

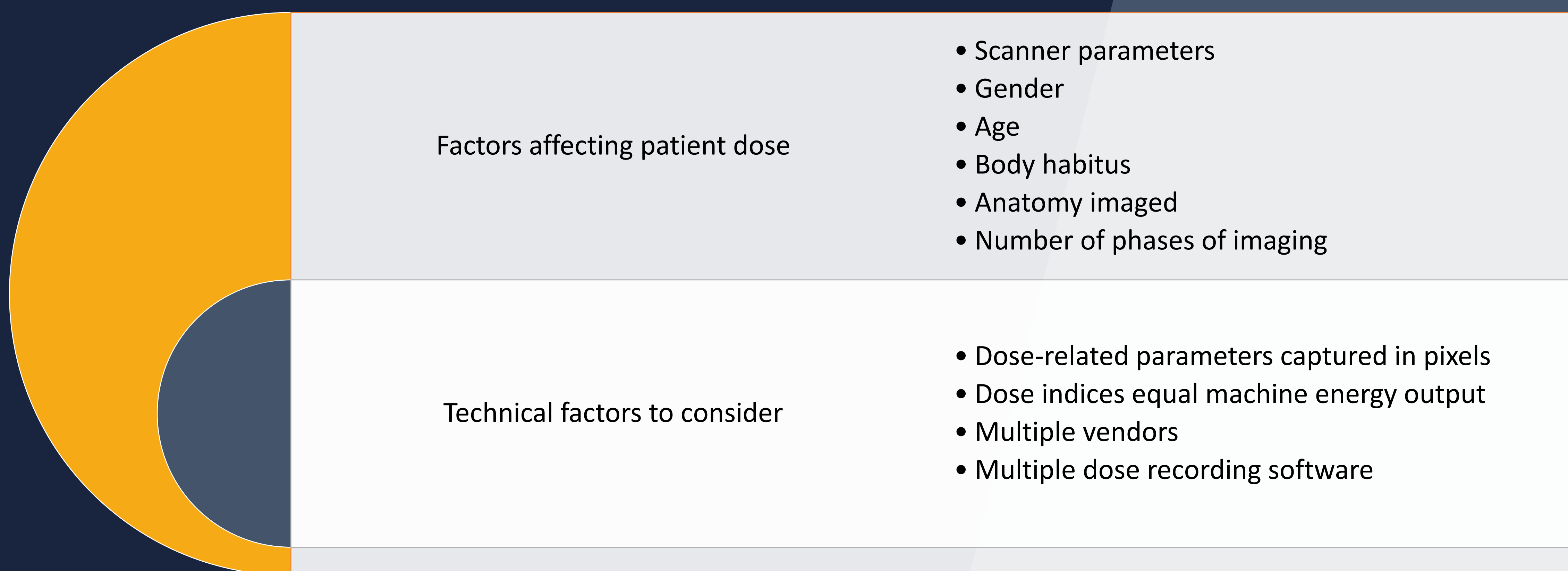
