



Catalan Clinical Audit
Network for Quality Improvement
in Radiotherapy

Entrance and Exit briefings

Prof. Dr. Dirk Verellen



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Objectives of the lecture

- Aim of the entrance briefing
 - An example
- Aim of the exit briefing
 - An example



Franquin

The entrance briefing

- What's the aim of the audit?
- What is it not?
- Who are the auditors?
- What will be the schedule?



The entrance briefing

- Early **on the first day** of the audit
 - allow at least 1 hour
- Should be to
 - The **entire staff**
 - People who will be required for the audit
 - Representation from senior management
- Power point presentation
- Allow time for questions



The entrance briefing

- Introduce audit team to staff
(helpful to have name badges)
- Discuss
 - Objectives and scope
 - Methods
 - Program of the audit
- Reassure the department that the (patient) confidentiality will be respected
- Allow time for questions



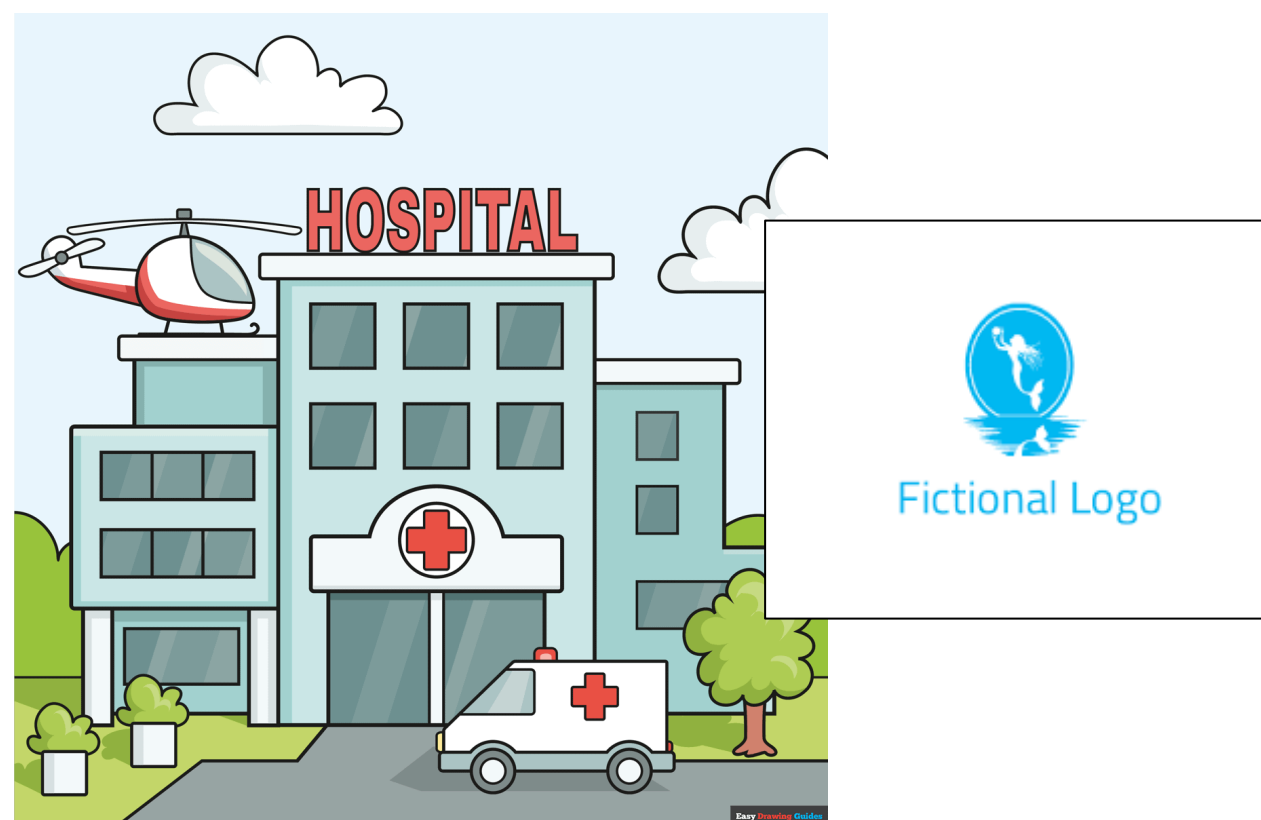


Catalan Clinical Audit
Network for Quality Improvement
in Radiotherapy

Aims and Methods of B-QUATRO Program

Fictitious hospital in Belgium

An example



Anna Boch, Quality Manager

Peter Paul Rubens, Radiation Oncologist

René Magritte, RTT

Franquin, Medical Physicist



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Introduction

What does B-QUATRO mean?



Quality **A**ssurance **T**eam for **R**adiation **O**ncology

Comprehensive Audit of Radiotherapy Practices

A Tool for Quality Improvement (by IAEA)

Introduction

Main characteristics of B-QUATRO

