

ITIX: Mid-Term effects of an intensive radiation-protection-training on the Intraoperative X-ray-radiation exposure in a hybrid OR

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Disclosure

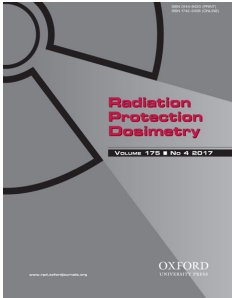
Speaker name:

Heiko Wendorff

I have the following potential conflicts of interest to report:

- Consulting
 - Employment in industry
 - Stockholder of a healthcare company
 - Owner of a healthcare company
 - Other(s)
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- I do not have any potential conflict of interest

Background and Rationale of the study



[Radiat Prot Dosimetry](#), 2013 Jun;155(1):119-21. doi: 10.1093/rpd/ncs316. Epub 2012 Nov 25.

Reduction of the radiation dose received by interventional cardiologists following training in radiation protection.

[Abatzoglou I¹](#), [Koukourakis M](#), [Konstantinides S](#).

[+ Author information](#)

- New challenges in the Hybrid OR
- Yearly training in radiation protection is necessary

Central research question

Can we hold the X-ray radiation exposure-reduction in PTA's in a Hybrid-OR by an intensive training after 10mo?

Materials and methods

- **Prospective, non randomised, monocentric, clinical study**
- **Study period: Nov 2016 – Jan 2018 (incl. follow-up)**
- **Effective number of patients: 150 (50 before, 50 after training, 50 10mo)**
- **Statistics: Welch-two sample t-test, MonteCarlo permutation test, Grubbs Outlier test**

- **Criteria for inclusion:**
 - PAD IIa, IIb, III and IV (Fontaine) (equal Rutherford 1-6)

- **Criteria for exclusion:**
 - Pregnancy, Breast feeding
 - Impossibility of endovascular treatment
 - Emergency interventions

Intensive additional radiation protection training

Com. radiation protection/ALARA

legal requirements

- Basic course rad. protection (24h)
- Special course rad. protection(20h)
- Special course interventional radiology (8h)
- Yearly Briefing (4h)

Additional training

- 3 days inspection HOT
- Analysis and intensive training of the leading surgery-team by an experienced radiologist
- Interactive training in the OR
- Lectures for the complete OR-team

Key points

Our key points

- Improve collimation
- Avoid magnification
- Using the best adjustments
- Reduce the fluoroscopy time

Endpoints

- **Primary endpoint:**
 - Reduction of the dose area product in PTA's (mGycm²)
- **Secondary endpoints:**
 - Reduction of the fluoroscopy time in PTA's (min)
 - Reduction of the contrast media in PTA's (ml)

