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Tips and tricks to design a hybrid room that I want to work in

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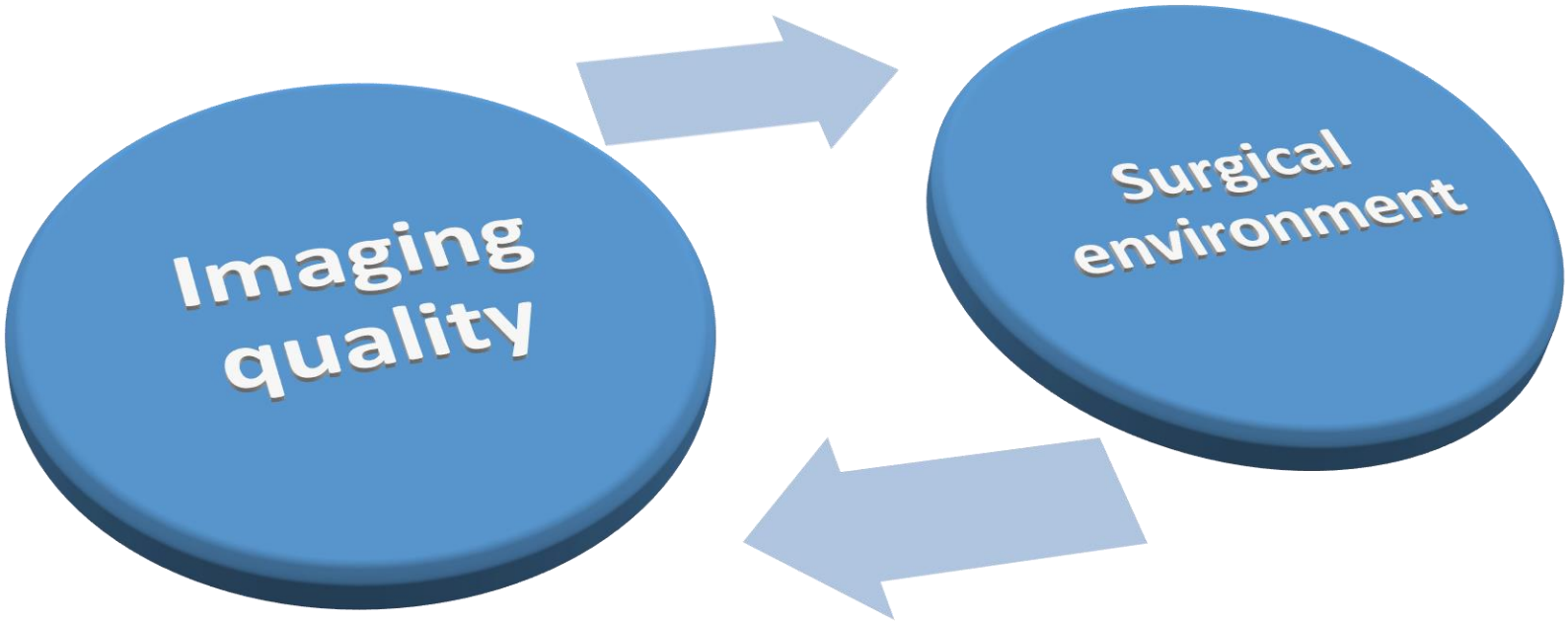
Disclosure of Interest

Speaker name: F. Gómez Palonés

I have the following potential conflicts of interest to report:

- ❑ *Cook AI Proctor*
- ❑ *WL Gore Proctor*

Hybrid O.R. 2 in 1

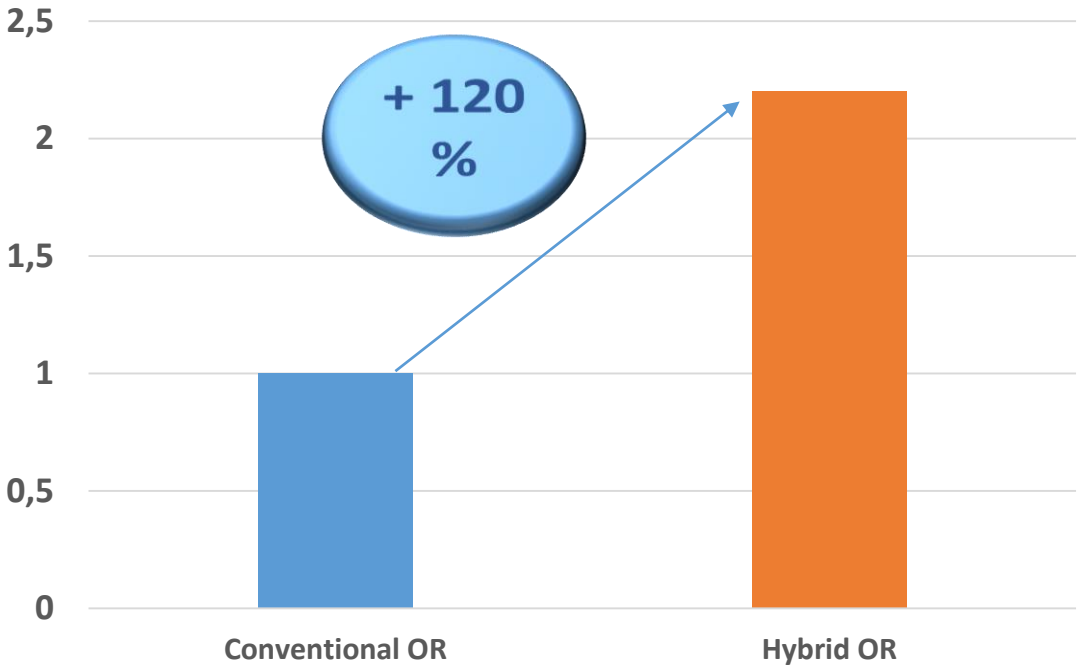


1

Is it worth it for my hospital?

Hybrid OR costs

1.2 million $ to 4million $ (Average 2,2M$).



Neumann FJ. The hybrid suite: the future for percutaneous intervention and surgery?- cost issues. *EuroPCR* 2009, 24.06.2011.

