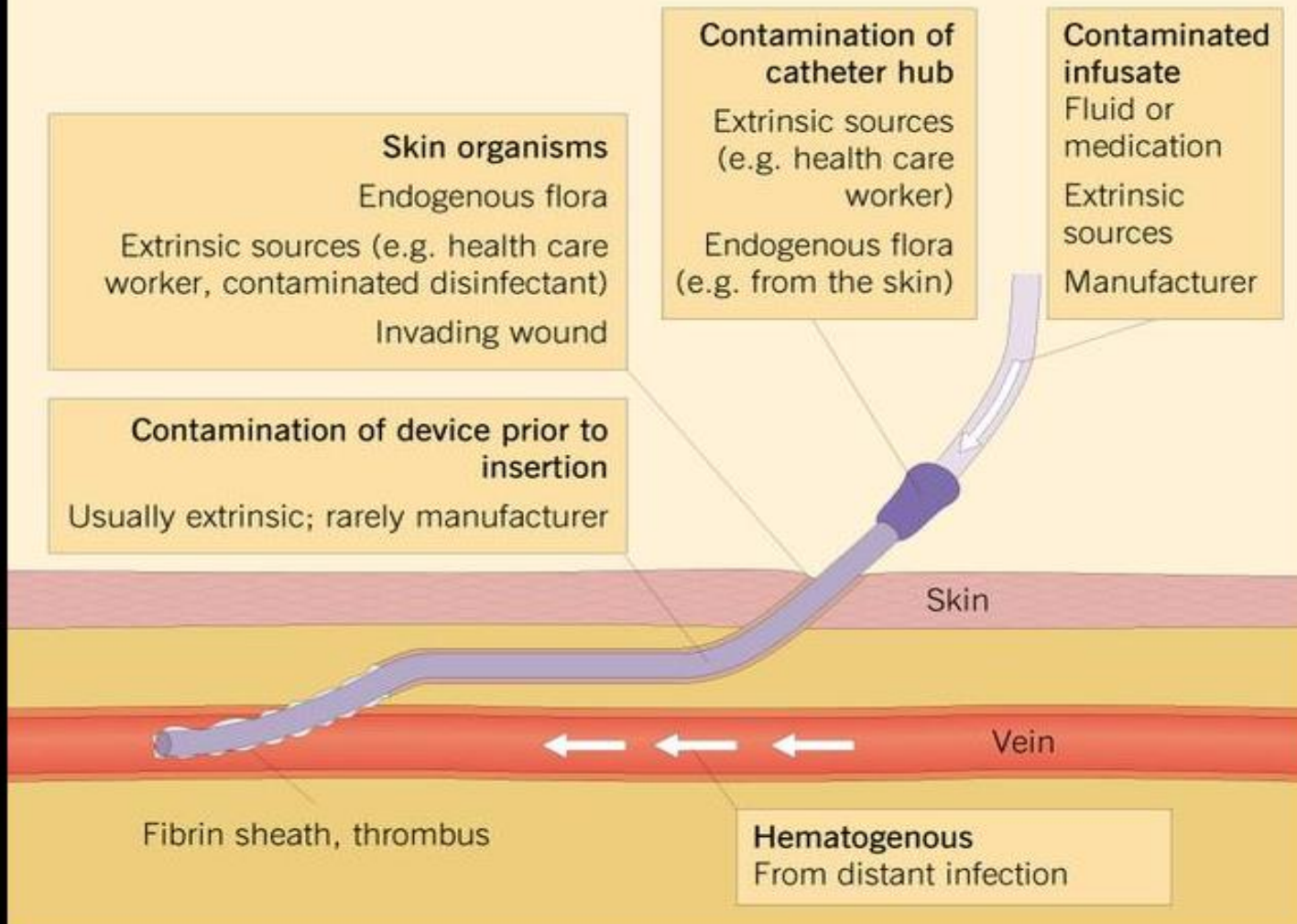
B) Reuseable tools

Clean side

Unclean side

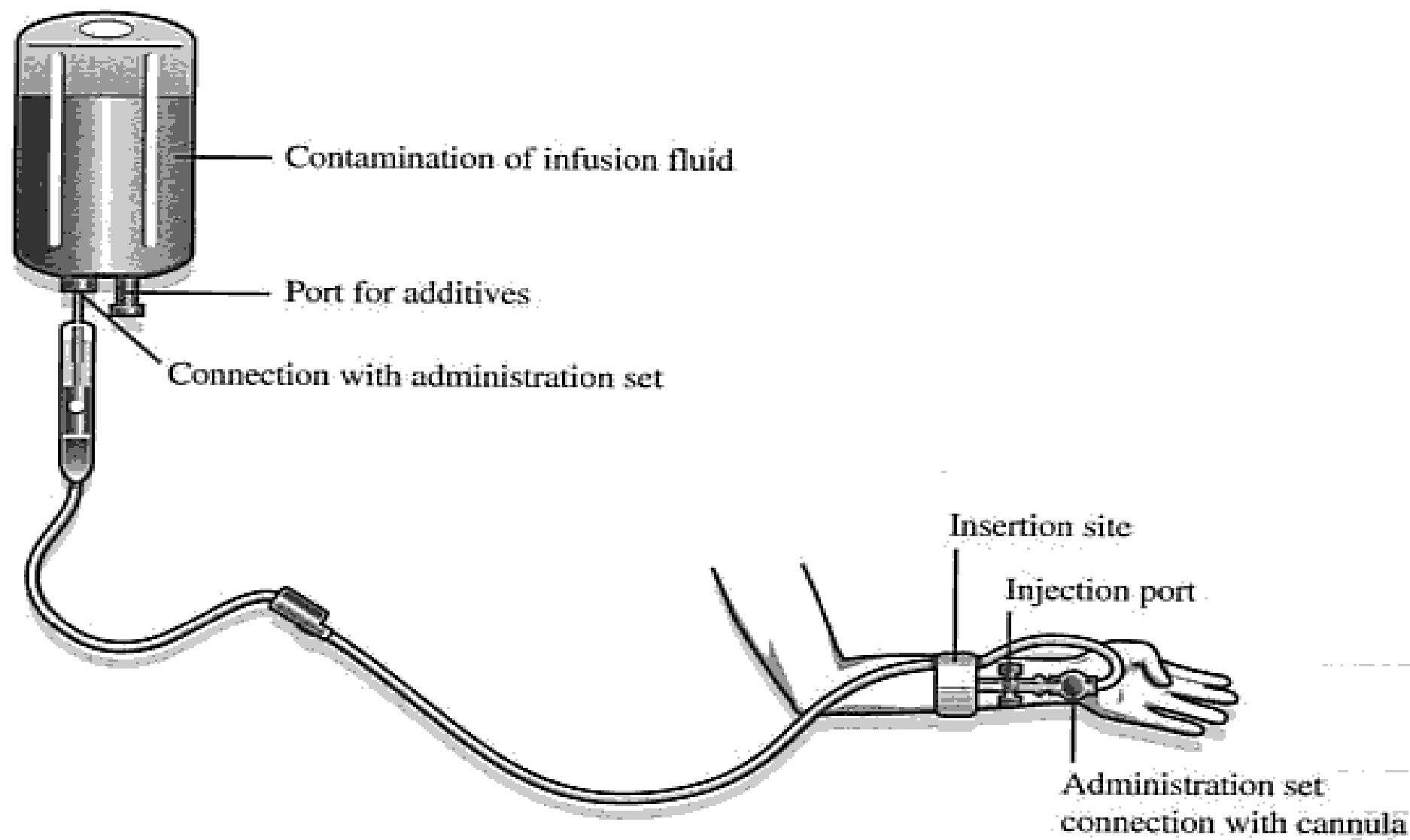
LINEN WASHING,  
.....,  
DISINFECTION,  
STERILIZATION

## POTENTIAL ROUTES OF INFECTION



# Intravenous Infusions

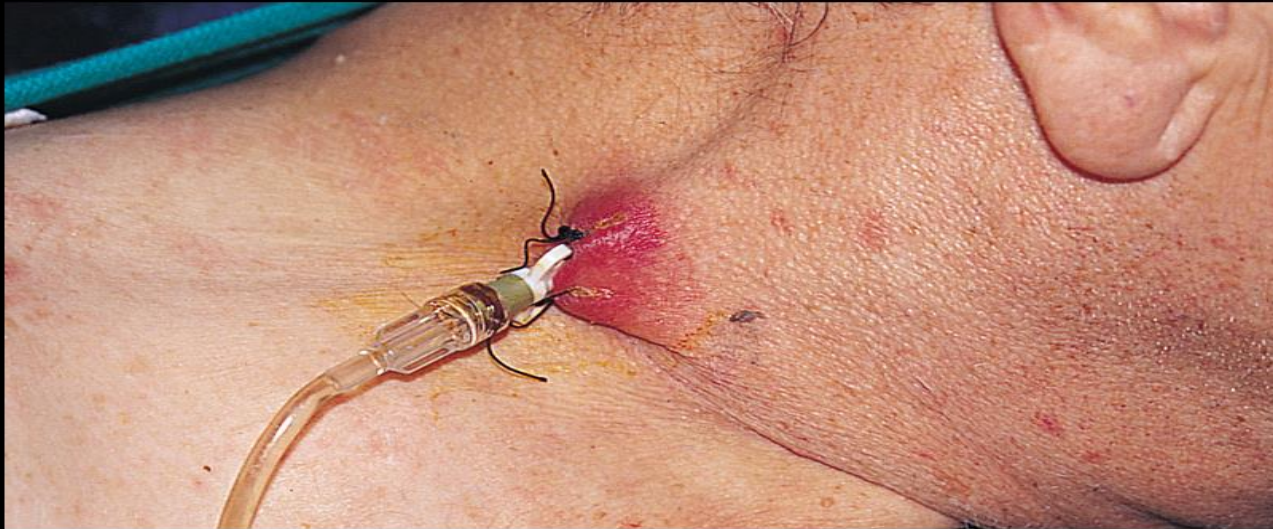
## Sites of Possible Contamination



*Staphylococcus aureus* in a patient who has a Hickman catheter. The extending cellulitis (maximum extent shown by black marker pen line) has responded but the local tunnel infection persists and mandates line removal.



