

# Mechanical circulatory support

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## Clinical settings for percutaneous hemodynamic support

**Emergent Support**

Cardiogenic Shock

**Prophylactic Support**

at risk of hemodynamic collapse

## Clinical settings for percutaneous hemodynamic support

### Prophylactic Setting

- Maintain BP and CO during procedure to maximize CBF to other myocardial regions and blood flow to the body

### Emergent Setting

- Normalize CO, BP, Cardiac Power Output (CPO= MAP x CO)
- Decrease PCWP
- Decrease myocardial work and oxygen consumption while optimizing myocardial perfusion
- Optimize blood oxygen saturation
- Minimize myocardial damage and optimize recovery

## Metrics for Evaluation



Amount of hemodynamic support

Ability to increase CPO and decrease PCWP



Degree of myocardial unloading

Ability to offload the LV while providing support



Ease of use: insertion & operation

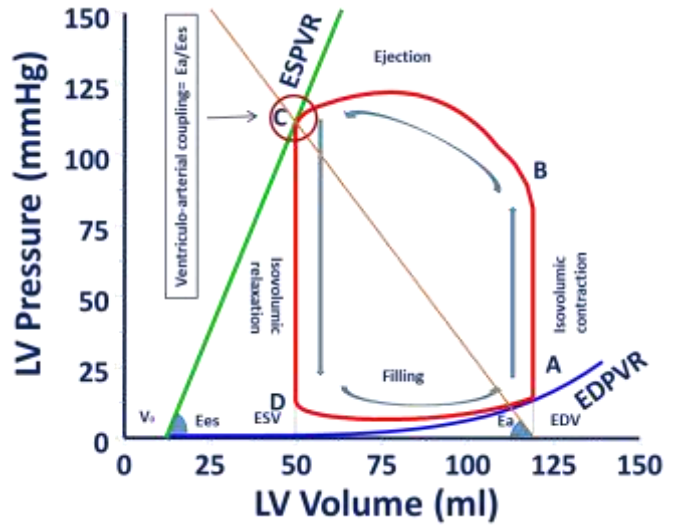


Risk of Complications



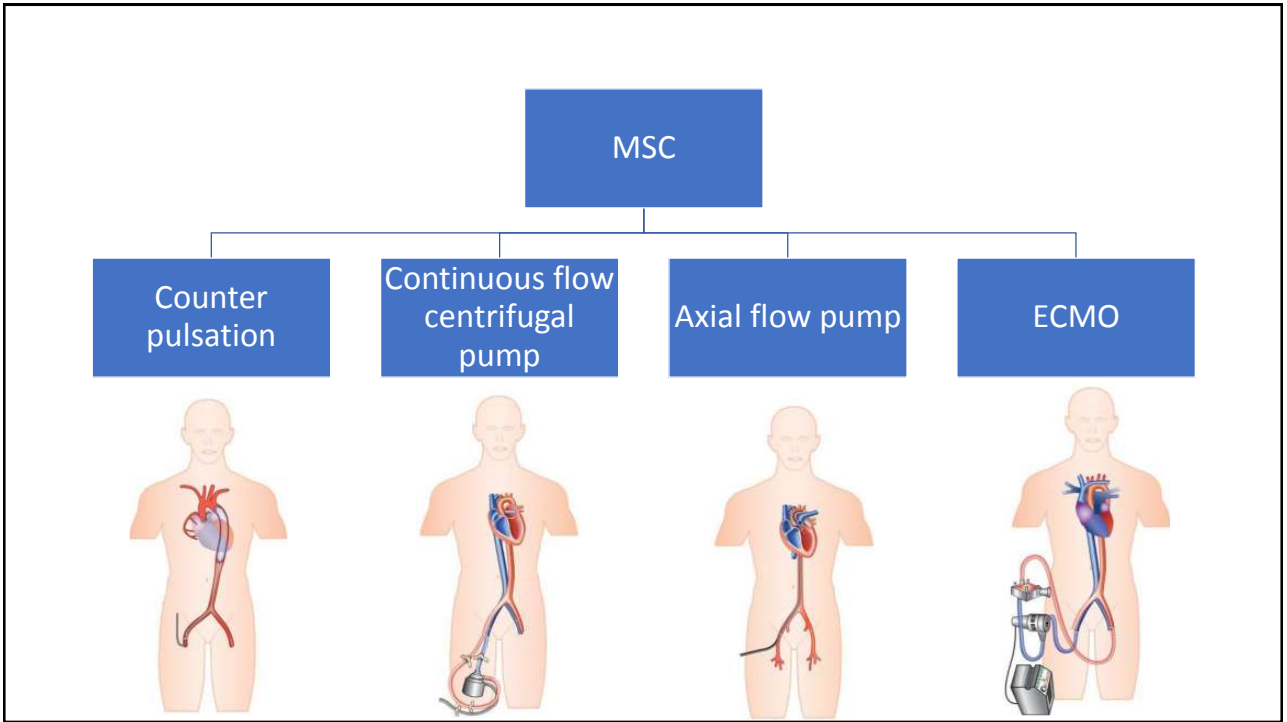
Contraindications

# Basics first



# Basics first

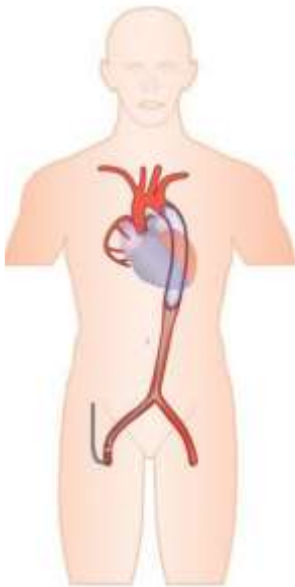




# IABP

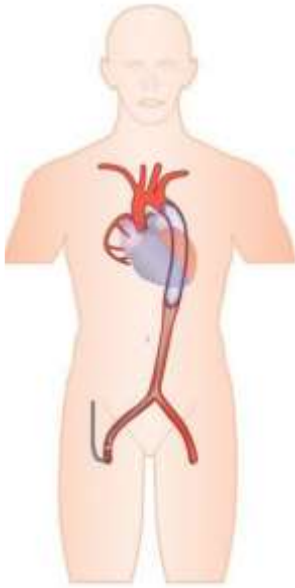
Still a role?

