

Preliminary results of a survey on the current policy about personal radiation protective equipment (PRPE) in Belgian healthcare institutions

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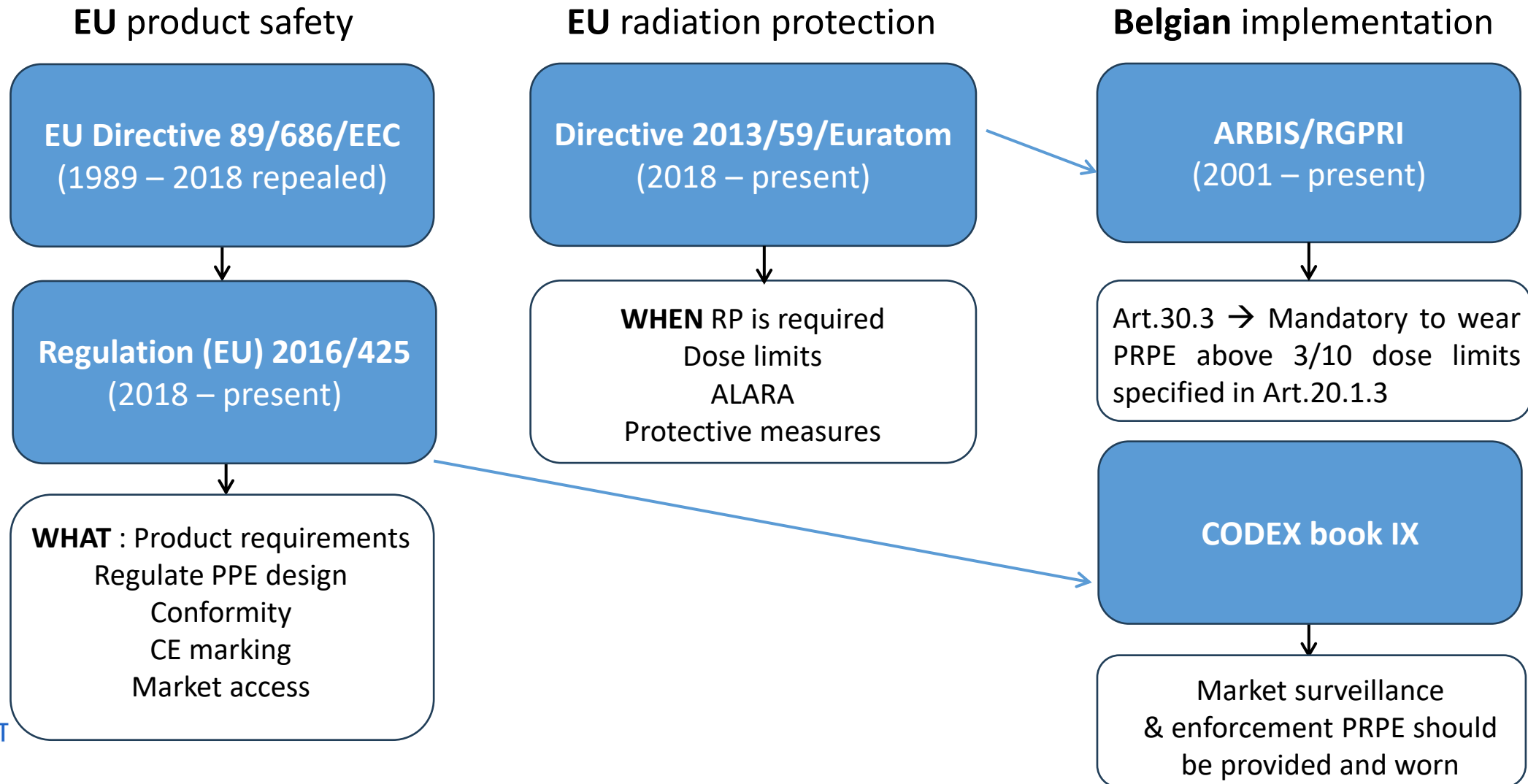


Background and Purpose

- Belgian and European radiation protection regulations require workplaces to optimize radiation exposure, keeping doses as low as reasonably achievable (ALARA). This includes the use of personal protective equipment (PRPE)
- FANC regulates and controls all nuclear and radiological activities in Belgium to protect from the risks of ionizing radiation. However, its PRPE guidelines only set basic employer obligations for quality and use, lacking clear monitoring and QC instructions.



