

DEDOKTORIZACE

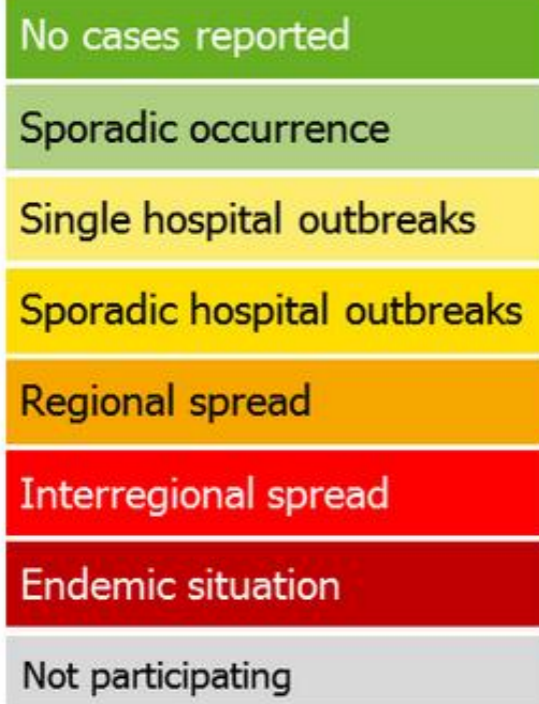
ANEK

**Co může obecně sestra/nelékař udělat v
prevenci septických stavů a
antimikrobiální rezistence v nemocnici?**

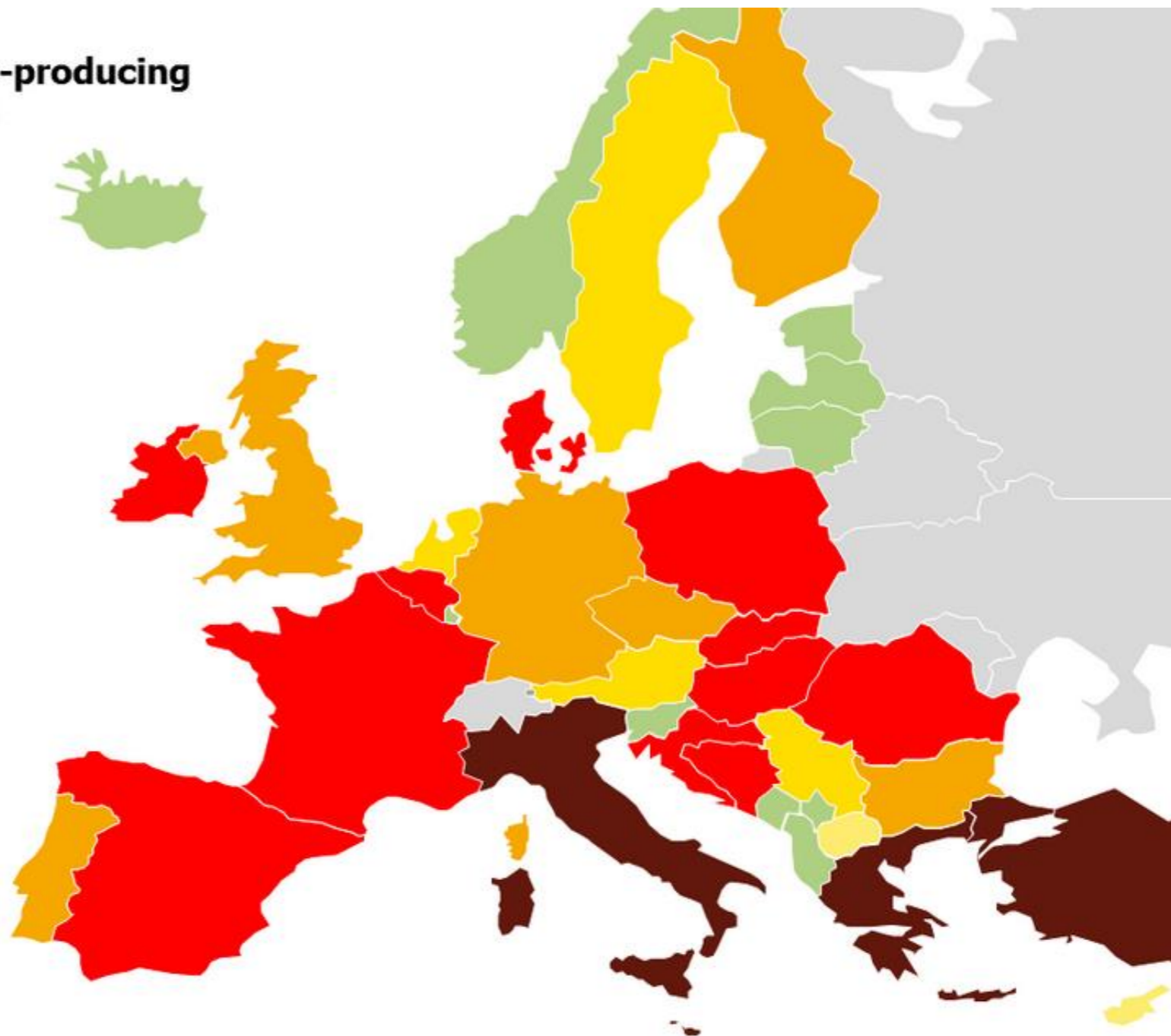
Petr SMEJKAL, SNEH, IKEM

ANTIMIKROBIÁLNÍ REZISTENCE

Spread of carbapenemase-producing
Enterobacteriaceae, 2018



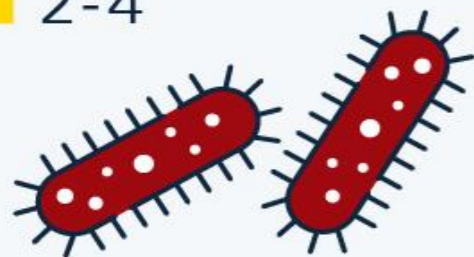
Source: Brolund *et al.* Eurosurveillance 2018



Superbugs Kill More Than 30,000 Europeans Every Year

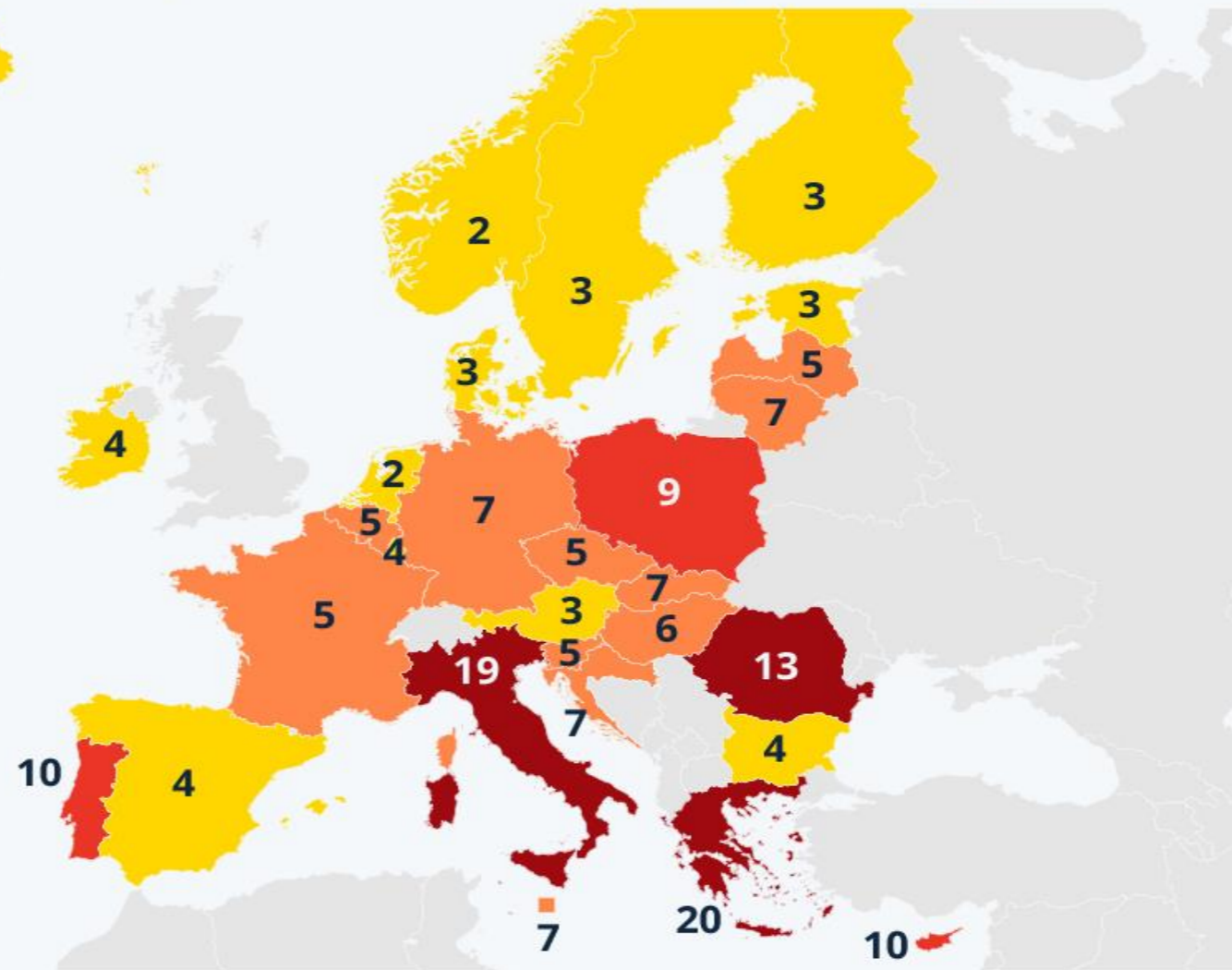
Estimated annual number of deaths related to antibiotic-resistant bacteria per 100,000 inhabitants, by country*

- >10
- 8-10
- 5-7
- 2-4



Deaths attributable to antibiotic-resistant bacteria in EU/EEA countries

30,730 to 38,710 per year



* Estimates based on data for the period 2016-2020

Source: European Centre for Disease Prevention and Control (ECDC)



ANTIBIOTIKA

THE RISK OF RENDERING ANTIBIOTICS INEFFECTIVE IS REAL

Today's antibiotics need to be preserved because we don't know if new ones can replace them.