- An **external (and therefore independent) audit** by peer review is an important part of a comprehensive approach to quality assurance (QA) in the treatment of cancer by radiation.
- The IAEA has a long history of **independent external audits** by providing assistance for (dosimetry) audits in radiotherapy to its Member States.
- The Belgian College of Radiotherapy has adopted this methodology to improve the quality of Radiotherapy in Belgium.

Introduction

History of the Belgian audits

- 2001: 97/43/EURATOM directive is transposed into a Royal Decree
 - “Clinical audits shall be carried out in accordance with national procedures”
- 2010: Federal cancer plan
 - The **National Cancer Plan** has allocated a specific budget for Quality Management in radiotherapy (Action 16).
 - Condition: clinical audits needed to be developed
- Audit task attributed to the Belgian College for Physicians in Radiation Oncology:
 - Commission is composed of Radiation Oncologists (RO), appointed by the Ministry of Health and assisted by external experts
 - Its mission is to **promote the quality of radiotherapy on a national level**.
- The aim was to review the recent developed quality system and to give **guidance for further development**
- 5 hospitals will be visited per year.
- 2011-2025: The first cycle
- 2017-2023: The second cycle
 - revisit the centres and assess improvements (and also adapt to new situation, eg satellites).
- 2025-....: The 3rd cycle started



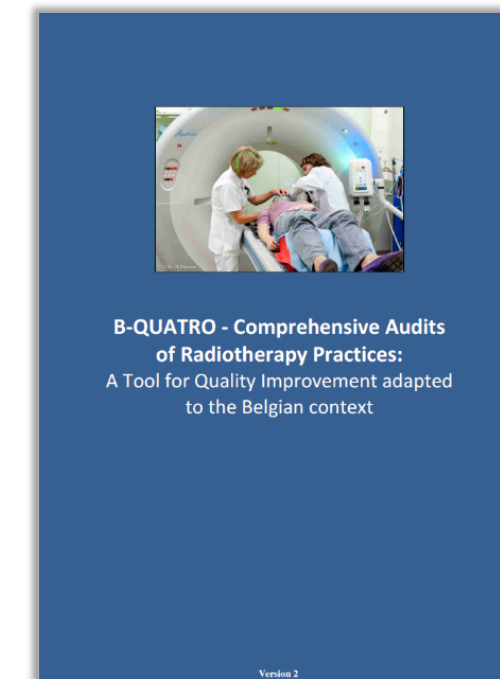
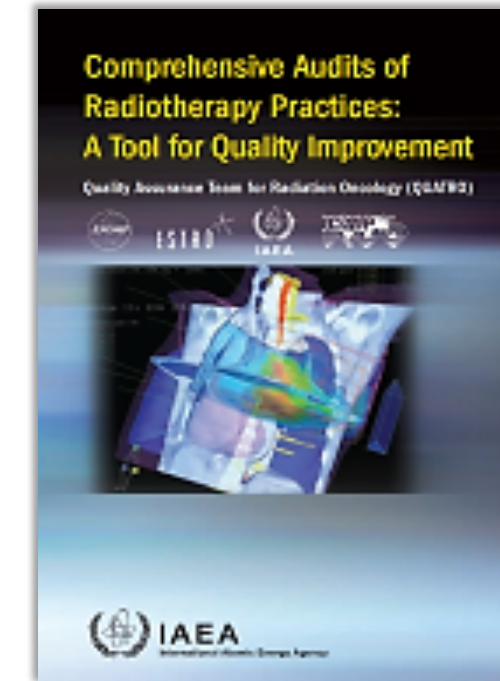
Introduction