EFFICIENCY

Quality

- Increse Technical success
- Reduce reintervention rate
- Increase indications for treatment
- Improved workflow

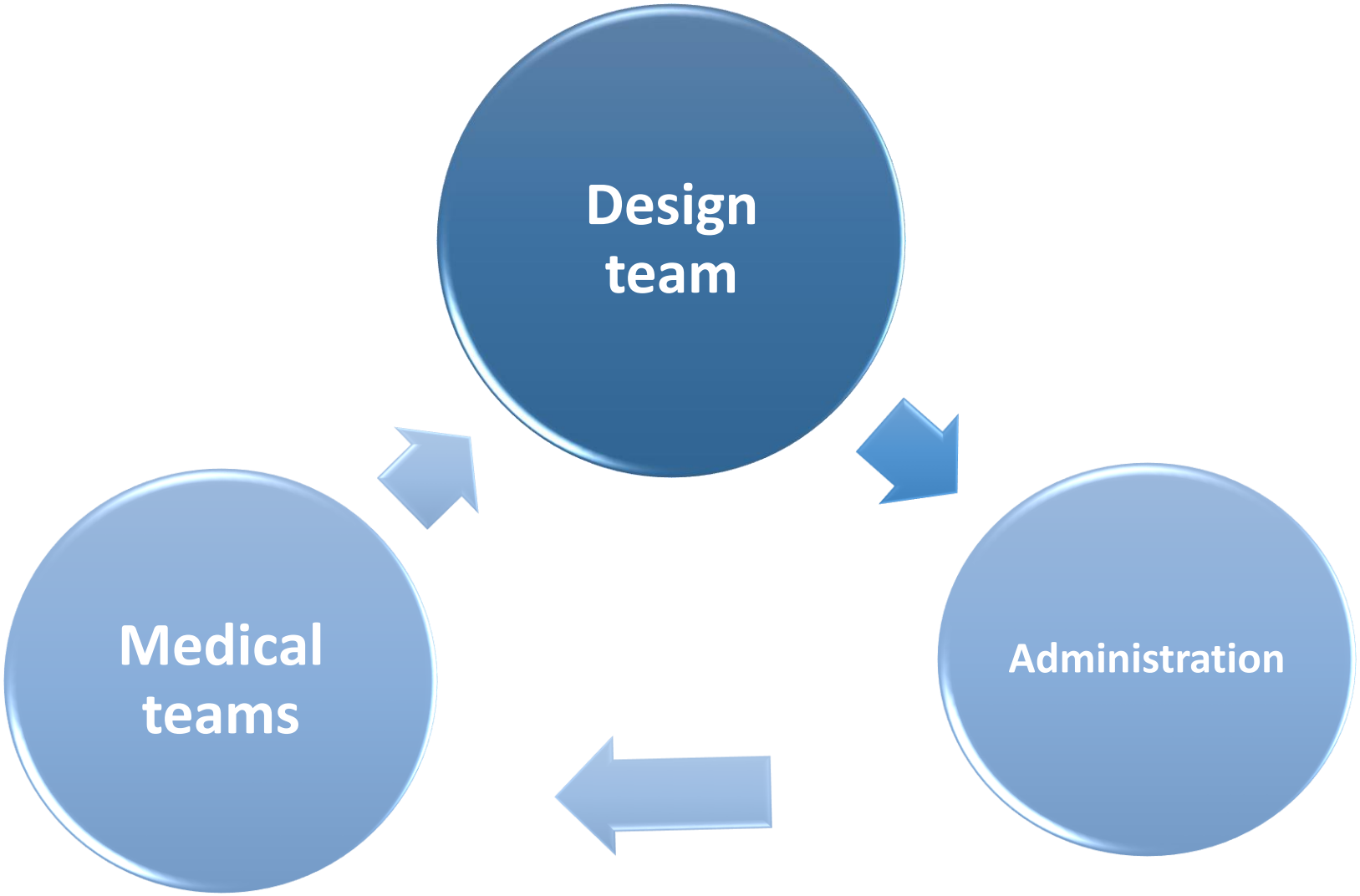
Safety

- Decrease radiation exposure
- Reduce contrast volumen
- Enhance patient monitoring and anaesthesiologic care
- Reduce procedure related complications
- Personnel protection

Productivity

- Reduce operating time
- Increase cases treated
- Reduce hospital stay
- Reduce readmissions & follow up exams

