

CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE

CONTROVERSIES & UPDATES IN VASCULAR SURGERY

JANUARY 25-27 2018



MARRIOTT RIVE GAUCHE & CONFERENCE CENTER, PARIS, FRANCE

Golden rules to reduce radiation in  
the hybrid room

Hertault A



## Disclosure

Speaker name:

HERTAULT A

- I have the following potential conflicts of interest to report:
- Consulting (GE Healthcare)
- Employment in industry
- Shareholder in a healthcare company
- Owner of a healthcare company
- Other(s)
- I do not have any potential conflict of interest

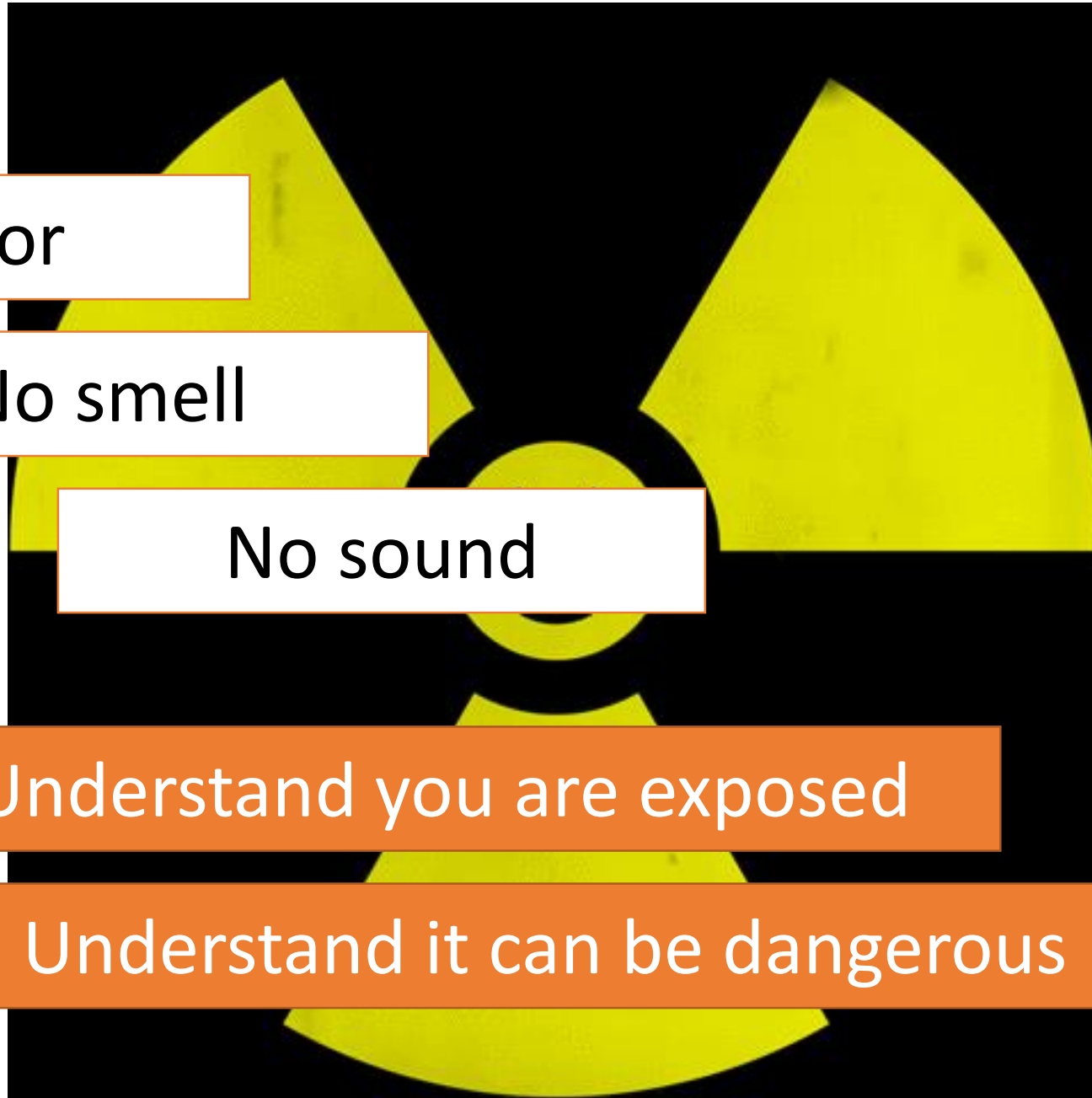
No color

No smell

No sound

Understand you are exposed

