

**EGG**  
MEDICAL

# Egg Medical: EggNest XR™ Overview

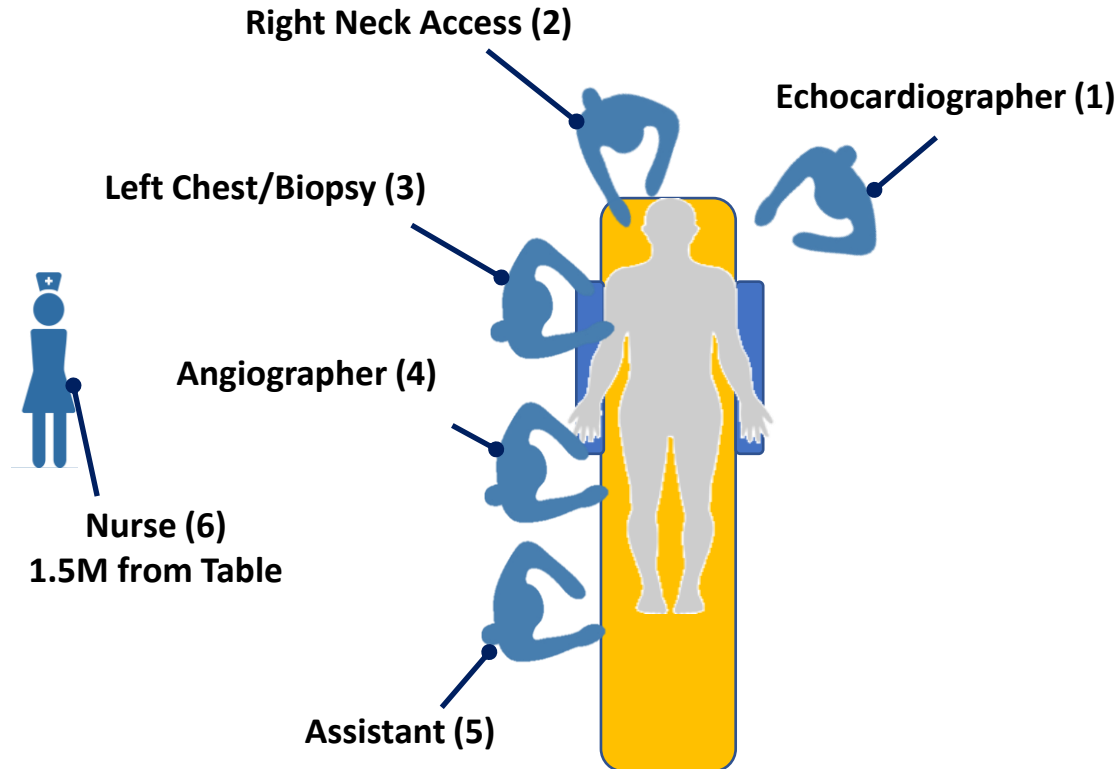
*Protection For All*



# Egg Medical Clinical Data

# Radiation Cloud in the Cath Lab

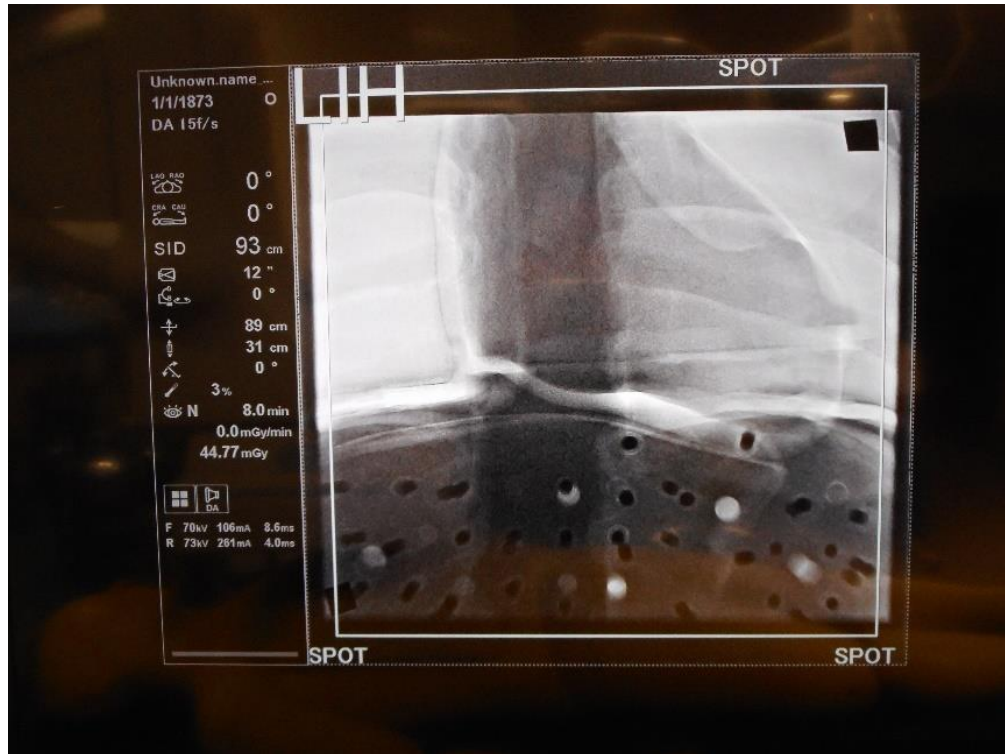
RaySafe Radiation Meter



- Used a state-of-the-art radiation meter
- Collected measurements in 6 most common positions around the table
- At each position 10 measurements were recorded from 20cm to 200cm

