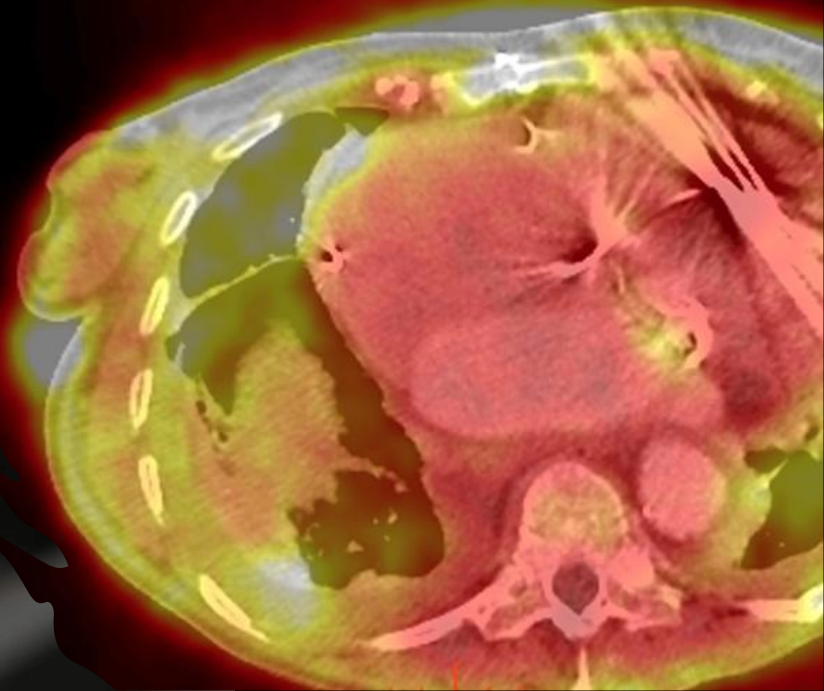
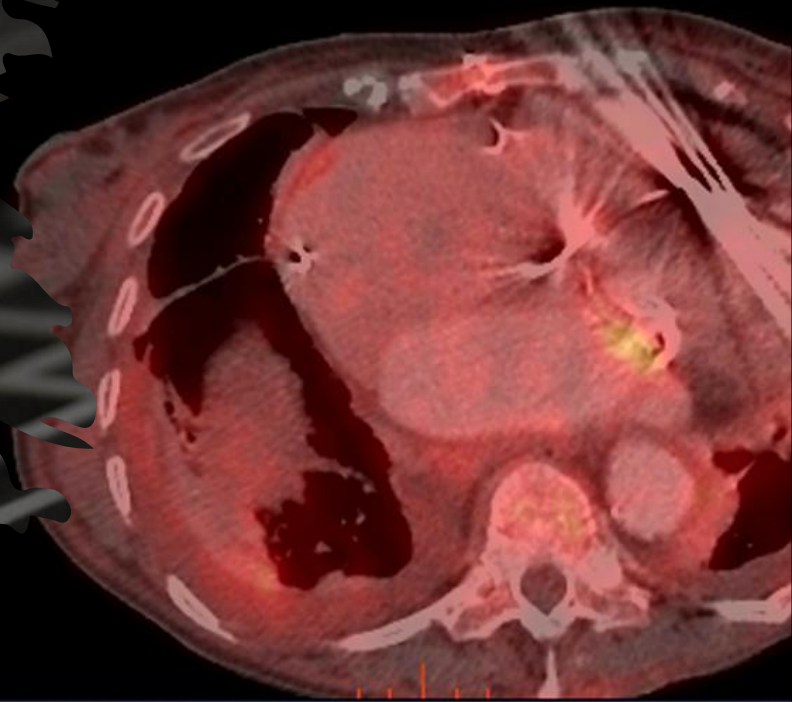


Endokarditida

Scintigrafická vyšetření

Havel M., Zogala D.



„Složité situace“

dostupnost

provedení

interpretace



Dostupnost

Provedení

výběr metody
a načasování

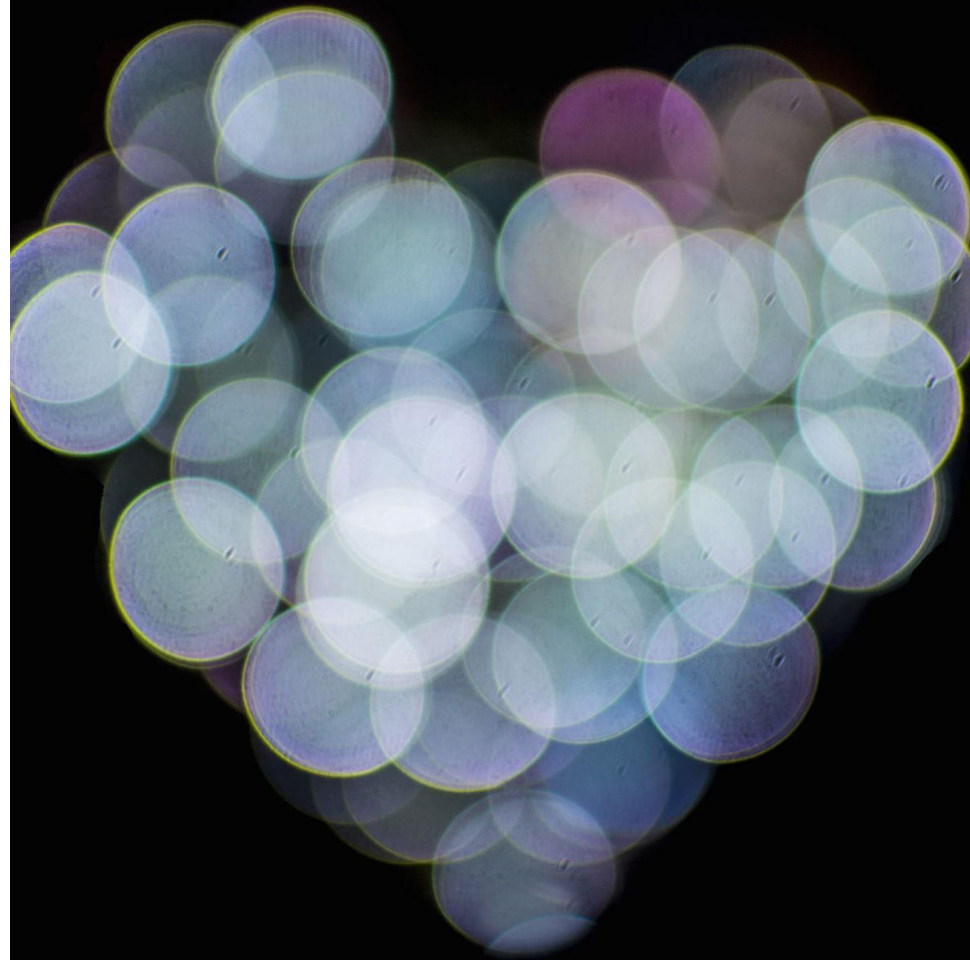
příprava
a spolupráce
pacienta

protokol vyšetření



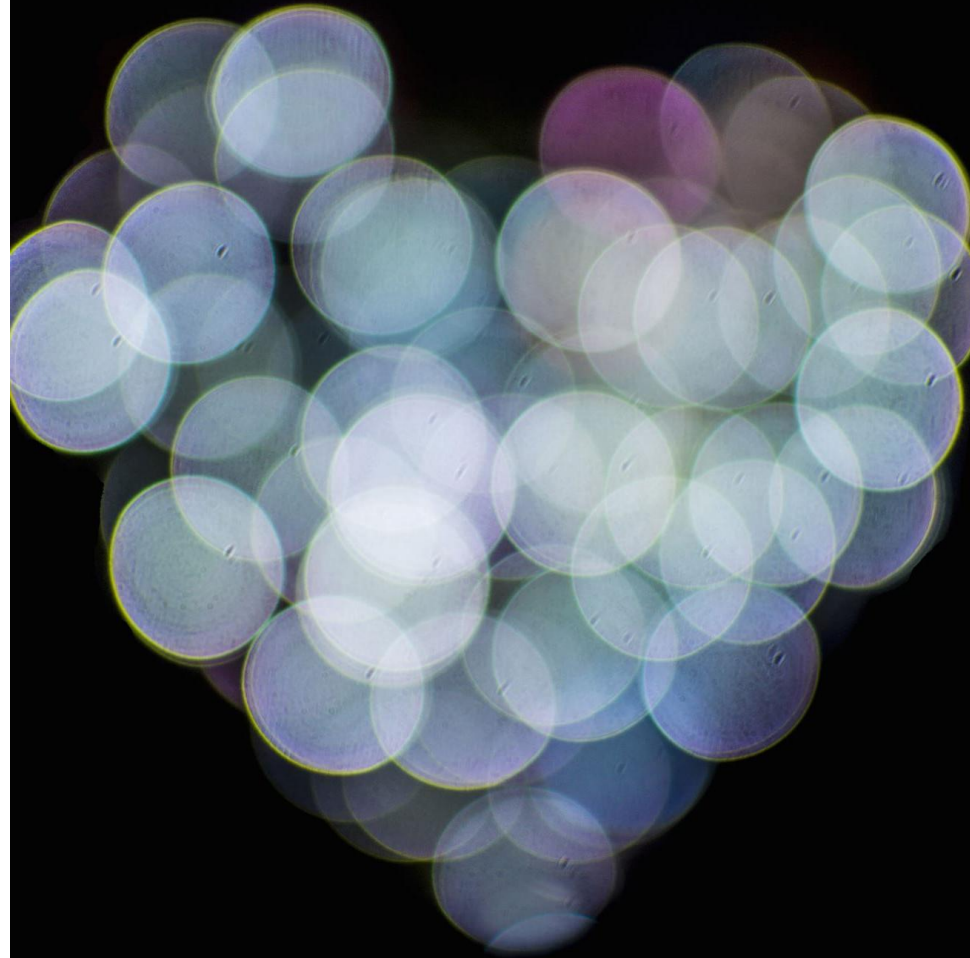
Nukleární medicína

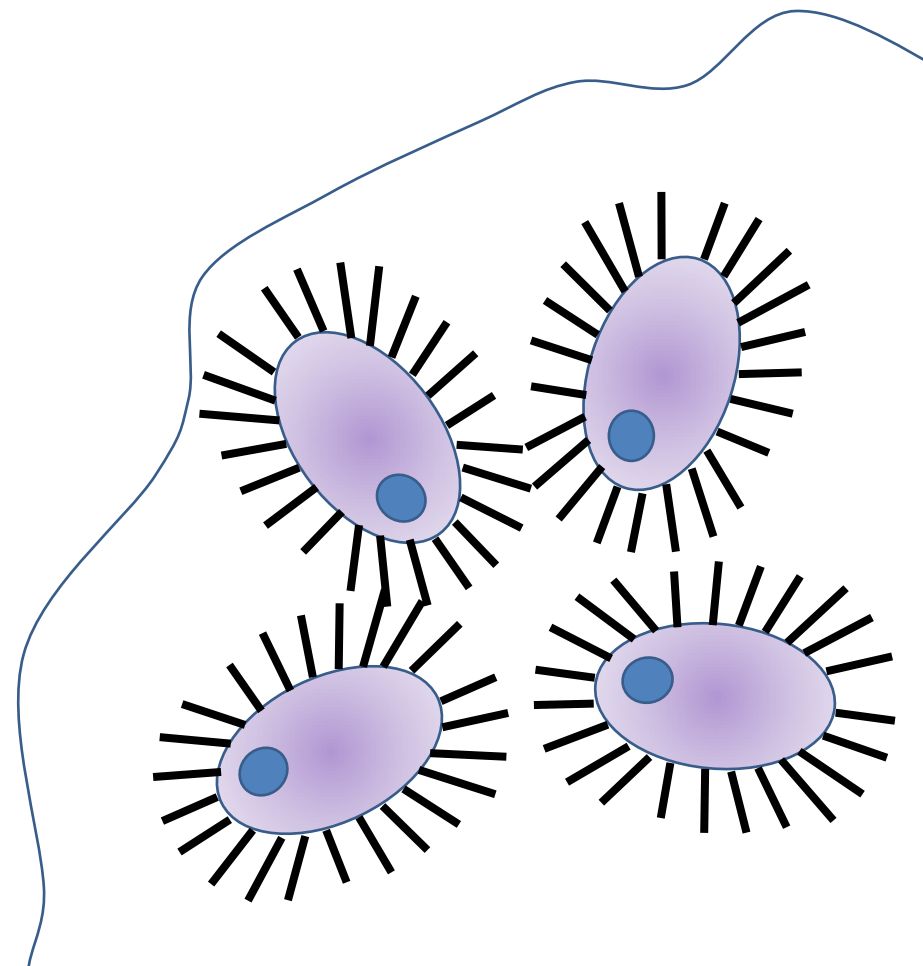
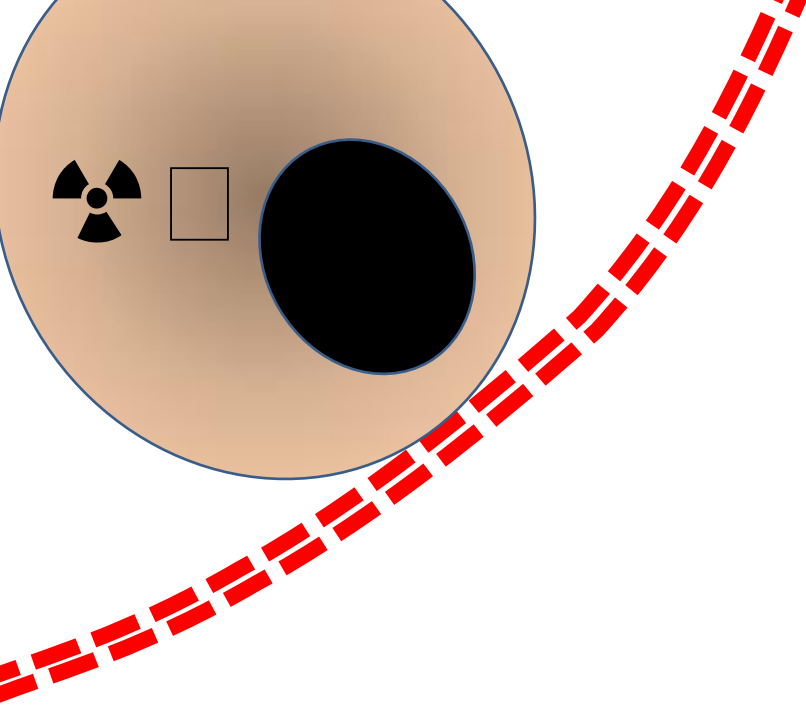
~~včetně,
akutis,
ilic,...~~