Understand it can be dangerous





# Gain Awareness

Check your reports



Check in the literature  
where you stand

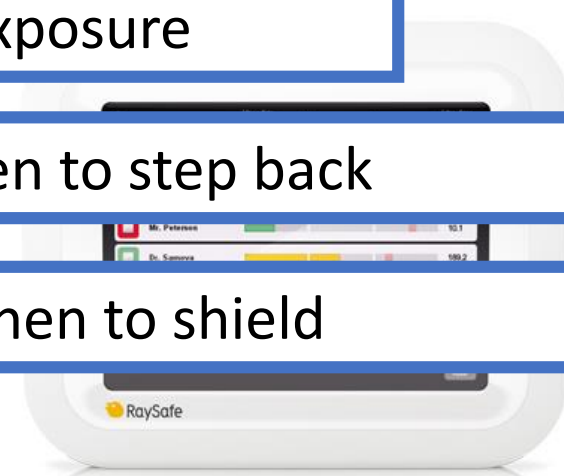
Use Active Dosimeters



Visualize exposure

Learn when to step back

Learn when to shield





In Daily Practice

Follow ALARA

With Good Practices

With support of new  
technologies



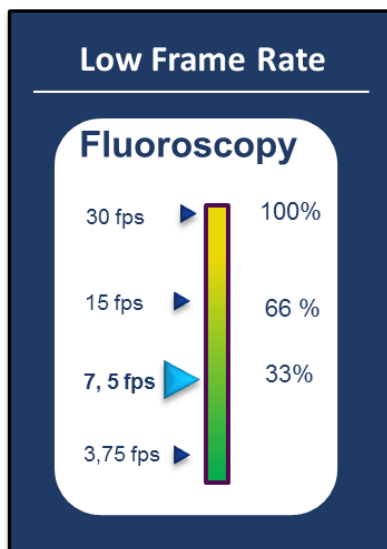
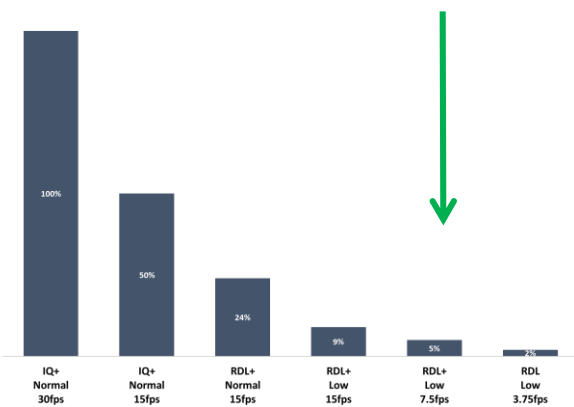
« As Low As Reasonably Achievable »



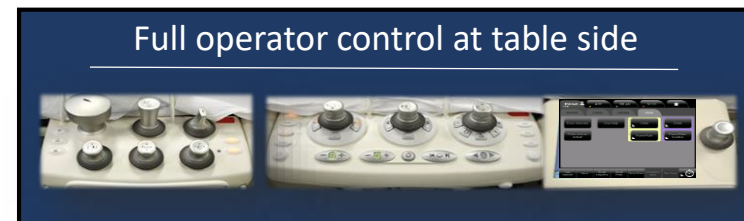
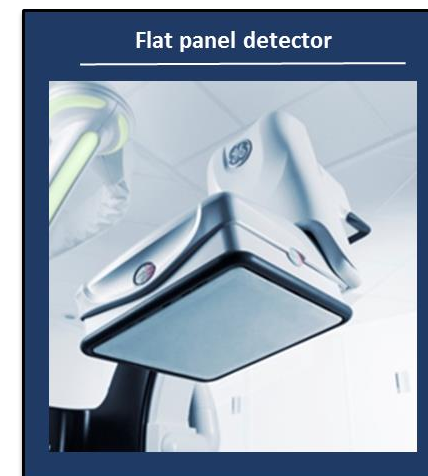
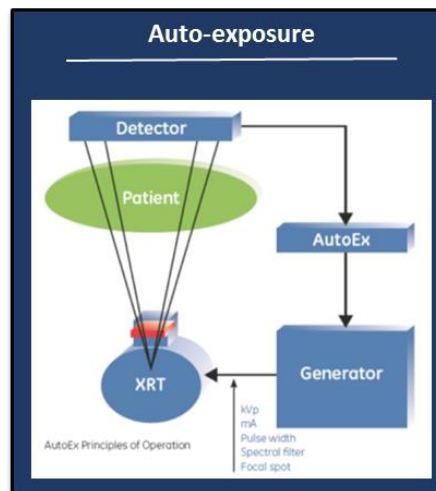
# Adjust Dose & Frame rate