Regulatory Relationship



Regulatory Relationship

→ However, **standardized detailed quality-control protocols** for monitoring of PRPE in particular, **are lacking**, leading to variability and potential inadequacies in use, routine inspection and maintenance.

Study Design

Objective

The primary aim of this study was to obtain an up-to-date overview of policies and practices regarding these PRPE in Belgian healthcare institutions.

Material & methods

Data was collected via an online survey, covering 4 categories:

- General questions

- Purchase

- Use

- Quality control of PRPE

Distributed through various channels:

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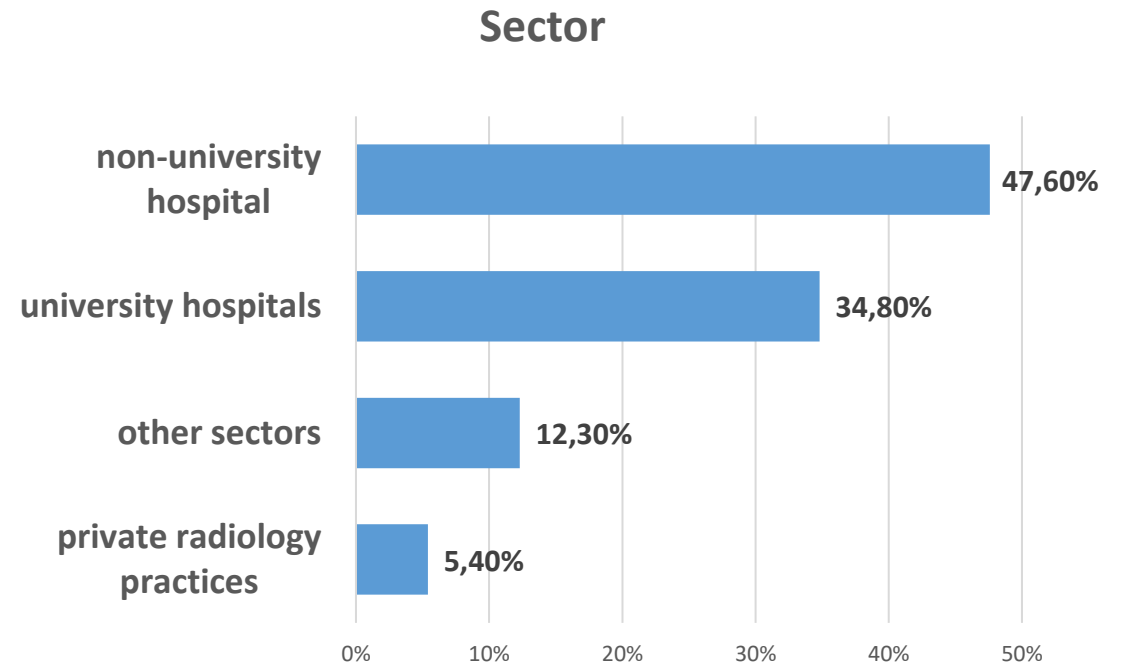
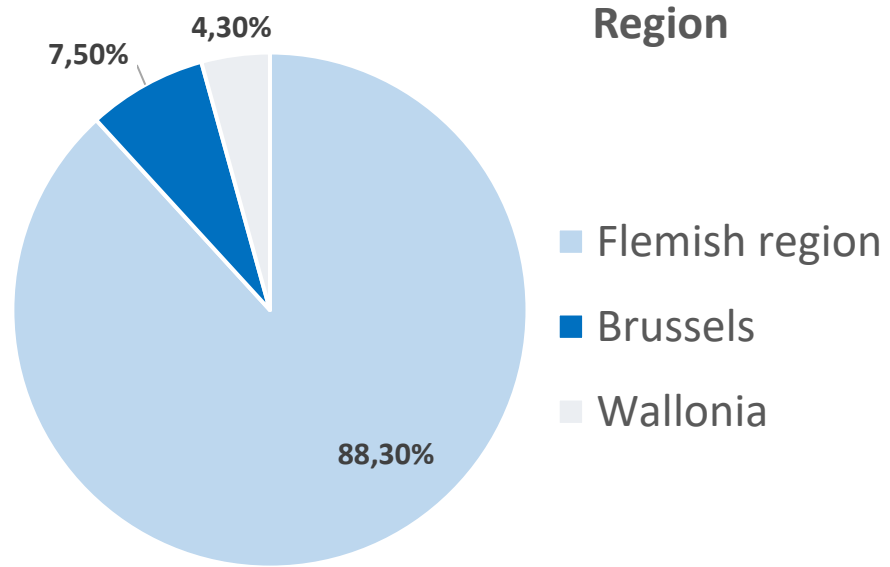
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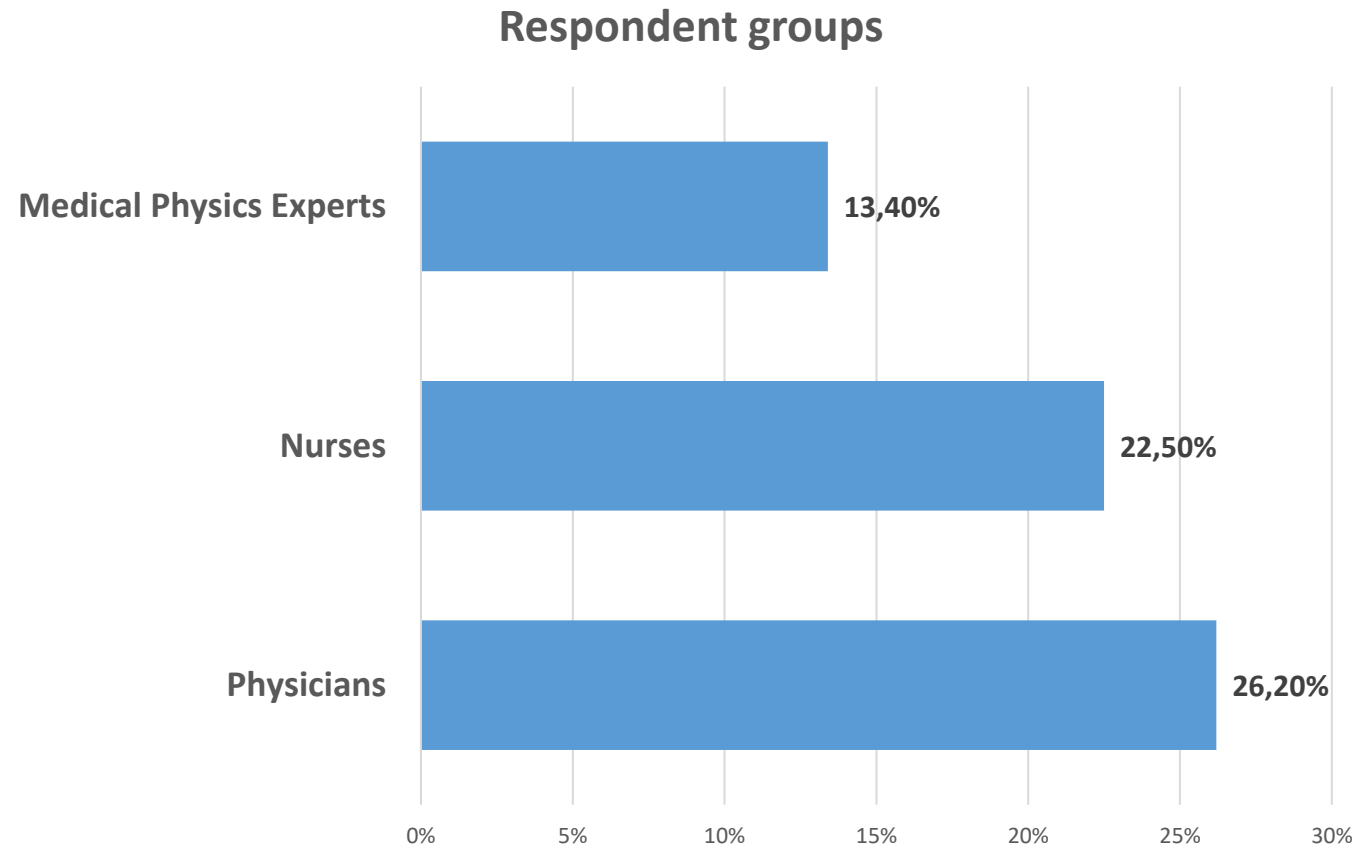
General