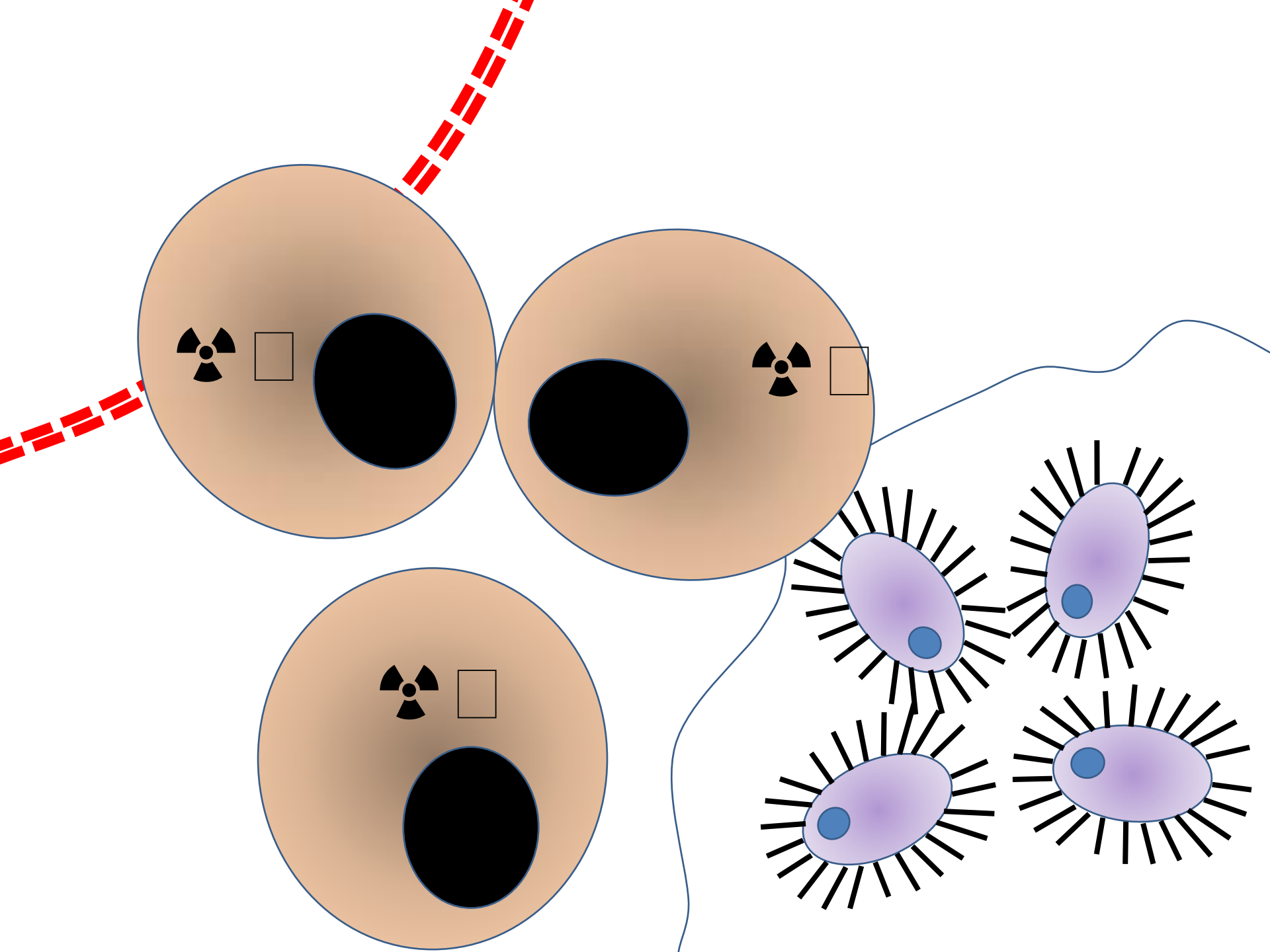


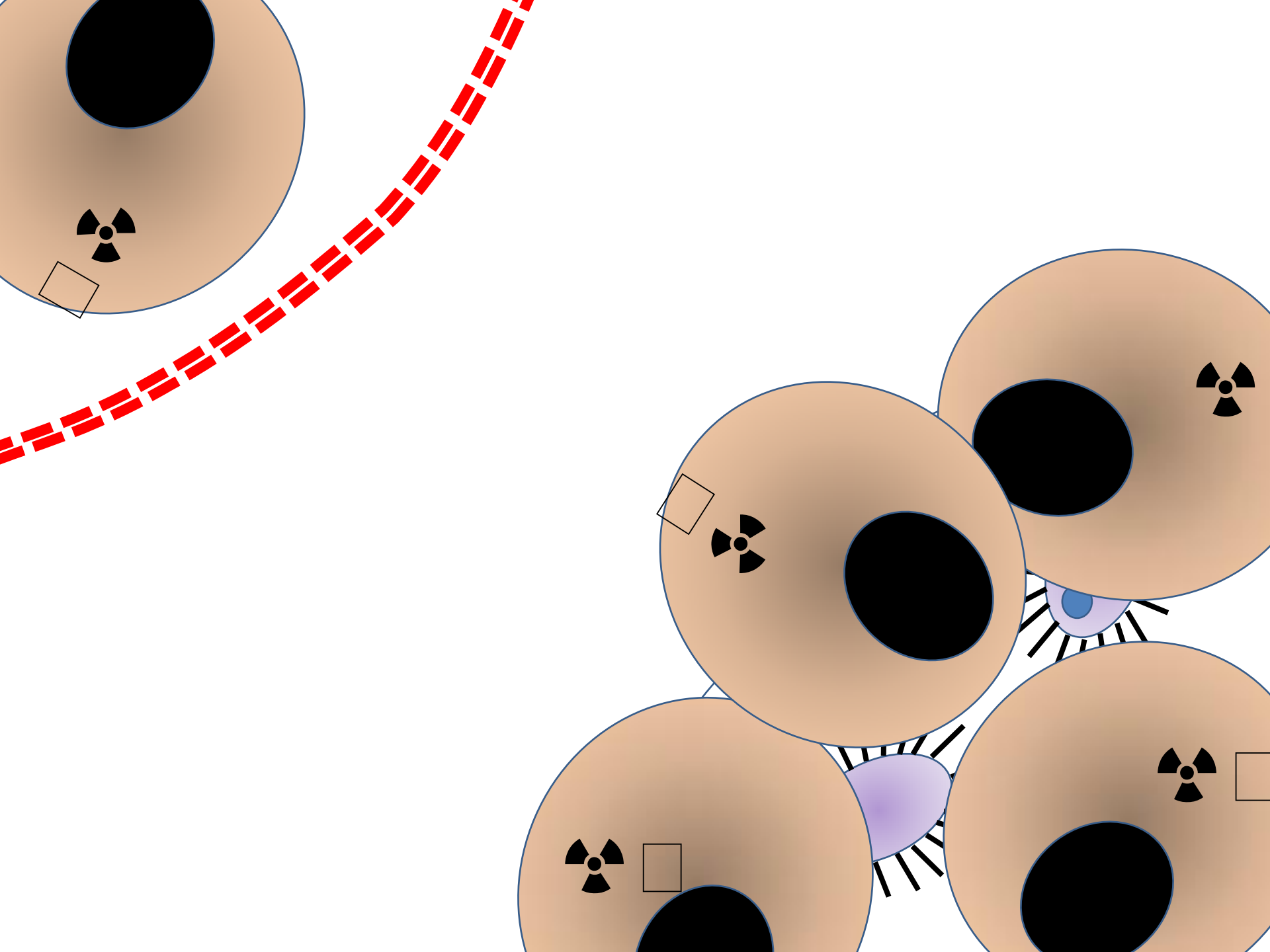
Nukleární medicína

Zobrazení **aktivního**
zánětu









Detekce endokarditidy

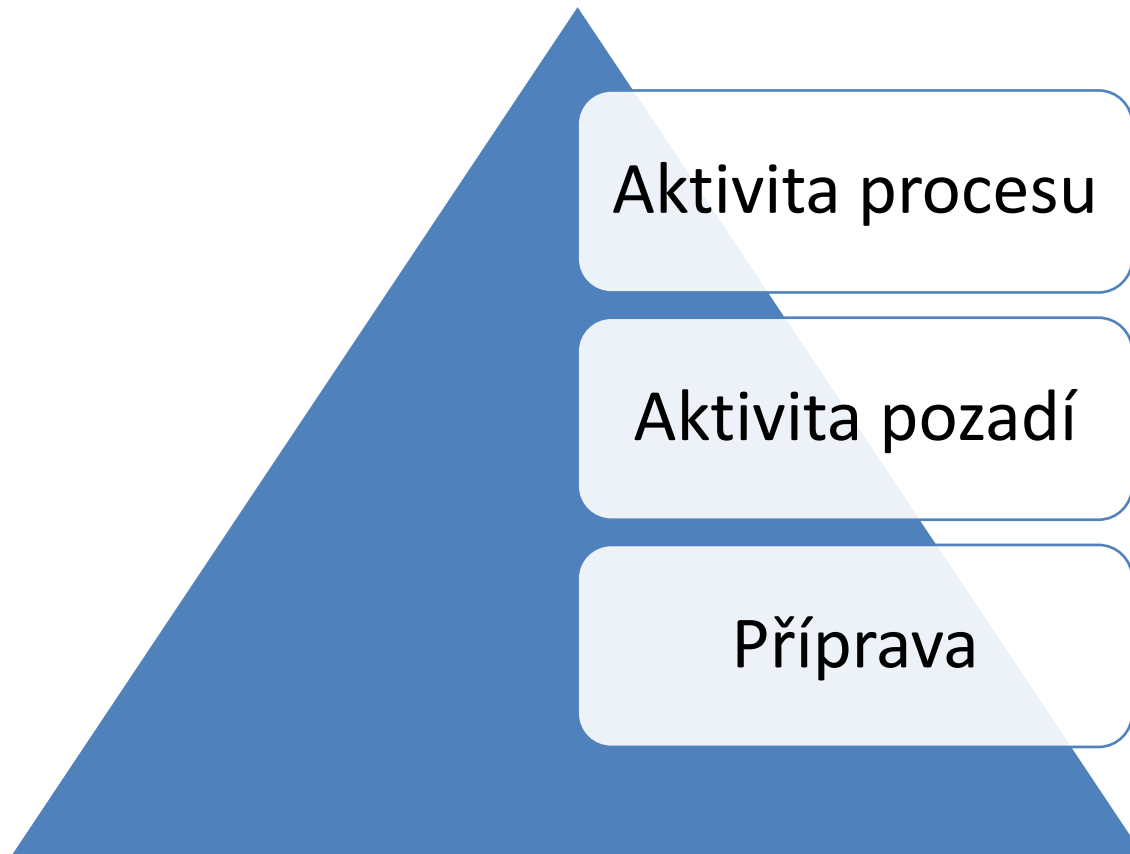
PET/CT

- leukocyty značené in vivo
- ^{18}F -FDG

značené leukocyty (SPECT)