Use Half/Low Dose Mode

Use Pulse Mode



Set Up the equipment



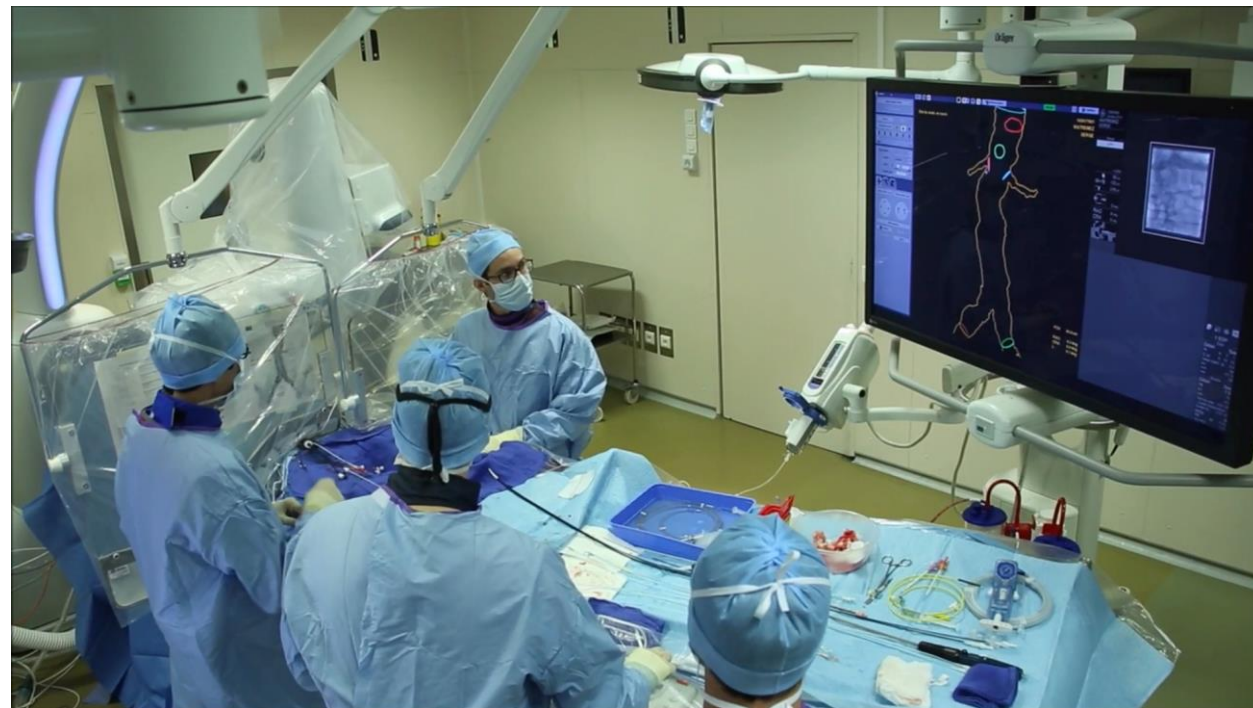


# Reduce Time on pedal

Avoid unnecessary acquisitions



Use Fusion





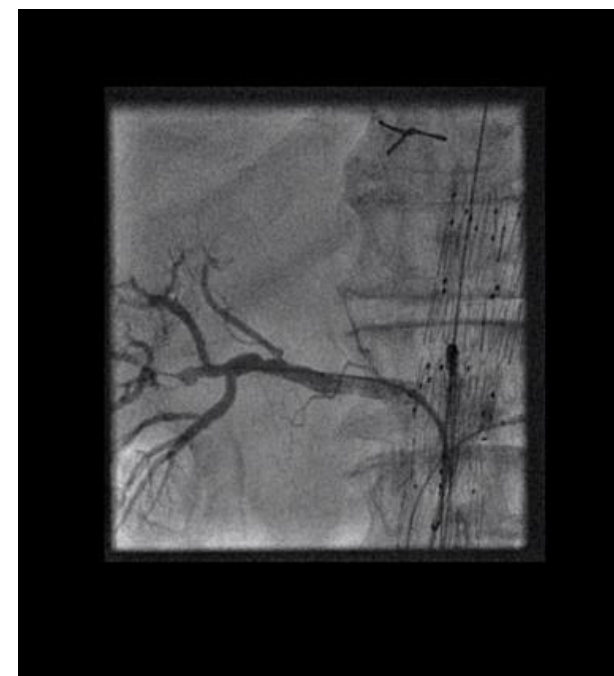