PLANNING

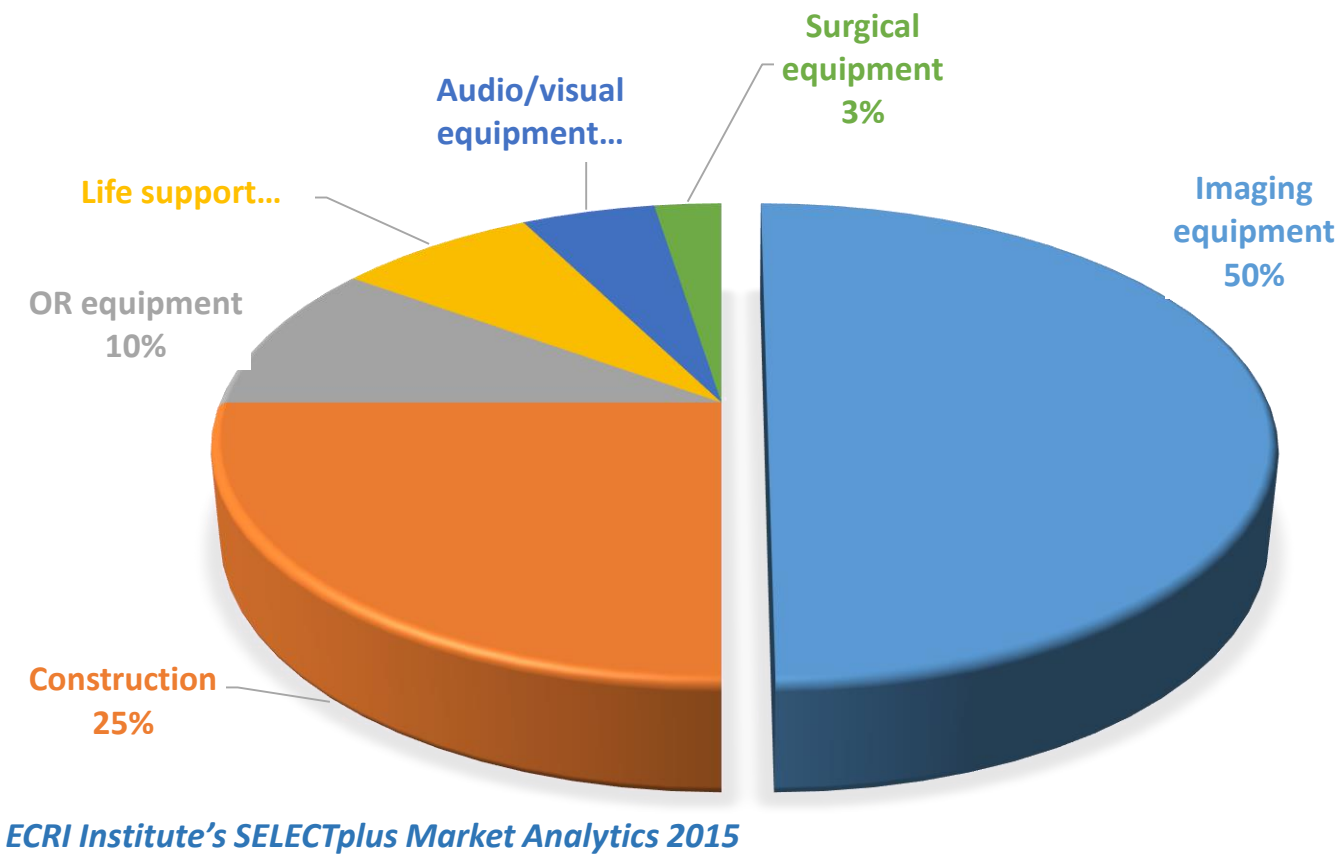


Hybrid: not always means succesful creation

2 What would I like to put in?

1. Imaging system
2. Operating table.
3. Monitors

Where the money goes



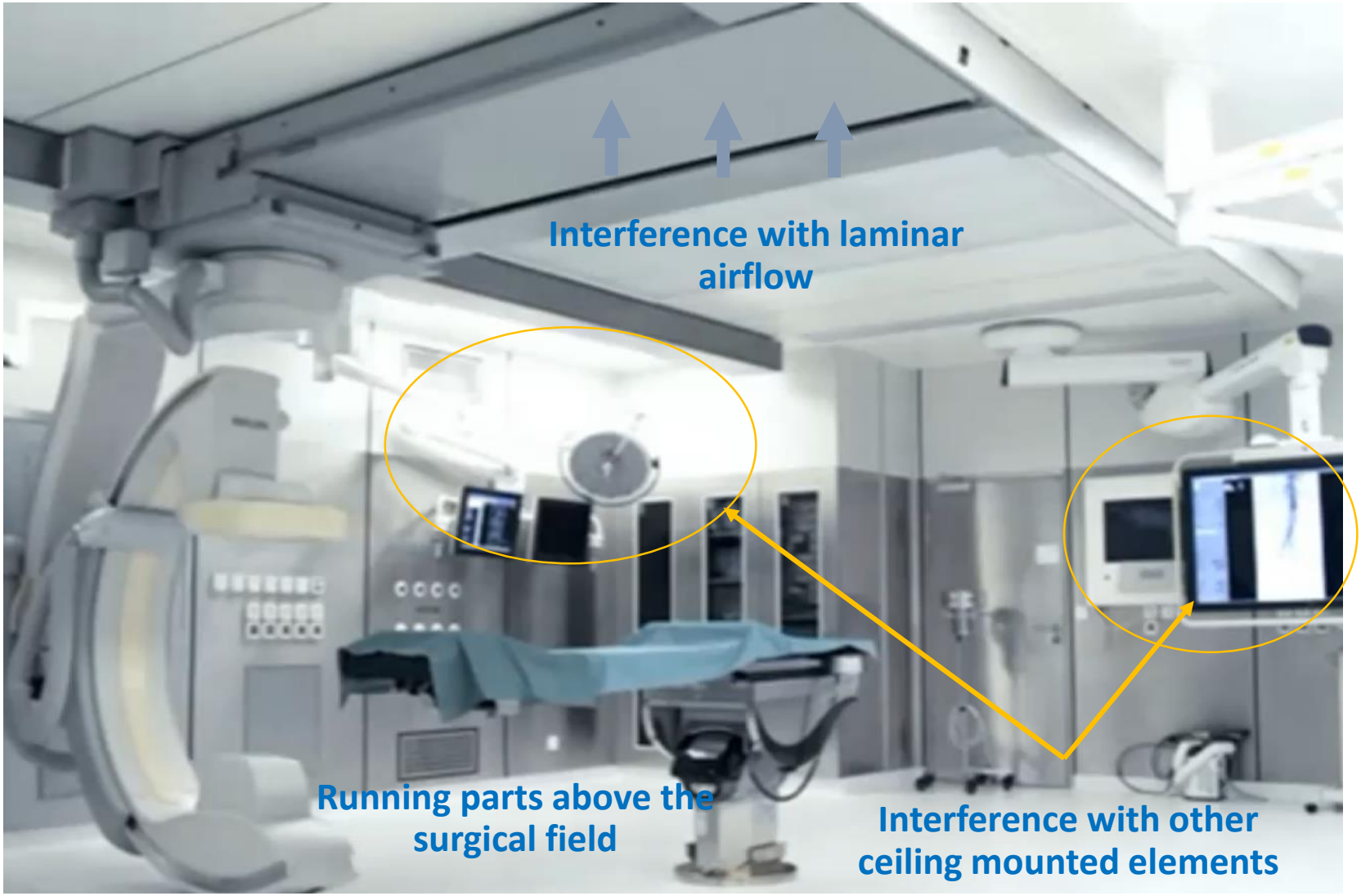
ECRI Institute's SELECTplus Market Analytics 2015

