



Catalan Clinical Audit
Network for Quality Improvement
in Radiotherapy

Quality indicators

Clinical Audits in Radiation Oncology: Training for Auditors and Auditees

Day 4 (13/06/2025)

Aude Vaandering



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CAT·Clin**ART**

Definition

A quality indicator is a measurable element that allows for monitoring and evaluating the quality of a specific aspect of a product, service, or process. It can be used to identify strengths and weaknesses, and to guide improvements..

« *Measurement tools, screens, or flags that are used as guides to monitor, evaluate, and improve the quality of patient care, clinical support services, and organizational function that affect patient outcomes* » (Canadian Council on Health Services Accreditation)



Three types of quality indicators



| Definition | Examples |
|--|---|
| A structural QI aims at defining the attributes of the settings in which care occurs. This includes material resources, human resources and of organizational structure. <i>(What is the radiotherapy department working with?)</i> | Number of equipment; number of treatments per equipment per year; workload per professional group; imaging capacity of equipment... |
| | |
| | |

Three types of quality indicators



Structure



Process

| Definition | Examples |
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| <p>A process QI aims at denoting what is actually being done during healthcare delivery <i>(How is the radiotherapy department working? How is a radiotherapy treatment prepared/ planned/delivered/monitored)?</i></p> | <p>Elapsed time between simulation and treatment; elapsed time for treatment delivery; IGRT practice during treatment delivery; number of consultations during treatment delivery; used fractionation schemes...</p> |
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Three types of quality indicators