# IABP



## IABP

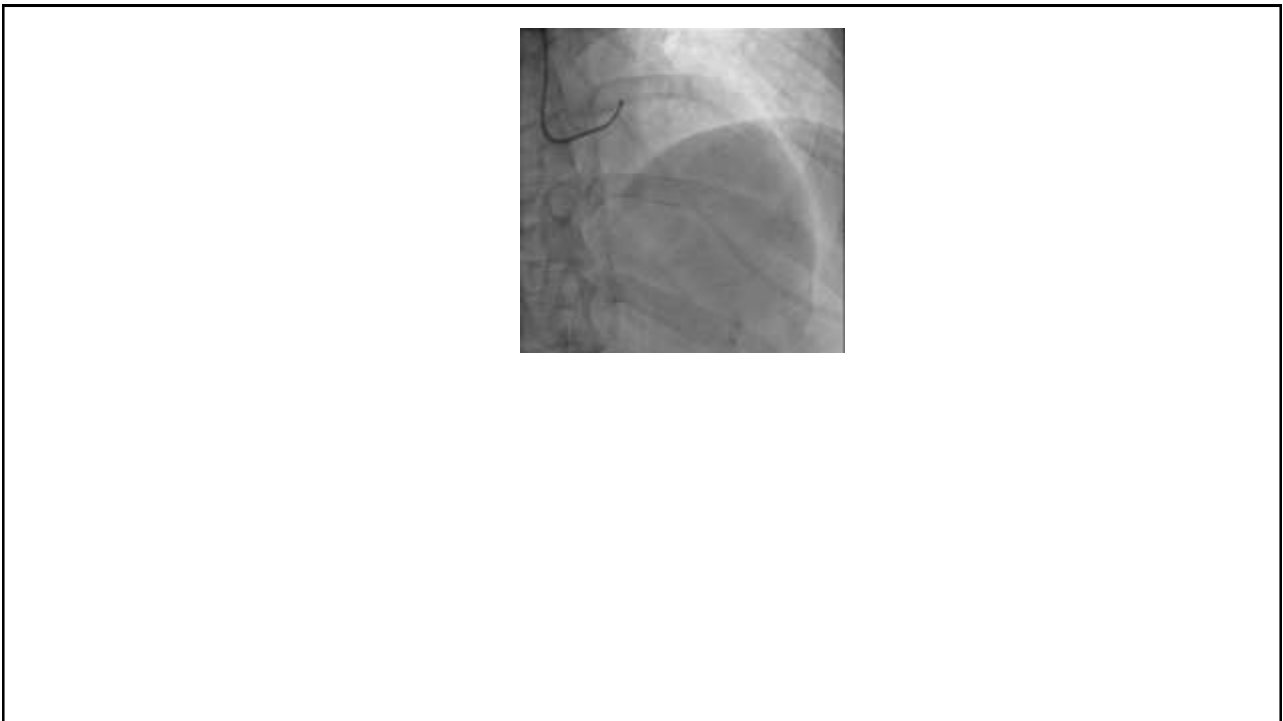
- Easy
- Affordable
- Small access