Image generation

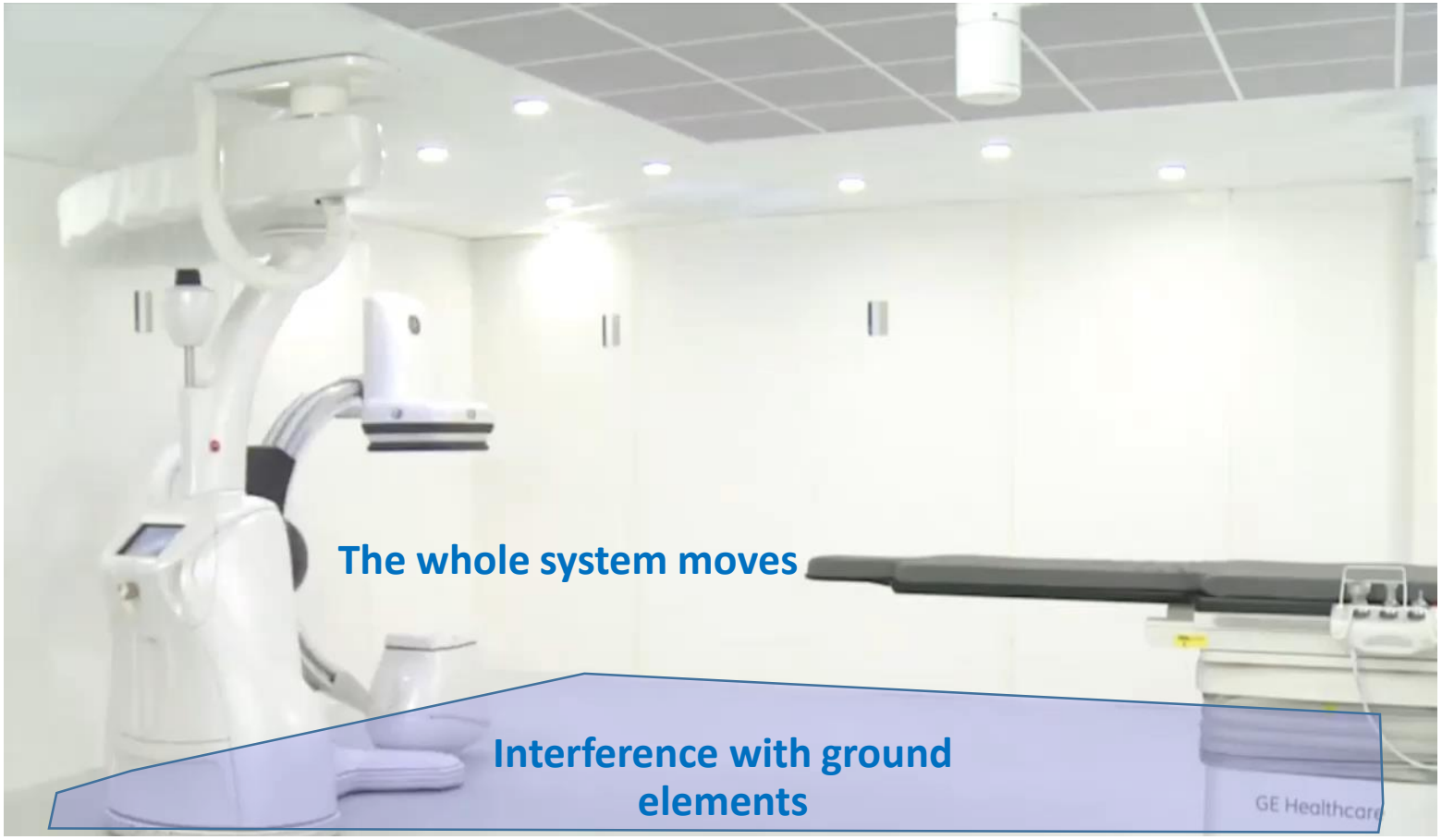
- Powerful generator (100 Kw)
- Efficient & durable Xray tube
  - Proper cooling system: no overheating

- Digital flat panel detector:
  - Size: 30x30 / 30x40 / 40X40

Ceiling mounted


Interference with laminar airflow
Running parts above the surgical field
Interference with other ceiling mounted elements

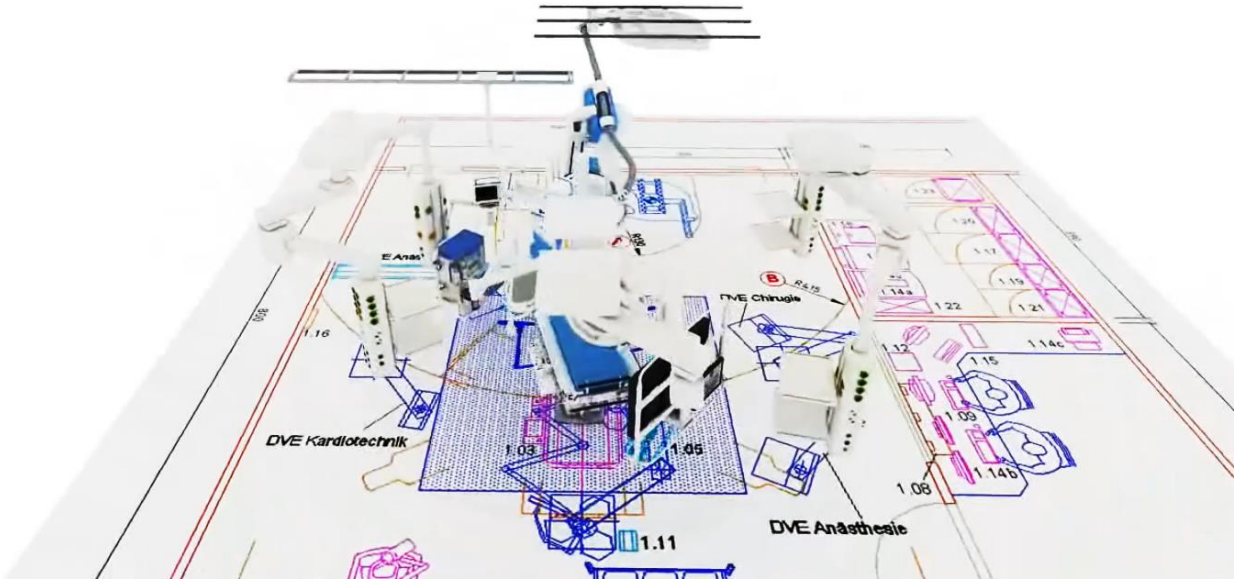
Floor mounted -1



Floor mounted -2

Space

	Flex-move (Philips)	Discovery (GE)	Zeego (Siemens)	Standard OR	Hybrid OR
Min surface (m2)	55	55	70	50	90
Min Heigth (metres) (floor-floor)	3.5	3.5	3.20	3.20	3.5