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Process

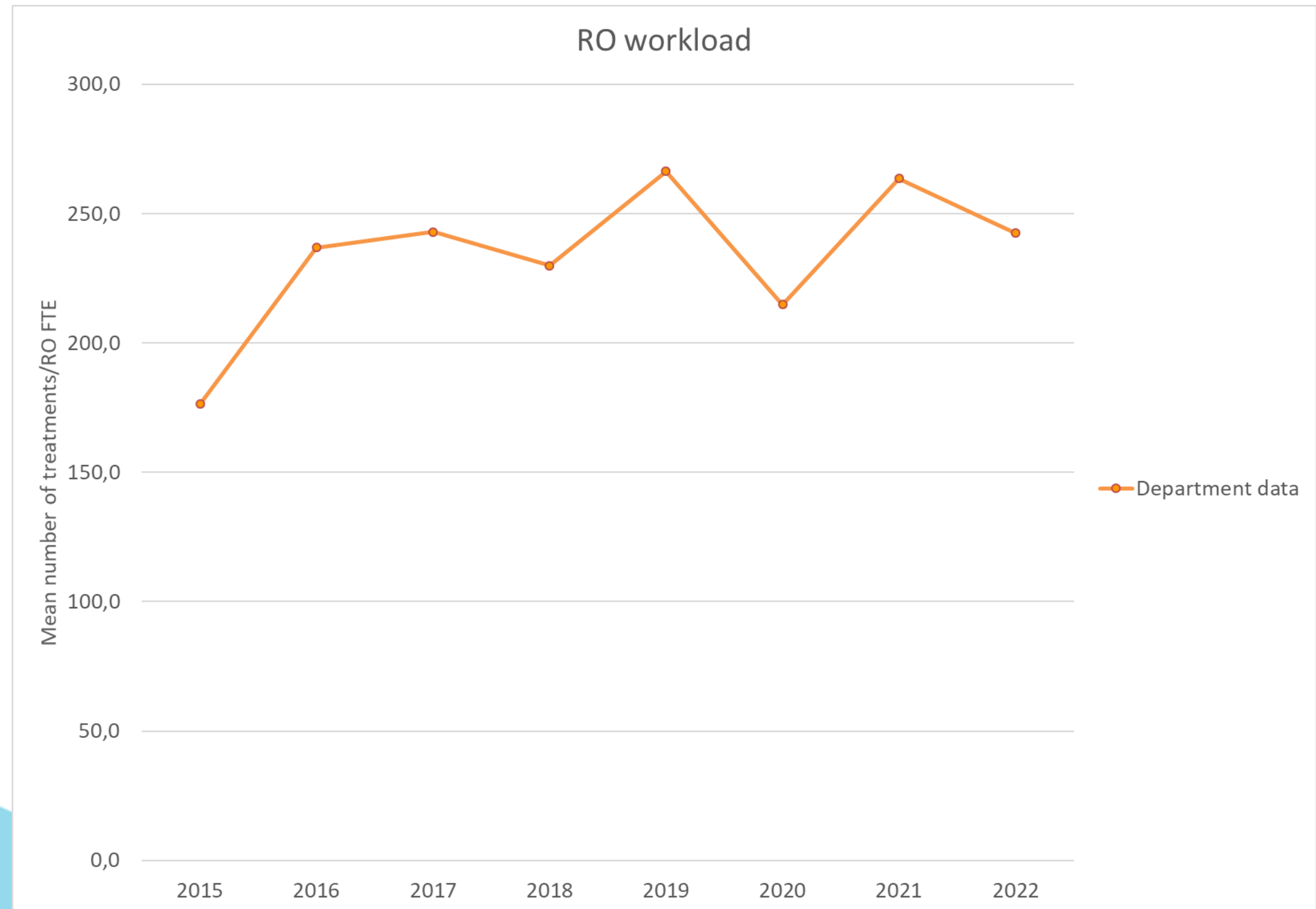
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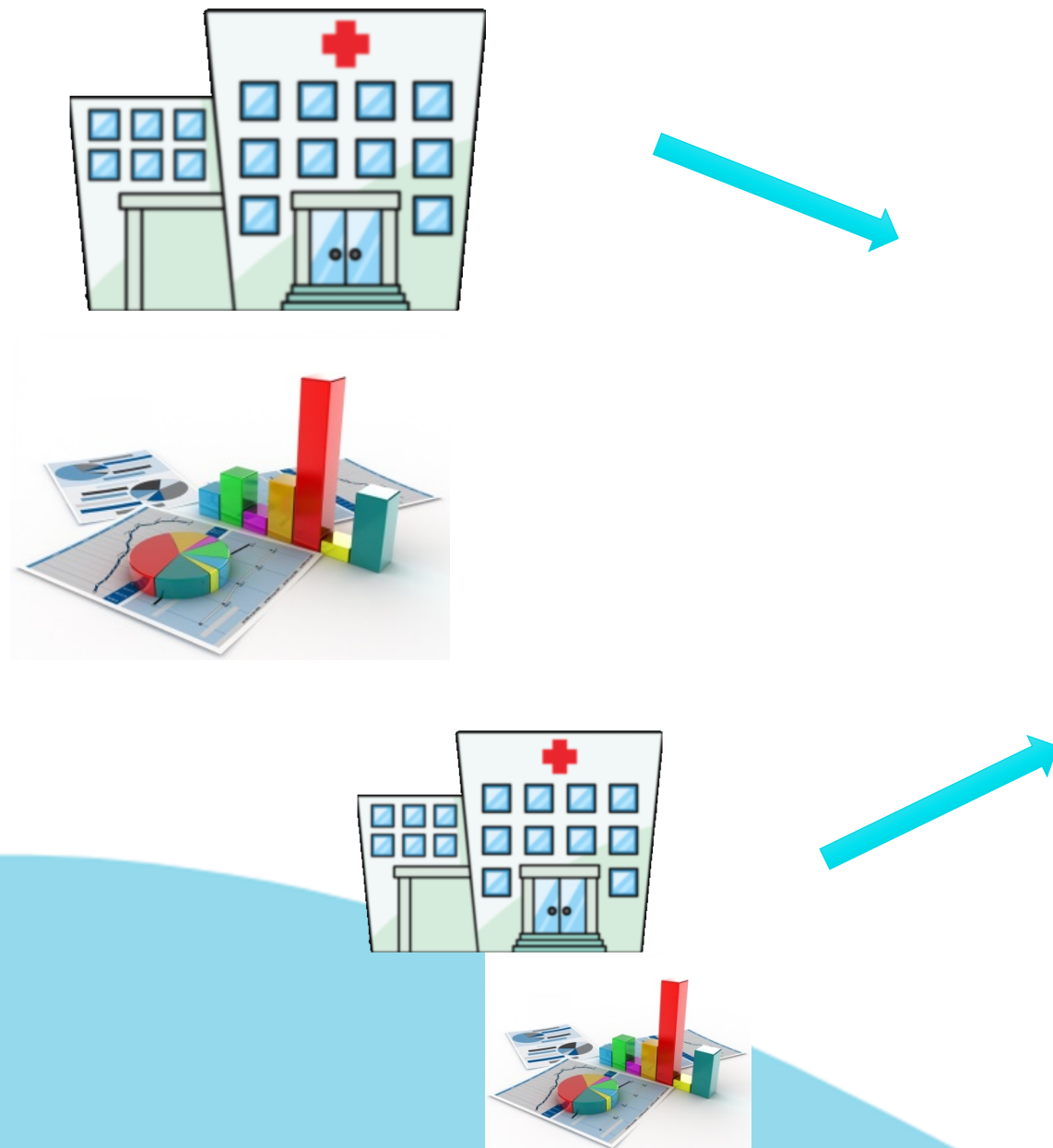
Outcome

| | |
|---|--|
| <p>An outcome QI attempts to describe the effects of care on the health status of patients <i>(What is the result of the radiotherapy treatment?)</i></p> | <p>Acute toxicities; long term toxicities; overall survival, disease free survival, (patient satisfaction)....</p> |
|---|--|