- autologní leukocyty značené in vitro
- $^{99\text{m}}\text{Tc}$ -HMPAO

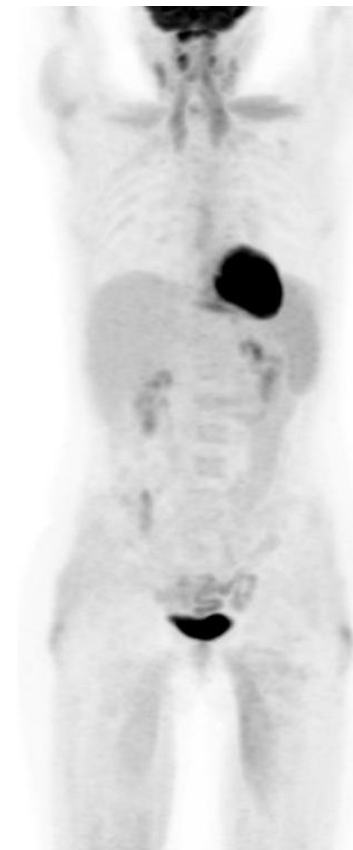
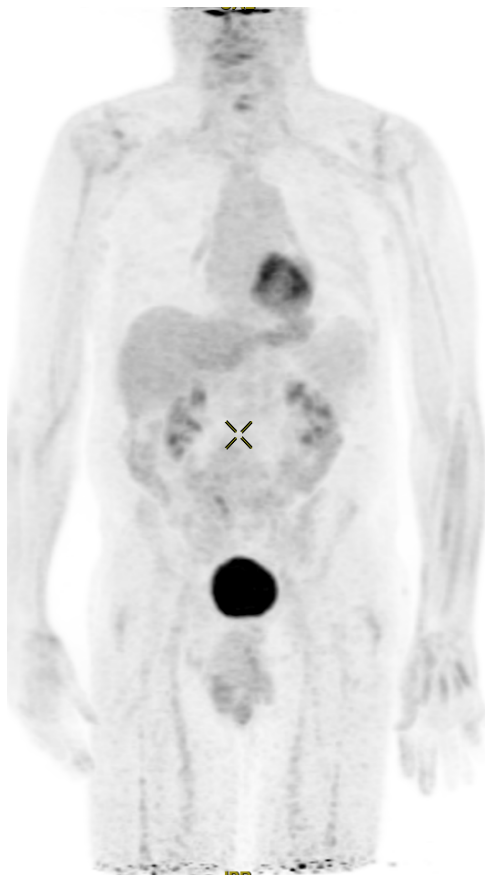
Funkční vyšetření



^{18}F -FDG PET



MK



glykolýza

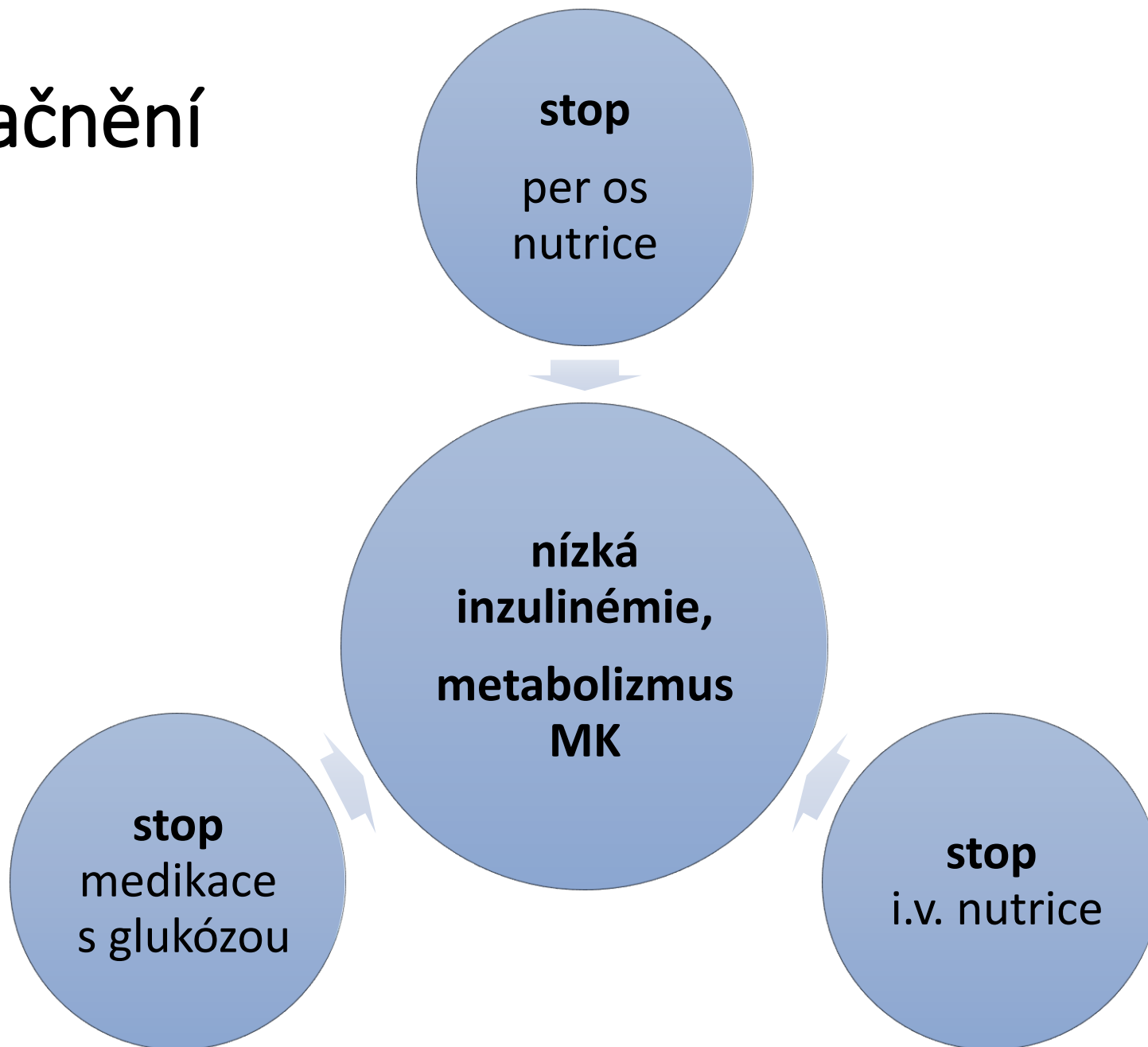


^{18}F -FDG PET – příprava



- strava bohatá na tuky 48 – 12h před vyšetřením
= HFLC / VLCHF dieta
- prodloužená doba lačnění na >12 (18) hodin
- omezení fyzické aktivity
- vysazení kortikosteroidů
- nepodávat inzulin

Lačnění



^{18}F -FDG PET

- akvizice:
 - za 60 minut
- rozsah:
 - baze lební až horní třetina stehen
- prodloužení akvizice oblasti hrudníku
- hodnocení AC + **NAC**

$^{99\text{m}}\text{Tc}$ -HMPAO SPECT

- akvizice:
 - za 6 hodin
 - za 24 hodin
- rozsah:
 - celotělová scintigrafie + SPECT/CT

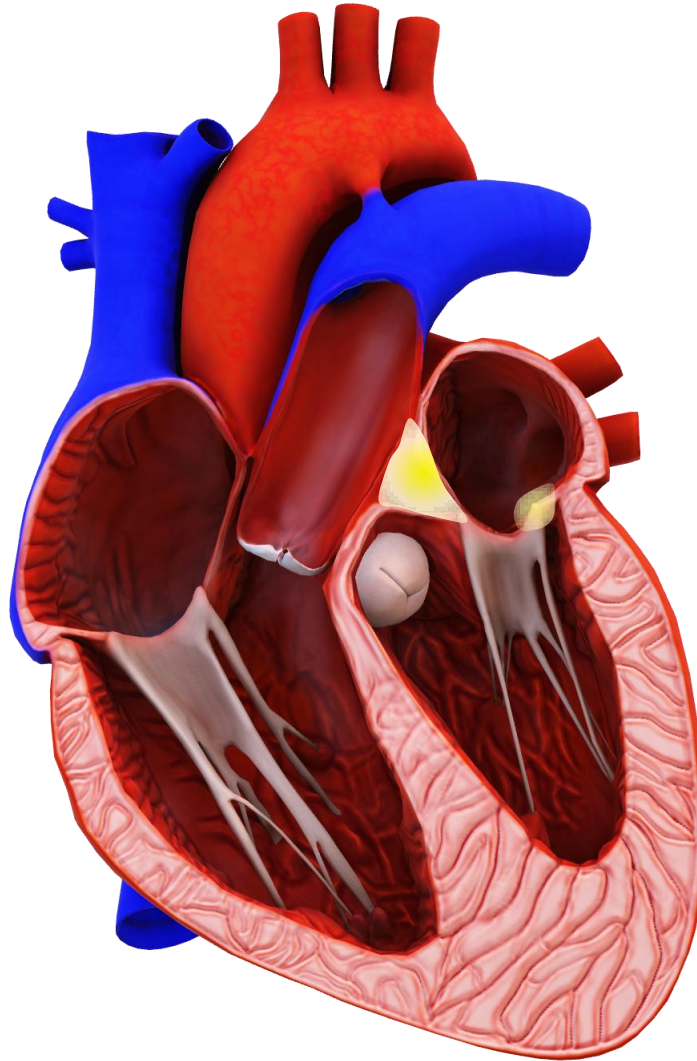


Interpretace

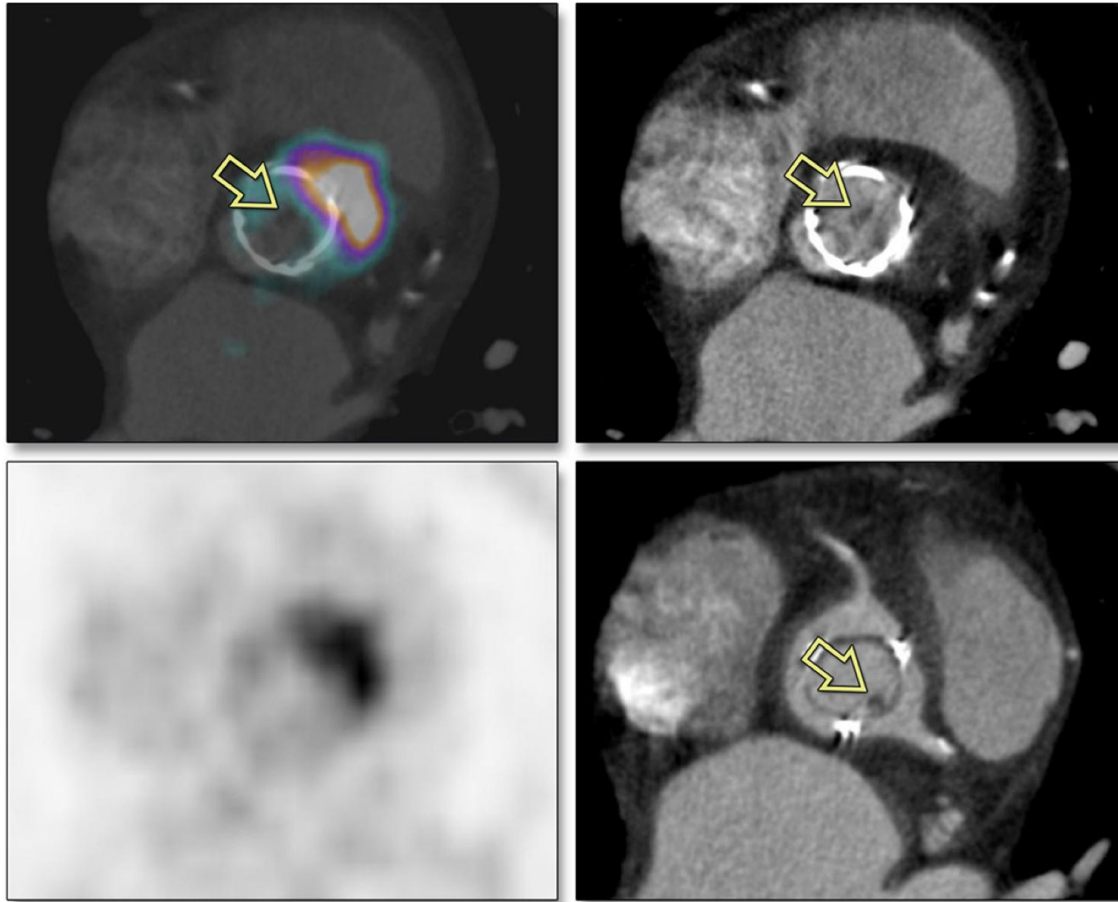
¹⁸F-FDG PET – Endokarditida

	Sensitivita	Specificita
Umělá chlopeň	73 – 93 %	80 – 95 %
Nativní chlopeň	22 – 68 %	97 – 100 %
Elektrody	24 – 100 %	79 – 100 %
Generátor	83 %	89 %
Extrakard. postižení	17 %	80 %
LVAD	92 %	83 %