1.Imaging system

2.Operating table

3.Monitor

Operating table

Surgical

- Rails for mounting surgical equipment.
- Mobility:
  - vertical
  - Horizontal
  - Trendelemburg.
  - ***Lateral tilt.***
- Ease and direct access to the patient from all sides

Interventional

- Radiolucent floating table top
- Floating length 200 cm.
- Motorized adjustments
- Sinchronized with imaging system
- Rotatable
- Accomodate obese patients and CPR manouvers

	Philips	General Elecric	Siemens
OR table compatibility	Philips / Maquet	GE	Siemens, Maquet, Trumph

Monitors


2160 Pixel
8 MP
View the finest details in
diagnostic image quality
3840 Pixel

3 How should it work together?

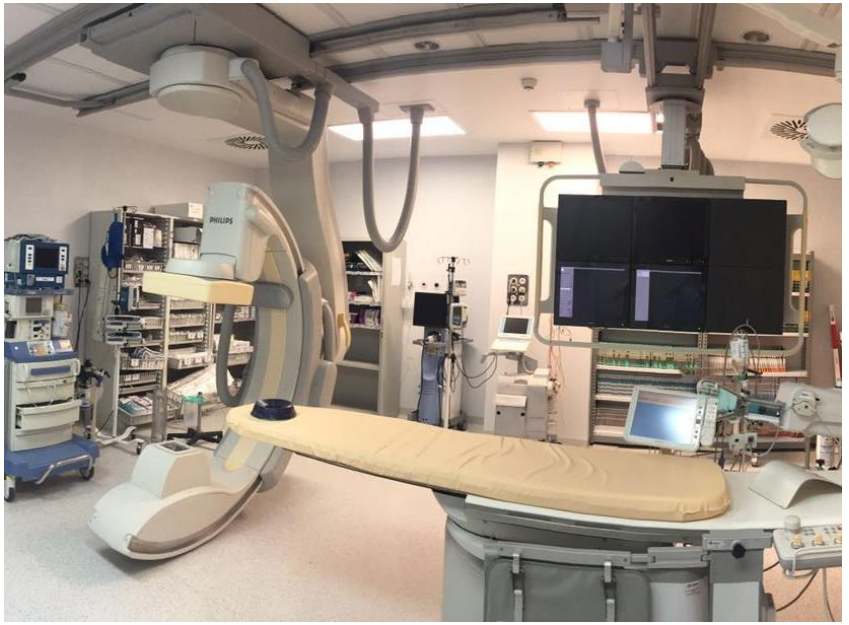
- Flexibility
- Efficiency
- Safety

Flexibility

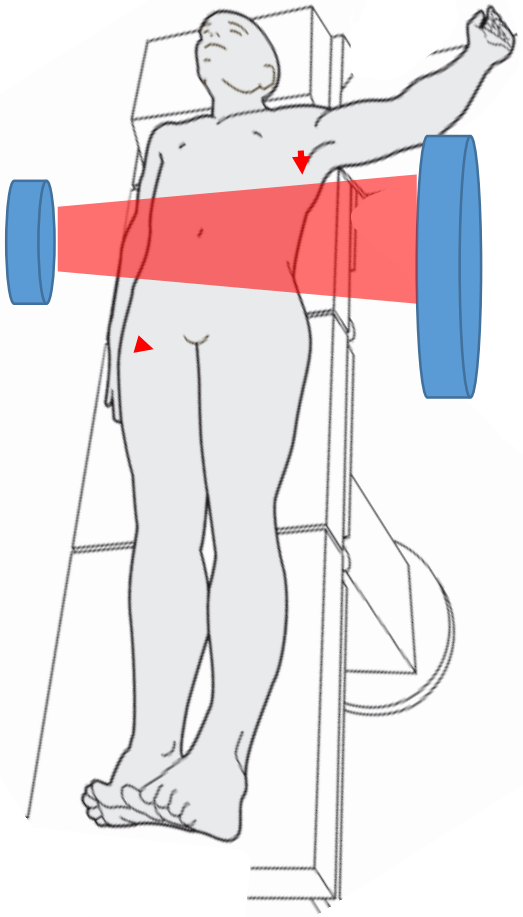
- Fast and easy access to the patient
- Easy and lively positioning of the C-arm
- Convenient workflow