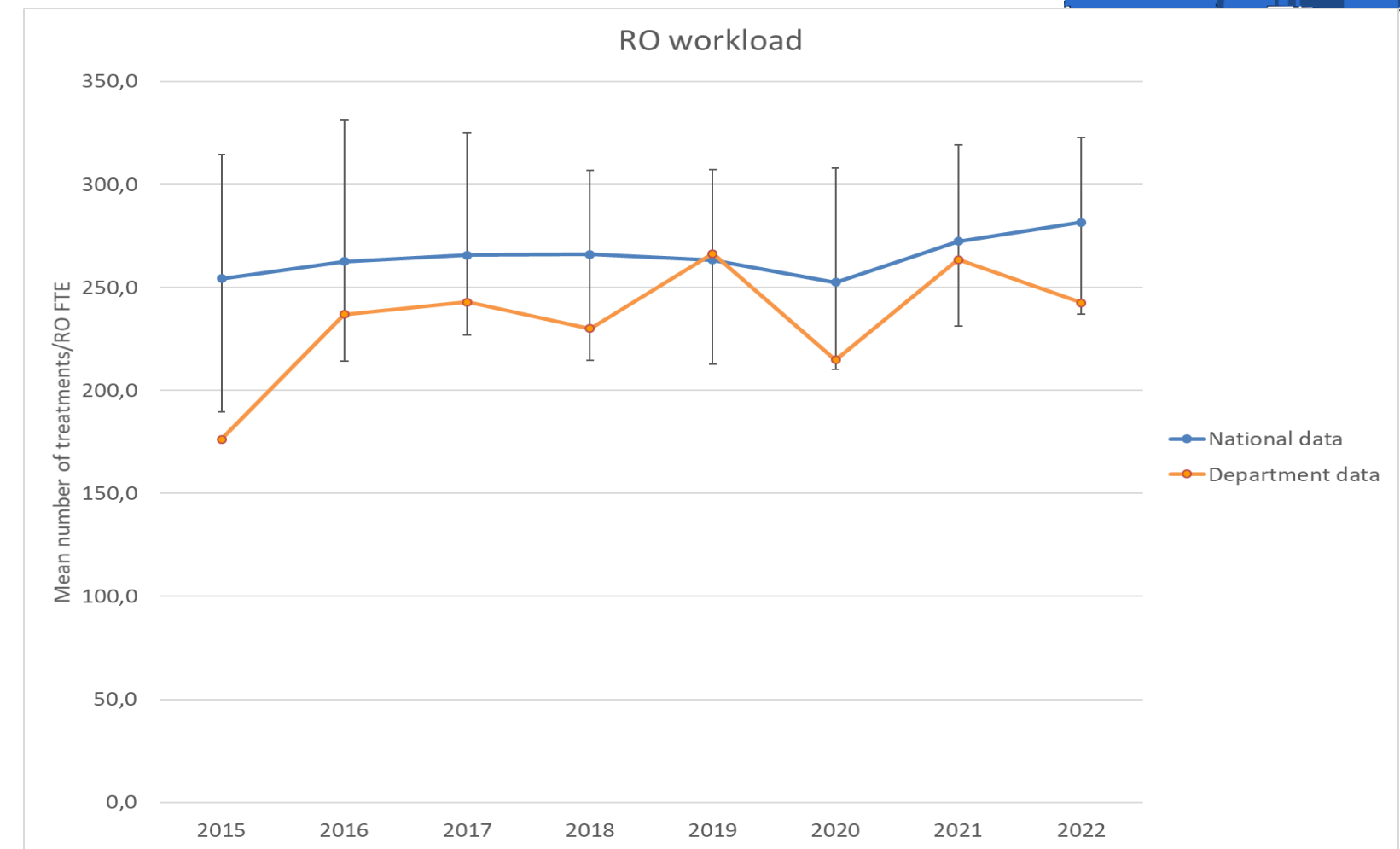
QI monitoring



QI monitoring and benchmarking



Benchmarking



Benchmarking:
 « A **standardized** method for **collecting** and **reporting** critical organizational data in a way that enables **relevant comparisons** among the performances of the different organizations or programs, [].
 Benchmarking gives the organisation (or the program) the external references and the best practices on which to base its **evaluation** and to design its working **processes**.”
 Vlasceanu et al (2007)

Importance of defining QIs – QI identity card (profile)

| | | | |
|------------------------------|---|--|---|
| | Parameters | | |
| Measure definition | Topic (what is measured) | A clear and concise title along with a detailed description of what the indicator measures. | |
| | Rationale (why it is measured) | The reasoning behind why this particular indicator is important and how it contributes to quality improvement. | |
| | Type of QI (structure/process/outcome) | | |
| | Numerator | The part of the indicator that counts the instances meeting the criteria | |
| | Denominator | The total number of instances that could potentially meet the criteria. | |
| | Definitions and specifications | Scope of the QI (who and what is included) Unit used (% , score out of 10...) Data source | |
| | Exclusion criteria | Specific conditions or cases that should be excluded from the numerator and/or denominator. | |
| | Recommended stratifications | | |
| | Goal setting | Standard/target | The standard or goal against which the indicator's performance is compared. |
| | | Time period/target number for data collection | How often the indicator is measured and reported. |
| Frequency of analysis | | | |

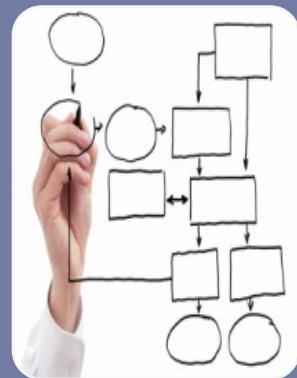
Belgian National RT Quality indicator project



Structure

Departmental level:

Number of equipment, number of treatments, FTE...



Process

Patient level:

Timing between simulation and treatment, IGRT and treatment technique used....