194 Participants



194 Participants



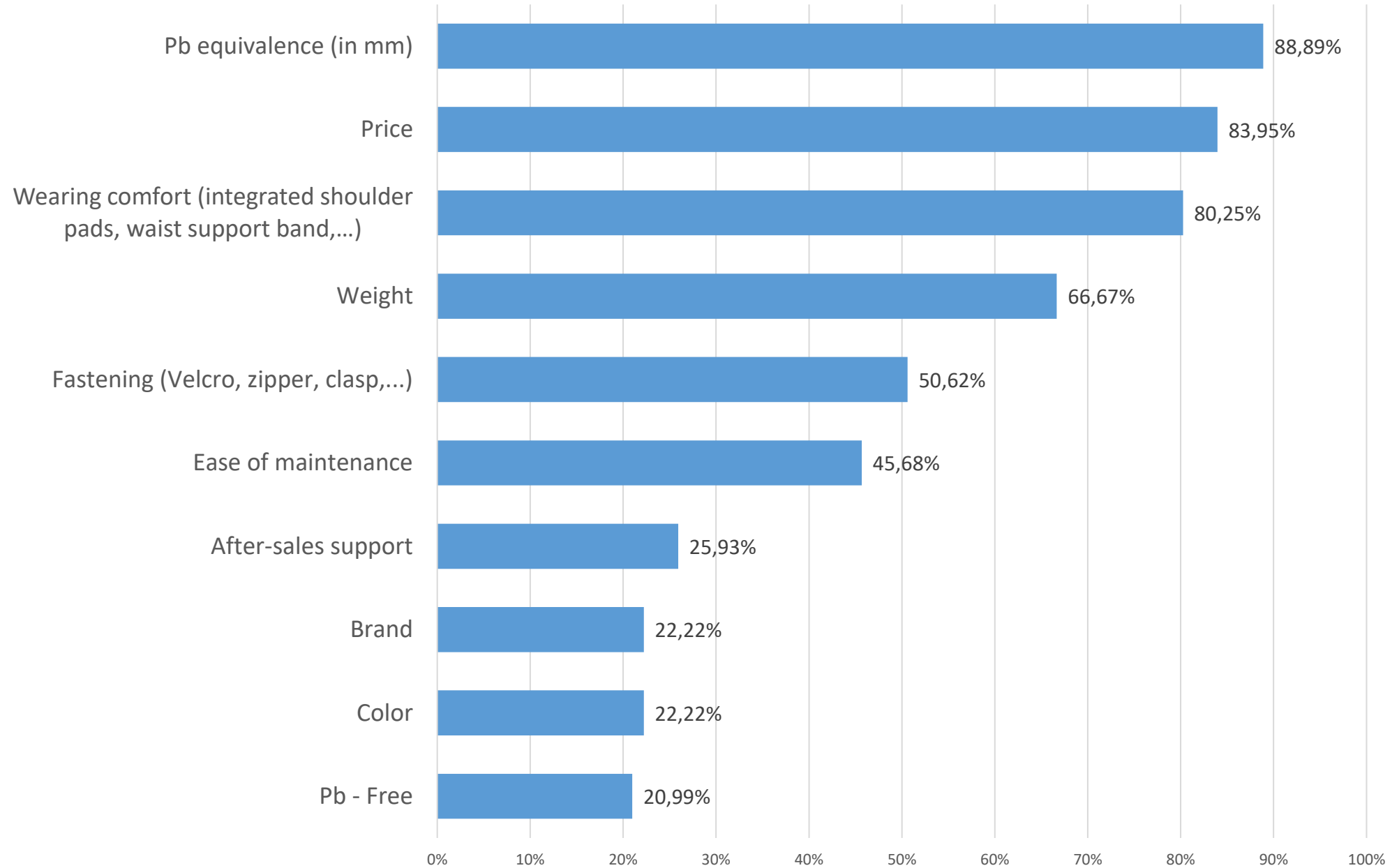
Purchase of PRPE



Involvement

- 41.2% of the respondents are involved in the purchase of PRPE, being mainly certified radiation protection experts and physicians who are department heads.
- Quantity