# Use Fluoroscopy rather than Fluorography

Fluoroscopy requires less X-rays



1 DSA image  
~  
500 fluoro images

Record Fluoro loops

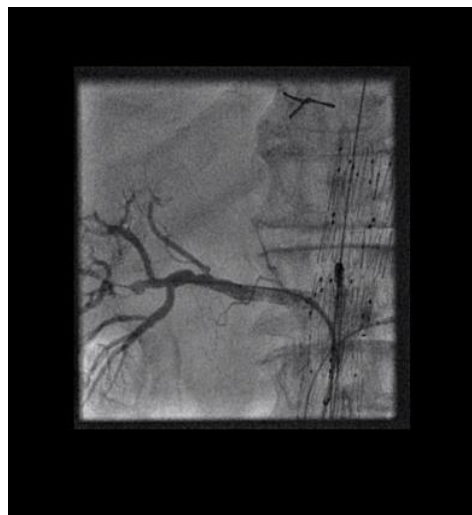






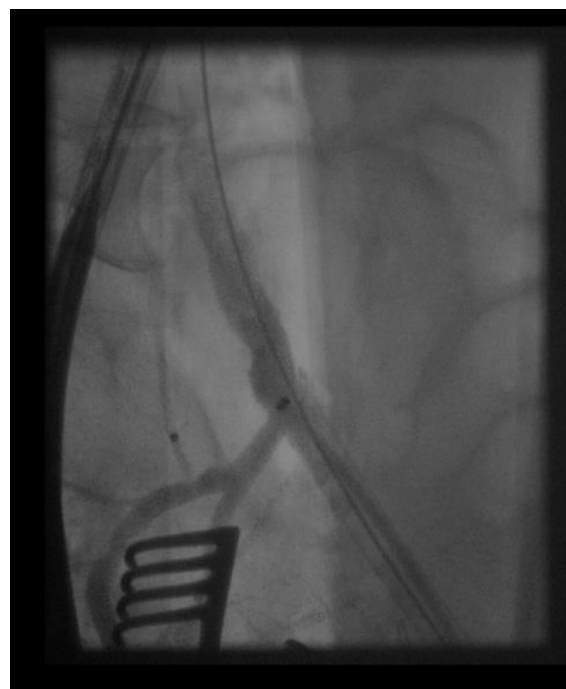
# Use Fluoroscopy rather than Fluorography