Catheter exit site infection in a patient with central venous catheterization through the jugular vein.





**Diffuse skin involvement with petechial lesions in a patient with *Staphylococcus aureus* bacteremia, endocarditis and acute aortic insufficiency.**



**An acutely infected knee replacement. The site was washed out but the infection failed to resolve. At re-operation the implant was found to be loose and it needed to be removed. *Staphylococcus aureus* was grown from deep specimens.**





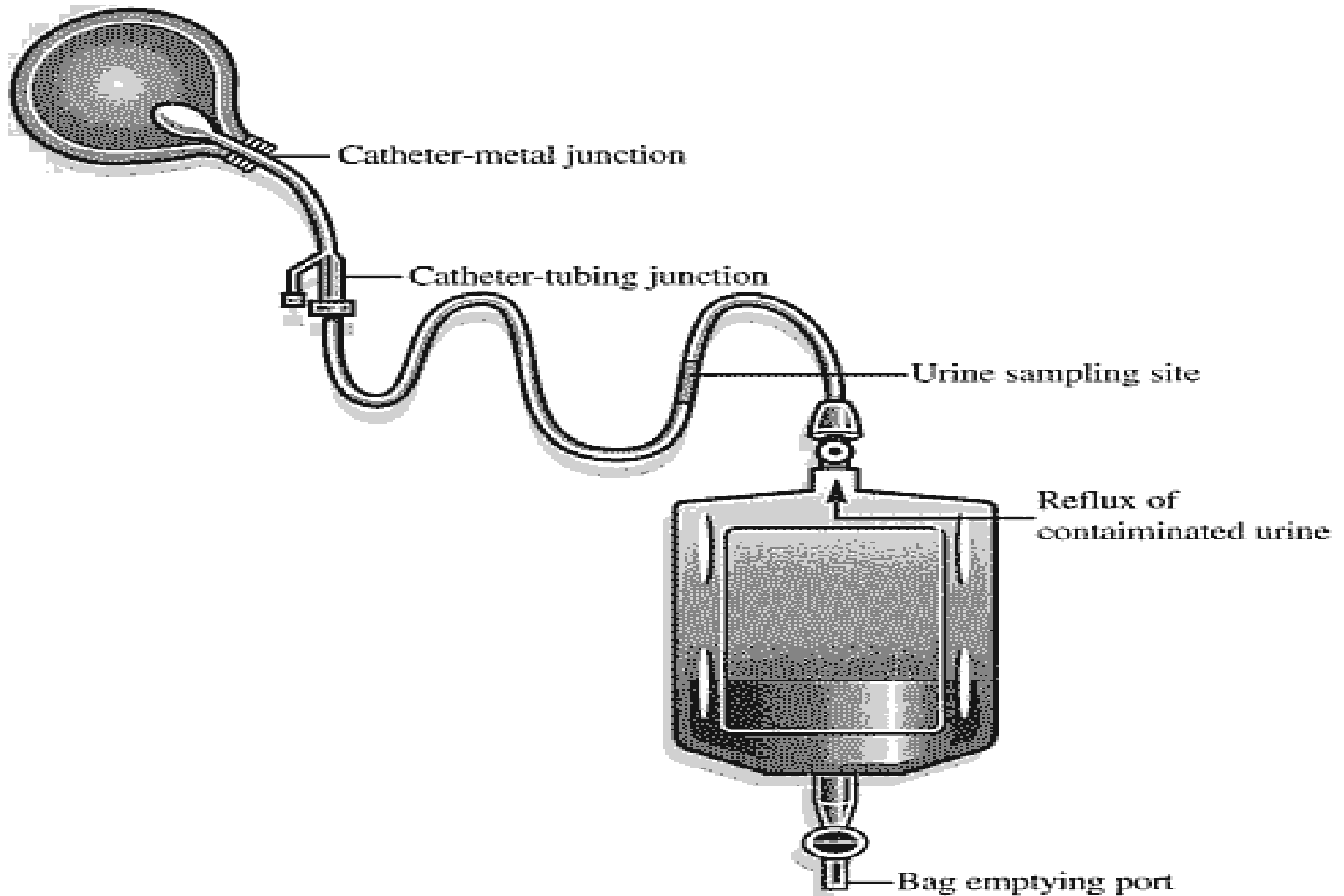






# Indwelling Catheterisation of Urinary Tract

## Sites of Possible Contamination



# Municipial waste – syringes with blood !!!





# Municipial waste – test tubes **with blood !!!**



# Municipial waste – ..... !!!



Sorted waste – glasses **with syringes and needles (after using) !!!!**



Sorted waste – glasses **with giving set (after using) !!!!**



The rest medicaments in the glasses = **hazardous waste !!!**



**The bag with blood in the transparent sack !!!! (must be black and nontransparent and fat (0,2 mm) with symbol „Biological Risk)**