Only 15 new antibiotics have been approved since 2000, compared to the 63 put to clinical use between 1980 and 2000. Out of these new drugs, only 4 of them represent new classes of antibiotics targeting bacteria through novel mechanisms. Still, bacteria resistant to each of these new drugs have already been isolated.⁷

1. IPC

Key indicators Point prevalence survey of healthcare-associated infections and antimicrobial use in acute care hospitals 2022-2023



FINLAND

Number of hospitals 40
Standard protocol 40
'Light' protocol 0
Number of patients 7564

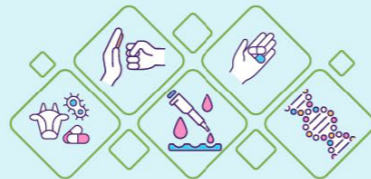
	Min.	25 th percentile	EU/EEA country median	75 th percentile	Max.	Country
Healthcare-associated infections (HAIs) and antimicrobial resistance (AMR) indicators						
HAI prevalence* (% patients with HAI)	3.0	5.1	6.8	8.2	13.8	7.4
Composite index** of AMR (% antimicrobial-resistant isolates)	7.9	15.4	21.8	38.2	68.7	11.5
Infection prevention and control (IPC) and diagnostic stewardship indicators						
IPC nurses (full-time equivalents (FTEs) per 250 beds)	0.28	0.98	1.25	1.54	3.28	2.19
Beds with alcohol-based handrub dispenser at point of care (% beds)	18.5	43.4	49.2	69.7	100	78.6
Beds in single rooms (% beds)	3.2	7.1	15.8	35.2	56.5	32.7
Blood culture sets (number per 1000 patient-days)	12.4	28.0	44.7	68.9	167.1	167.1
Antimicrobial use (AU) and antimicrobial stewardship indicators						
AU prevalence (% patients with AU)	20.8	29.7	36.0	43.8	56.5	36.3
Duration of surgical prophylaxis >1 day (% of antimicrobials for surgical prophylaxis)	15.8	31.2	38.1	60.1	79.8	28.9
Antimicrobials reviewed and changed during treatment (%)	6.2	13.9	19.5	24.1	31.3	25.4

*HAI prevalence should be interpreted with caution, as it depends on patient mix, diagnostic capacity, sensitivity of HAI case finding and country representativeness of the sample of hospitals.

**The percentage of the sum of isolates of the following resistant microorganisms divided by the sum of the isolates for which results from antimicrobial susceptibility testing were reported: *Staphylococcus aureus* resistant to methicillin (MRSA), *Enterococcus faecium* and *Enterococcus faecalis* resistant to vancomycin, Enterobacterales resistant to third-generation cephalosporins, and *Pseudomonas aeruginosa* and *Acinetobacter baumannii* resistant to carbapenems.

Legend:

- Better than both EU/EEA country median and the 25th (or 75th) percentile
- Better than EU/EEA country median, but worse than the 25th (or 75th) percentile
- Worse than EU/EEA country median, but better than the 75th (or 25th) percentile
- Worse than both EU/EEA country median and the 75th (or 25th) percentile



Key indicators Point prevalence survey of healthcare-associated infections and antimicrobial use in acute care hospitals 2022-2023



CZECHIA

Number of hospitals 39
Standard protocol 39
'Light' protocol 0
Number of patients 12296

	Min.	25 th percentile	EU/EEA country median	75 th percentile	Max.	Country
Healthcare-associated infections (HAIs) and antimicrobial resistance (AMR) indicators						
HAI prevalence* (% patients with HAI)	3.0	5.1	6.8	8.2	13.8	6.7
Composite index** of AMR (% antimicrobial-resistant isolates)	7.9	15.4	21.8	38.2	68.7	29.8
Infection prevention and control (IPC) and diagnostic stewardship indicators						
IPC nurses (full-time equivalents (FTEs) per 250 beds)	0.28	0.98	1.25	1.54	3.28	0.82
Beds with alcohol-based handrub dispenser at point of care (% beds)	18.5	43.4	49.2	69.7	100	42.4
Beds in single rooms (% beds)	3.2	7.1	15.8	35.2	56.5	8.6
Blood culture sets (number per 1000 patient-days)	12.4	28.0	44.7	68.9	167.1	27.6
Antimicrobial use (AU) and antimicrobial stewardship indicators						
AU prevalence (% patients with AU)	20.8	29.7	36.0	43.8	56.5	30.9
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KONTROLA A PREVENCE INFEKČÍ

INFECTION CONTROL

- **Surveillance infekcí, systém epidemiologické bdělosti**
- **Epidemiologie a biostatistika**
- **Antimicrobial stewardship**
- **Ochrana pacientů a zdravotnického personálu, očkování zdravotníků**
- **Infekce spojené se zdravotní péčí - epidemiologie a prevence**
- **Izolační režimy, izolační opatření a ochranné pomůcky**
- **Poranění zdravotníků**
- **Desinfekce a sterilizace**
- **Hygiena rukou a prostředí**
- **Šetření outbreaku**