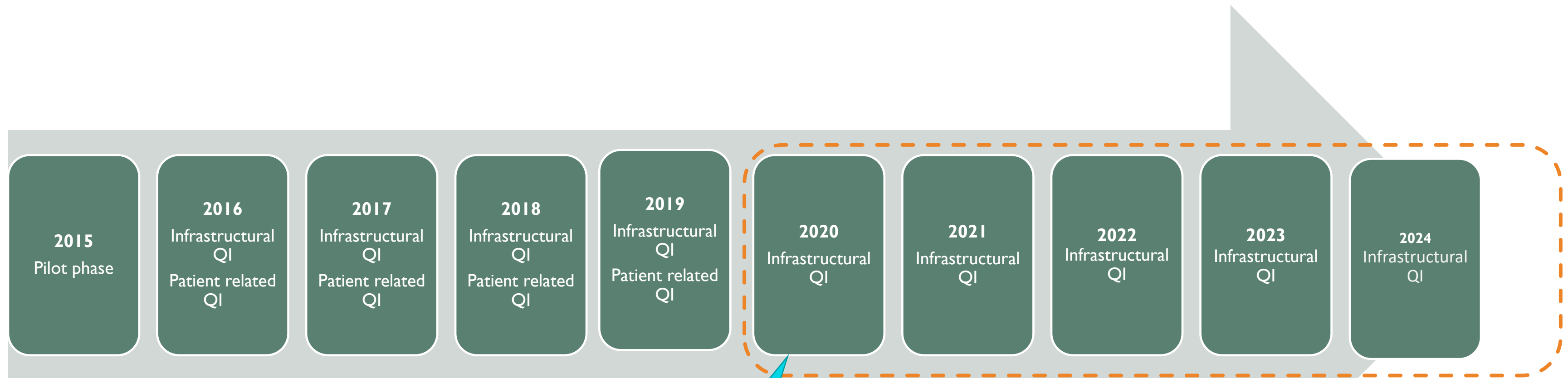
Outcome

Patient level:

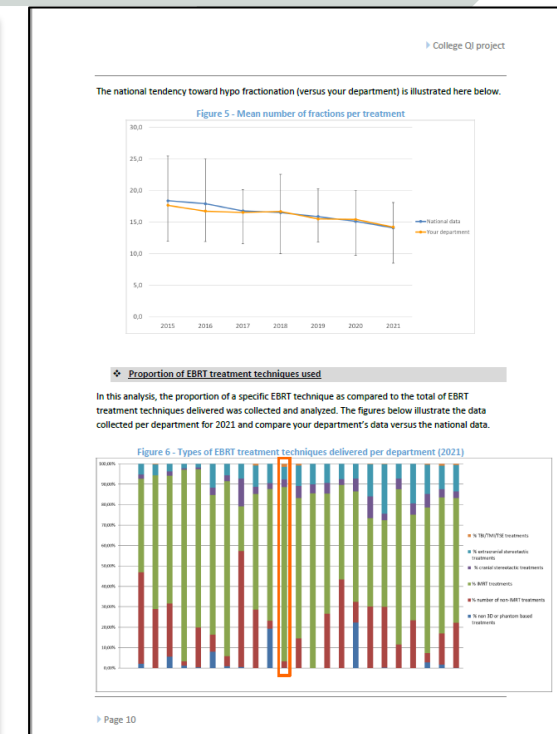
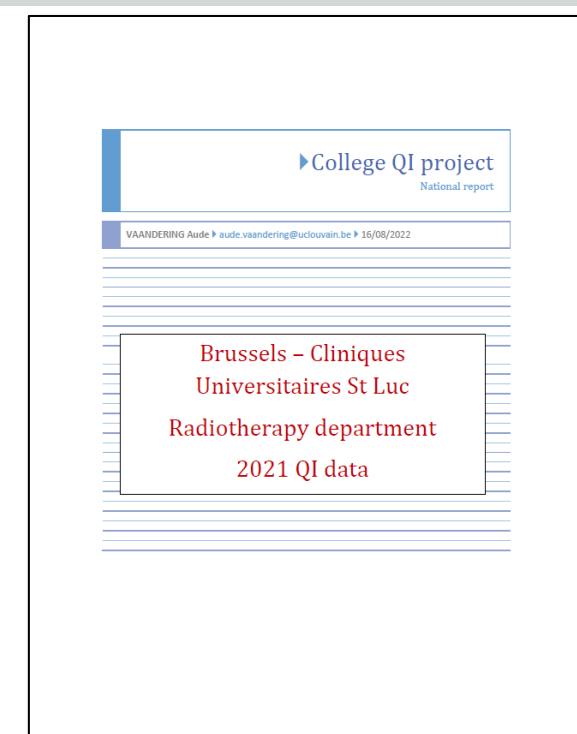
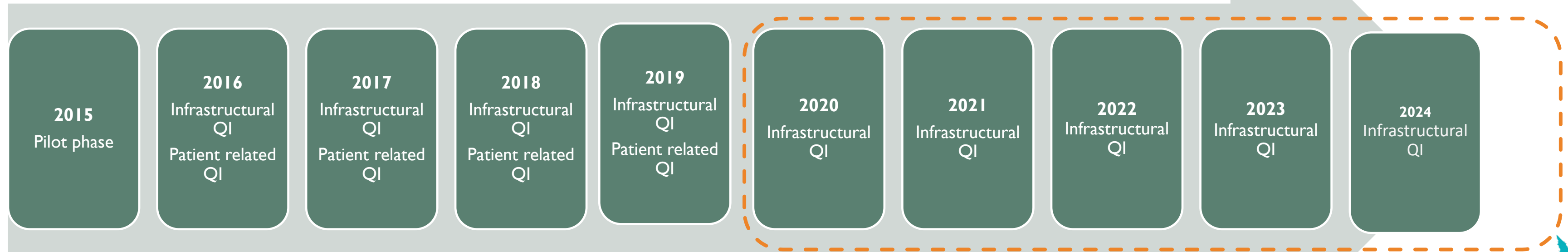
Recorded acute toxicities