This test allowed us to understand the highest exposure areas for scatter radiation in the cath lab using a human phantom and measuring scatter at 6 positions around the cath lab table

# Measurement Methodology

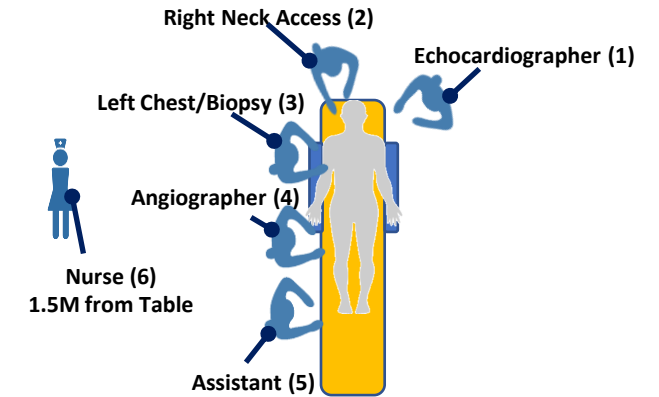
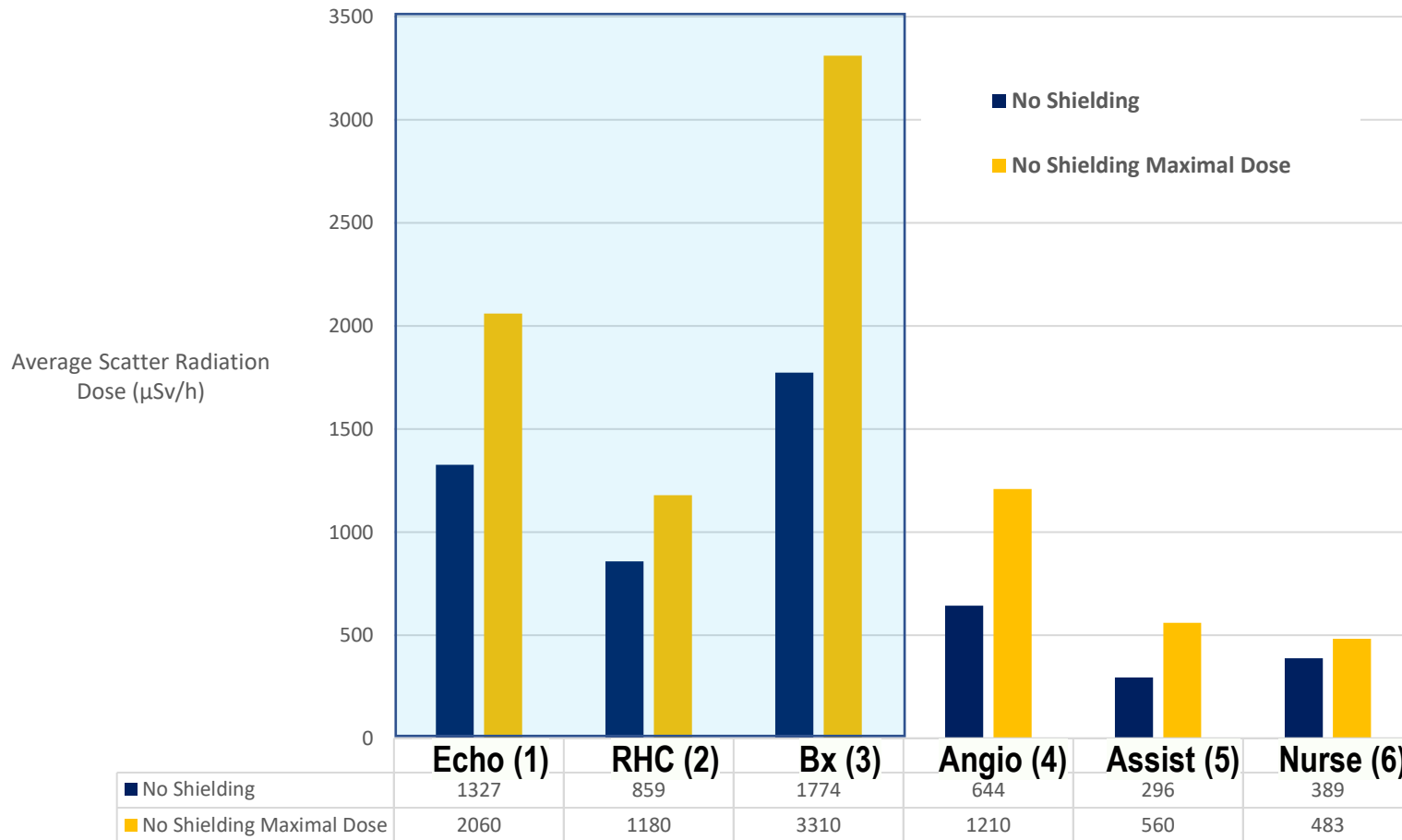