History of B-QUATRO

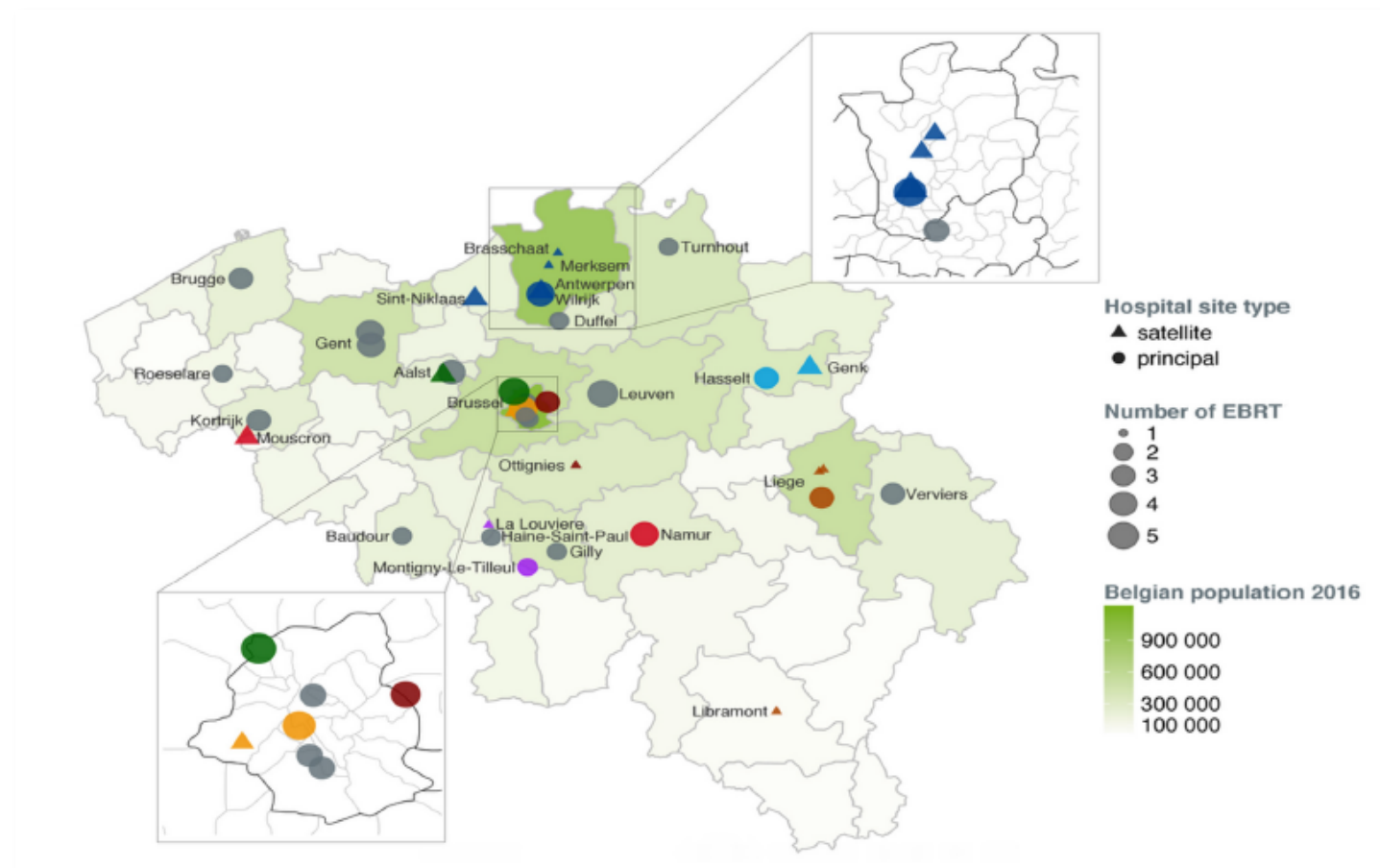
QUATRO: Comprehensive peer review clinical audits
(2011-2015)

Belgian contextualization / new technologies/
QMS auditing/ checklist reformatting/ data
analysis tools

B-QUATRO: Belgian - Comprehensive peer review clinical audits
(2017-...)