PVE / NVE



PET/CT + CTAG

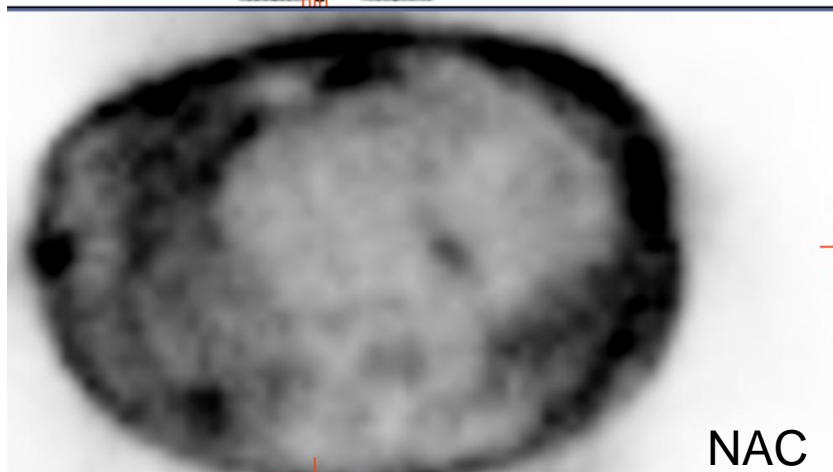
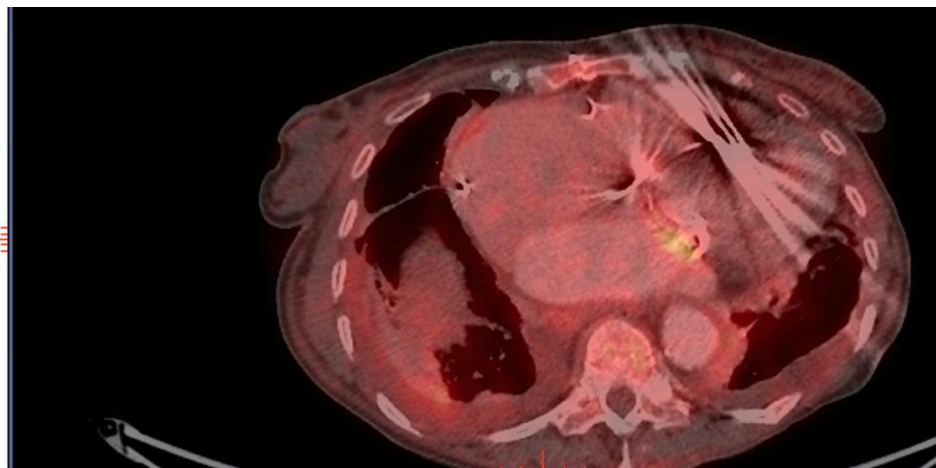
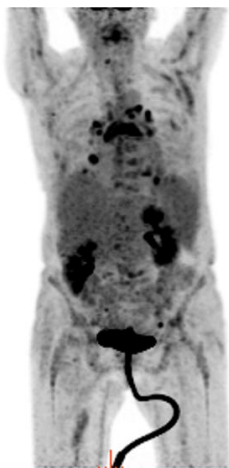


^{99m}Tc -HMPAO-Leu SPECT Endokarditida

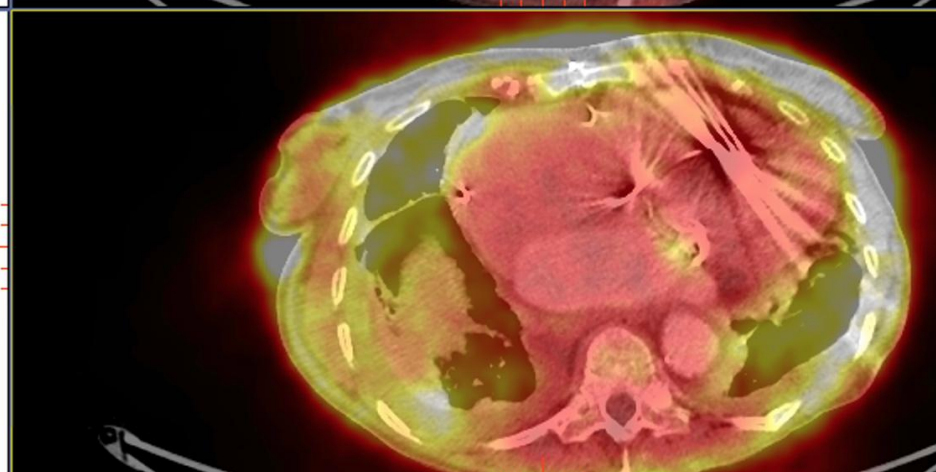
- sensitivita 80 – 86 %
- **specificita** 97 – 100 %
u IE | CIED
- limitace:
 - Candida spp.,
Enterococcus spp.



^{18}F -FDG

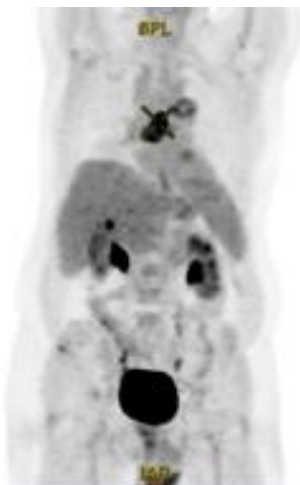


NAC

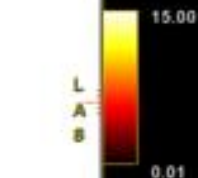


Ž 77 let, bio náhrada Mi chlopně

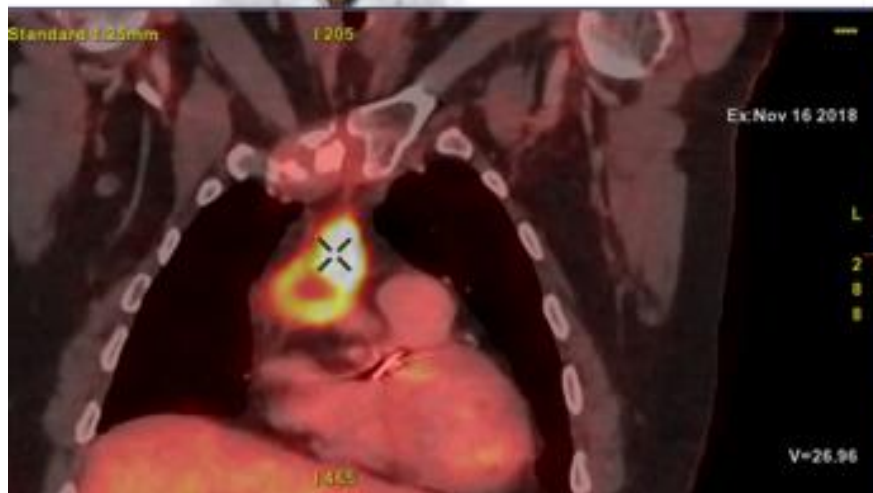
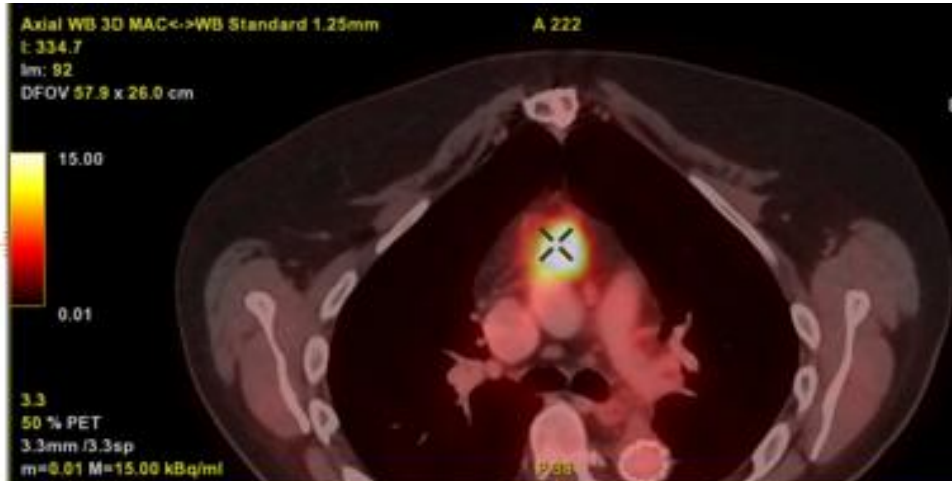
^{18}F -FDG