PREVENCE SSI A HAI OBECNĚ

- 1. ANTIMIKROBIÁLNÍ PROFYLAXE 30-60 MINUT DO SUTURY
- 2. ANTISEPSE/DESINFEKCE OPERAČNÍ RÁNY - CHG
- 3. ODSTRANĚNÍ VLASŮ
- 4. DEKOLONIZACE, ZEJMÉNA *S. aureus* (SCREENING), TÉŽ G MINUS TYČE
- 5. VÝŽIVA
- 6. NORMOTERMIE V DOBĚ VÝKONU (ZEJMÉNA KOLOREKTÁL)
- 7. NORMOGLYKEMIE, TRANSFUSE KRVE
- OSTATNÍ – KOUŘENÍ
- **!DRÉNY NEJSOU PREVENCÍ SSI!**

2. VYSOCE NEBEZPEČNÉ NÁKAZY / TRIAGE



3. PÉČE O RÁNY

- PÉČE O RÁNU JE KOMPLEXNÍ ZÁLEŽITOST
- DEBRIDEMENT
- NPWT
- PŘEVAZY
- CELKOVÁ PÉČE O PACIENTA A JEHO CHRONICKÁ ONEMOCNĚNÍ
- **SAMA ANTIBIOTIKA TO NEVYŘEŠÍ**
- **CHIRURG TO TAKÉ NEVYŘEŠÍ**

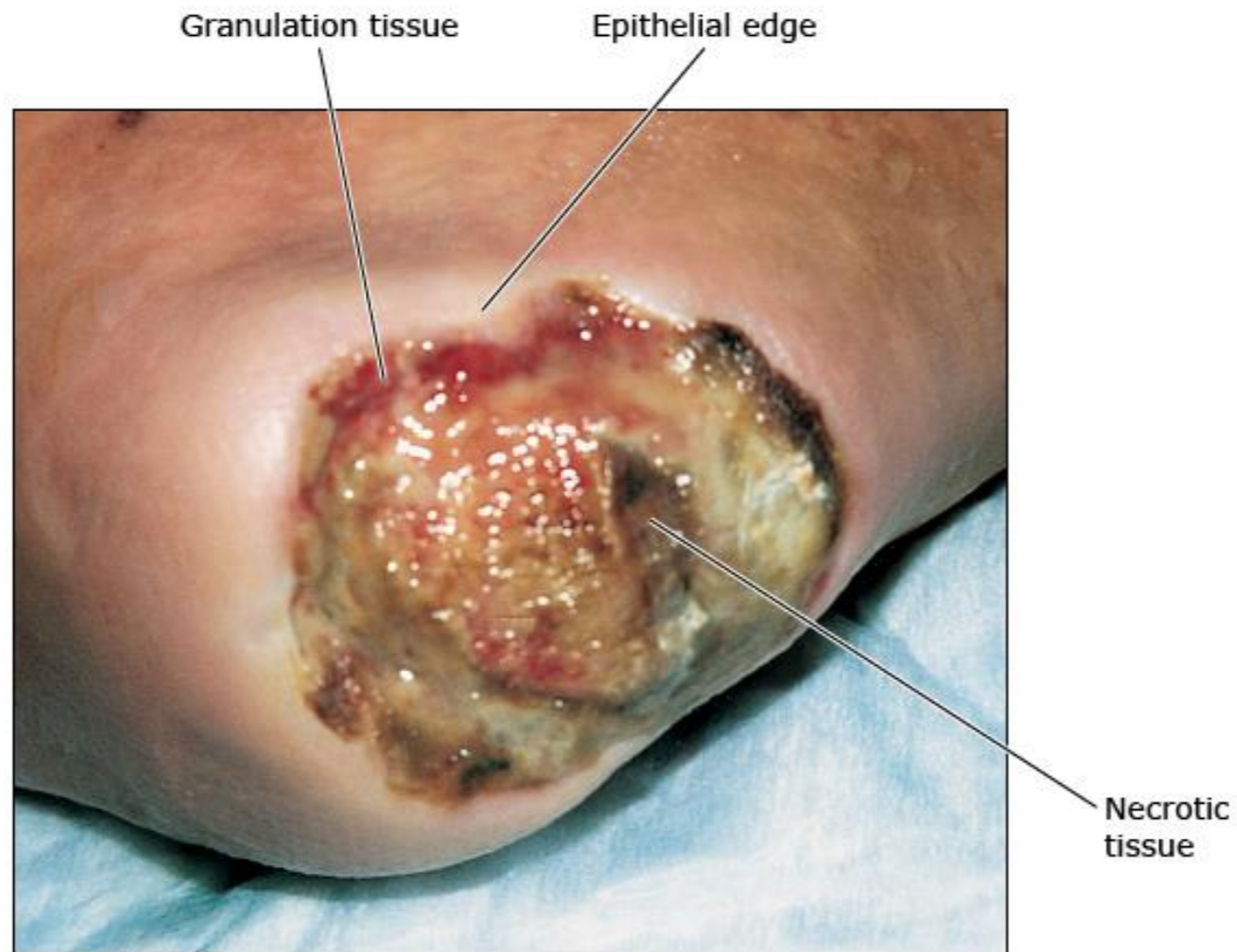
RAN JE MNOHO

- **RÁNY AKUTNÍ**
- **RÁNY CHRONICKÉ** - NEHOJÍCÍ SE 50% POVRCHU ZA MĚSÍC/15% ZA TÝDEN
- SPECIFICKÉ CHRONICKÉ RÁNY: DIABETICKÁ NOHA
- ISCHEMICKÉ VŘEDY / VLHKÁ GANGRÉNA /ABSCESS
- ISCHEMICKÉ VŘEDY /SUCHÁ GANGRÉNA
- CHRONICKÉ ORTOPEDICKÉ RÁNY/ TRAUMATA/INFEKCE CHIRURGICKÉ RÁNY
- BŘIŠNÍ RÁNY
- DEKUBITY
- POPÁLENINY
- MALIGNITY
- BĚRCOVÉ VŘEDY/VENOUS STASIS ULCERS