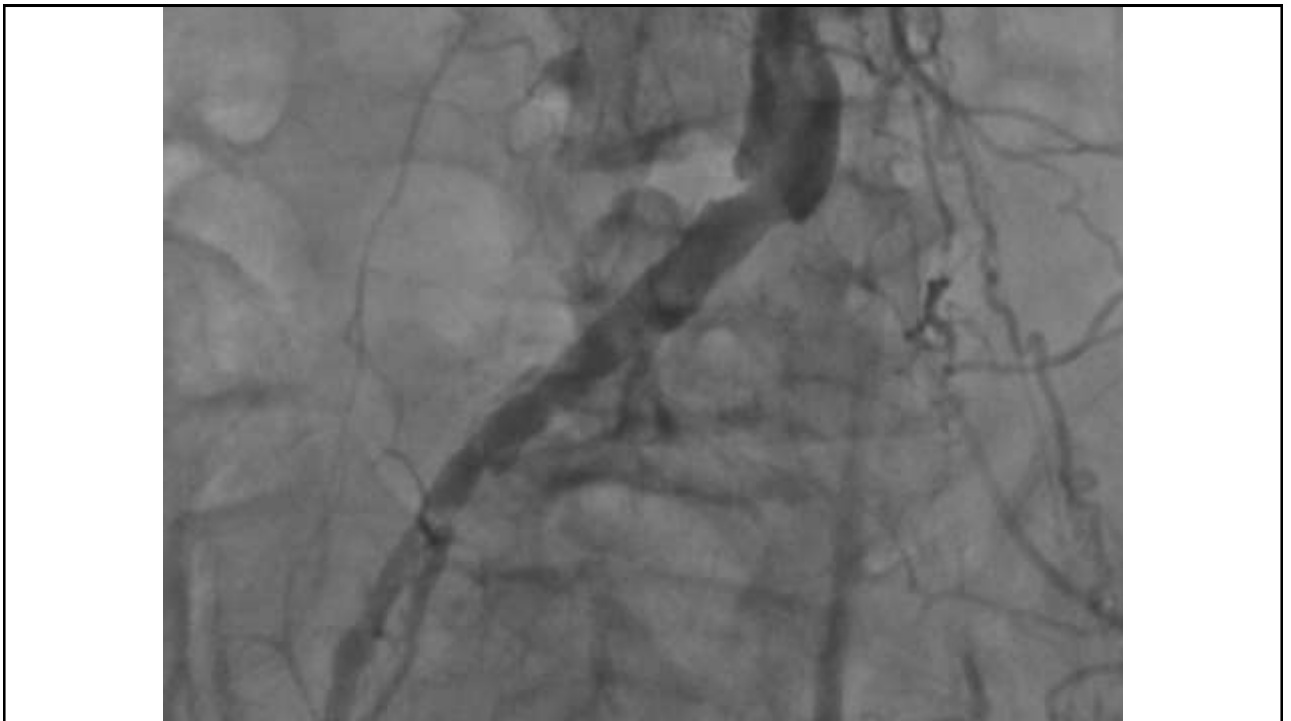
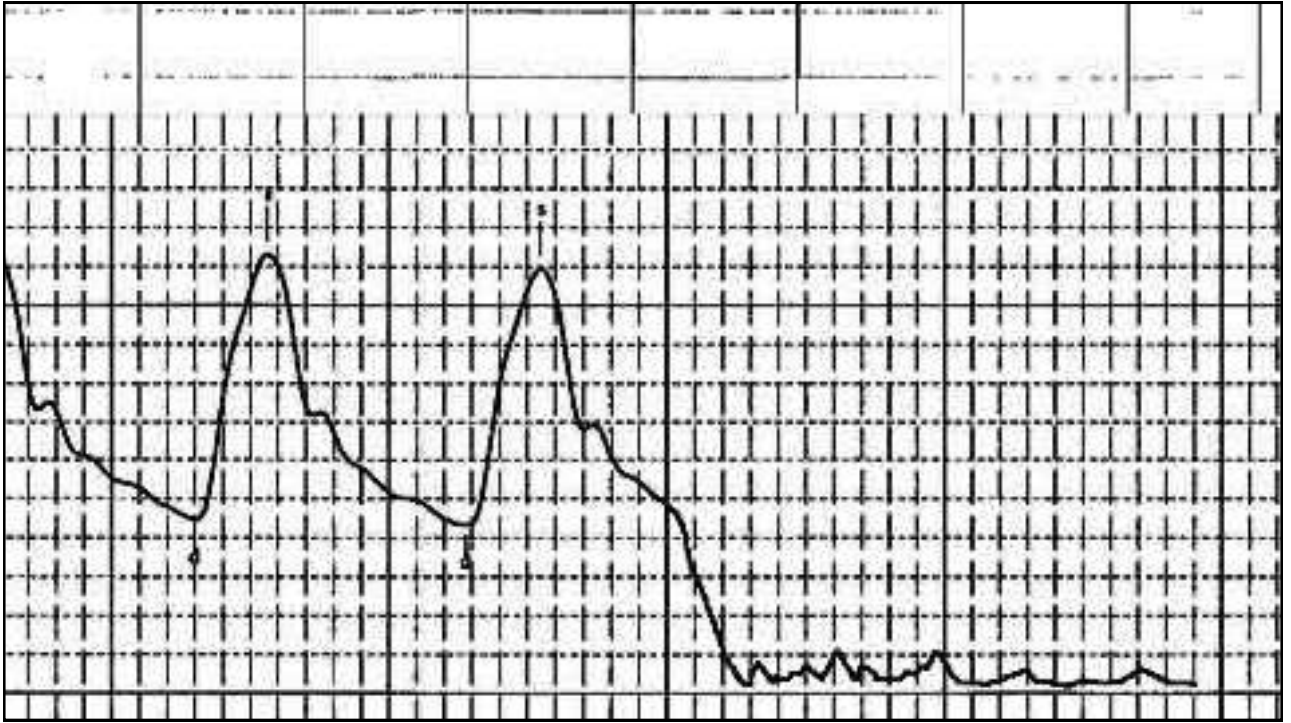