54 QI

Belgian National RT Quality indicator project



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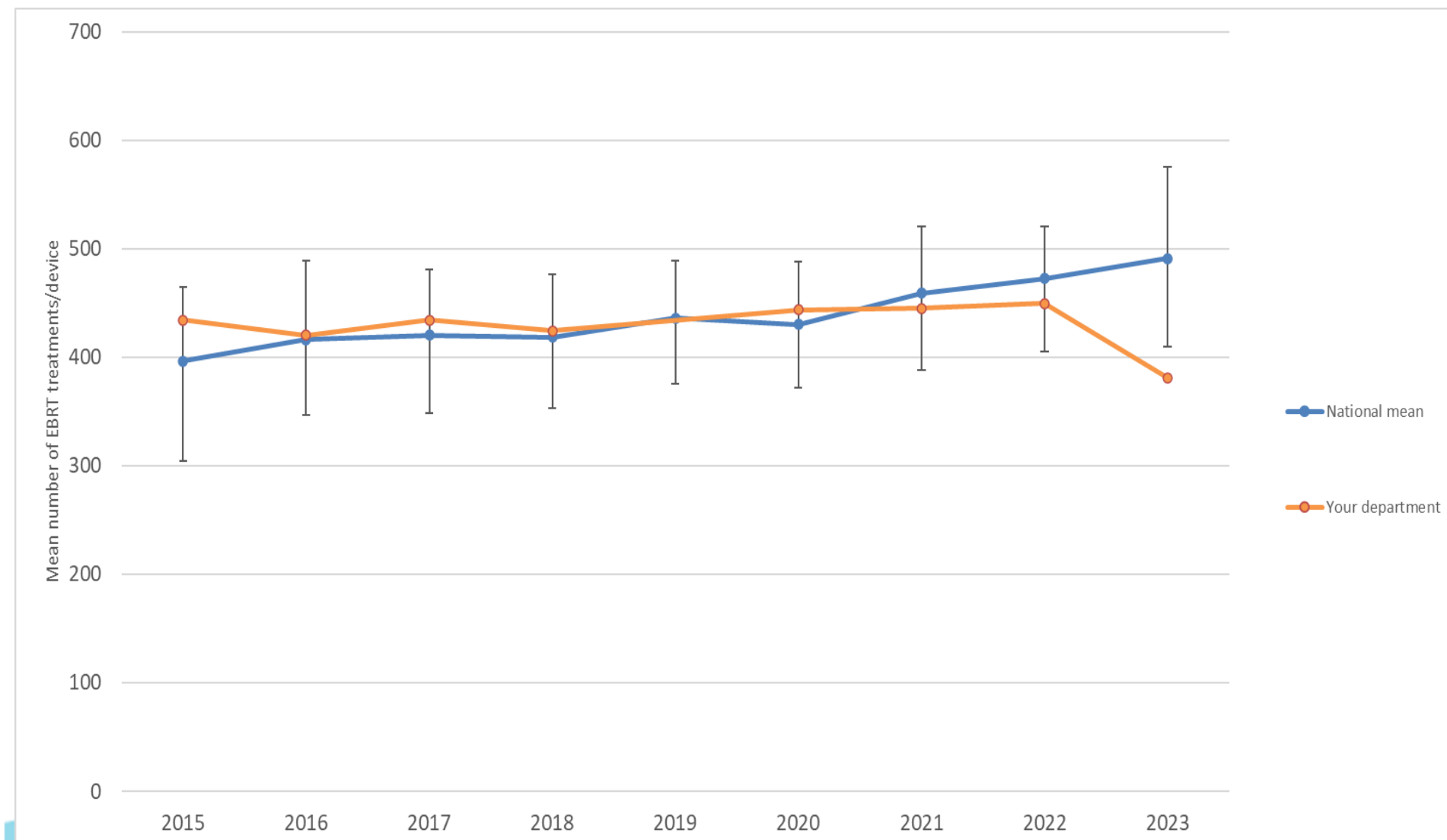