Fluoroscopy requires less X-rays



1 DSA image ~ 500 fluoro images

Use them for roadmap



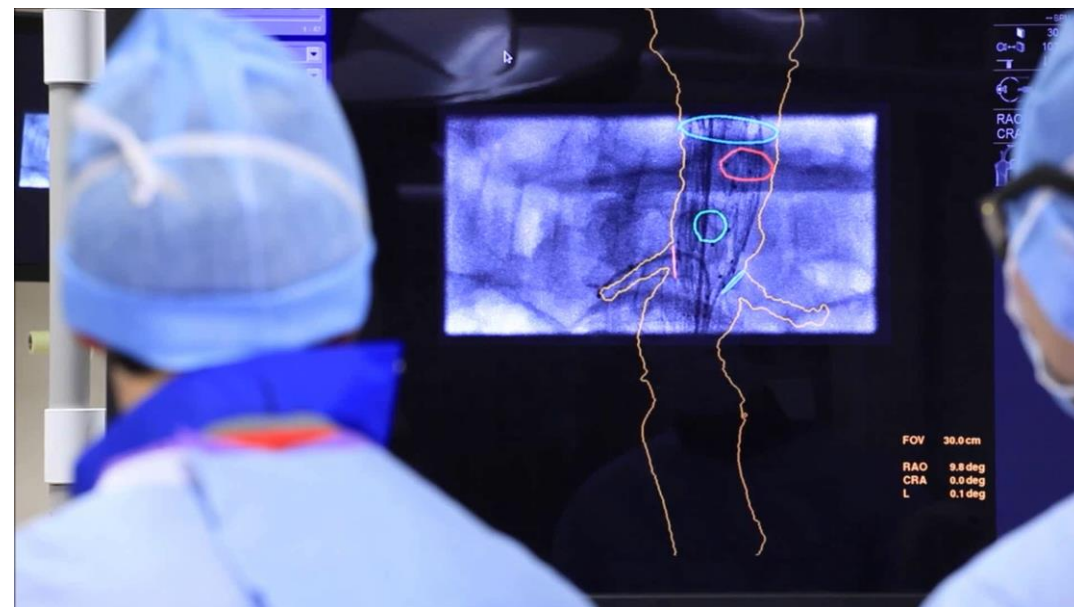


# Avoid Magnification

Because it requires more X-rays



Use digital zoom & LDM