B-QUATRO audits: 1st Cycle



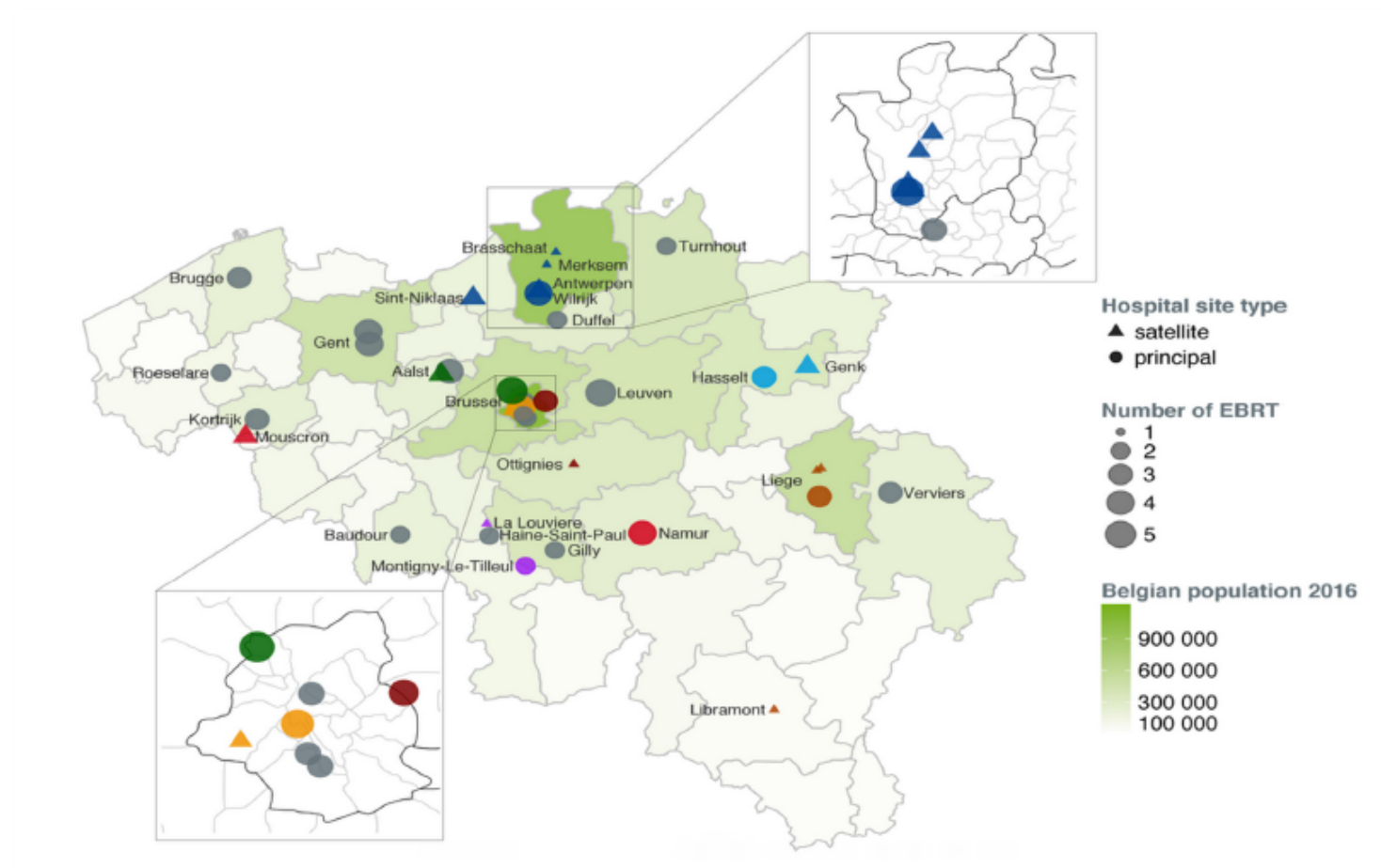
2011-2015:

