

Development of a CT protocol management and review process

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Purpose

- ▶ Adverse incidents have occurred at our facility due to the lack of a sufficient CT-PMS
- ▶ The aim of this work is to mitigate adverse incidents in the future and to ensure the quality of our facility's CT examinations by developing a CT-PMS
- ▶ Further, to design the CT-PMS according to applicable requirements from ISO 9001:2015[1] as the CT-PMS can be part of a Quality Management System

Methods

- ▶ A Quality-Optimization-Methodology (QOM) group for the CT unit of the Thoracic radiology department (figure 1), in direct need of a sufficient CT-PMS to support their clinical efforts, initiated this project

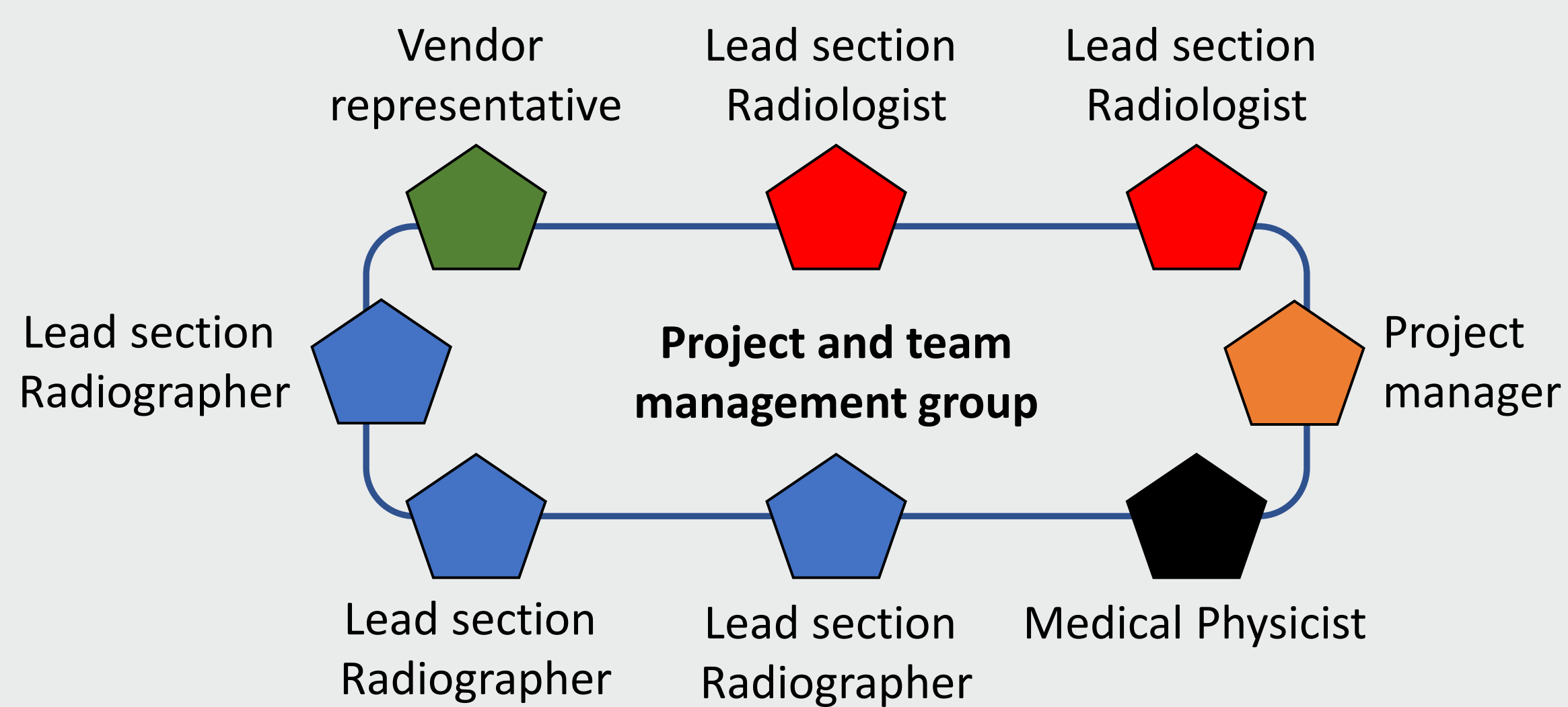


Figure 1: The CT Thorax QOM-group convenes on a regular basis to discuss clinical improvements. The professional competencies are represented by radiologists, radiographers and medical physicists while the operational and administrative activities are managed by a project manager.

- ▶ Components of a CT-PMS were identified through a literature study as well as a site visit at a facility employing a comprehensive CT-PMS[2]
- ▶ Sixteen components of a CT-PMS relevant to our facility were identified including team member roles, implementation and review of CT protocols, protocol naming conventions, requirements for documentation as well as dose and image quality management procedures
- ▶ A project manager was recruited to organize the development of the different CT-PMS components using the PRINCE2®[3] project management method

References

- [1] ISO 9001:2015, Quality Management Systems - Requirements. Standard, International Organization for Standardization, Geneva, CH, September 2015.
- [2] T. P. Szczykutowicz, R. K. Bour, M. Pozniak, and F. N. Ranallo. Compliance with AAPM Practice Guideline 1.a: CT Protocol Management and Review - from the perspective of a university hospital. *J Appl Clin Med Phys*, 16(2):443-457, Mar 2015.
- [3] AXELOS Ltd. *PRINCE2® Project Management*.