US Department of Energy  
Anthropomorphic Human Phantom



RaySafe X2 Scatter Radiation Meter Measurements  
20-200 cm From the Floor, in 20 cm Intervals

# Scatter Radiation Around the Cath Lab Table

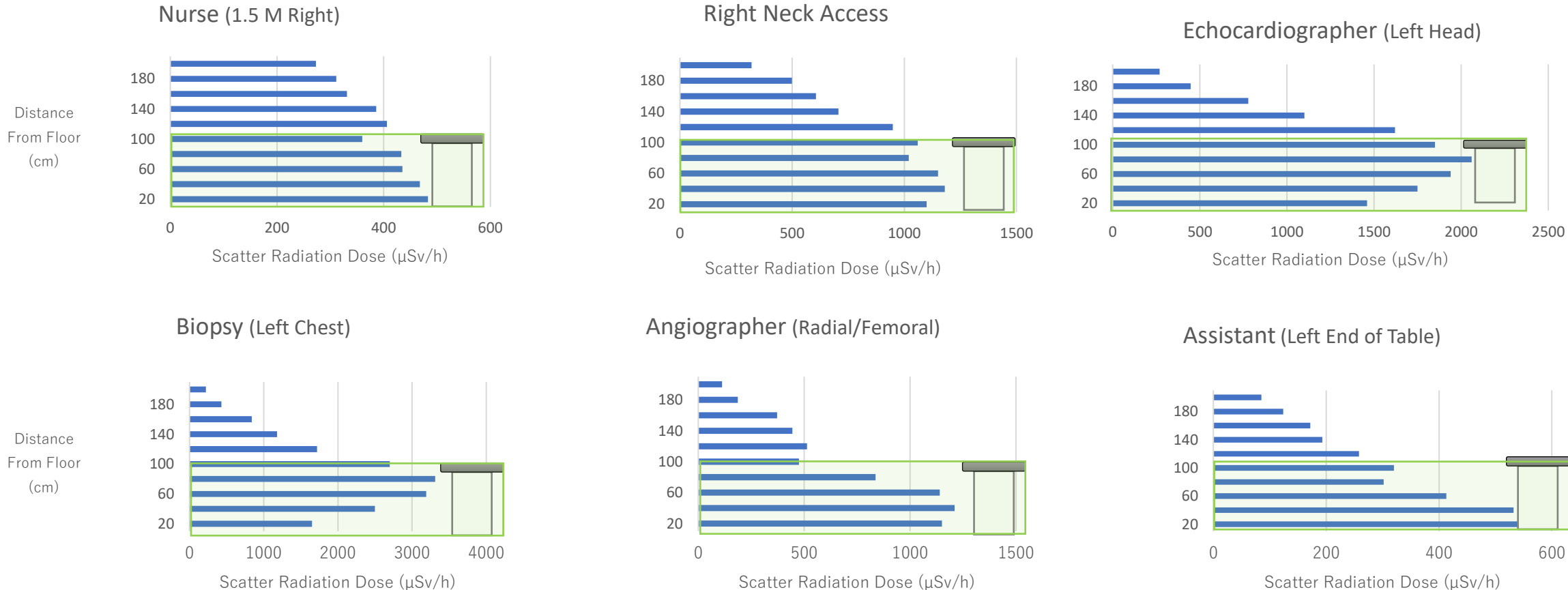


- The positions near the head and chest receive the most scatter radiation
- The nurse position 1.5 M from the table receives more radiation than the assistant position at the table pedestal

This graph shows where the highest dose of scatter radiation is by position around the cath lab table by adding up the 10 measurements in each position to highlight average dose and highest dose