RIZIKOVÉ FAKTORY (NE)HOJENÍ

- INFEKCE
- KOUŘENÍ
- VĚK
- PODÝŽIVA
- IMOBILIZACE
- DIABETES (NEUROPATIE, VASKULOPATIE - PAD)
- ISCHEMIE A VENÓZNÍ INSUFICIENCE
- IMUNOSUPRESE
- JINÉ FAKTORY (OTOKY, OBEZITA, VASKULITIDA atd.)

Chronic nonhealing wound



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ČLENOVÉ TÝMU

- **PACIENTŮV OŠETŘUJÍCÍ LÉKAŘ**
- **SPECIALISTA NA HOJENÍ RAN**
- **NUTRICIONISTA**
- **CHIRURG**

- **INFEKTOLOG/MIKROBIOLOG/INFECTION CONTROL**
- **ANGIOLOG**
- **FYZIOTERAPEUT**
- **LÉČBA BOLESTI**

TÝM PRO HOJENÍ RAN V NEMOCNICI/AMBULANTNĚ

- KTERÉ RÁNY
- JAK SI PŘEDAT INFORMACE
- KOORDINÁTOREM SPECIALISTA PRO HOJENÍ RAN – ŽÁDOST O KONZÍLIUM
- NÁVAZNOST V AMBULANCI NEMOCNICE NEBO V JINÉ AMBULANCI HOJENÍ RAN
- VÝHODY: **MULTIOBOROVÁ SPOLUPRÁCE, KONTINUITA PÉČE** (NE „HIT AND RUN“)

4. ROZPOZNÁNÍ SEPSE

SEPSIS STEPS

SIRS

T: >100.4 F
< 96.8 F
RR: >20
HR: >90
WBC: >12,000
<4,000
>10% bands
PCO₂ < 32 mmHg

SEPSIS

2 SIRS

+

Confirmed
or suspected
infection

SEVERE SEPSIS

Sepsis +

Signs of End
Organ Damage

Hypotension
(SBP <90)

Lactate >4 mmol

SEPTIC SHOCK

Severe Sepsis
with persistent:

Signs of End
Organ Damage

Hypotension
(SBP <90)

Lactate >4 mmol

4. ROZPOZNÁNÍ SEPSE

SIRS criteria (two or more)	qSOFA criteria (two or more)
36 > Temperature > 38	Systolic blood pressure < 100 mmHg
Respiratory rate > 22/min	Respiratory rate > 20/min
Heart rate > 90 bpm	Glasgow Coma Scale ≤ 14
4000 > White cell count > 12,000	

SIRS: Systemic Inflammatory Response Score; qSOFA: quick Sequential Organ Failure Assessment.

EVERY



.04

MINUTES

(122.4 SECONDS)

SOMEONE
IN THE U.S.

DIES

FROM
SEPSIS

(BASED ON 258,000 DEATHS ANNUALLY)