## IABP

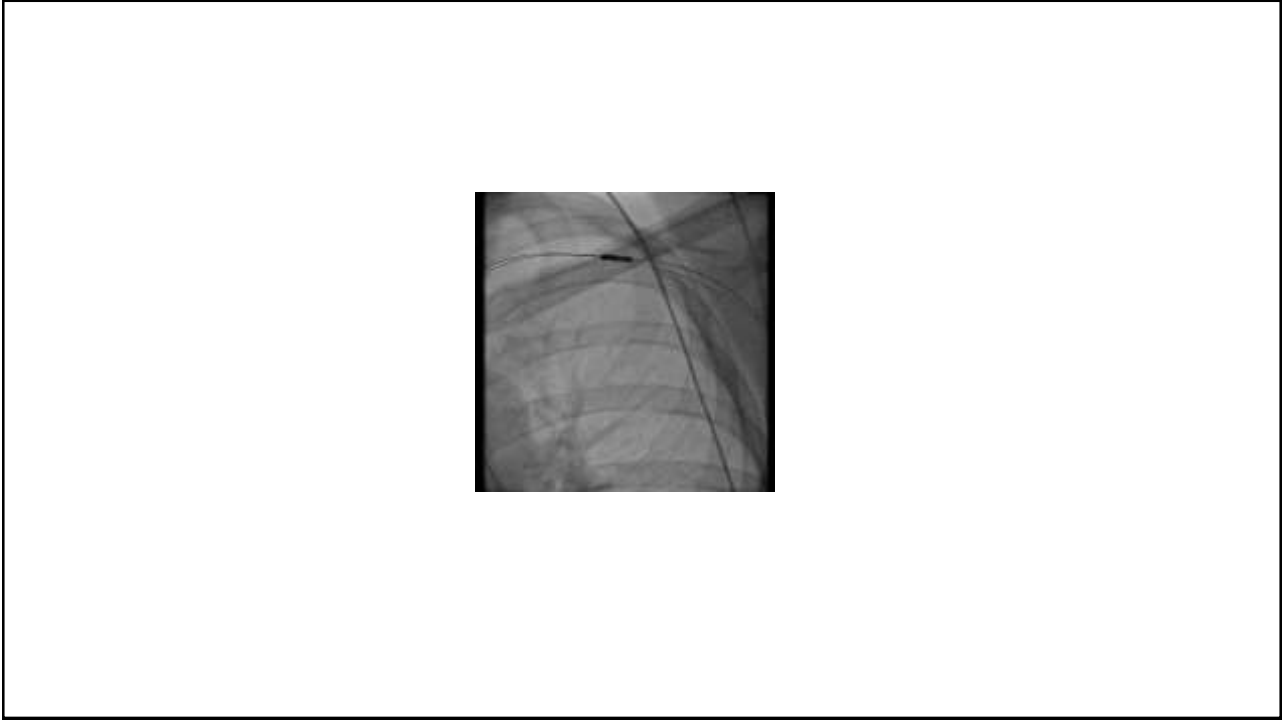
- Poor support
- Conflicting evidence

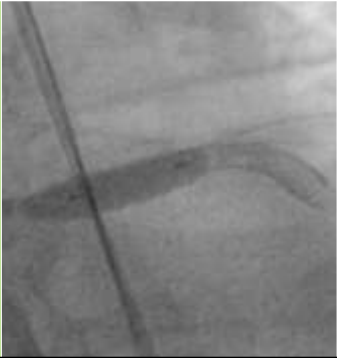
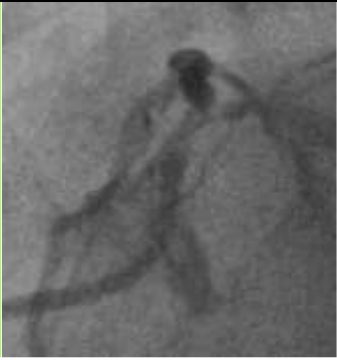
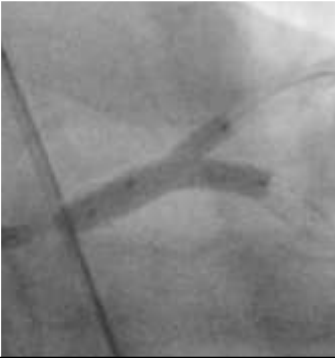