QUATRO audits of the 25* RT departments

- 3 audit days/department
- No dosimetric audits (→ BELdART)
- Excluding brachytherapy

*Your department was
audited in 2011*

B-QUATRO audits: 2nd Cycle



2017-2023: “second cycle of audits”

B-QUATRO audits of the 24 RT departments
(+ 16 satellite sites)

- 2½- 3½ audit days/department
- No dosimetric audits (→ BELdART)
- Excluding brachytherapy
- Including quality managers

*Your department was
audited in 2018*

Aim



Aim

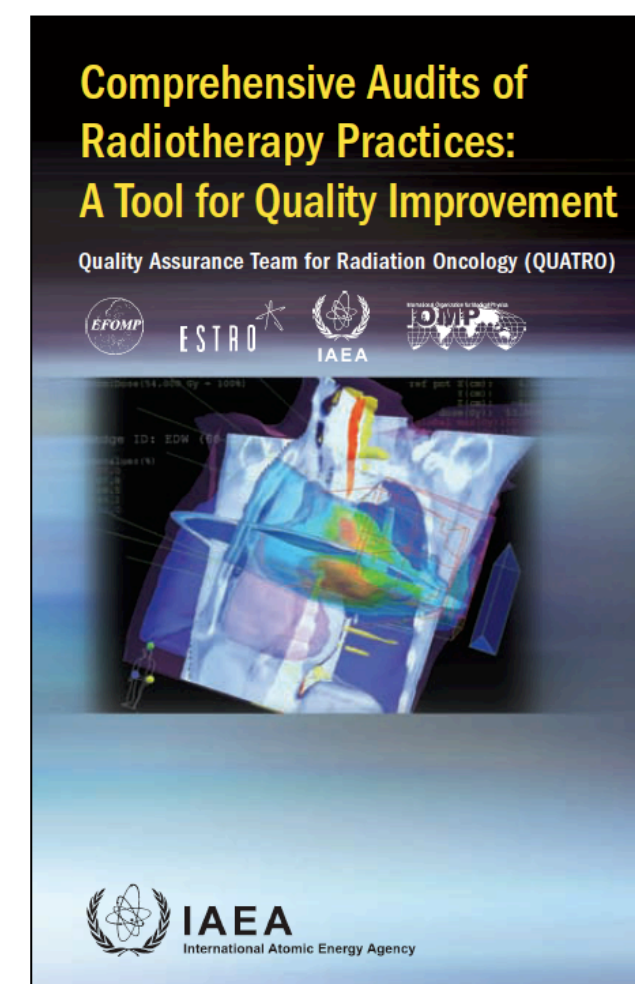
The IAEA QUATRO Guide

- Although vital for the radiotherapy process, accurate beam dosimetry and treatment planning alone cannot guarantee the successful treatment of a patient.
- Therefore, the quality assurance (QA) of the **entire radiotherapy process** has to be taken into account.

This is the main aim of QUATRO ...

The ultimate purpose of the IAEA QUATRO audit is:

- to **assess** the entire current situation, and
- to **improve** the quality of all radiotherapy processes at the audited centre.