AFFECTS UP TO 1.6 MILLION
PEOPLE IN THE U.S. YEARLY



28-50% MORTALITY RATE

EVERY HOUR
SEPSIS GOES
UNDIAGNOSED



**INCREASE IN
MORTALITY RATE**

SEPSIS CLINICAL CRITERIA

INFECTION



+

CHANGE IN:
SEPSIS-RELATED
ORGAN
FAILURE
ASSESSMENT ≥ 2



\downarrow PaO_2/FiO_2



\downarrow HYPOTENSION OR VASOPRESSORS



\downarrow PLATELETS



\downarrow GLASGOW COMA SCALE

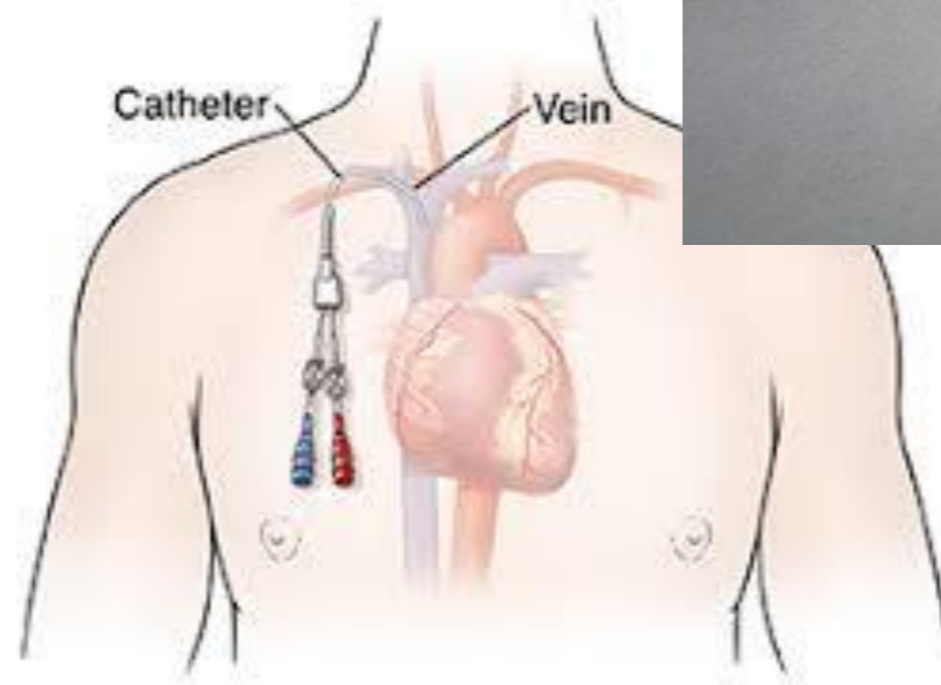
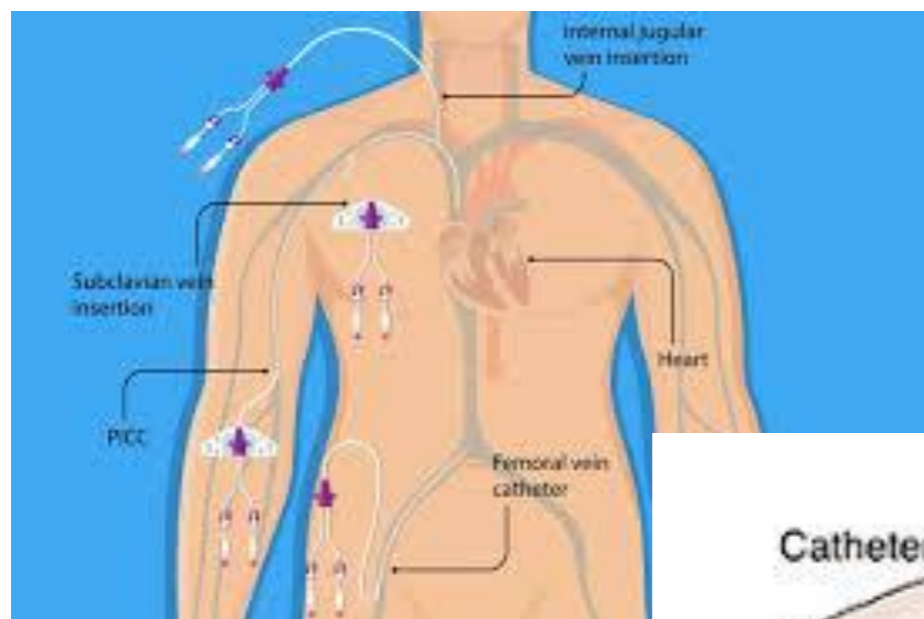