Define workzones

And adapt your workflow


PHILIPS

Do a mock set up

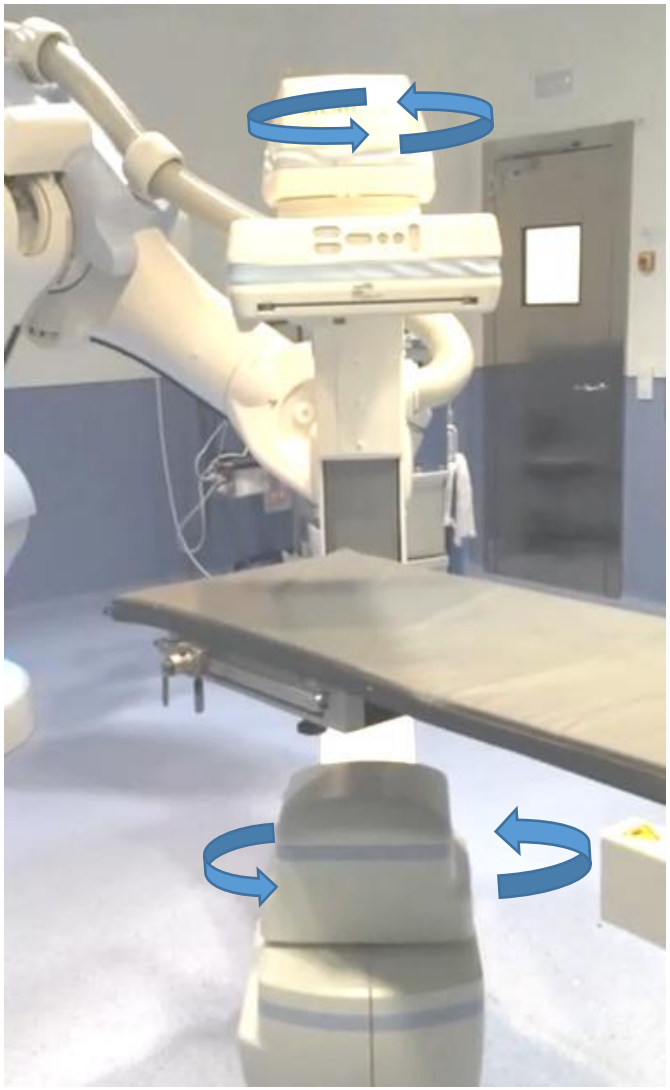


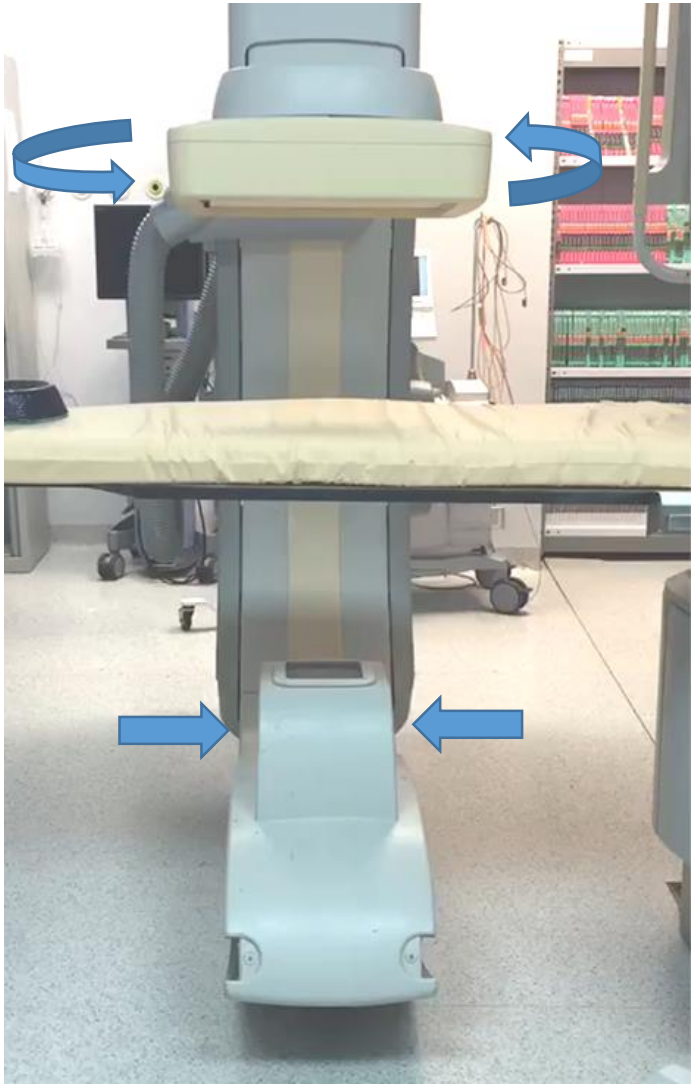
- C-arm : 90º lateral projection
- Arterial access Left axillary artery
- Combined femoral artery approacHh