Patient characteristics

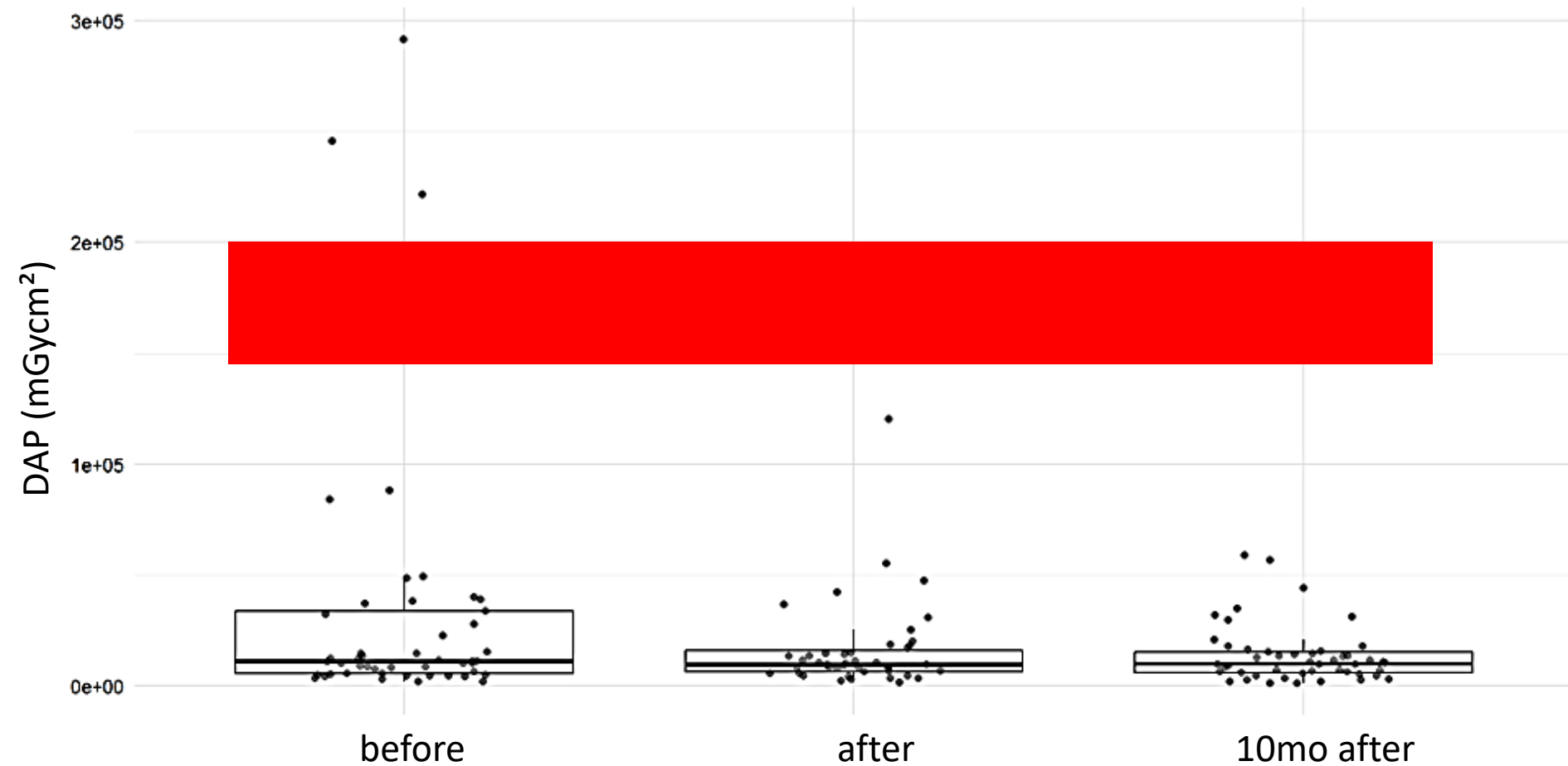
	Before training (cohort A)	After training (cohort B)	10 mo post tr. (cohort C)
N=	50	50	50
Age	70,1	72,0	72,7
BMI	25,6	26,1	25,9
male	68%	70%	70%
Procedure time (min)	86,3	83,2	83,1
Aortic/iliac	10	10	11
Femoral	33	33	31
Lower leg	7	7	8

Results

	Before (cohort A)	After (cohort B)	10 mo after (cohort C)
n=	50	50	50
DAP (mGycm ²)	35557	16086	13762
fluoroscopy Time (min)	12,0	9,1	10,3
contrast media (ml)	76	68	66