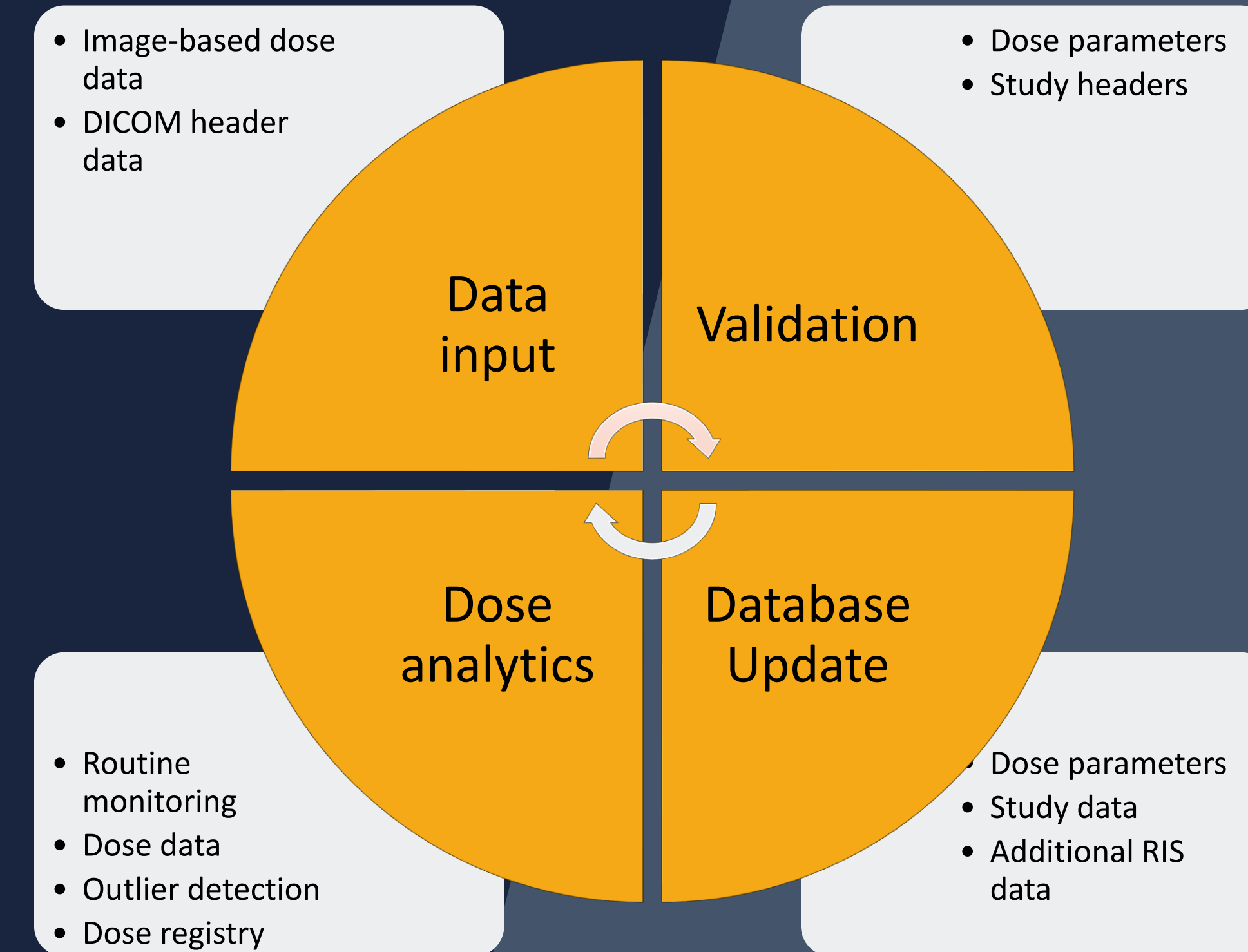