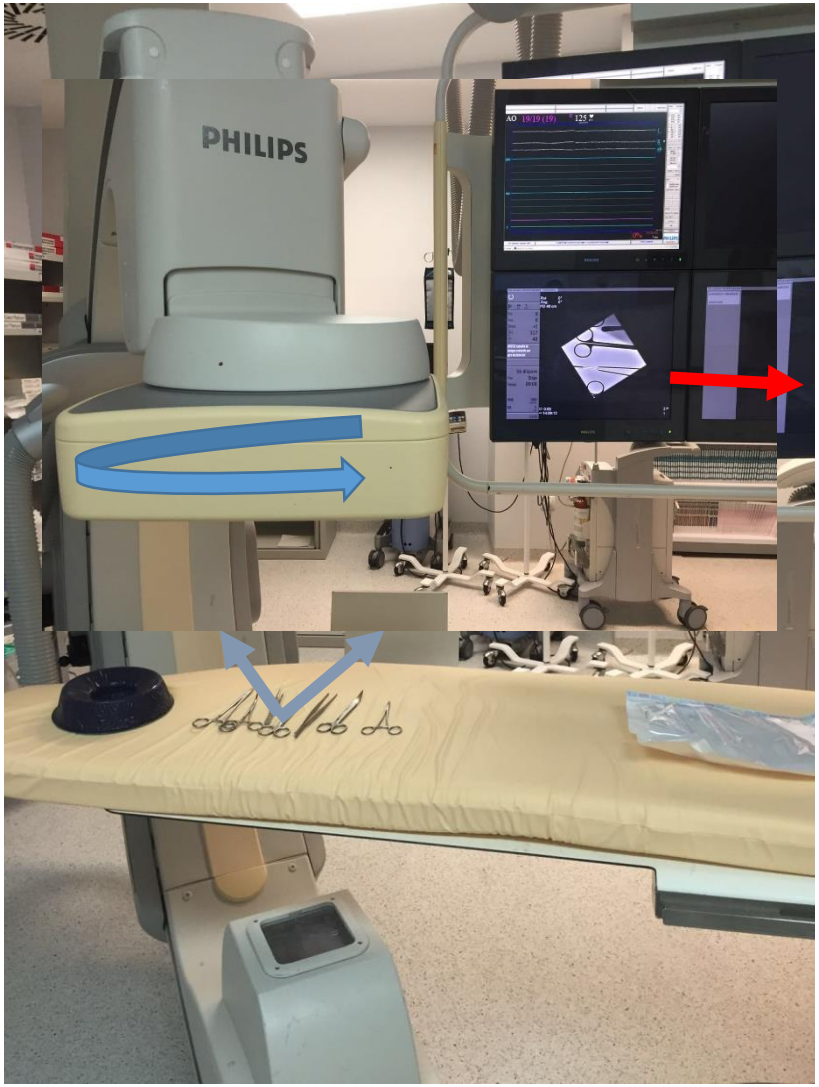

SIEMENS
No Signal
No Signal

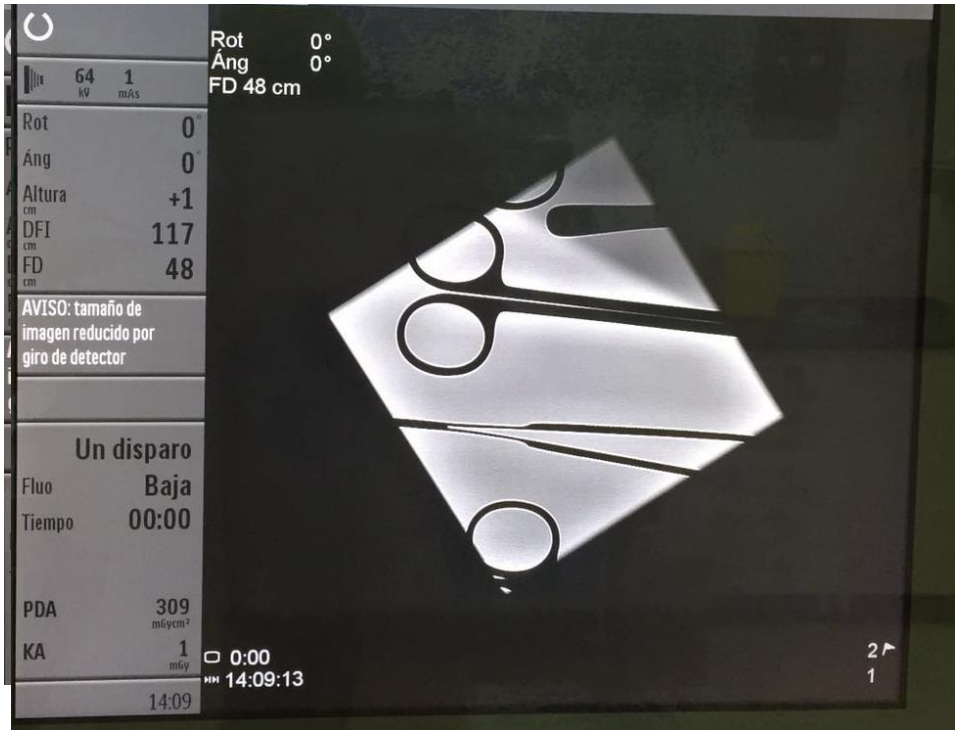

No Signal
No Signal
No Signal

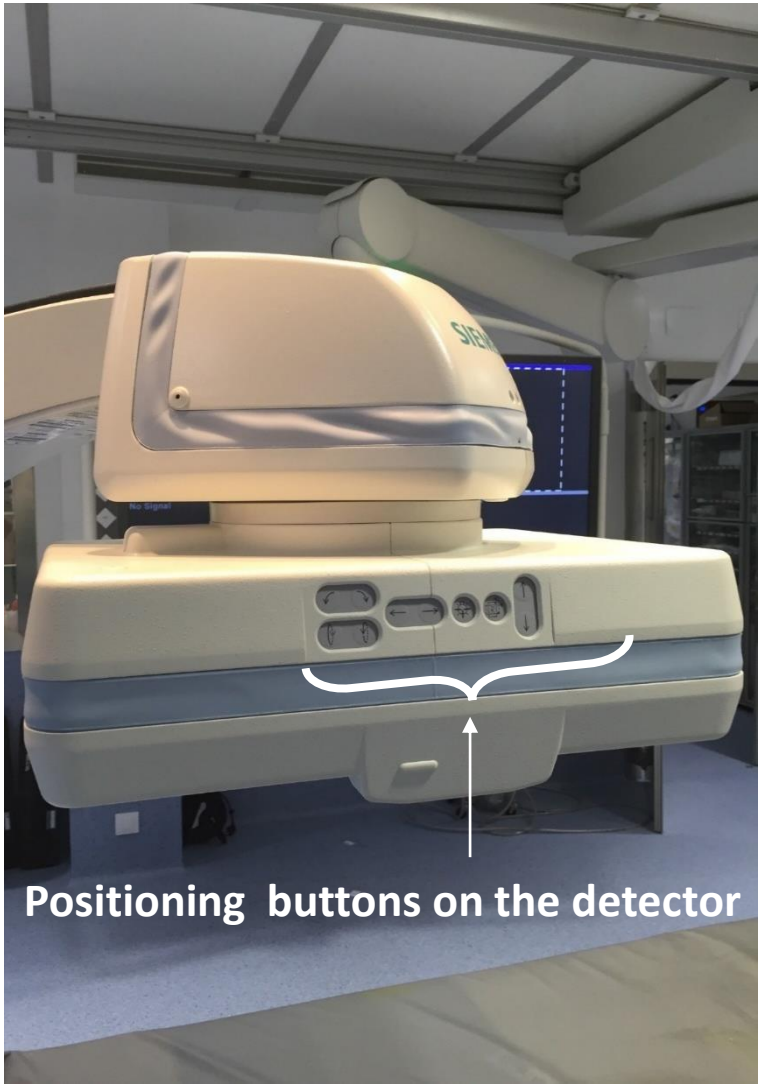
Detector and tube sinchronic rotation






PHILIPS


64 kV
1 mAs
Rot 0°
Áng 0°
FD 48 cm
Rot 0°
Áng 0°
Altura +1 cm
DFI 117 cm
FD 48 cm
AVISO: tamaño de imagen reducido por giro de detector
Un disparo
Fluo Baja
Tiempo 00:00
PDA 309 mGycm²
KA 1 mGy
14:09
0:00
14:09:13
2
1