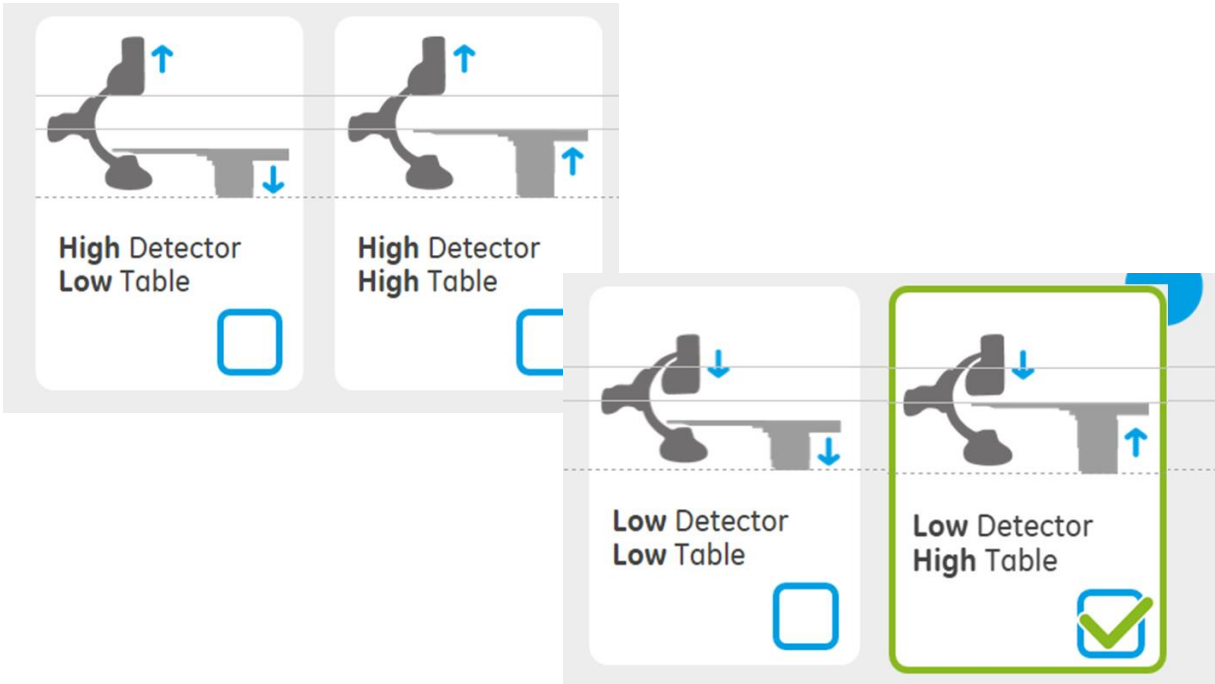




# Adjust your system geometry

High Table/Low detector

Or let your system do it for you



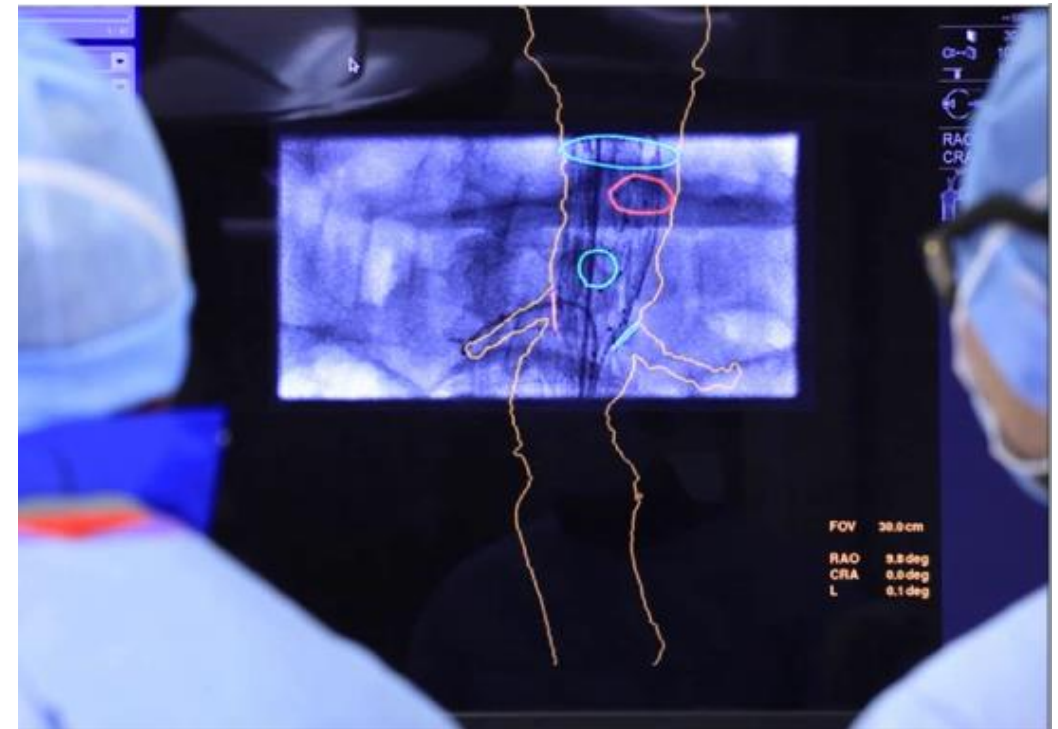
Innova Sense® patient contouring technology