Dose Registries for Quality Improvement in Pediatric Imaging: Proof of Importance

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- Specific pediatric dose registries with dose tracking are currently not established and in consensus.
- Large-scale dose repositories make it possible to optimize pediatric imaging protocols across institutions, therefore promoting a culture of radiation safety in pediatric radiology.



Factors affecting Dose Registry formation and Patient Radiation Dose

Why it matters

- Stochastic effect: permanent DNA alteration
- Known acute effects (deterministic) of high doses of medical imaging radiation
- Potential for cancer
- Potential for genetic effect

Why dose registries

- Collect and analyze data
- Identify trends and outliers in radiation exposure
- Monitor radiation dose over time
- Optimize imaging protocols

Why it matters

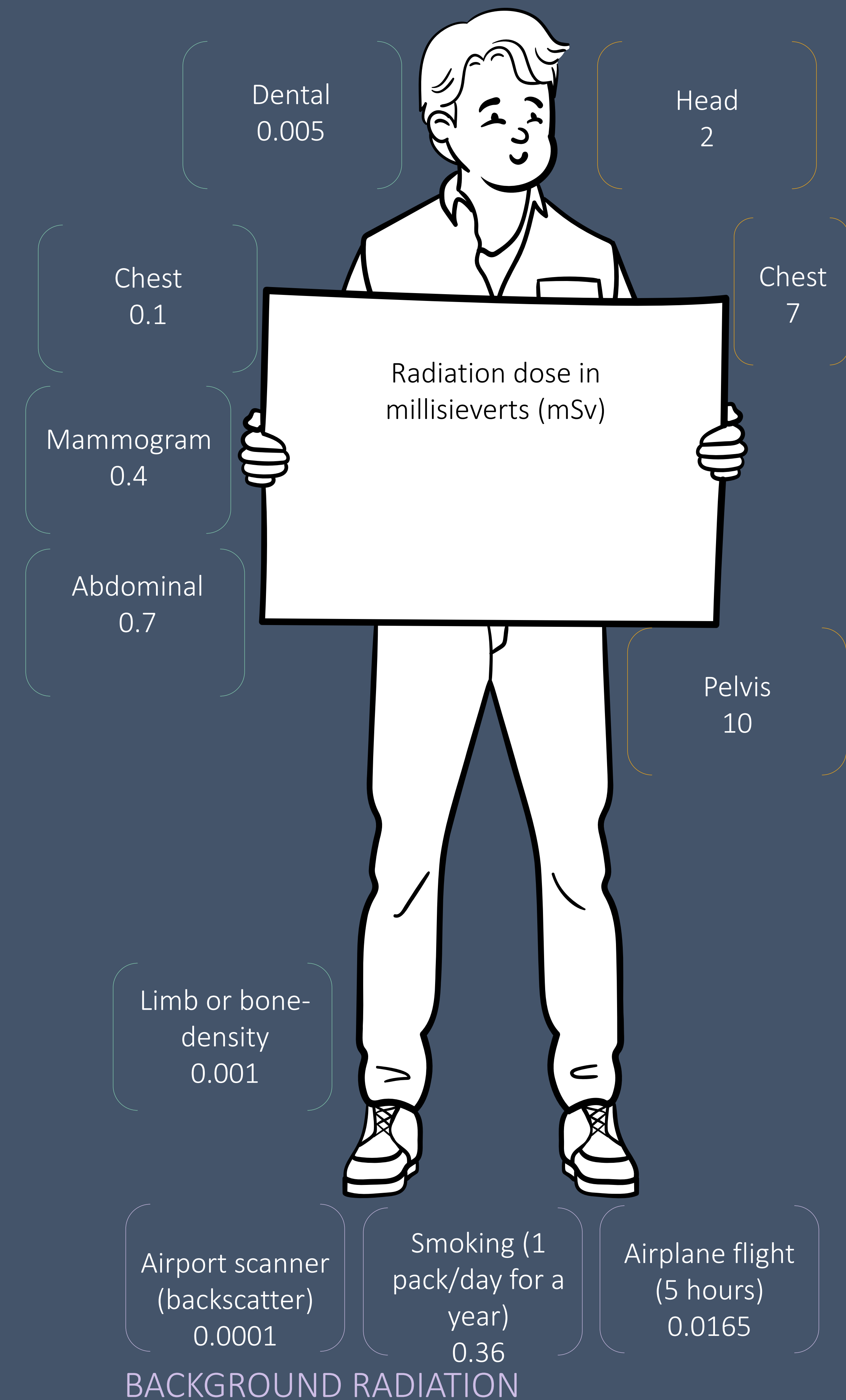
- Providing information at the point-of-care for the referring practitioner (i.e. justification)
- Promoting development and use of diagnostic reference levels (DRLs) (i.e. optimization and building consensus)
- Providing information of radiation risks
- Establishing a tool for use in research and epidemiology

How it can be carried out

- Common exposure index already in place (International Electrotechnical Commission (IEC) exposure index)
- Similarly, common dose recording monitor can be set up
- “As low as reasonably achievable” (ALARA) principle

X-RAY

CT



Medical Imaging vs Background Radiation

References

1. Cook, T. S., Zimmerman, S. L., Steingall, S. R., Maidment, A. D. A., Kim, W., & Boonn, W. W. (2011, November). Informatics in Radiology: RADIANCE: An Automated, Enterprise-wide Solution for Archiving and Reporting CT Radiation Dose Estimates. *RadioGraphics*, 31(7), 1833–1846. <https://doi.org/10.1148/rg.317115048>
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3. Murugan, V. A., Bhargavan-Chatfield, M., Rehani, M., & Kalra, M. K. (2015, November). American College of Radiology Dose Index Registry. *Journal of Thoracic Imaging*, 30(6), W66–W68. <https://doi.org/10.1097/rti.0000000000000184>

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