Positioning buttons on the detector

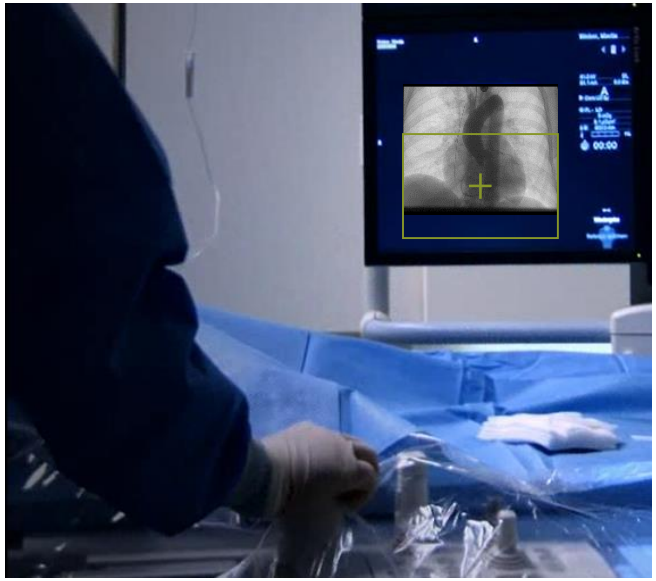
Advanced applications

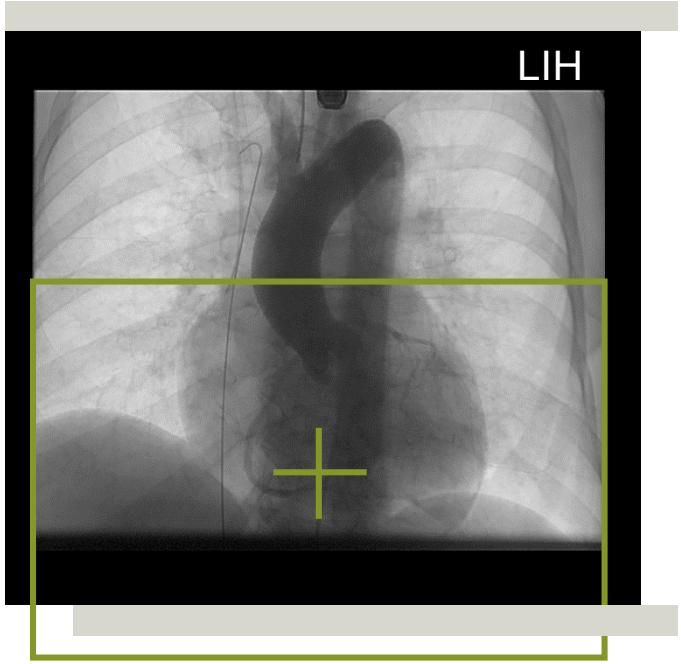
Application	Advantages

• Image fusion 2D / 3D
• Cone-BeamCT / Dyna CT
• 3d Angiography
• 3D roadmap
• 3D puncture guidance
• Dedicated work station
• Communication
	• Radiation dose reduction
	• Contrast load reduction
	• Intervention guidance
	• Reduced operation time
	• Quality control:
	  • Reduce complications
	  • Reduce late reintervention

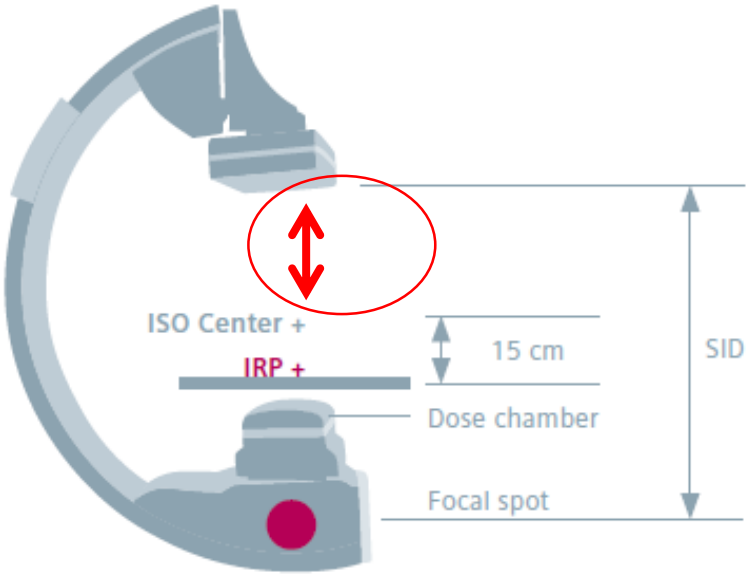
Safety in radiation exposure

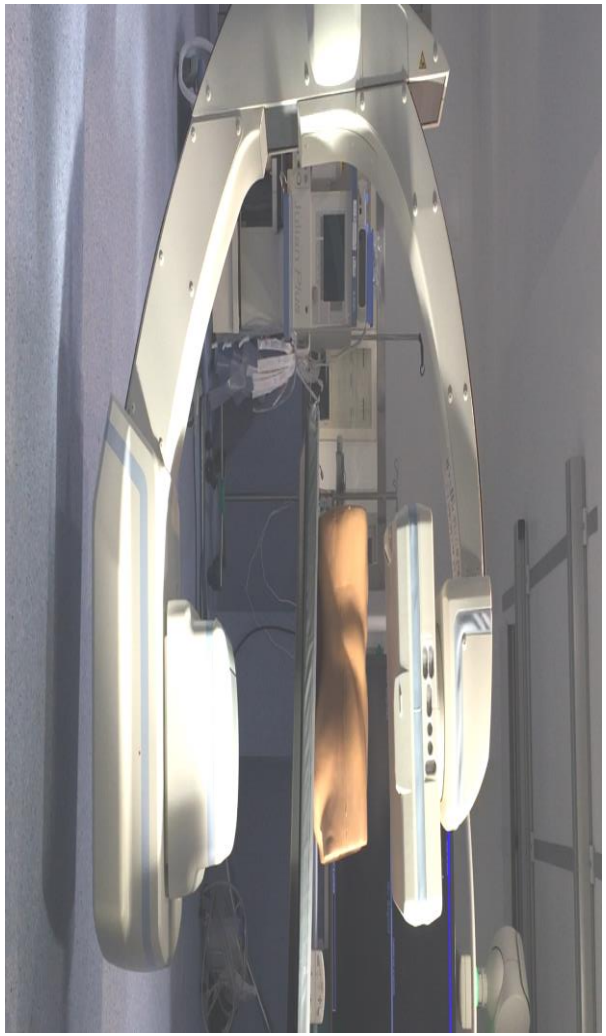
Positioning without radiation





Fixed isocenter





Final comments

1. There's no "ONE-SIZE-FITS-ALL" system.
2. Define your needs and goals.
3. Discuss your needs with all the stakeholders
4. Check your usual workflows, and simulate them on virtual layouts.
5. Ask for advice to experienced centers working with each of the options in play


Thanks for your attention!!