\uparrow BILIRUBIN

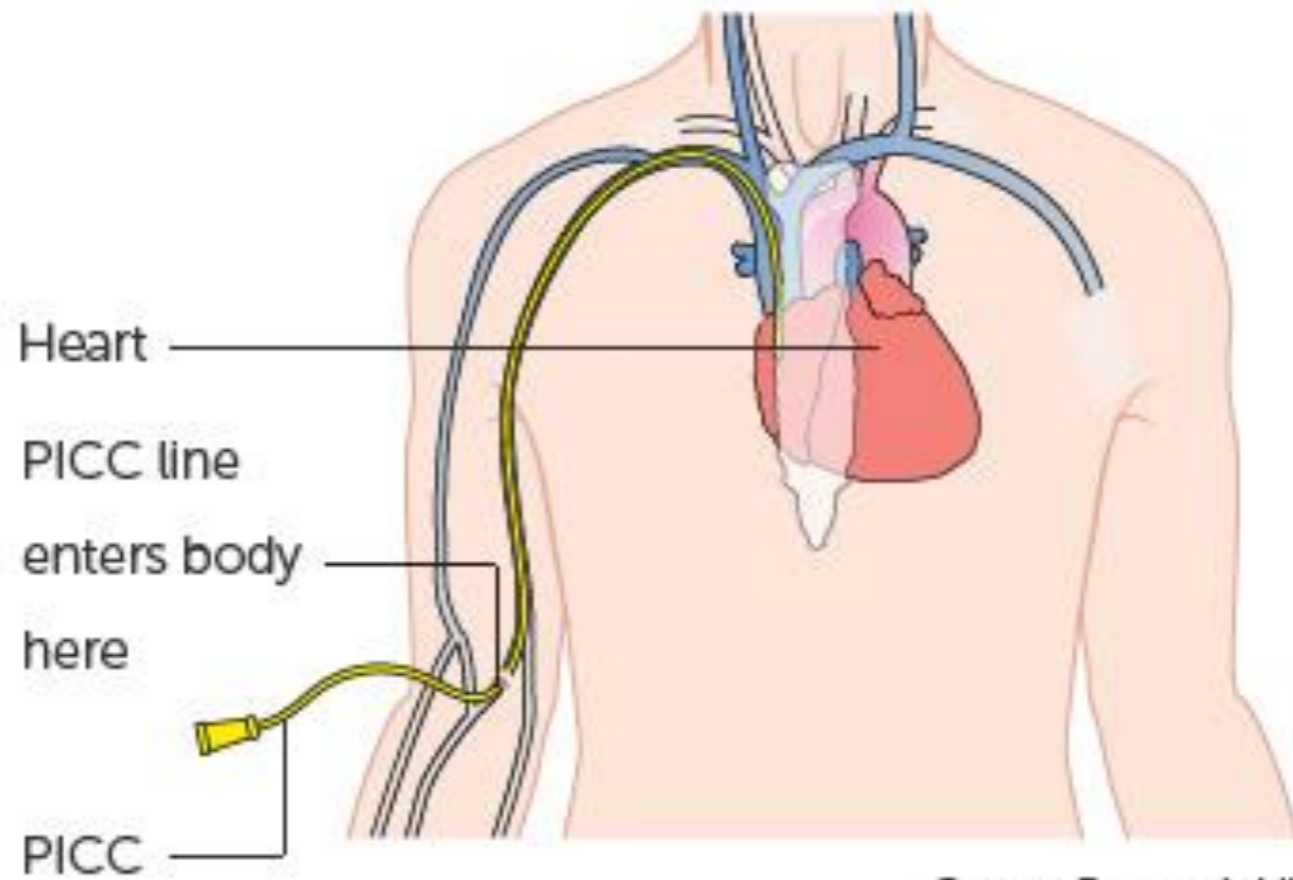


\uparrow CREATININE, OLIGURIA

5. DLOUHODOBÉ CENTRÁLNÍ ŽILNÍ VSTUPY



PICC LINE



Cancer Research UK

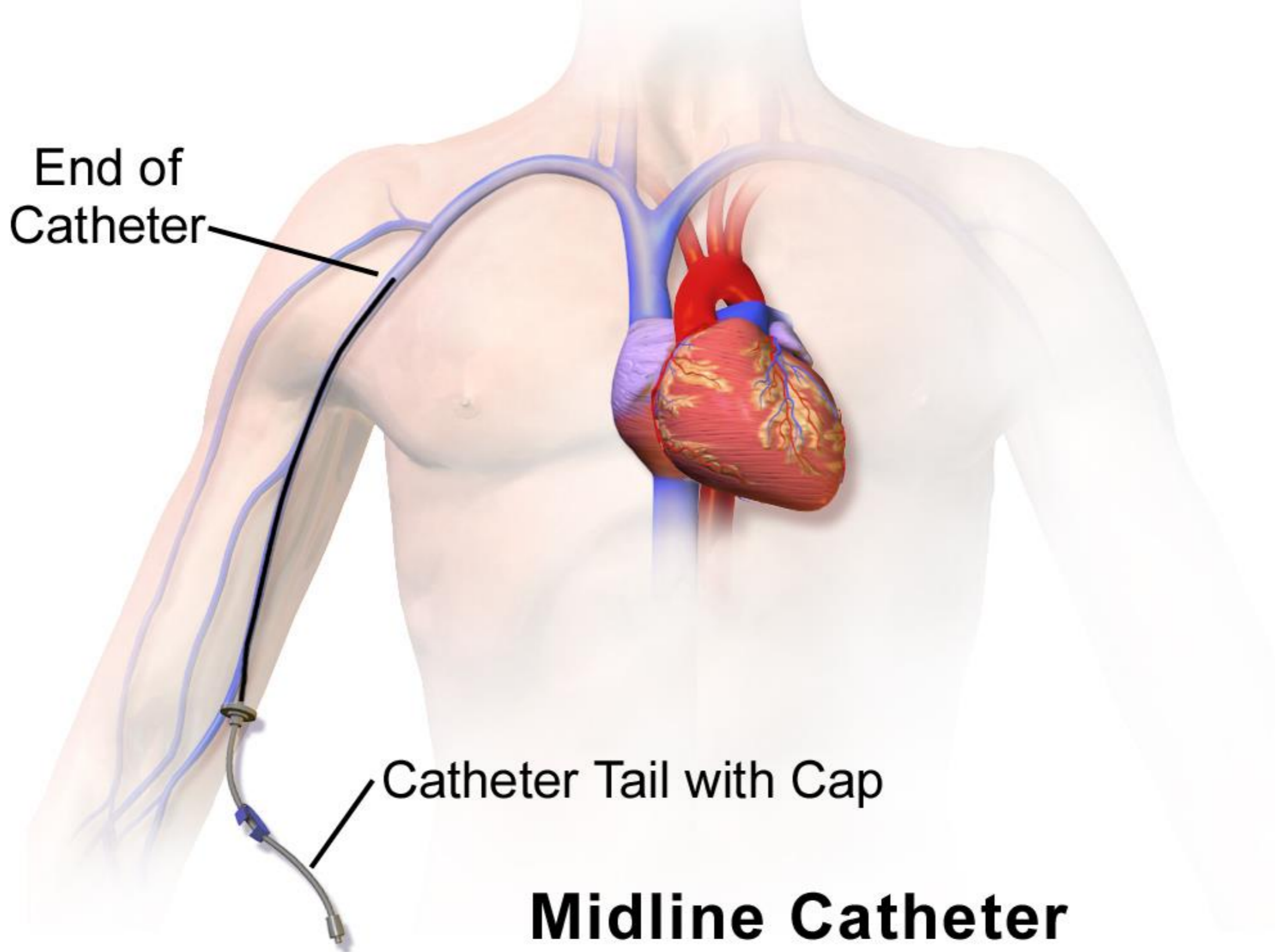


MIDLINE

End of
Catheter