# Adjust Collimation

Only to what need to be seen

Use virtual collimation / Fusion

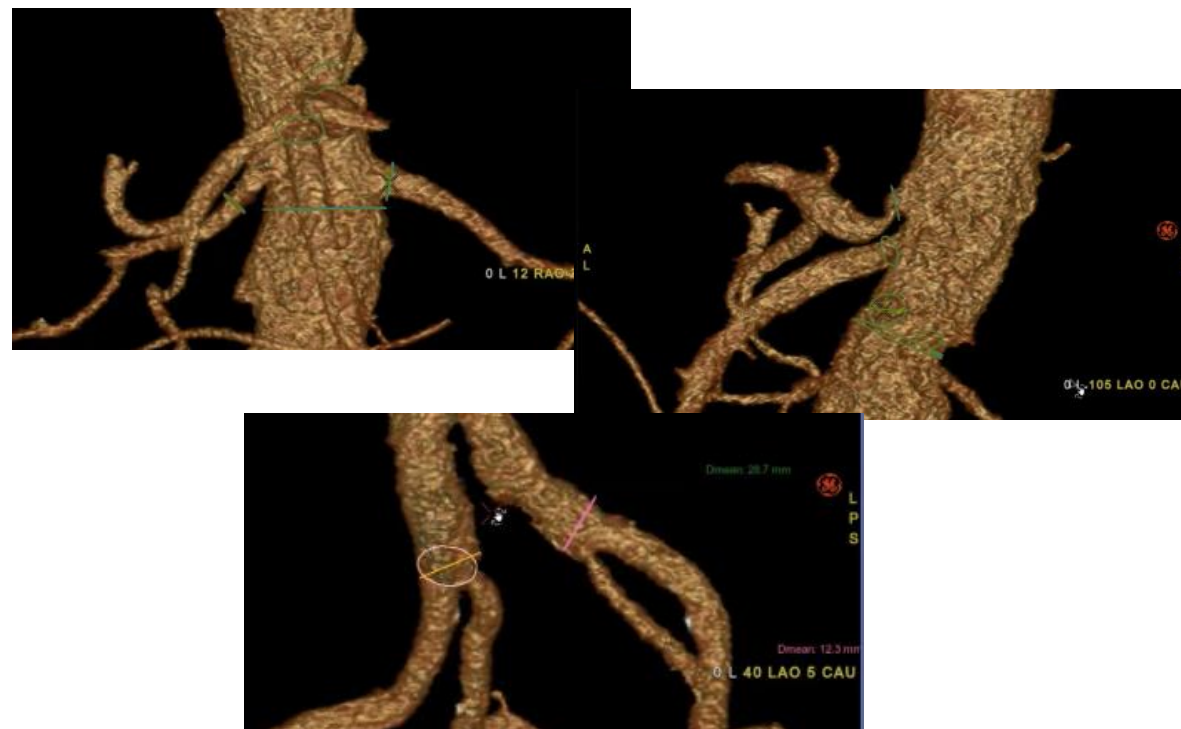
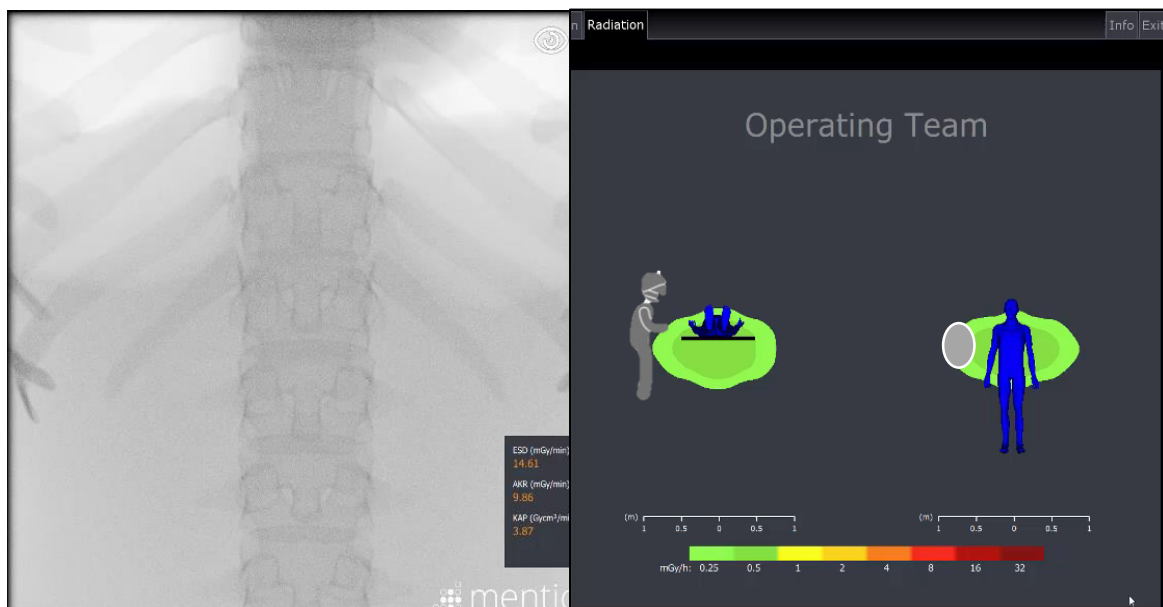