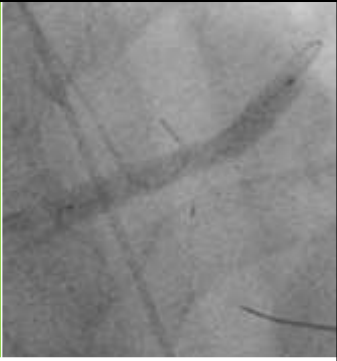








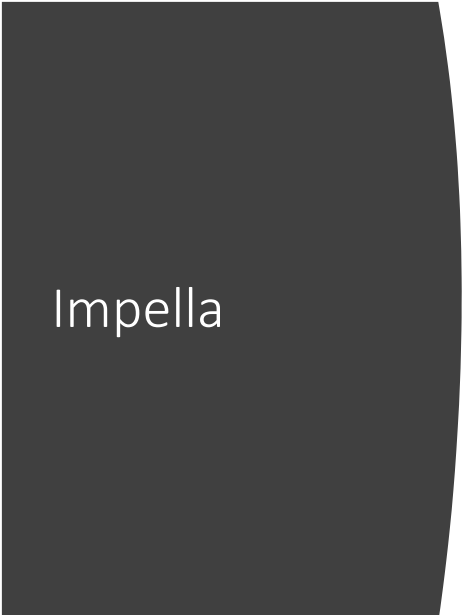


<b>POT</b>		<b>Basal angiography</b>	
<b>Final kissing</b>		<b>Predilatation both SB</b>	
<b>Final result</b>		<b>Stent LM-LAD</b>	





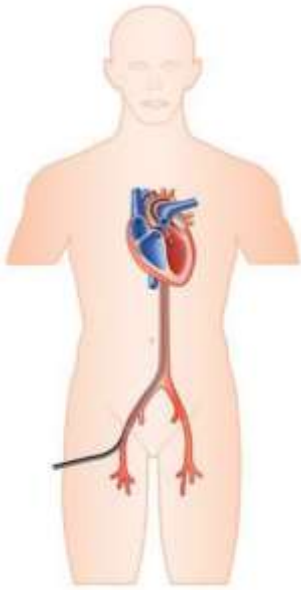
# The striker

Impella



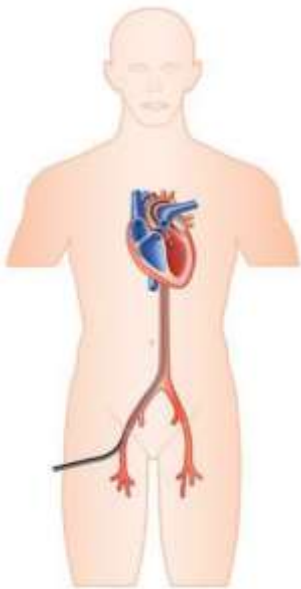
Impella

-  Protect II trial
-  BCIS-1 trial



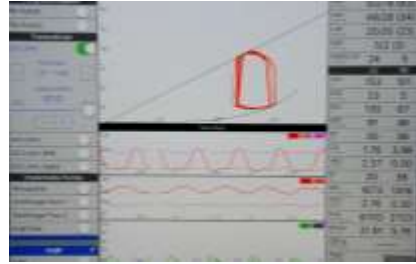
## Impella

- Easy set up
- Bed side insertion
- Better support

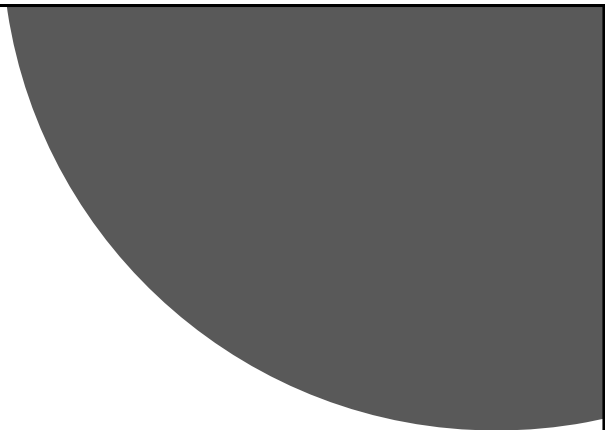
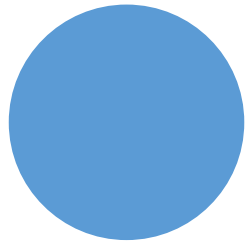