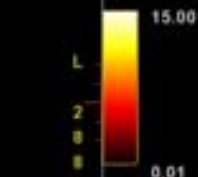
Ex: Nov 16 2018



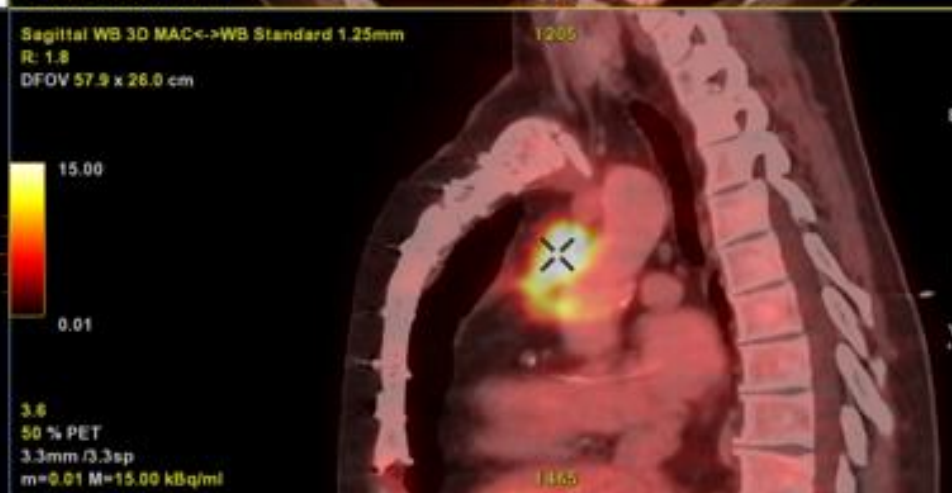
V=28.88



Ex: Nov 16 2018

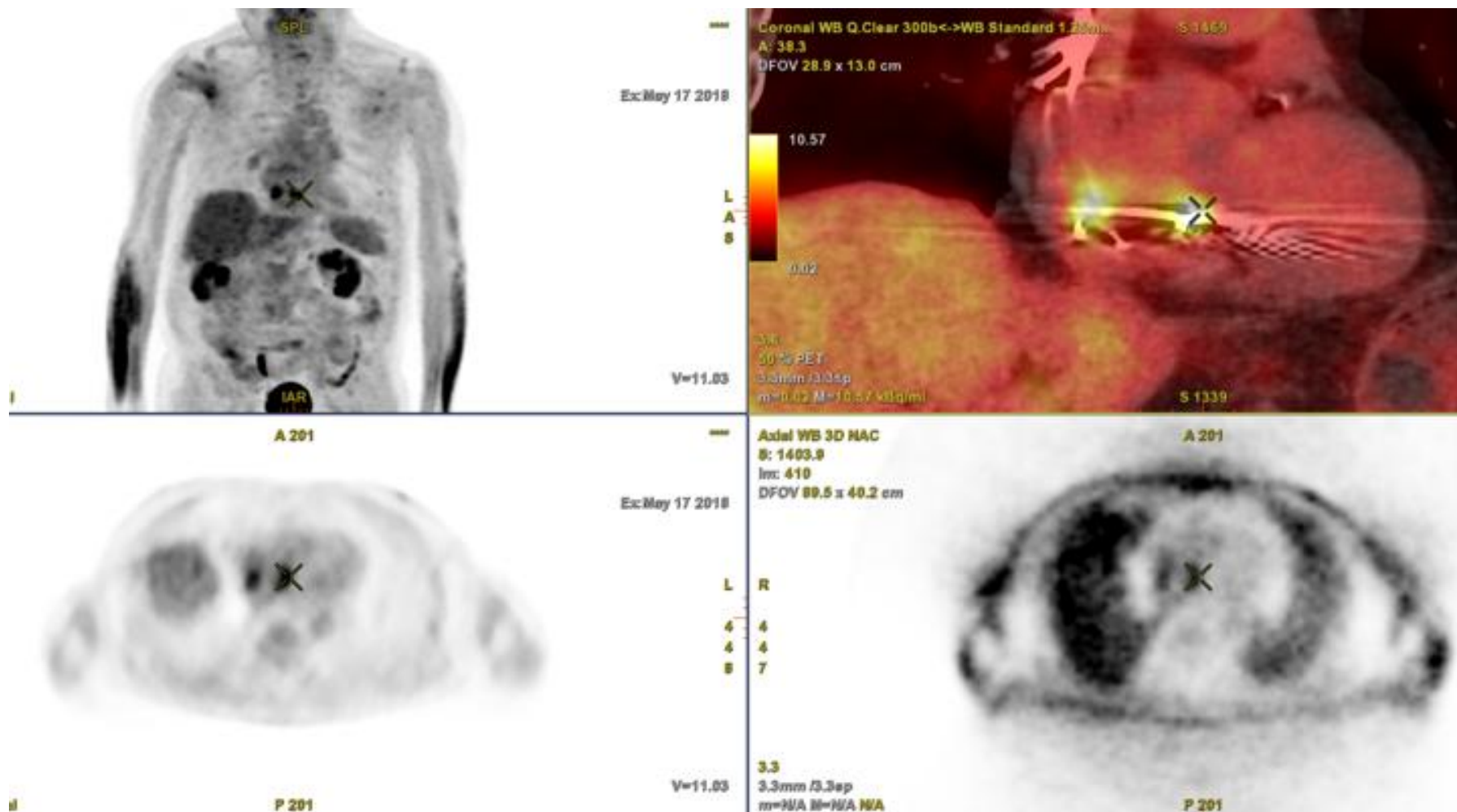


V=26.96

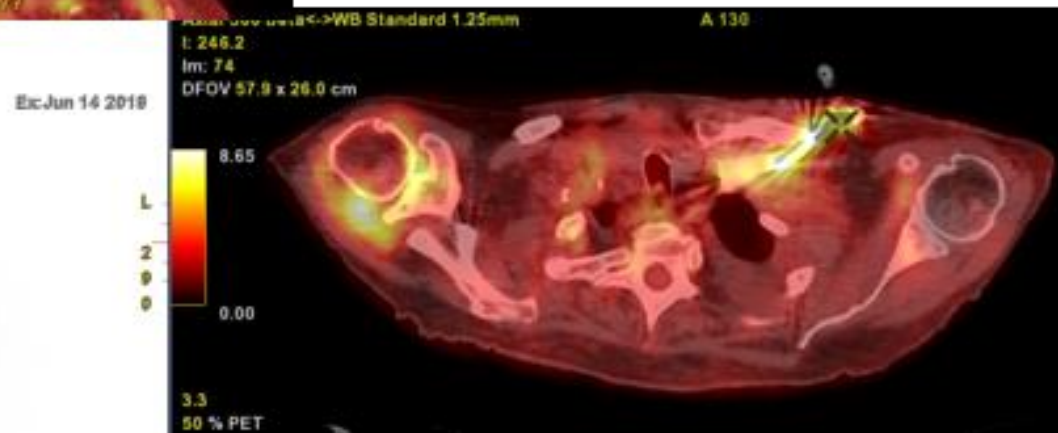
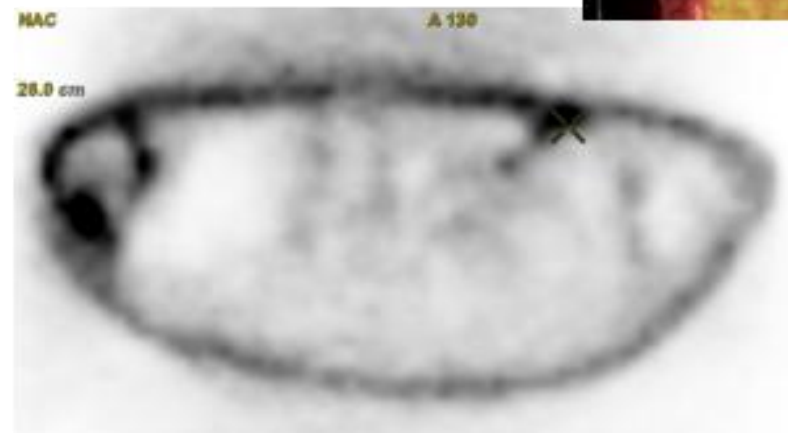
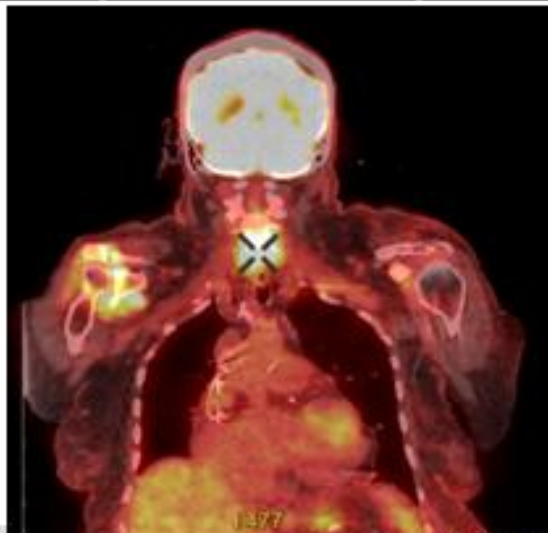
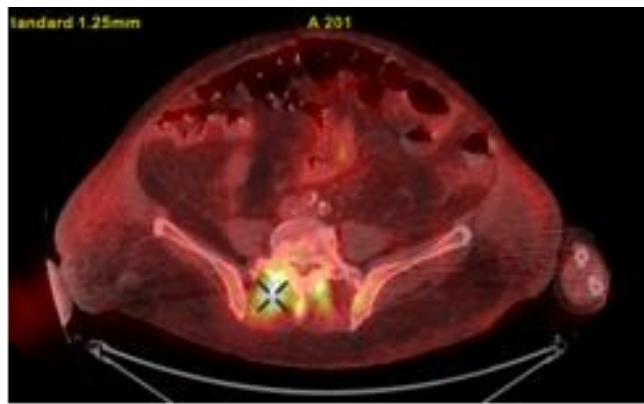
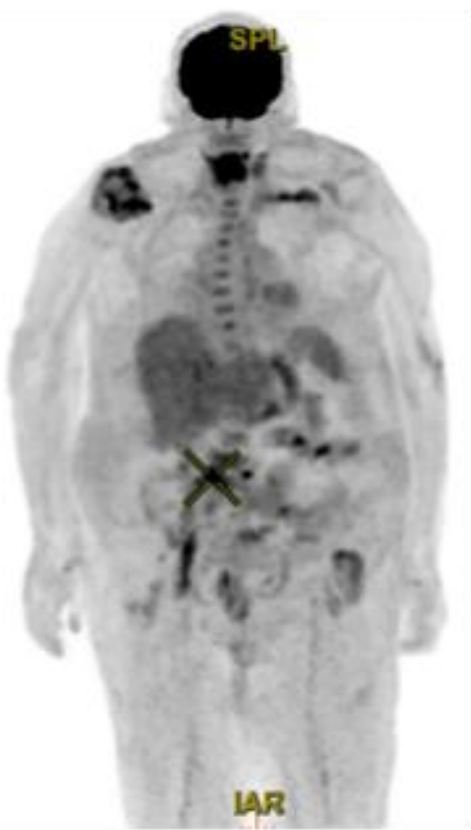