 - Most departments have between 2 and 90 PRPE items.
 - Larger institutions holding up to 1500.
- Availability
 - Usually, a fixed pool of PRPE is shared among workers (in 70.1%)

Purchase Criteria



Use of PRPE

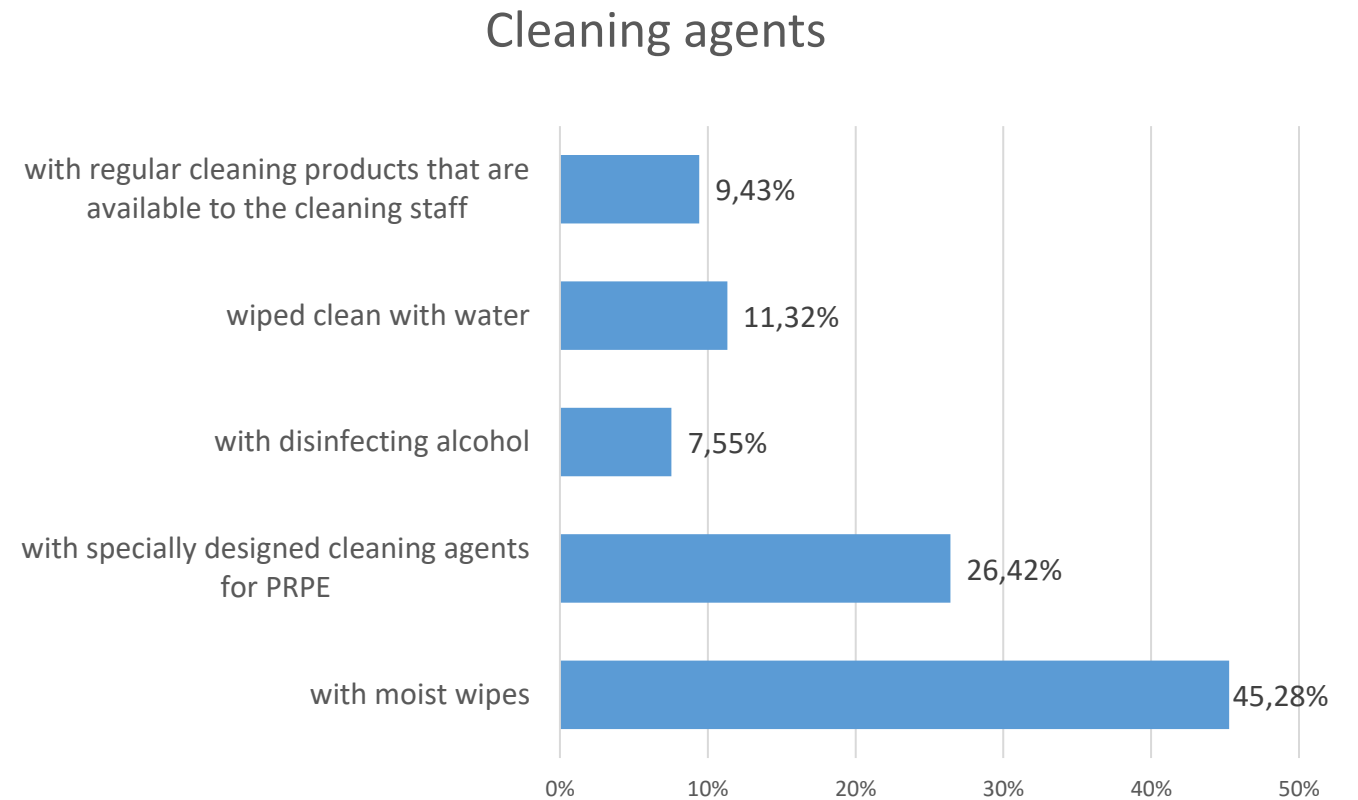
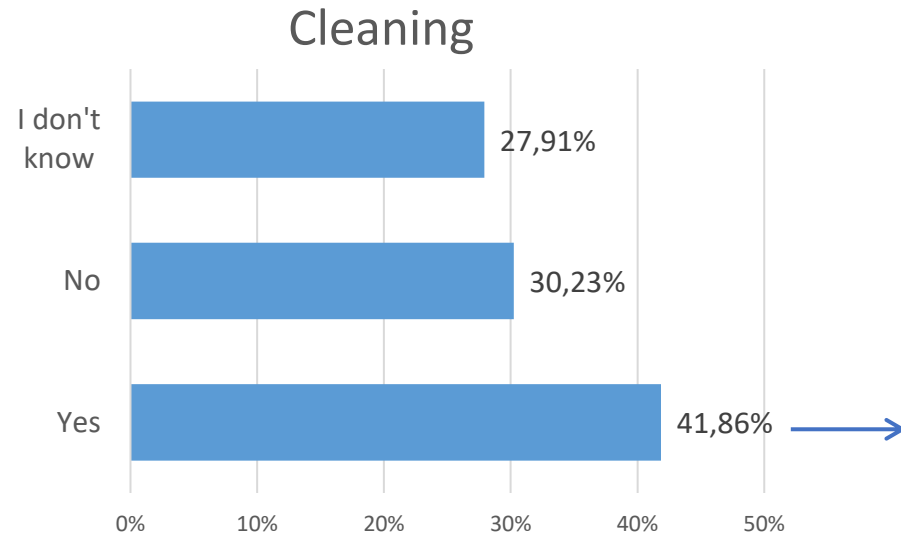