# Avoid Extreme Angulations

Because it increases dose

Plan procedure on a workstation

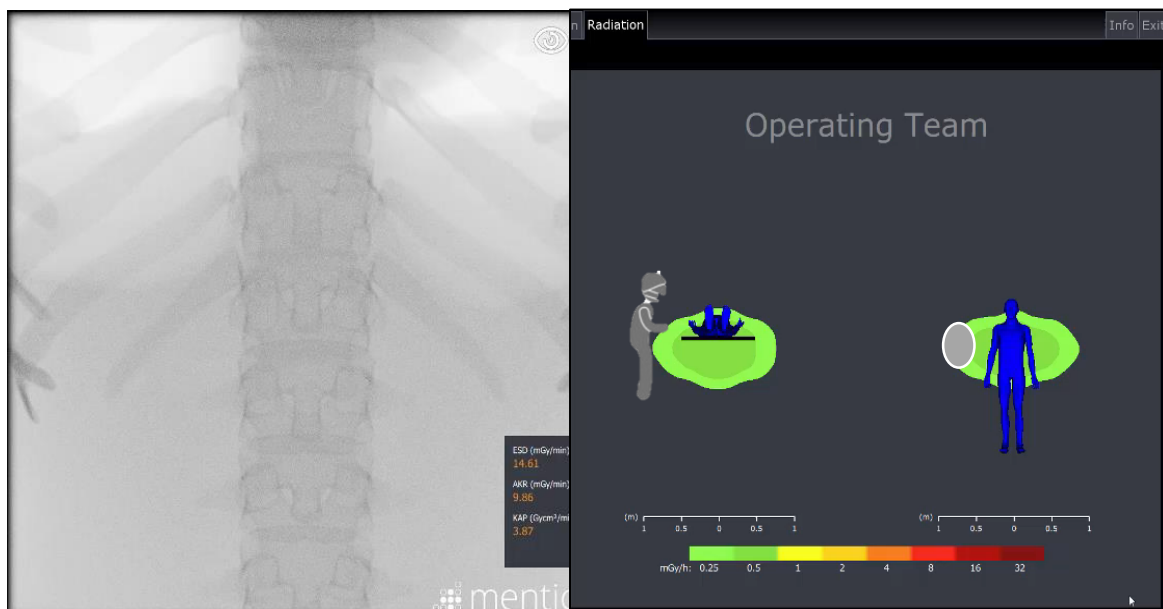




# Avoid Extreme Angulations

Because it increases dose

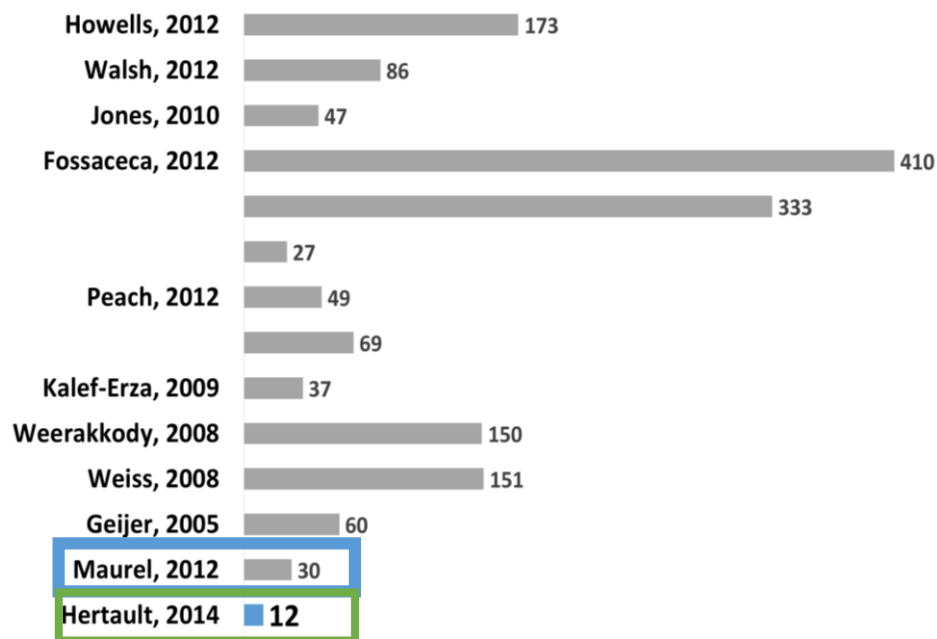
Use Fusion





# No Tricks, just Tips...

Median DAP (Gy.cm<sup>2</sup>) values reported in the Literature for **Bifurcated EVAR** procedures



New Technologies do help



Stick to the ALARA





## Could these results be achievable elsewhere?



- **Bifurcated** EVAR
- All centers using **same Hybrid Room**  
(Discovery IGS from GE Healthcare )
- Each center has received a **dose and fusion imaging training** before enrolling patients
- Monitoring dose and practice via  
Dosewatch, cloud-based tracking system



DAP 14.7 Gy.cm<sup>2</sup>





# Conclusion

**Radiation Does Matter**

**Gaining awareness**

**Low dose EVAR is achievable**

**Thanks to modern technology**

**But mostly by sticking to the ALARA**

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