M 1975, st.p. Bentalově op., reoperacích, zánět NS

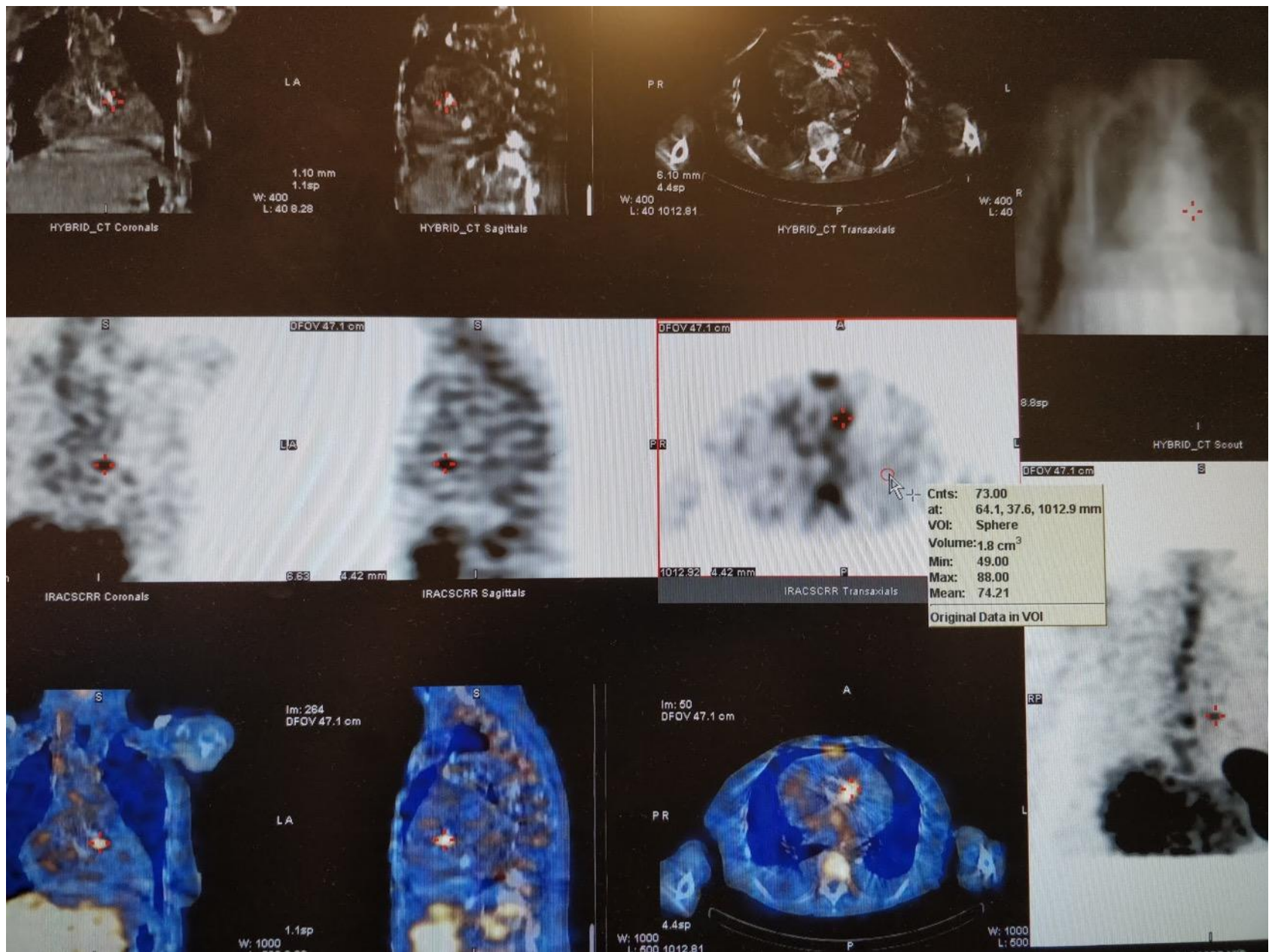
^{18}F -FDG



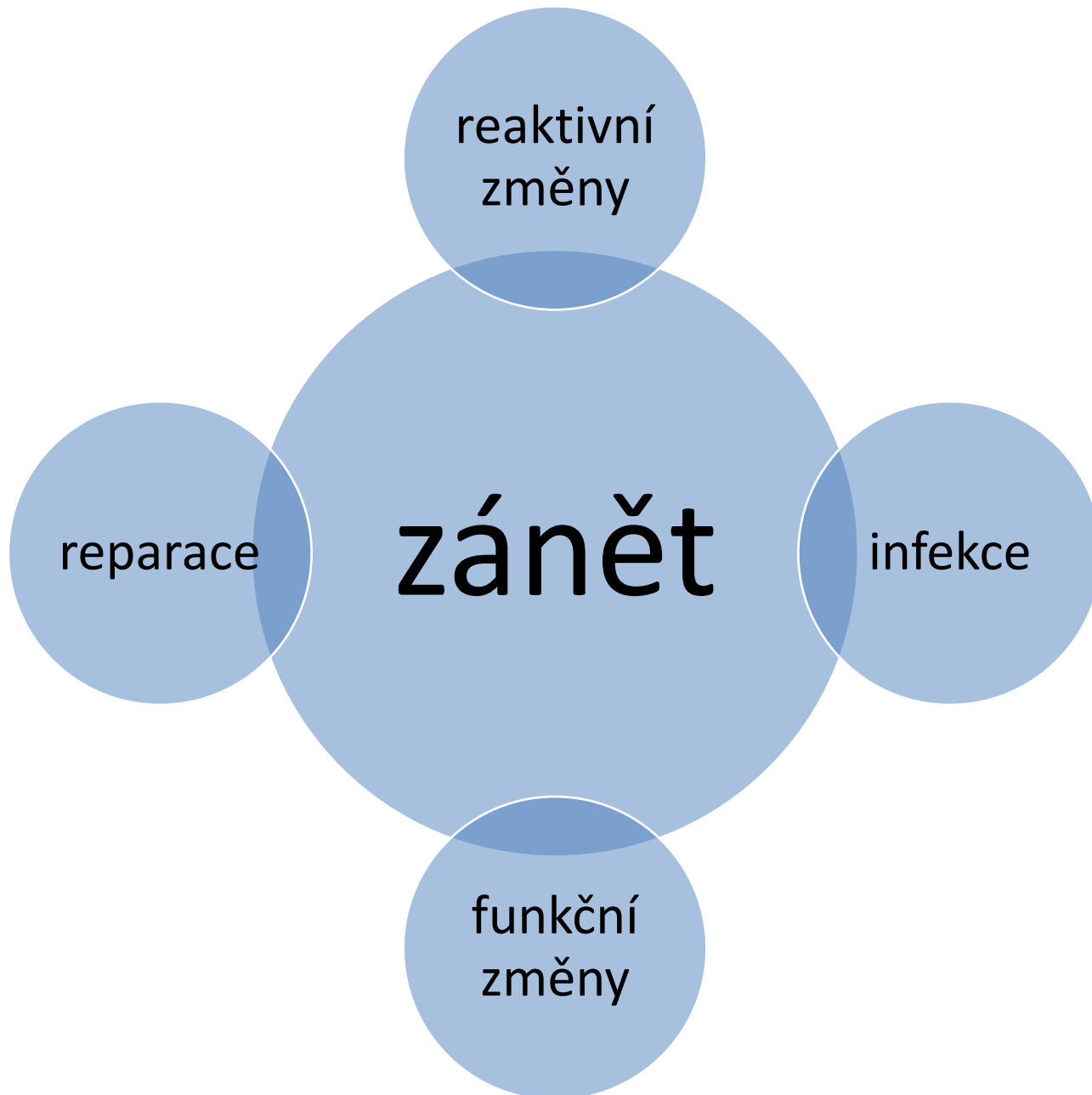
M 1940, anémie NS



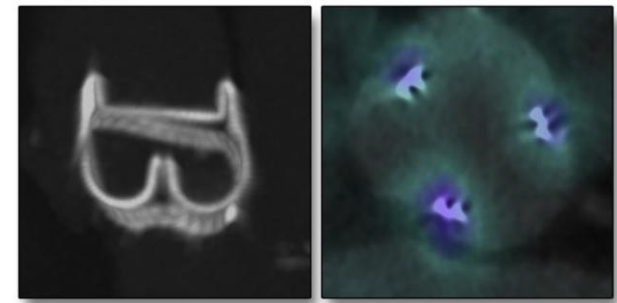
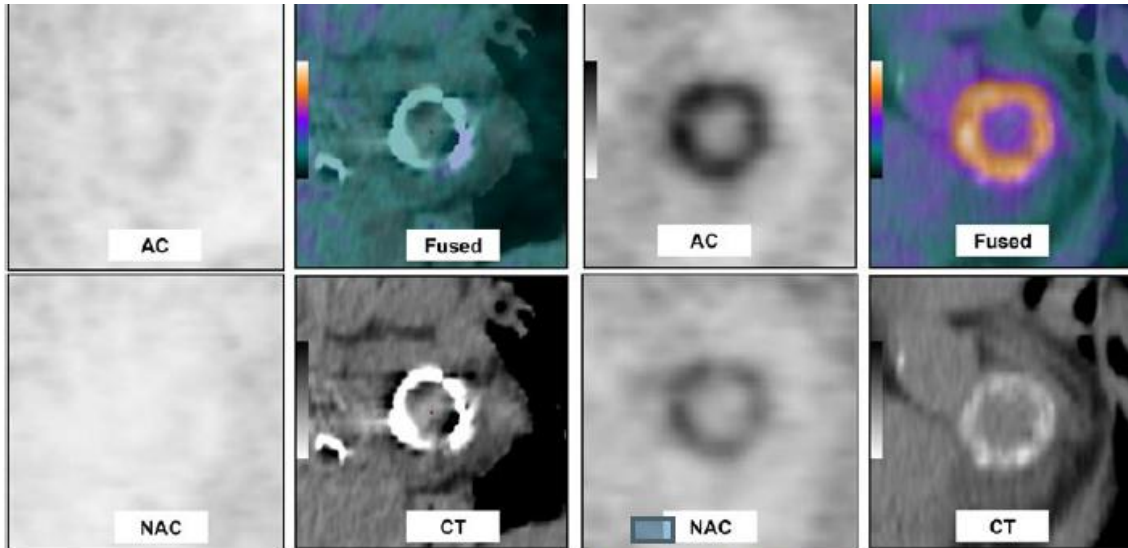
Ž 1931, febrilie NS, KS 2010



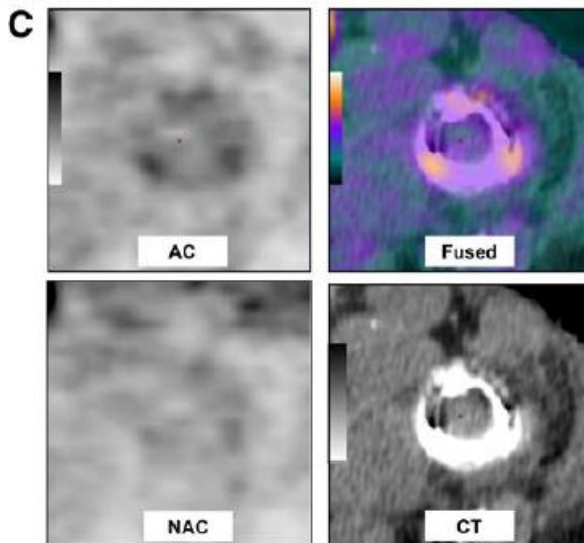
99mTc- HMPAO Leu - UNM VFN Praha



Fyziologický uptake



JACC. 2016; VOL. 9(12)

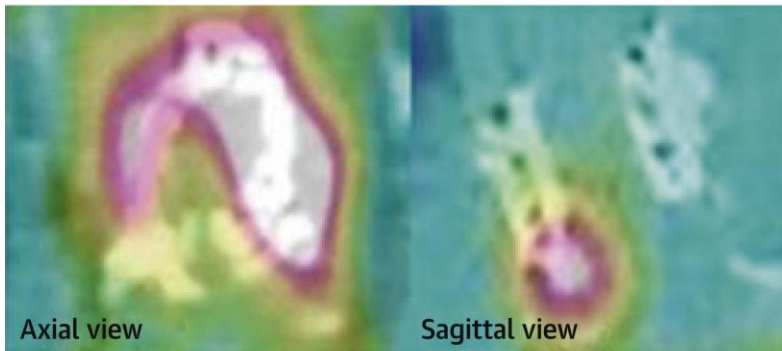


„Noninfected PHVs frequently display homogeneous FDG uptake in the perivalvular area on PET/CT. This pattern **is present years after valve implantation** and should not be considered, per se, as a marker of prosthetic material infection.“

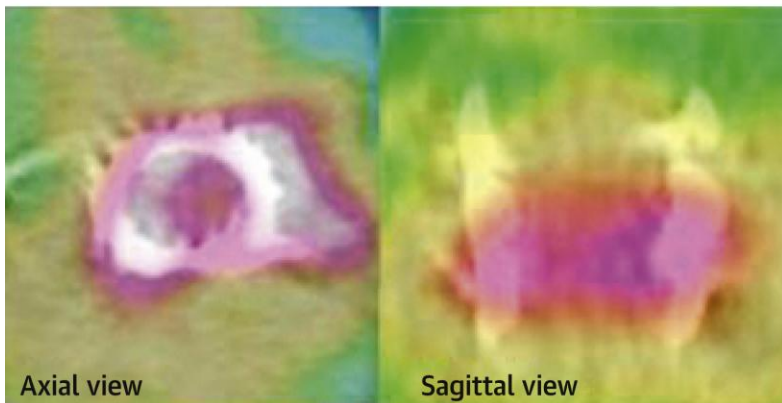
TAVI

FDG UPTAKE IN CONTROL GROUP

Hemi-circumferential uptake (from 25% to 75%)

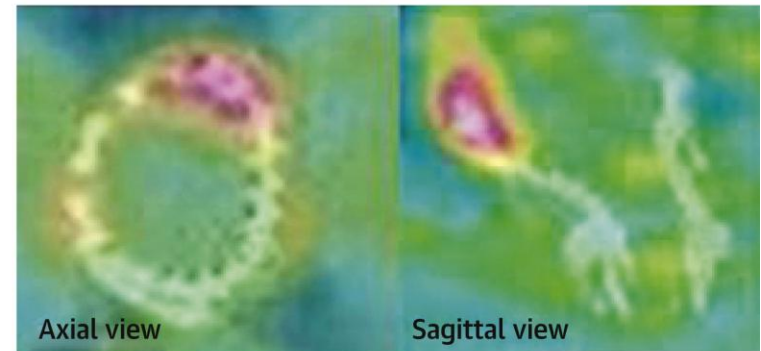


Circumferential uptake (>75%)