# Distribution of Scatter Radiation by Position

## PA Projection, no shielding



69% of scatter radiation comes from at and below the table surface

Effective protection must protect below the table and at the head

# Assessment of EGGNEST<sup>TM</sup>

## Reduction of Scatter Radiation Exposure

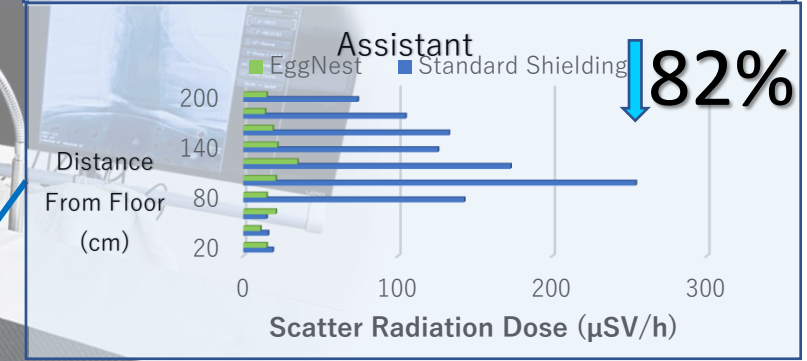
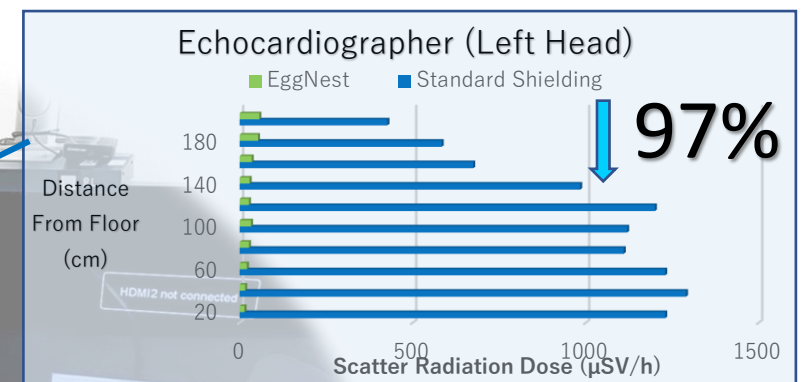
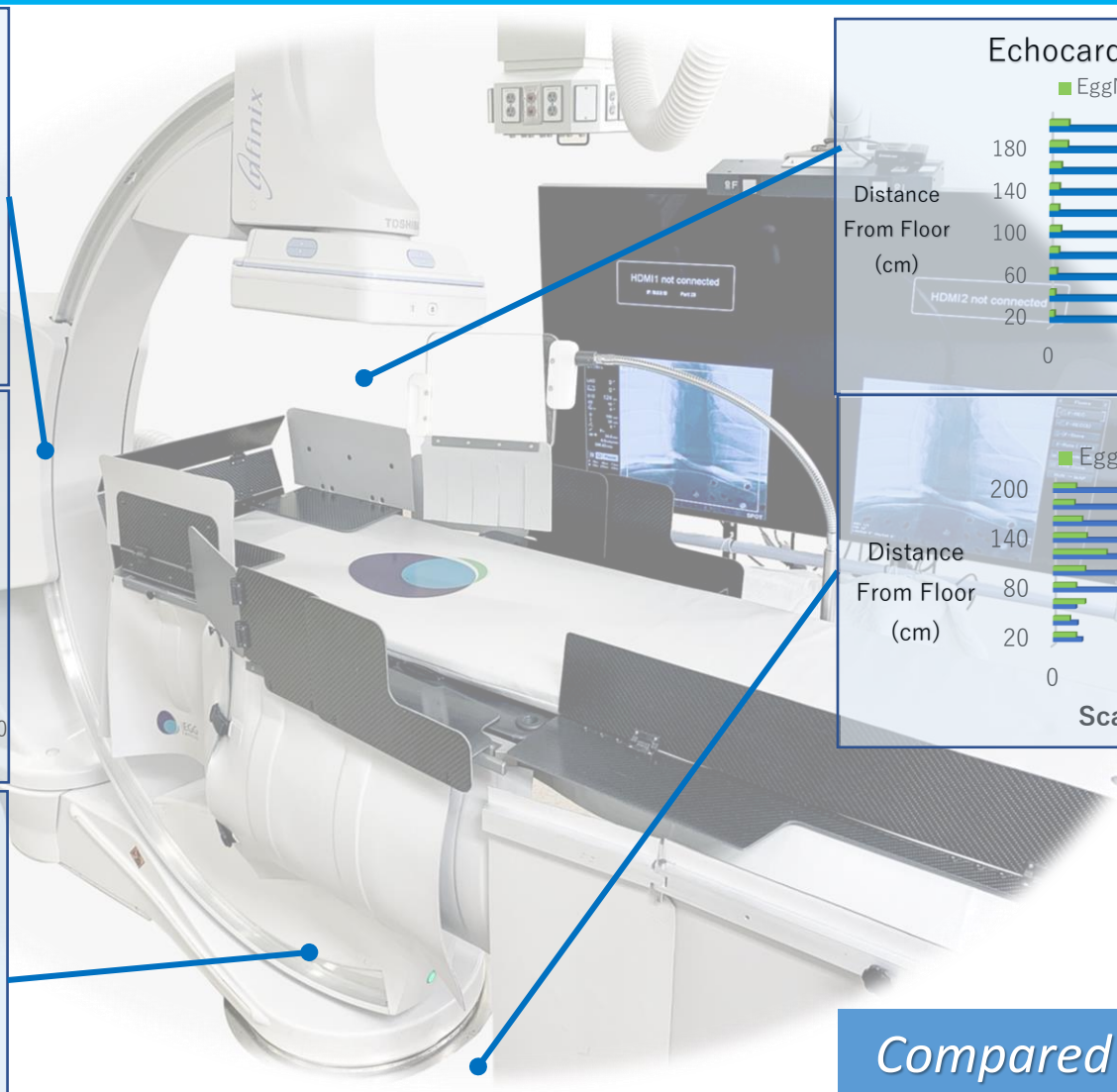
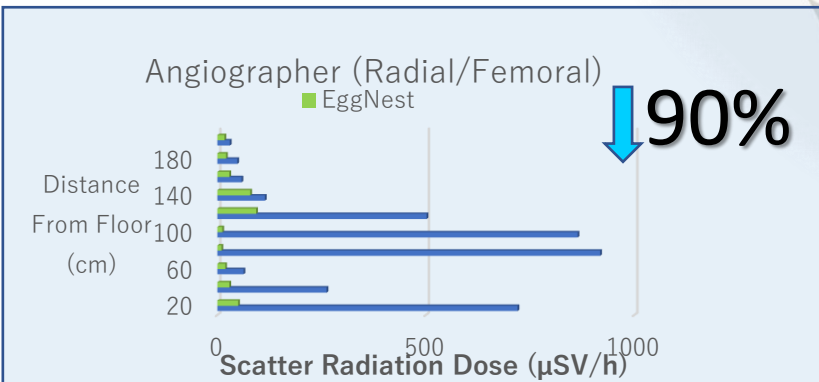
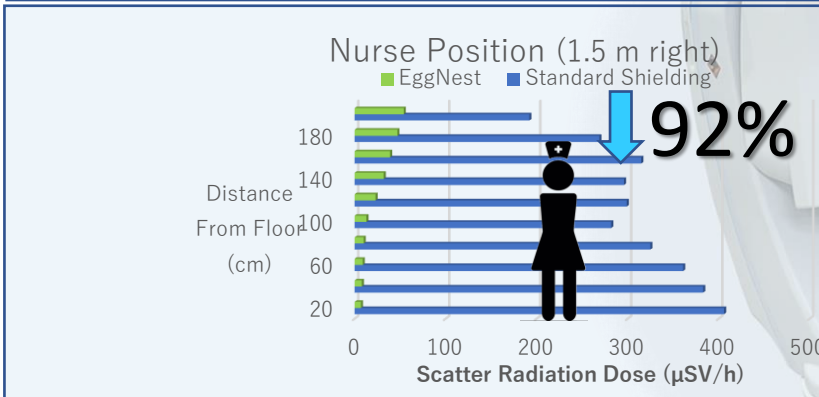
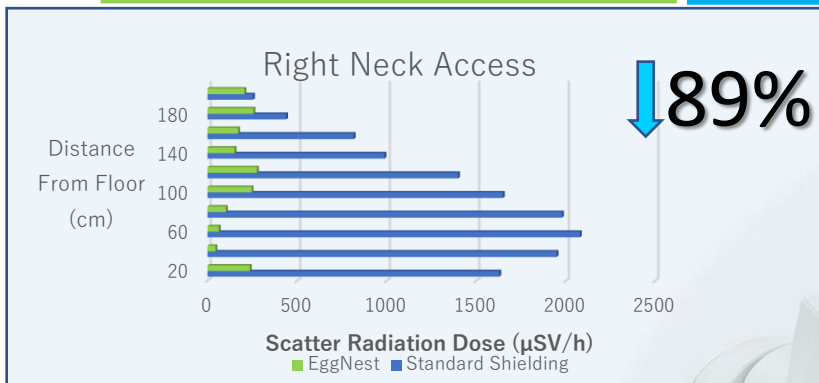
### Experimental set-up