## Impella

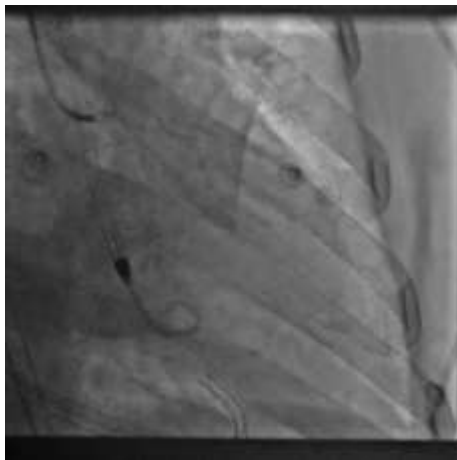
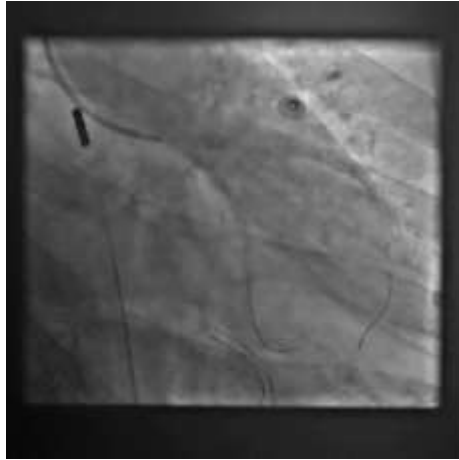
- No RV support
- Severe AS?
- Prosthetic aorta?
- LV thrombus
- Peripheral vascular disease

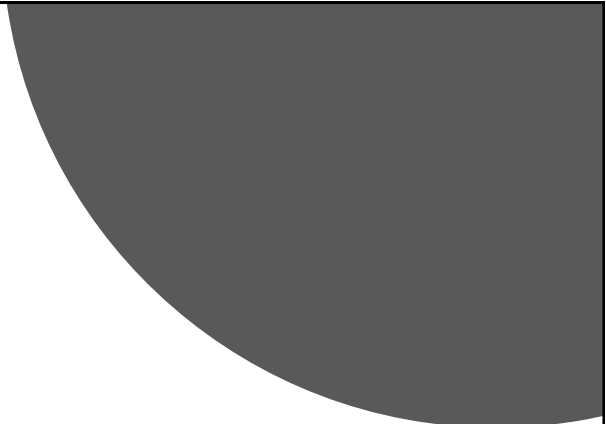
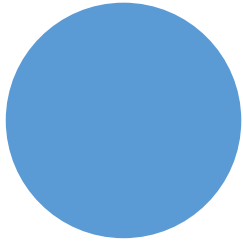


Is it beneficial?

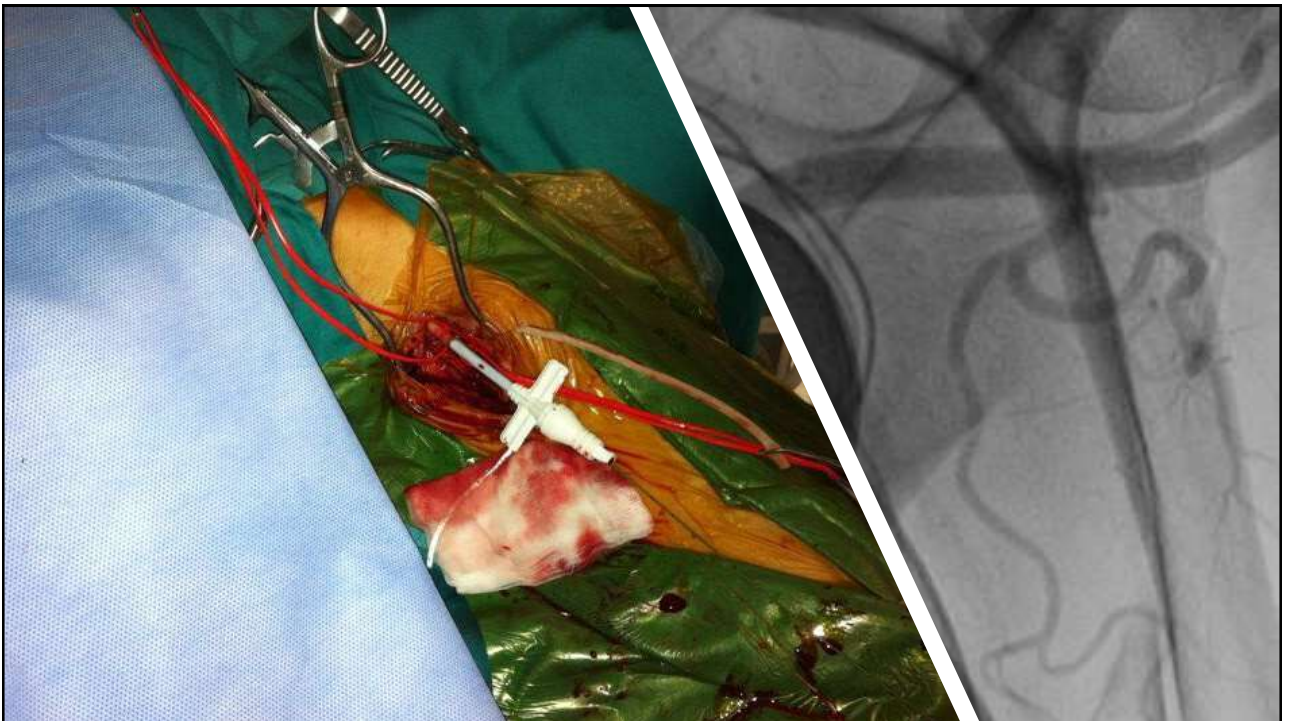


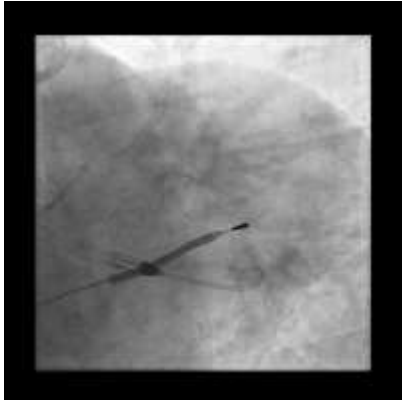
No reflow?