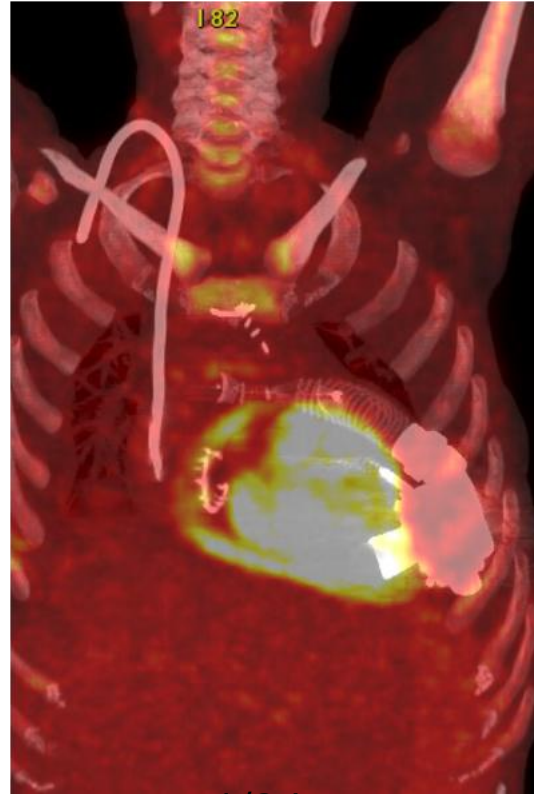
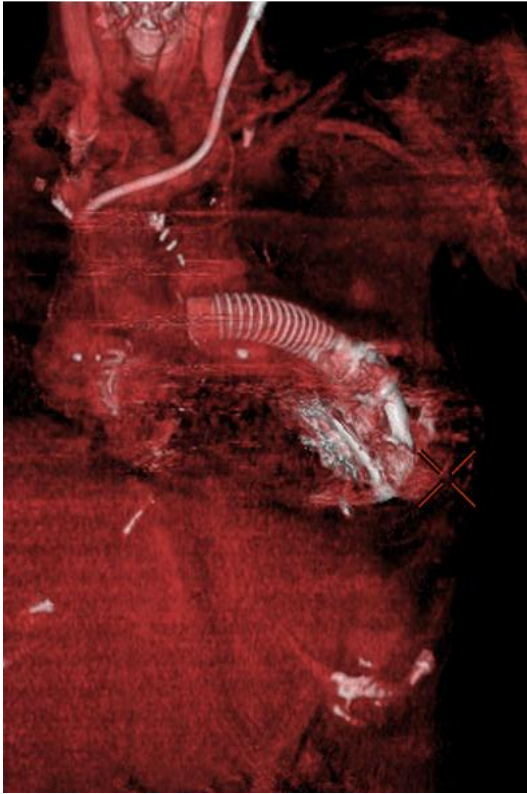
FDG UPTAKE IN DEFINITE IE-TAVI GROUP

Focal uptake (<25%)



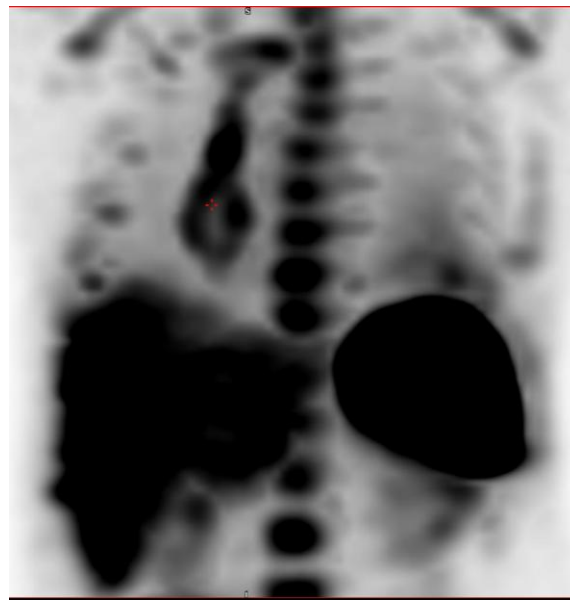
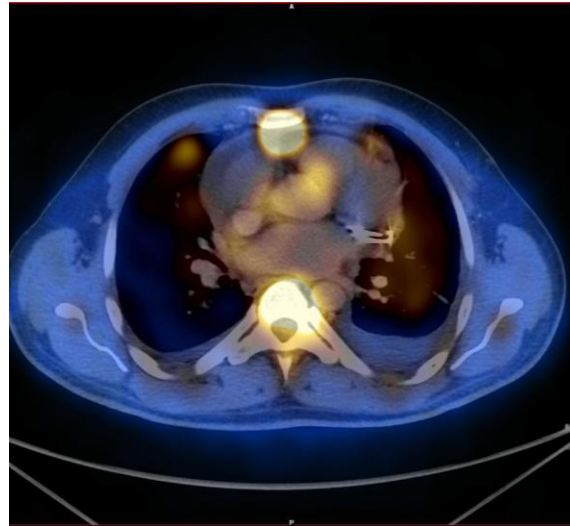
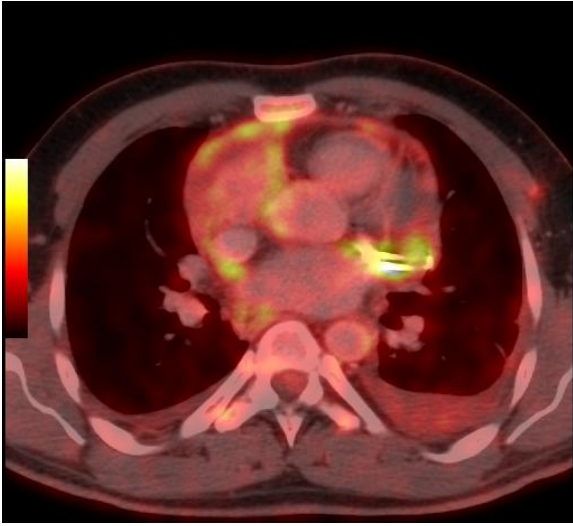
Multifocal uptake





LVAD

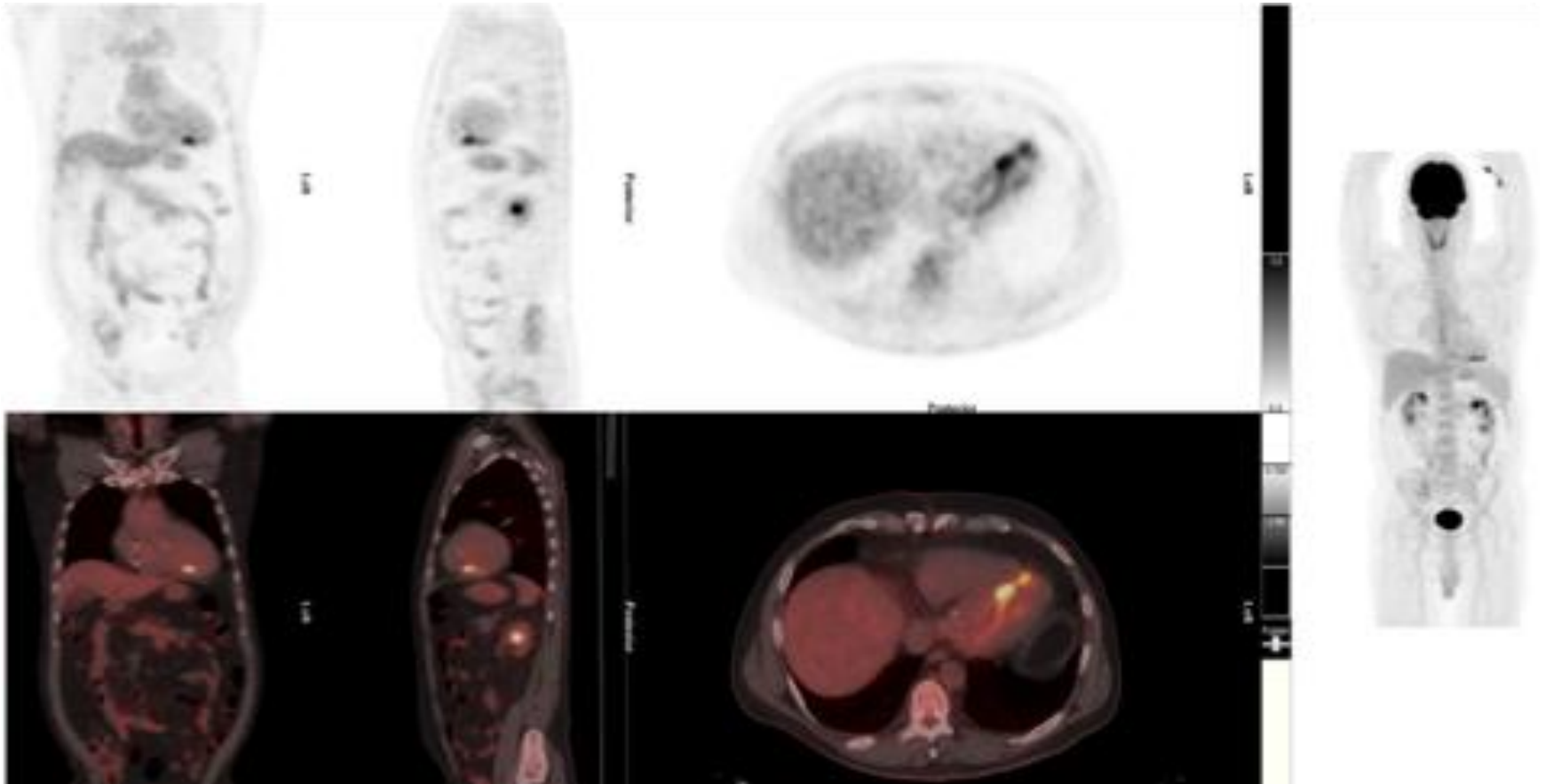




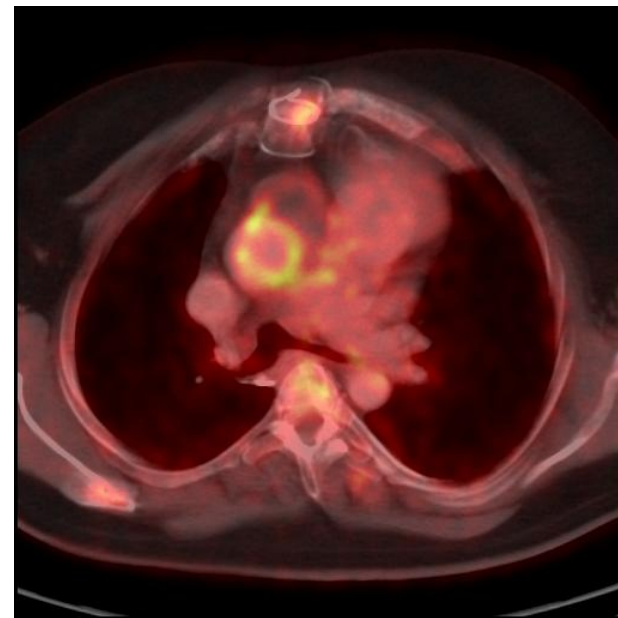
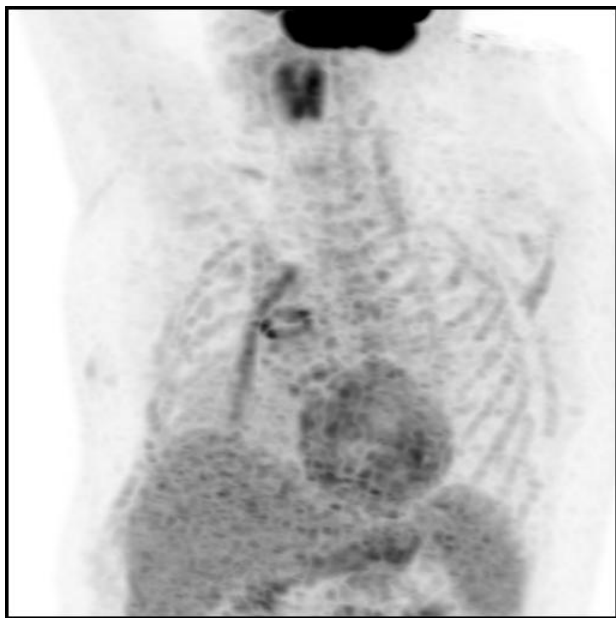
AtriClip



BioGlue



BioGlue



„EC tým“





ESC

European Society
of Cardiology

European Heart Journal (2023) **00**, 1–95
<https://doi.org/10.1093/eurheartj/ehad193>