- Toshiba Infinix (2014) fixed C-arm x-ray system: **70 keV fluoroscopy at 15 fps**
- US Department of Energy **calibrated anthropomorphic human phantom**
- Scatter radiation measured with RaySafe X2 radiation meter (Fluke Biomedical)
- Measurements taken from **20 cm to 200 cm from the floor in each position**

### Protocol 1

- PA Projection
- Scatter radiation measured at **6 positions around the cath lab table** corresponding to locations typically occupied by cath lab personnel
- Measurement obtained with **three levels of radiation protection**
  - No shielding
  - Standard shielding consisting of a hanging shield and table shield, both 0.5 Pb equivalent
  - The EggNest

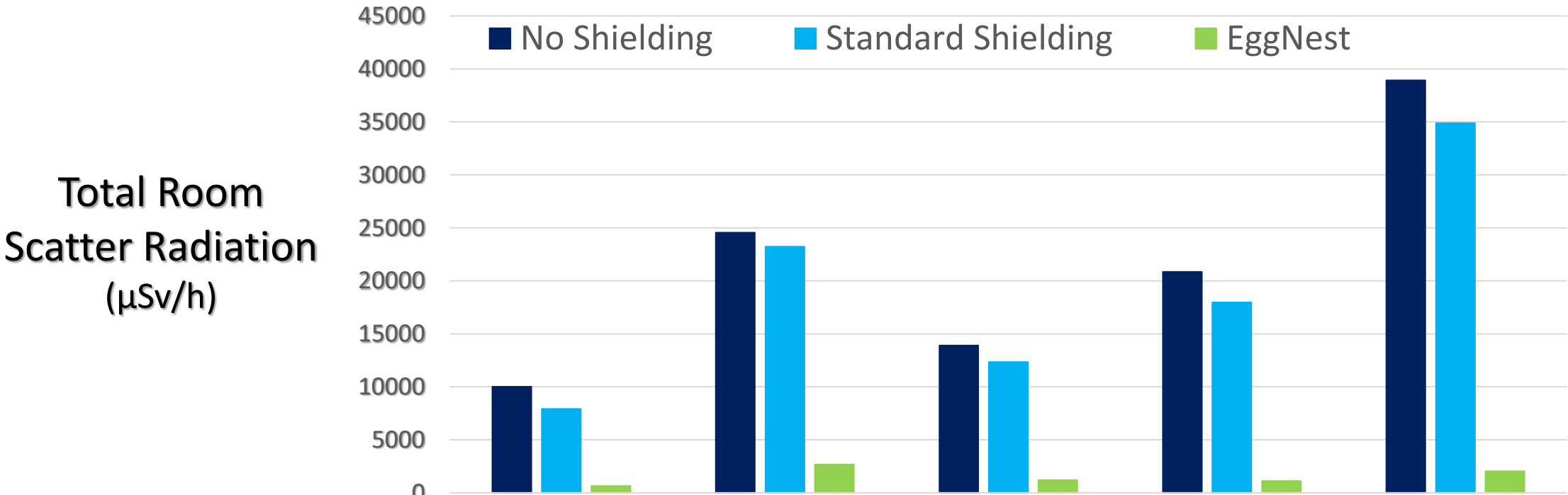
# Effect of the EggNest XR™ on Scatter Radiation Around the Table



*Compared to Standard Shielding*



# Effect of Shielding on Total Room Scatter Radiation



Total Room SR ( $\mu\text{Sv/h}$ )	PA	RAO30 Caud20	RAO 30 Cran30	LAO40 Cran30	LAO40 Caud30
No Shielding	10010	24540	13910	20850	38910
Standard Shielding	7910	23230	12330	17960	34870
EggNest	640	2670	1210	1110	2040

\*Average scatter radiation dose for all heights and positions around the table

# Average Scatter X-ray Dose Reduction- All Positions

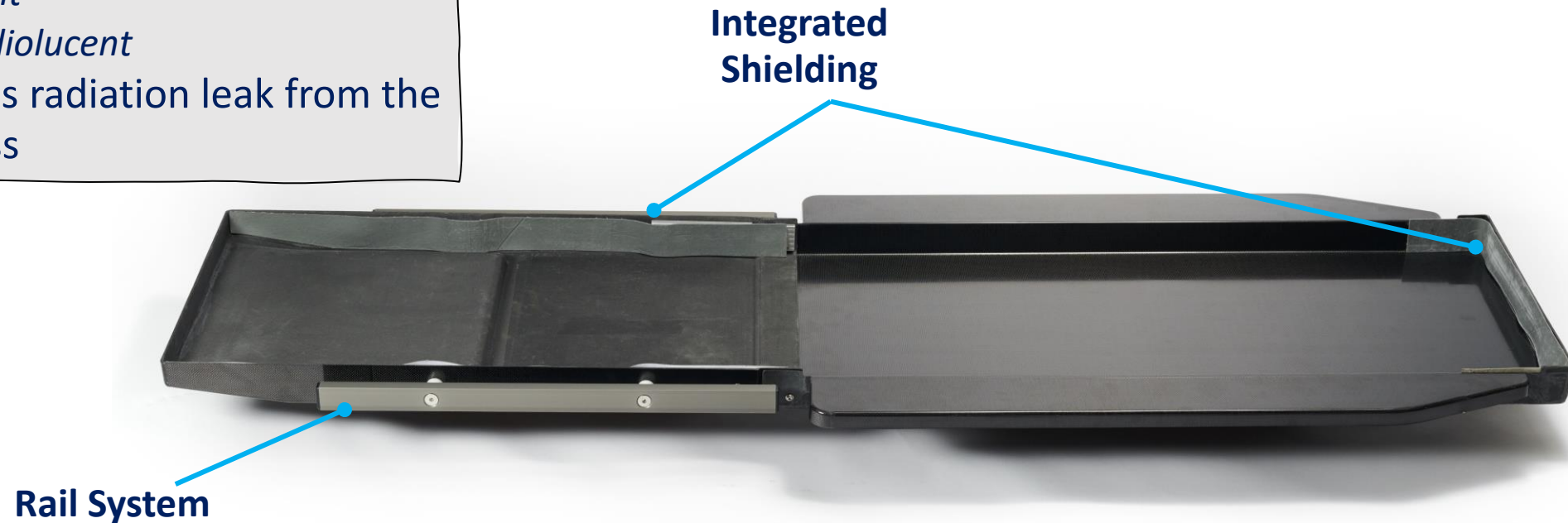
EggNest v. Standard Shielding	All Heights Sum Dose Averaged $(1-(EN/STD))$				
	PA	RAO30/Cuad20	RAO30/Cran20	LAO40/Cran30	LAO40/Caud30
Echocardiographer	97%	87%	91%	94%	90%
Right Heart Cath	89%	81%	87%	94%	95%
Right/Left Chest	92%	94%	93%	97%	95%
Angiographer	90%	98%	90%	73%	94%
Assistant	82%	80%	72%	48%	95%
Nurse	92%	91%	93%	95%	98%
<b>Projection Average</b>	<b>92%</b>	<b>88%</b>	<b>90%</b>	<b>94%</b>	<b>94%</b>