Aim

The IAEA QUATRO Guide

- **Assessment:**
Review and evaluation of the quality of all elements involved in radiation therapy, including
 - staff
 - equipment and procedures
 - patient protection and safety
 - overall performance of the radiotherapy department
 - its interaction with external service providers
- **Improvement:**
Gaps (if existing) could be identified to enable the institution in documenting **areas for improvement**:
 - technology
 - human resources
 - procedures
 - infrastructure



**B-QUATRO - Comprehensive Audits
of Radiotherapy Practices:**
A Tool for Quality Improvement adapted
to the Belgian context

Version 2

A comprehensive RT audit



Aim

The B-QUATRO is (still) organized by the College

The audit is preformed for the following purposes:



- To receive assistance to improve **clinical practice**,
- To strengthen the internal **quality assurance** (QA) programme,
- To receive assistance ensuring that the requirements for **patient protection & safety** are met,
- To serve as guidance for further departmental **development**,
- To **document gaps** in technology and practices in order to solicit funding from the hospital management, national authorities or other funding bodies.

PEER review!

Aim

To be or not to be ...

The QUATRO comprehensive audit is **NOT** designed for

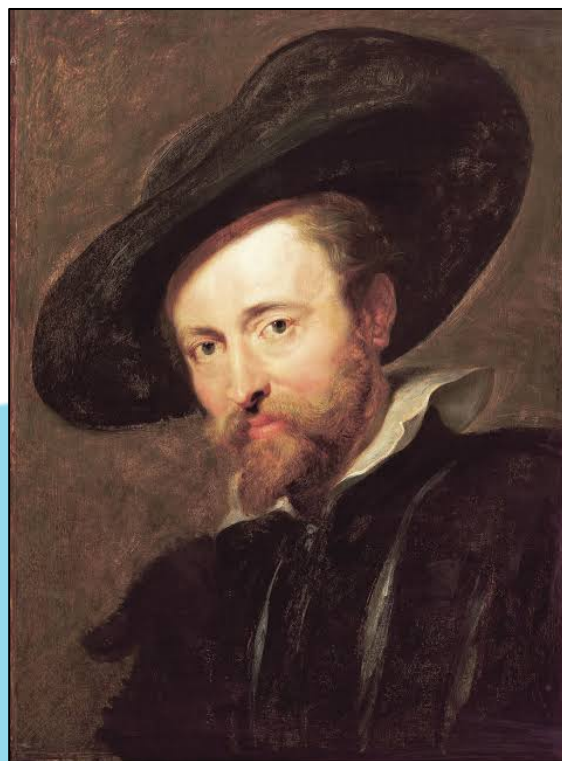


- Investigation of **accidents** or **reportable medical events** (misadministration)
- Assessment for **entry into cooperative clinical research studies**
- **Regulatory purposes**, i.e. audit is not an enforcing tool but an impartial source of advice on quality improvement

Composition of the audit team

The audit methodology is designed for execution by a multidisciplinary peer-review including:

- A radiation oncologist: **Peter Paul Rubens**
- A radiotherapy physicist: **Franquin**
- A radiation therapist (RTT): **René Magritte**
- A Quality Manager: **Anna Boch**



D. Verellen - entrance and exit briefing



Composition of the audit team

Quality Manager: Anna Boch

Education:

2001: BSc in Animal Biology (Canada)

2006: Bachelor in Medical Imaging

2023: PhD in Public Health (Quality in radiotherapy 😊)

Professional experience:

- 2006-2012: RTT
- Since 2012: quality manager in another fictitious hospital

Interests: Quality oriented initiatives in RT and healthcare, professional recognition of RTTs



Composition of the audit team

RTT: René Magritte

Education

- 1988: bachelor of nursing.

Professional Experience

- 1995: radiotherapy RTT in fictitious Hospital
- Since 2011: head nurse radiotherapy in yet another hospital
- Member of the group radiotherapy in the VVRO
- Member of the recognition committee special professional title oncology