Some examples of measured QIs



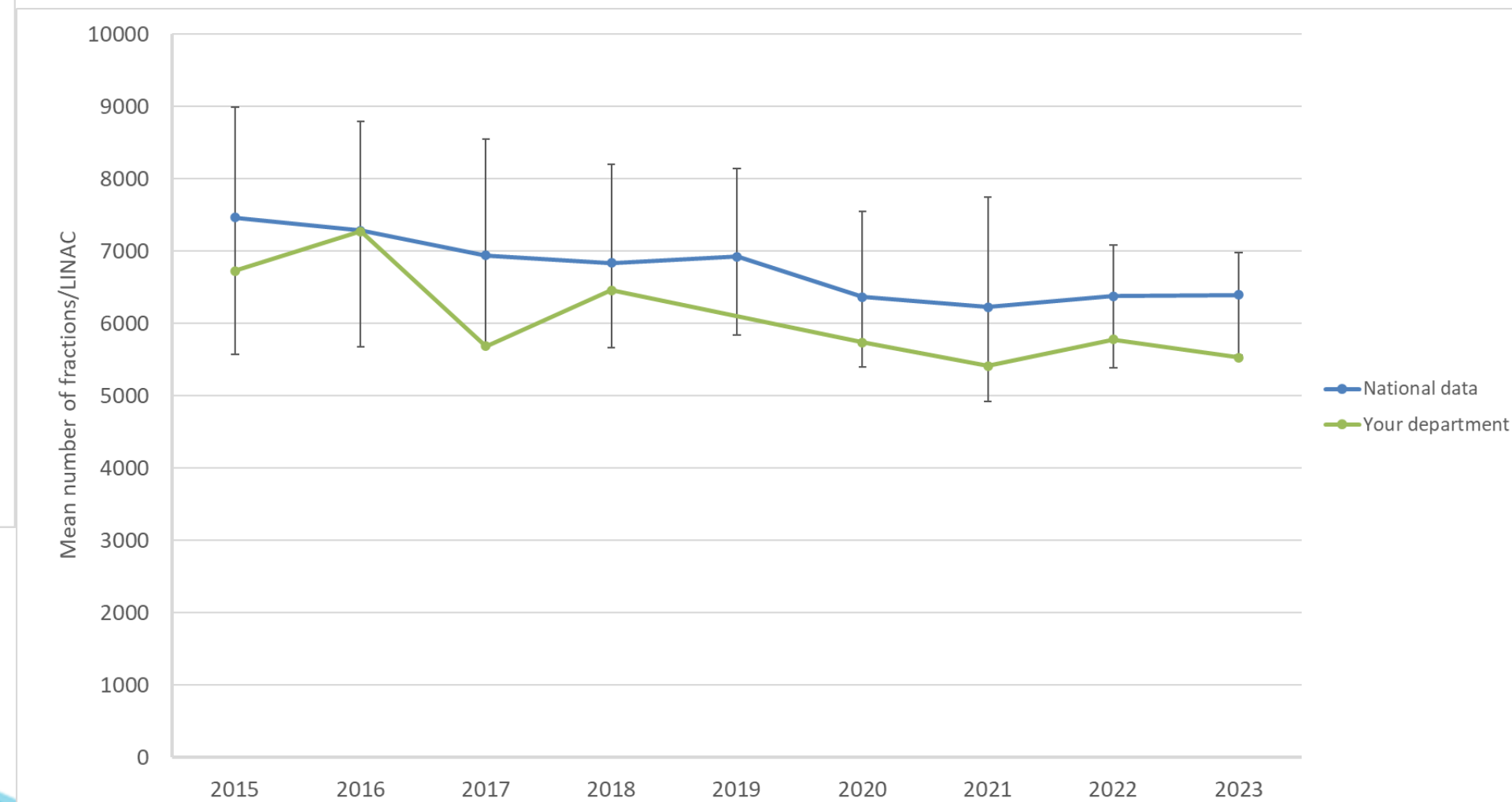
Number of treatments/device

Number of treatments/device

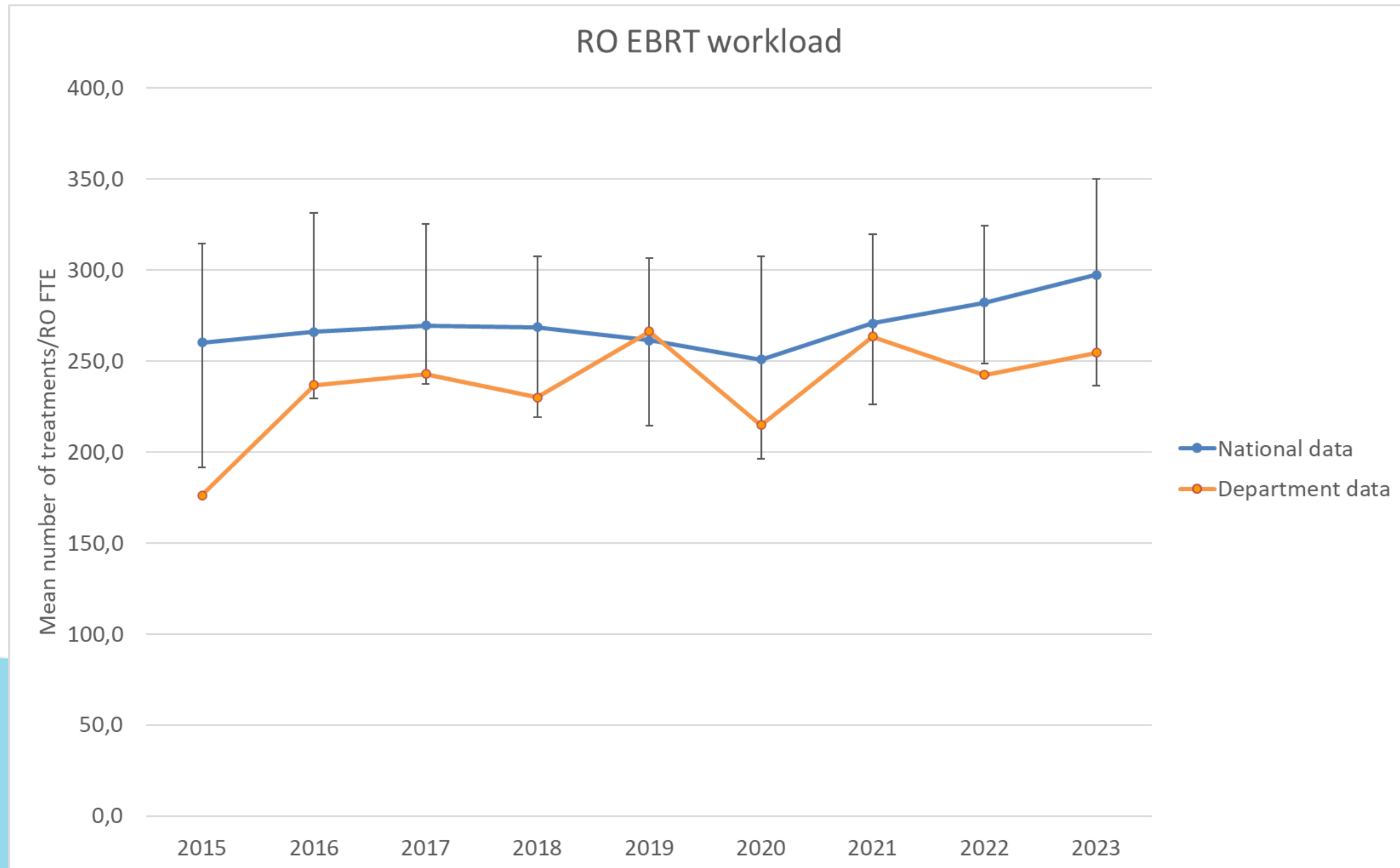


Hypofractionation

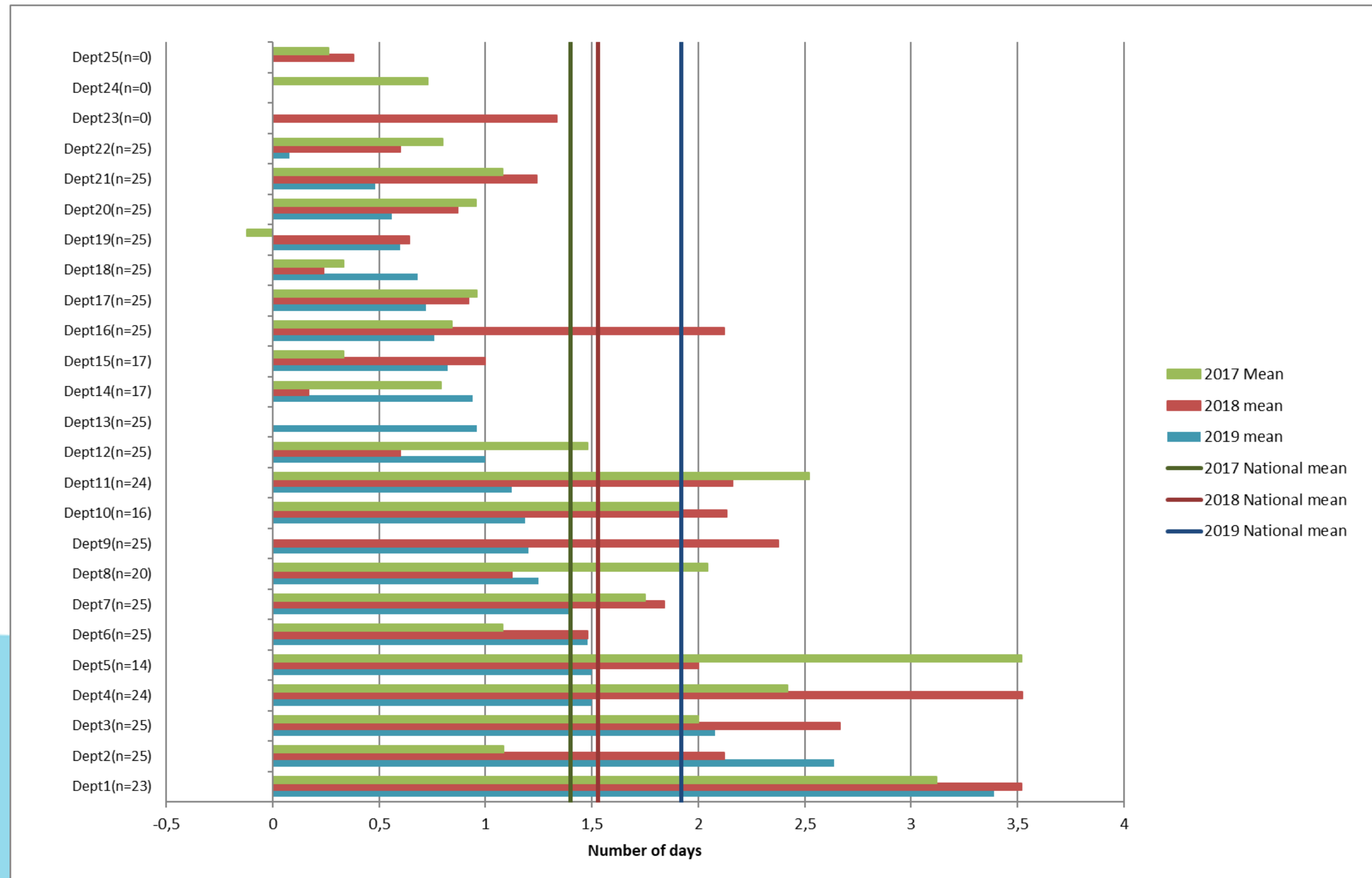
Number of sessions/LINACs