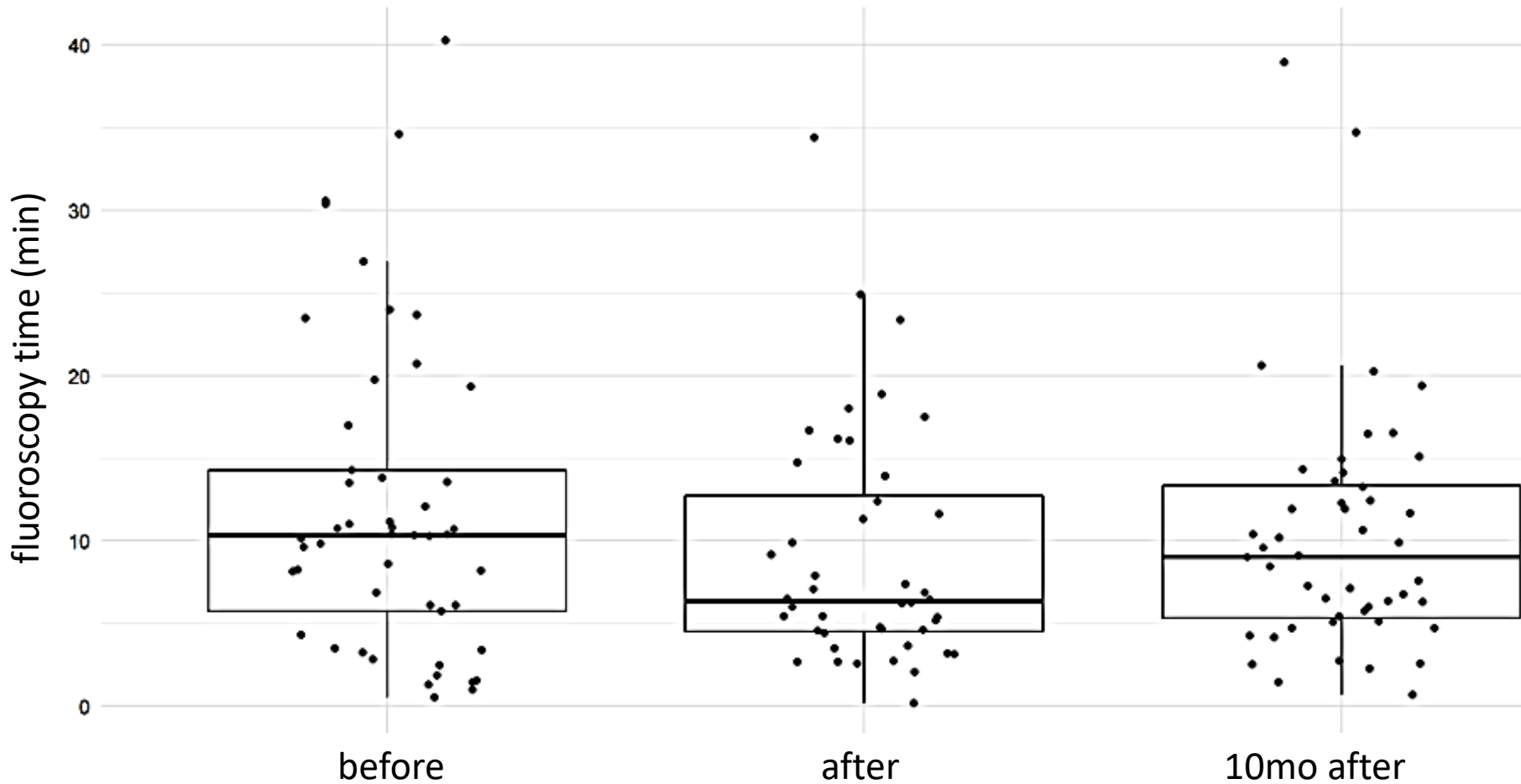
Results DAP (mGy cm^2)