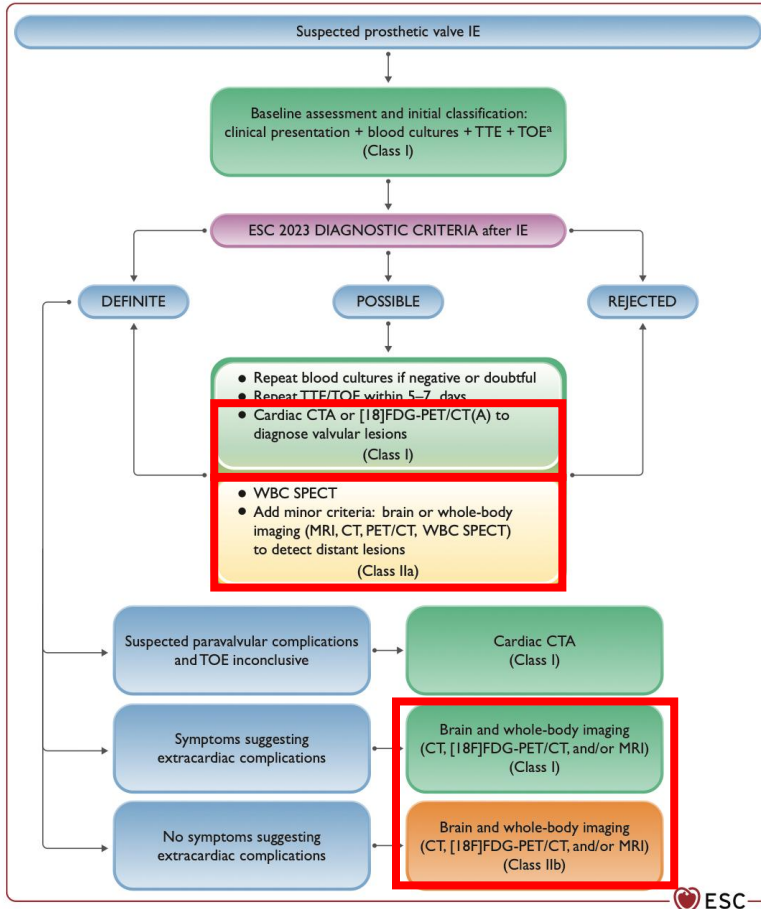
ESC GUIDELINES

2023 ESC Guidelines for the management of endocarditis

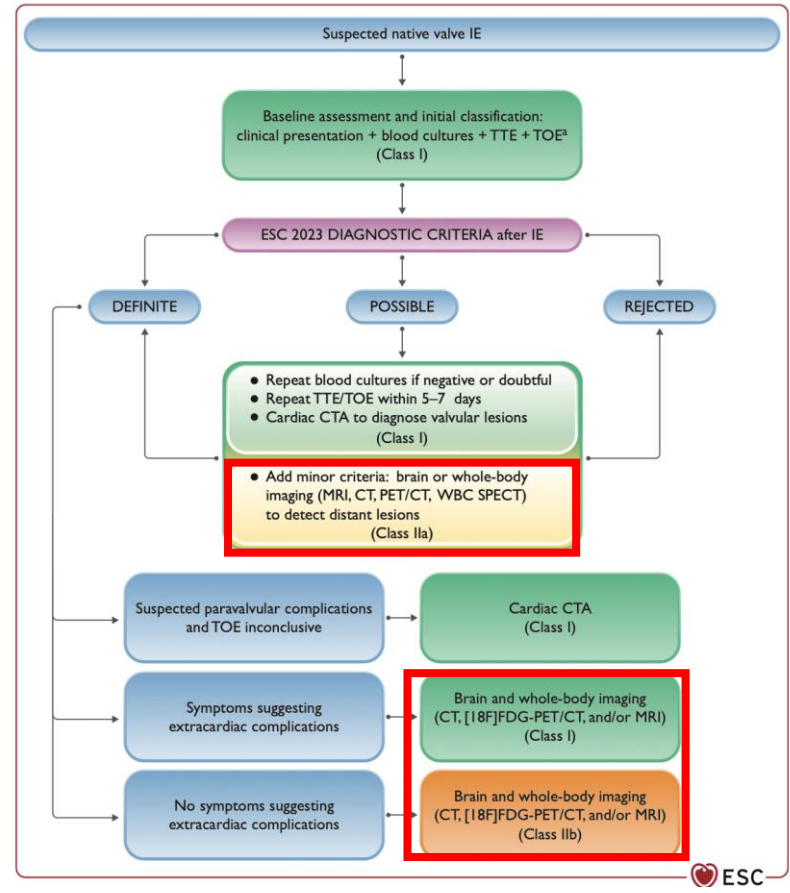
**Developed by the task force on the management of endocarditis
of the European Society of Cardiology (ESC)**

***Endorsed by the European Association for Cardio-Thoracic Surgery
(EACTS) and the European Association of Nuclear Medicine (EANM)***

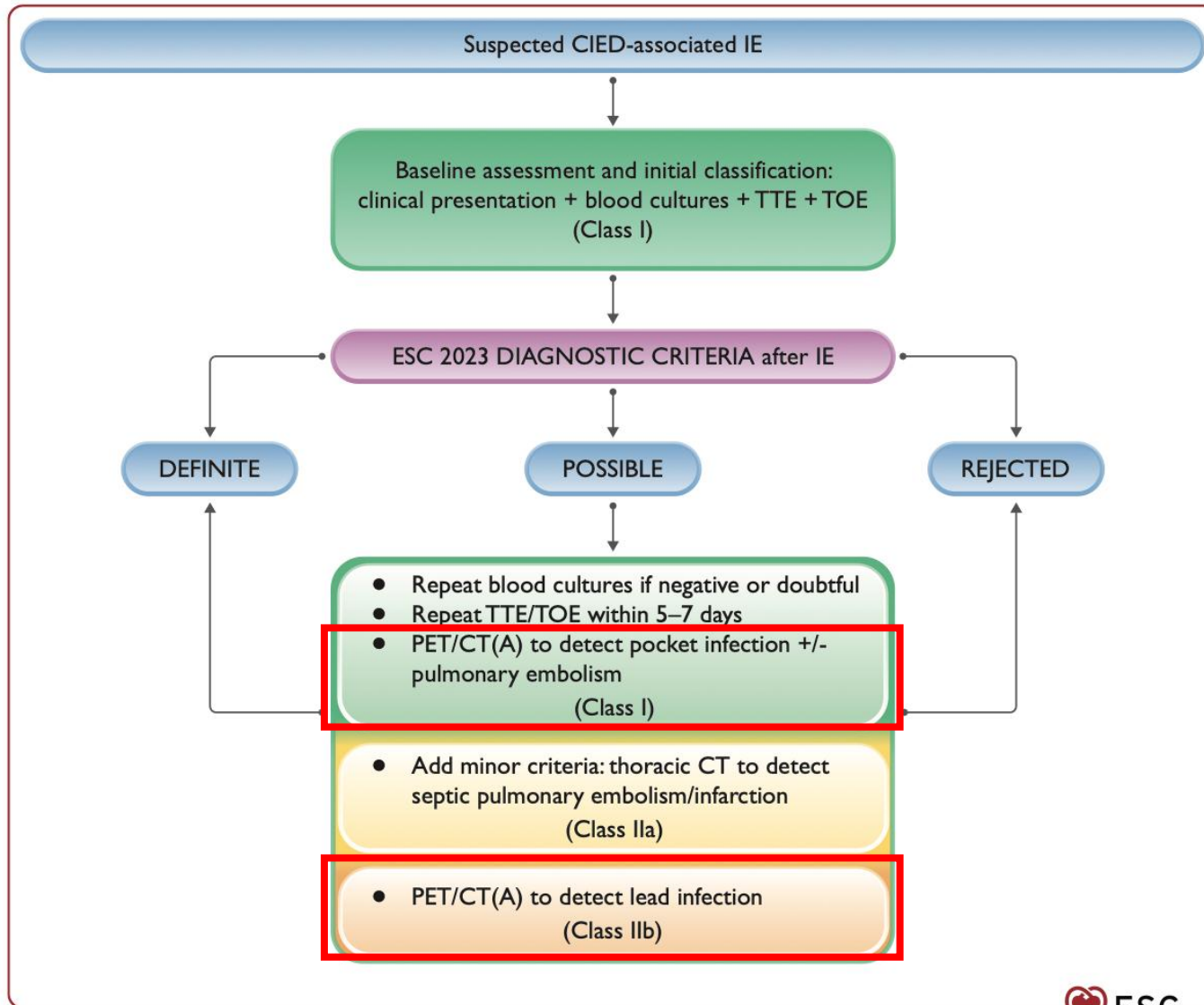
PVE



NVE

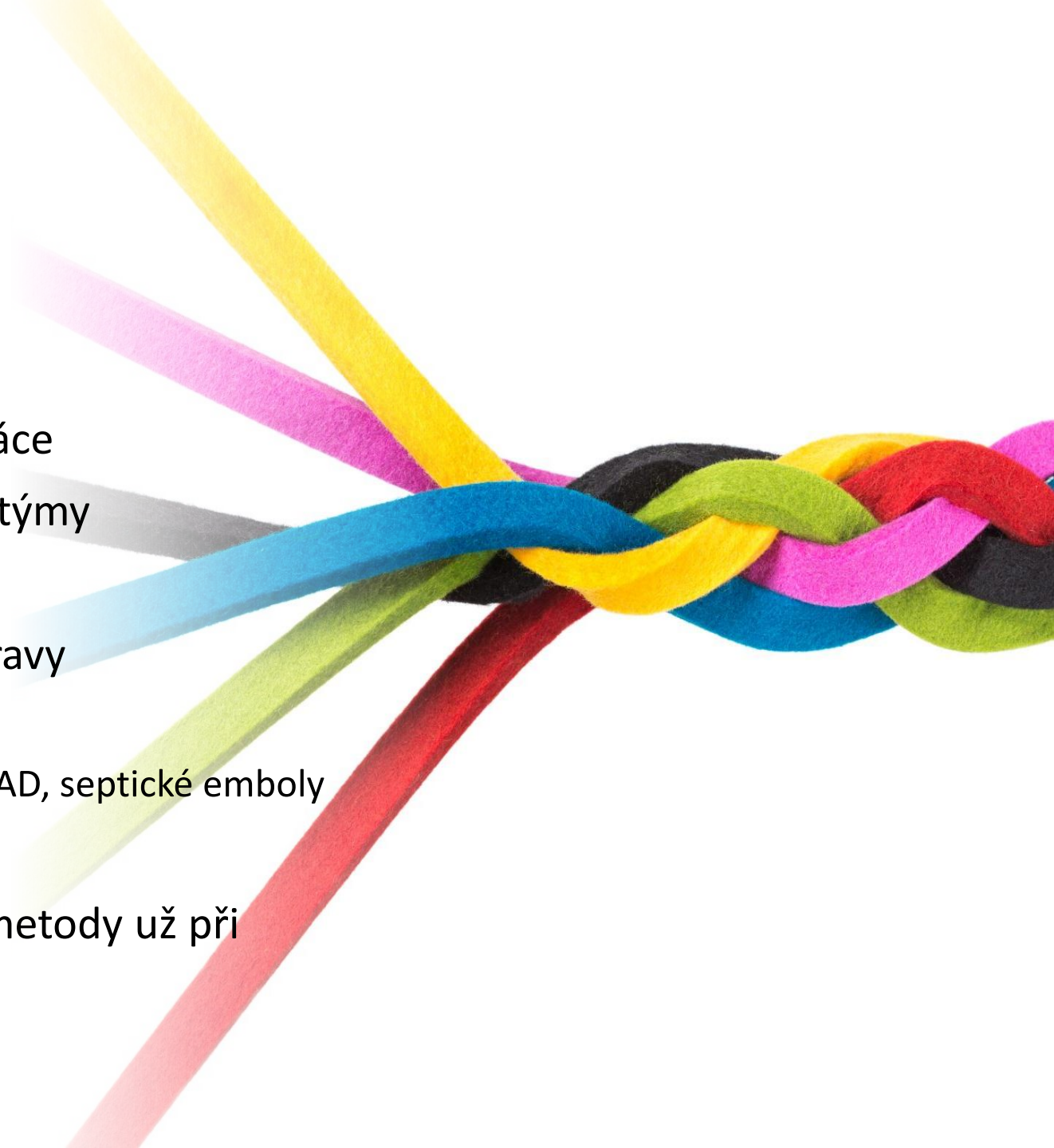


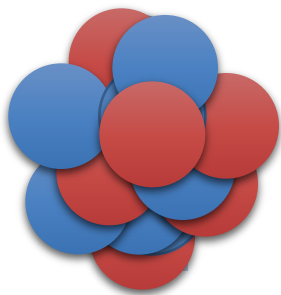
CIED



Závěr

- Důležitá spolupráce
- Fungující lokální týmy
- Zásadní vliv přípravy
- Vhodné indikace
 - PVE, CDRIE, LVAD, septické emboly
- Znalost limitací metody už při indikaci





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