# EggNest™ System Overview

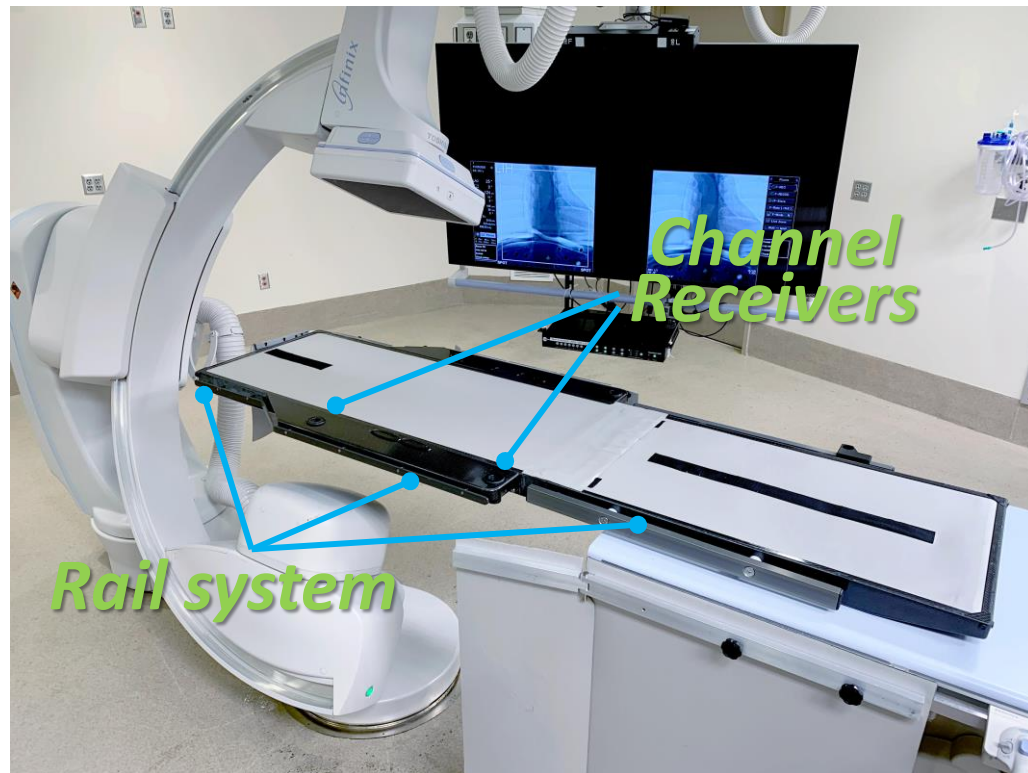
# Base Platform: The EggNest XR™

- ❖ Carbon fiber frame with a patient mattress and shielding inside
  - ❖ *Strong*
  - ❖ *Light*
  - ❖ *Radiolucent*
- ❖ Prevents radiation leak from the mattress