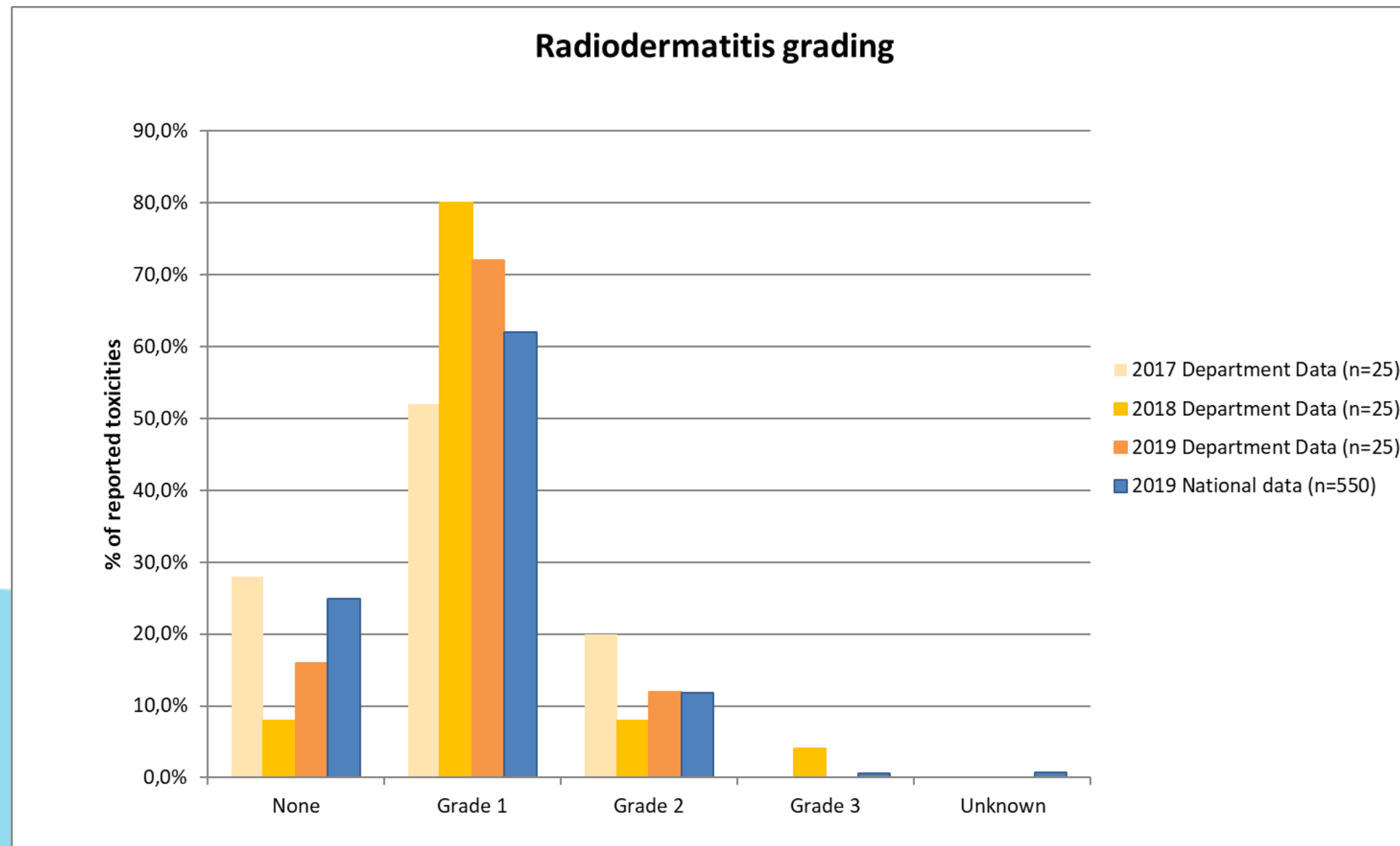
Workload



Mean number of lost days during treatment delivery per department (Prostate cancer patients)



Reported acute radiodermatitis (breast) (2017 - 2019)



Lessons learned/Tips and tricks



- RT specific quality indicators **CAN be collected** BUT
 - They have to be clearly defined
 - Feasible to collect
 - Useful
- Feedback on QI must be well **structured** and **regular**
- QIs must be regularly **reviewed**
- **!! Not** everything can be represented by a quantitative measure

Any Questions?