Storage

- Although 79.1% confirm having been informed about the correct use of PRPE, improper storage was admitted by 5.8%.



Maintenance



Quality assurance of PRPE



Belgium

CODEX book IX check protective gear for defects after each use and carefully clean, wipe free of dust and disinfect

ARBIS ch30 only certified radiation physicist should perform the qa every year and for interventional radiology every half year

Quality Control

QC was reported by 52.3%

Mostly annually (69.7%)

and in 37.4% of cases this is carried out by the department staff itself.

9.1% only check external integrity, not the inner attenuating layers.



The best way to routinely check lead aprons is to first lay them out on a flat surface and visually check all of the seams and the outer and inner covers for any visible damage. Also, check the belts and fastening devices to confirm they are in good shape. Then using your hands, feel the surface of the apron for any lumps, cracks, or evidence of separation from the seams or sagging. **if it passes this initial test, it is probably in pretty good shape and can be returned to service.**

If the apron is found to be suspect, only then should it be inspected radiographically. If a fluoroscope is available, you should set it to manual mode with the highest kVp available and a low mA setting to protect the x-ray tube and lower the dose rate to the person performing the inspection. **Also, you should only fluoroscopically inspect the suspect area(s).** The typical maximum fluoroscopic field size is 40 cm in diameter. The typical wraparound, full-length, lead apron is about 100-150 cm

Source: HPS specialists in Radioprotection: <https://hps.org/publicinformation/ate/q10461.html>

NOT True!

Rejection criteria

- Lambert and McKeon criteria → 23.8%
- The '1cm' rule → 17.9%
- Own established criteria → 8.3%
- The '2€ rule' → 7.1%

Conclusion

- Only 60.5% of the respondents indicated being satisfied with the current PRPE policy in their institution.
 - Organizing more sessions/lectures about the correct use, maintenance and QC of PRPE for medical staff could be useful
- There is a strong need for clear and harmonized guidelines on how to perform routine quality checks.

Thank you for your attention

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Promotor Prof. dr. ir. Klaus Bacher

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