Results

- ▶ Fully developed components include, but is not limited to, team member role definitions and a process for updating CT scanners with approved protocol changes (figure 2). CT-PMS components are implemented into clinical practice as they are completed

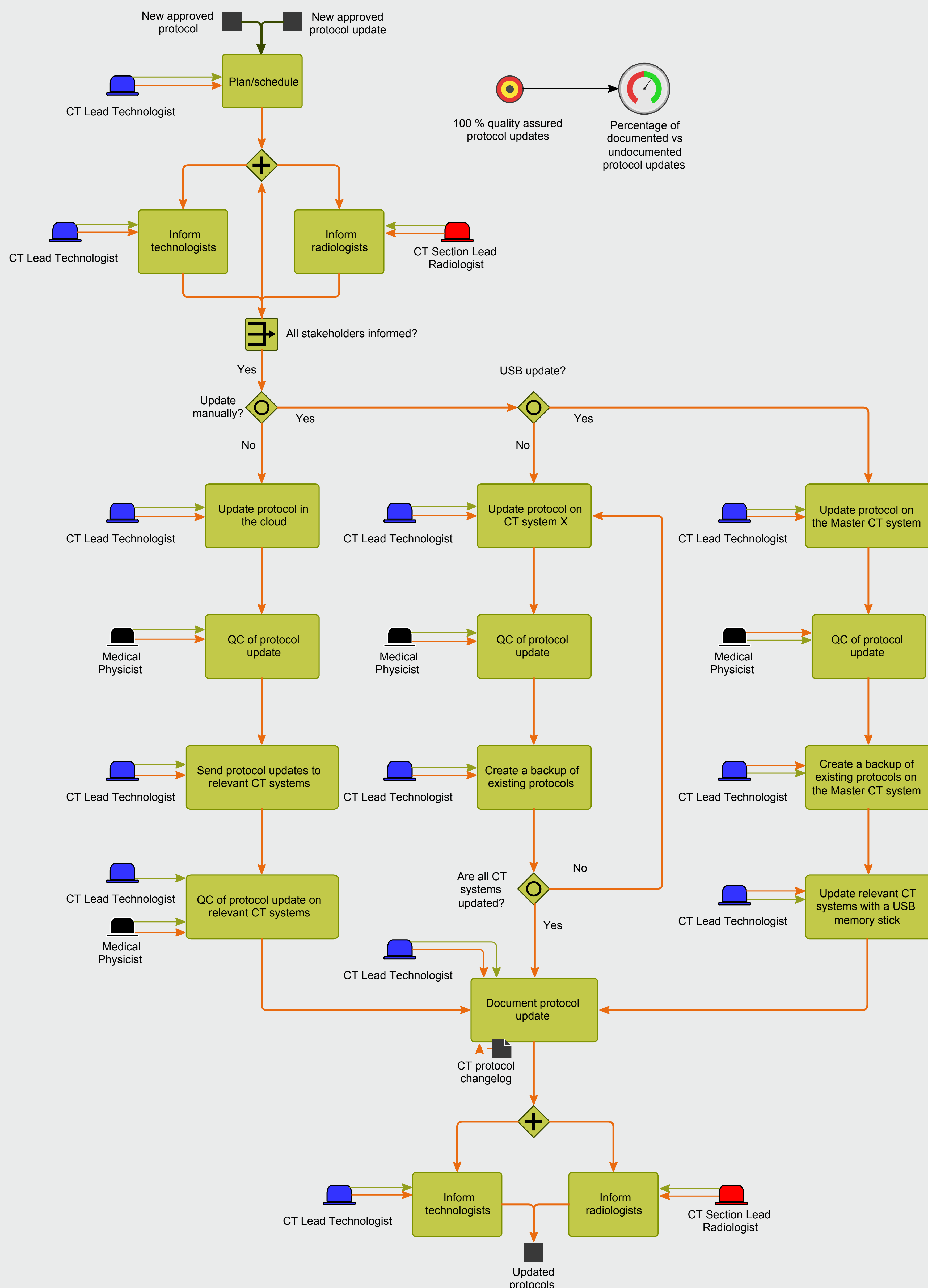


Figure 2: An example of a completed component which describes the process for implementing new or updated protocols on CT scanners. Several incidents at our facility can be attributed to the lack of such a well defined process for updated protocols on CT scanners.

- ▶ When fully completed, the CT-PMS will be evaluated in a controlled environment (one CT QOM group) before wider roll-out and adoption

Conclusion

- ▶ A comprehensive CT-PMS is needed to manage the quality of CT examinations. As no sufficient CT-PMS exists at our facility, we are in the process of developing one
- ▶ Although not fully developed, we have already started to see a positive clinical impact for the CT-PMS components that have been implemented