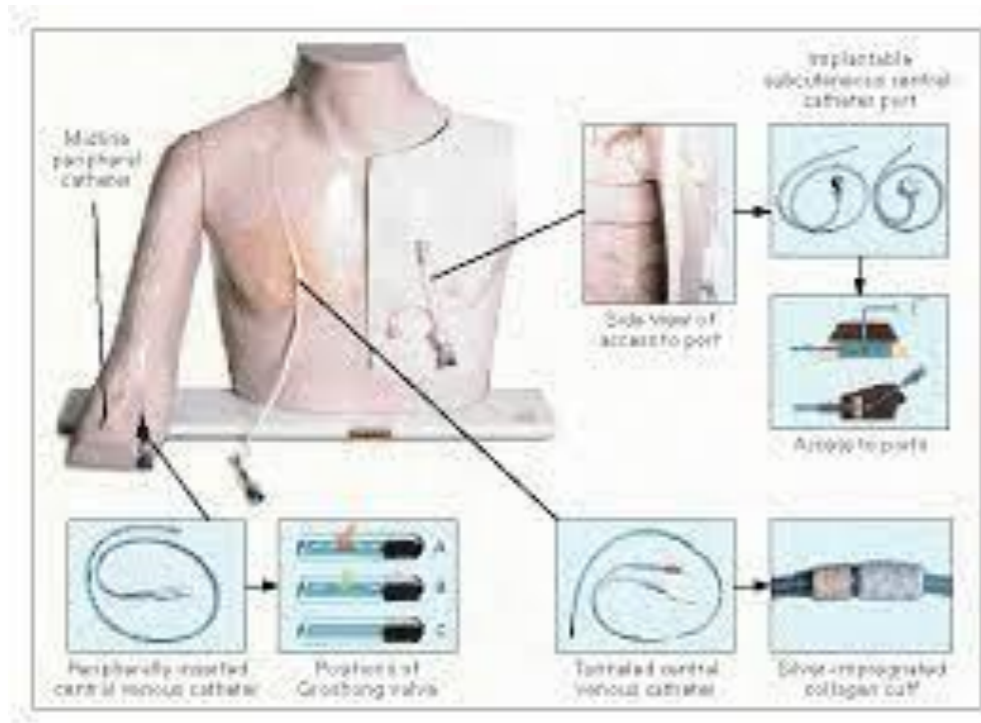
Catheter Tail with Cap

Midline Catheter

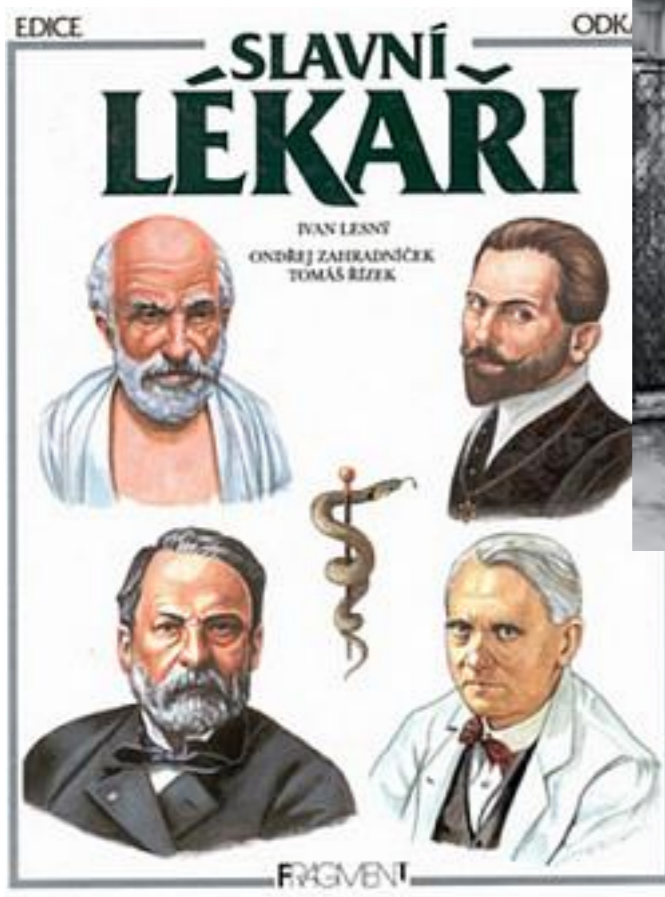


OPAT

- **INFUSNÍ CENTRUM, STACIONÁŘ**



O CO SE SNAŽÍME?



IKE
+E
M

• www.cs-neh.cz

ČESKÁ SPOLEČNOST NEMOCNIČNÍ

SNEH

EPIDEMIOLOGIE A HYGIENY