(cohort A->B) 55%, $p < 0,05$, (cohort A->C) 62%, $p < 0,05$



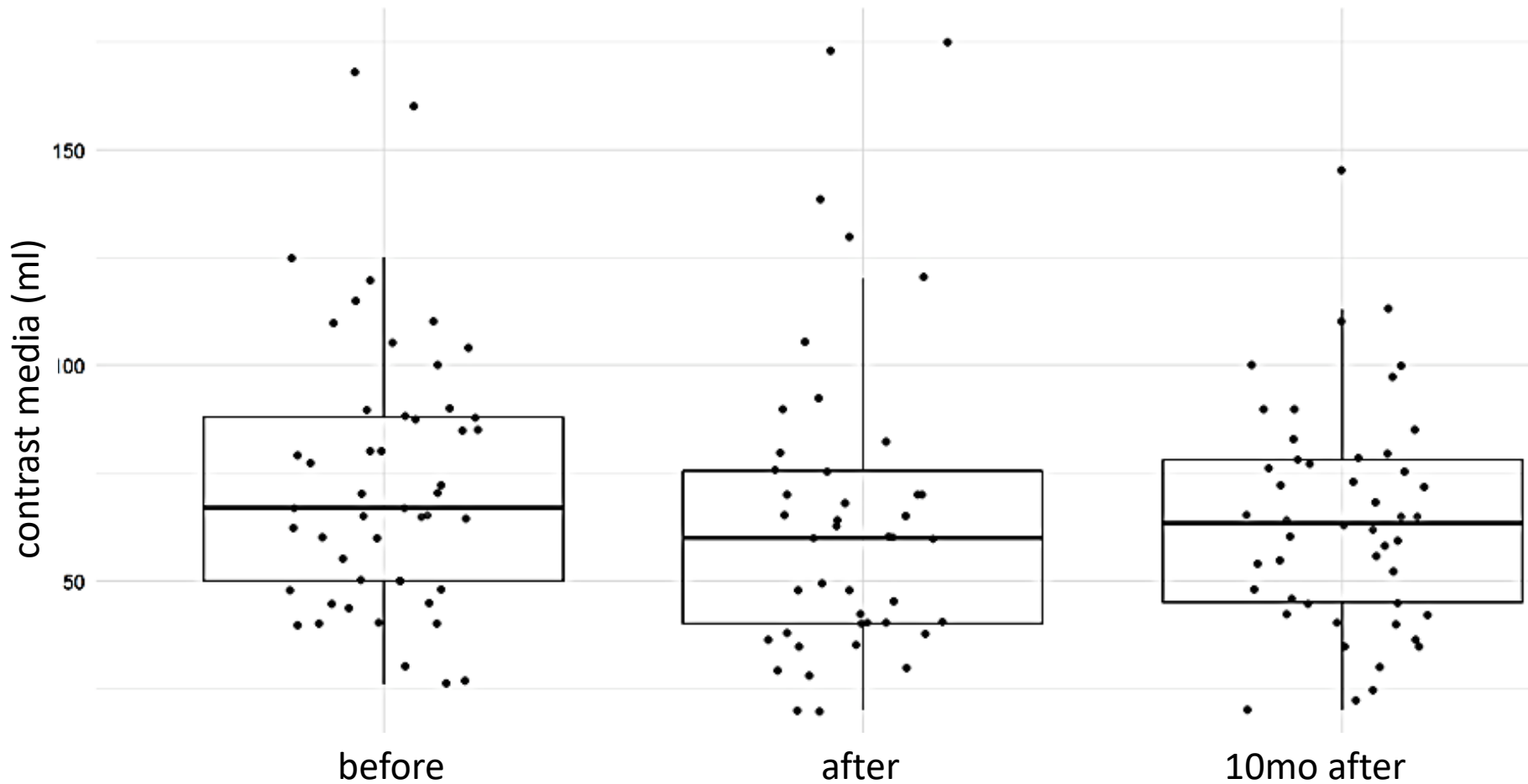
Results fluoroscopy-time (min)

no significant reduction of the fluoroscopy-time



Results contrast media use (ml)

no significant reduction of the contrast-media use



Conclusions

- An intensive additional radiation protection training for the OR-team reduces the DAP in PTA's **significantly** (>50%), also middle-term (collimation, avoid magnification, reduce radiation time)
- This training can change the team-philosophy of radiation protection
- No **significant** reduction of the fluoroscopy time
- No **significant** reduction of the amount of contrast media

Save the date – MAC 4.-6.12.2019



Thank you !