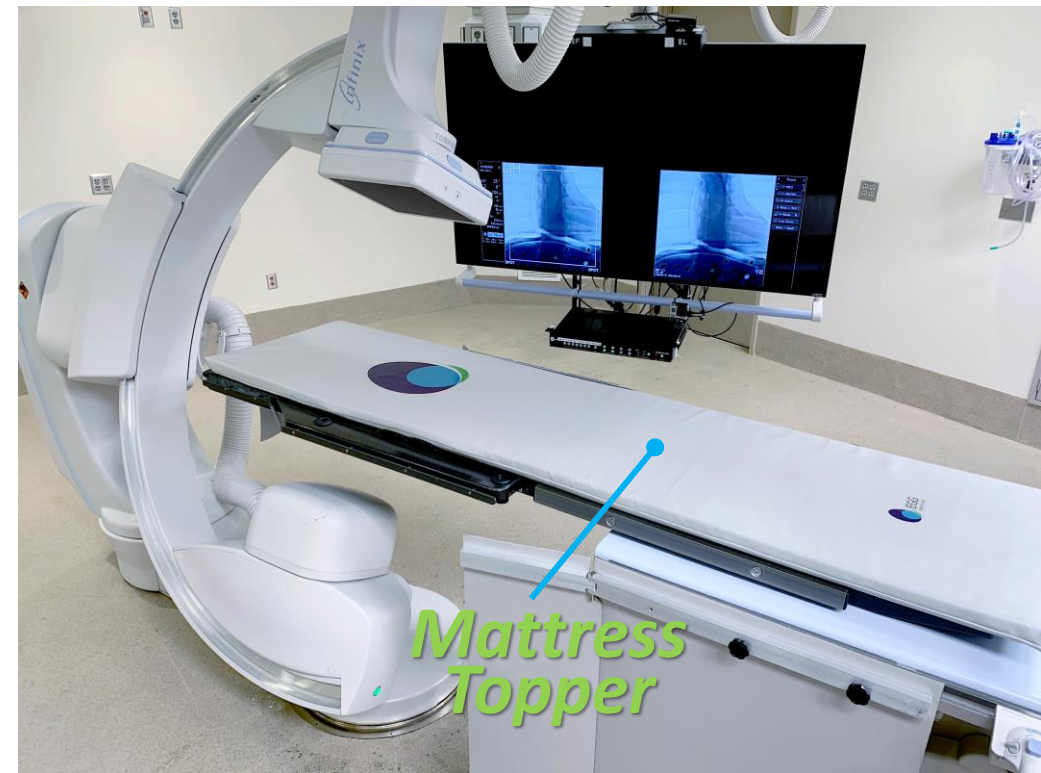


The foundation of the EggNest XR is a carbon fiber “sled” that replaces that patient mattress and becomes the platform to attach and support all the radiation protection components

# Base Platform: The EggNest XR™



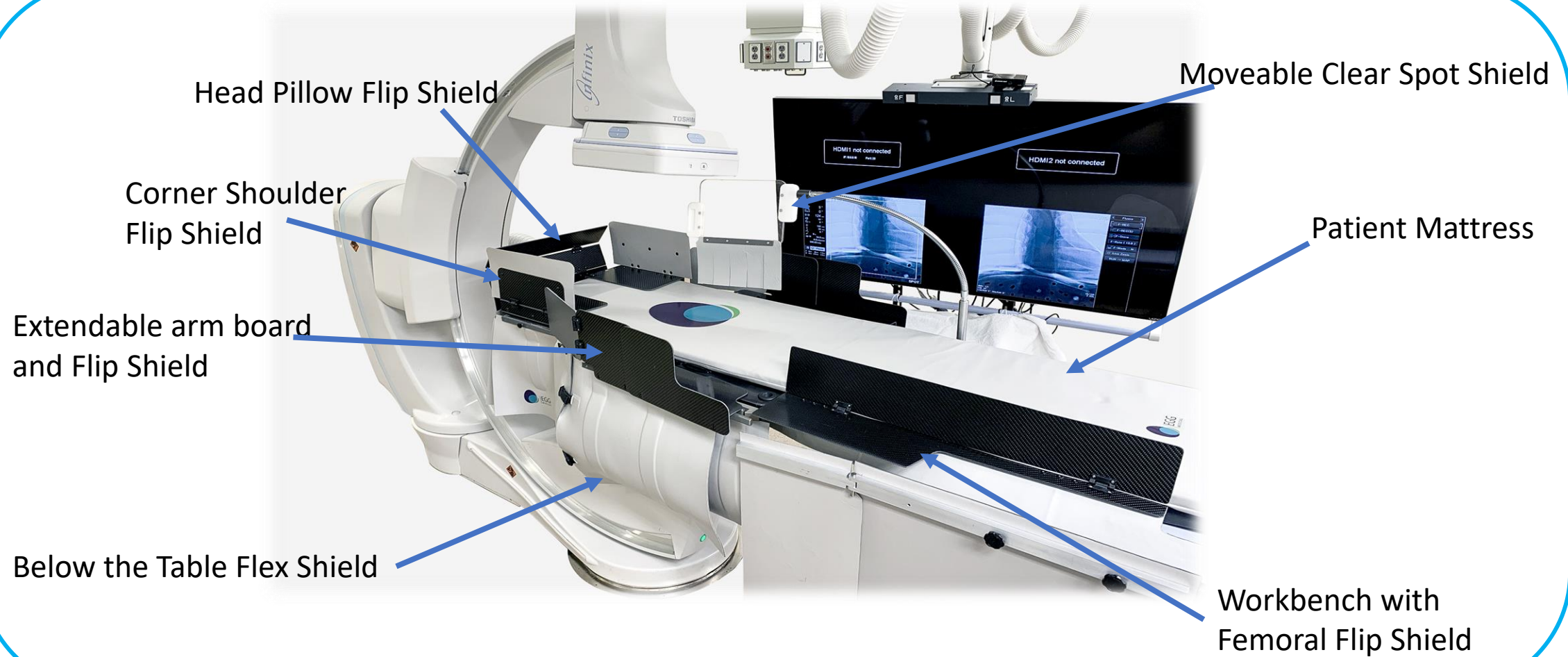
EggNest XR base platform with integrated foam mattress (replaces patient mattress on cath lab table)



EggNest XR platform with foam mattress topper added

*These images do not show any radiation protection components added to platform*

# The EggNest XR™



# Egg Medical<sup>®</sup>

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*Protection For All, Your Way*