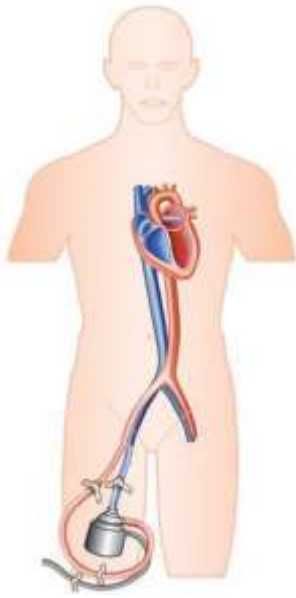
# Alternative access





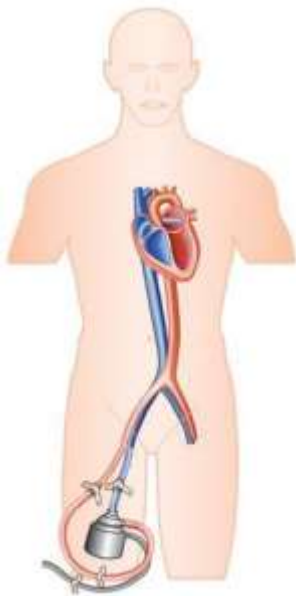
A worrier with  
complex  
shield





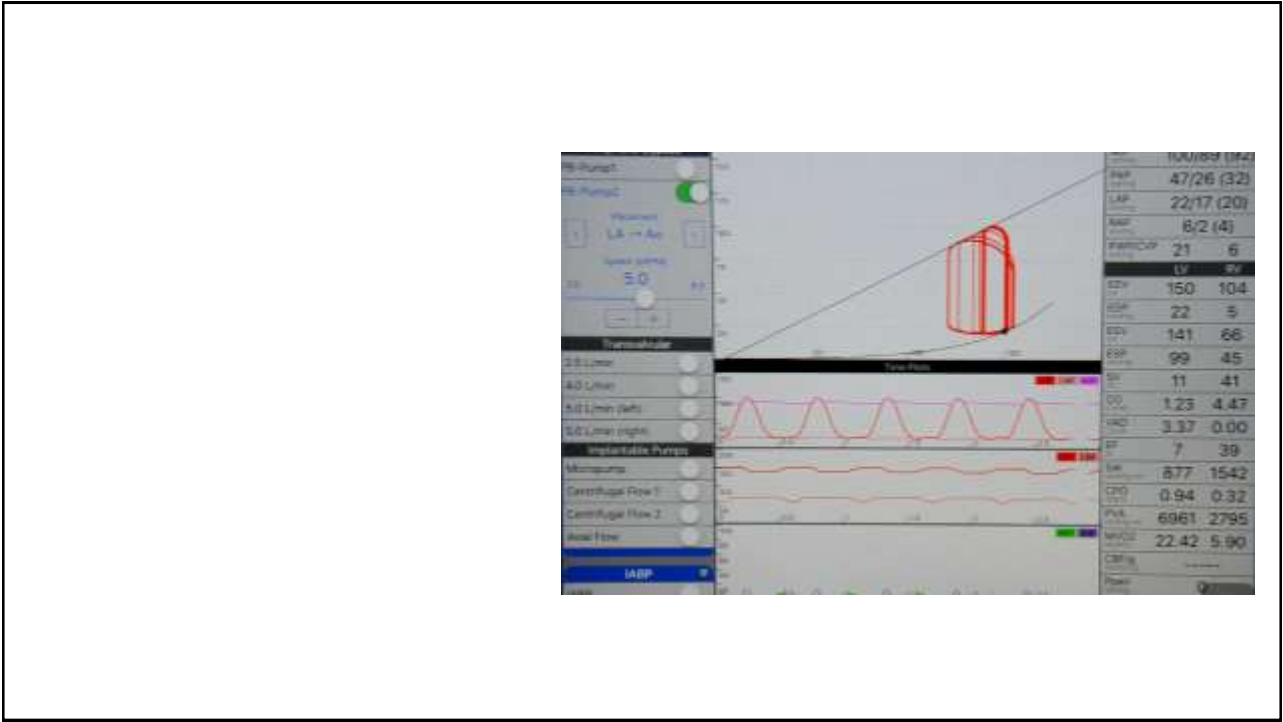
## Tandam Heart

- Can be used in LV thrombus
- Better support compared to IABP and Impella 2.5
- Can support RV
- Can be used in prosthetic aorta



## Tandam Heart

- Require transeptal puncture
- Peripheral vascular disease

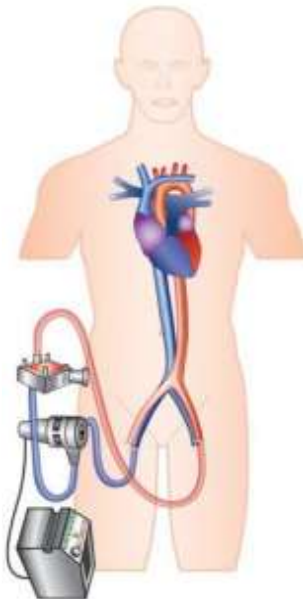
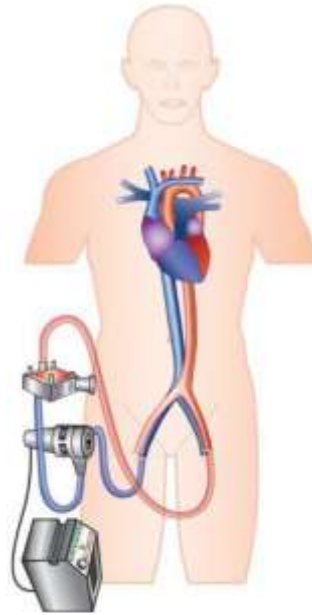


All in one  
support

ECMO

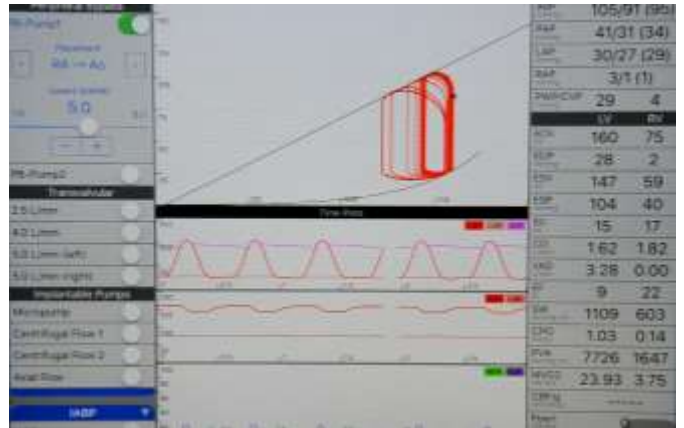
# ECMO

Support oxygenation and perfusion



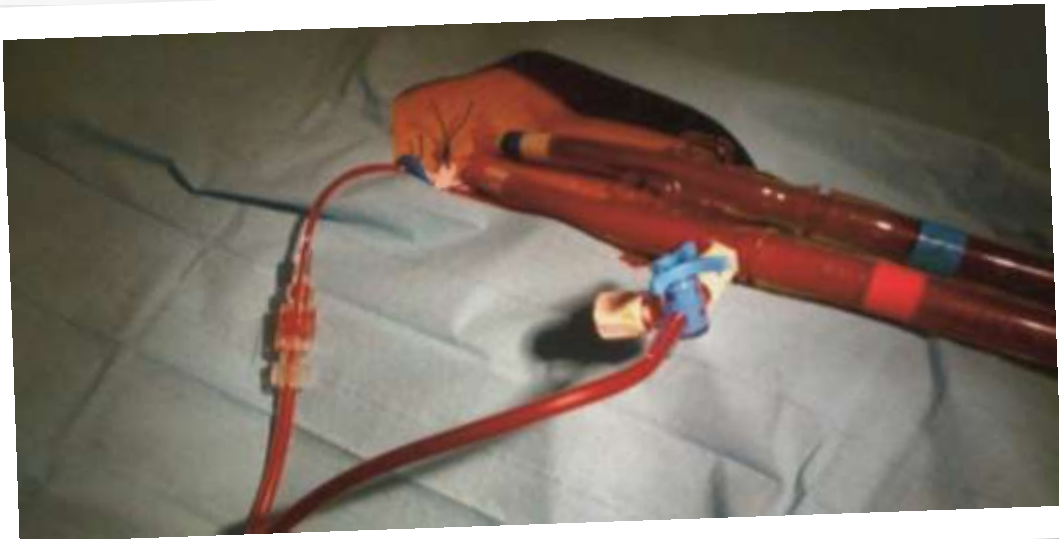
## ECMO

- Large access
- Complex
- Overload
- Lower limb ischemia



# How to optimize

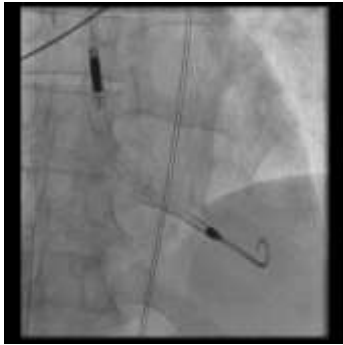
Reperfusion of the limb



# How to optimize

Unload the LV





# Which for which

Open discussion



Thank you