Composition of the audit team

Radiation Oncologist: Peter Paul Rubens

Education

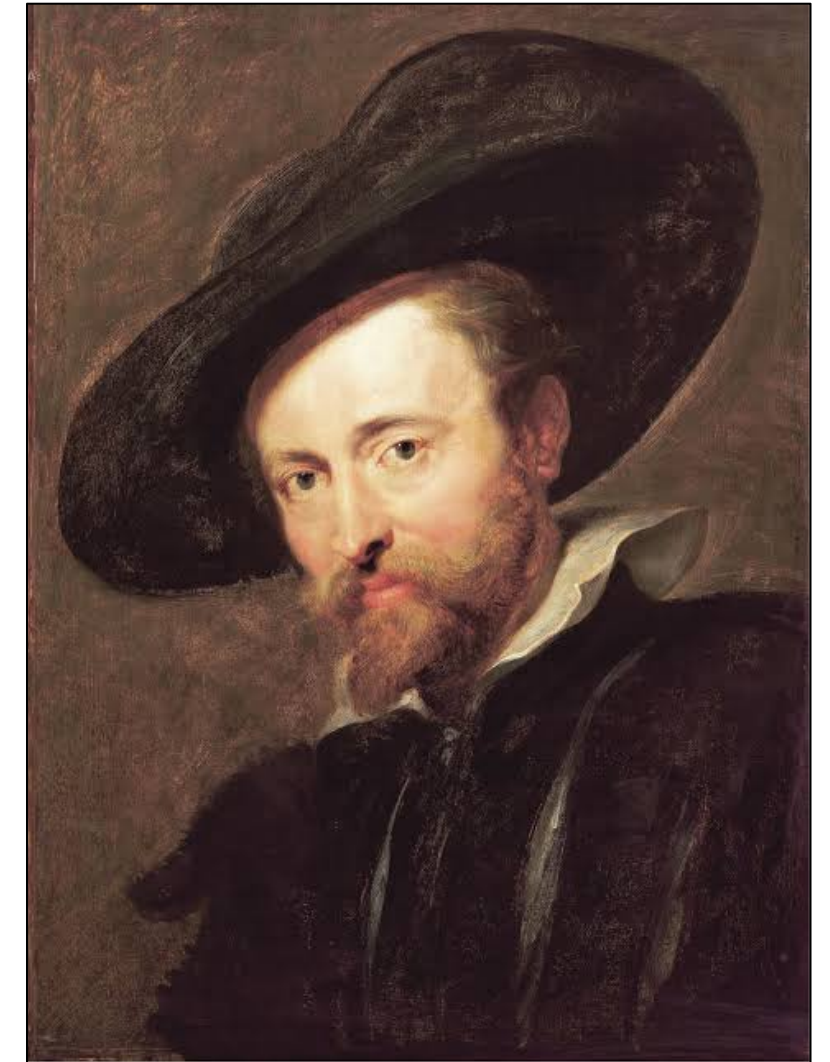
- 1993: Medical studies (famous university)
- 1998: Specialisation radiation oncology (the same famous university)

Professional Experience

- 1998 - 2011: Fictitious hospital, Radiotherapy department
- 2011 - ...: Another fictitious hospital, Radiotherapy department

Interests

- Clinical interests: breast cancer, gynaecology cancer, dermatology
- Specific interests:
 - Quality Assurance,
 - Member of the college 1998 – 2011, B-QUATRO



Composition of the audit team

Medical Physicist: Franquin

Education

- MSc Solid State Physics, A University, 1989
- Aggregation for secondary higher education, Same University, 1989
- PhD Medical Physics, Another University, 1998

Professional Experience

- Head Medical Physics, Great Hospital (1991-2016: Another interesting University Hospital)
- Professor Biomedical Physics, Faculty of Medicine and Health Sciences, The other University
 - ESTRO: Member of board of directors, Physics standing committee, Course Director ESTRO school of Radiotherapy
 - Member board of directors: Stand up to Cancer
 - Member of several national and international committees and task groups.

Interests

- Automation in RT, quality and safety in RT ... and recently FLASH



Methodology of the audit



Methodology of the audit

Main procedures

- **Entrance briefing**

Purpose:

- to introduce the auditors to the staff members
- to discuss the methods, objectives, and the details of the audit (patient confidentiality must be respected)

- **Assessments**

- Preparation of **a draft report** of the visit

- **Discussion** of the draft report with the heads of departments

- **Exit briefing**



Methodology of the audit

Assessment

Assessment tools:

- Complete tour of the facility
- Staff interviews
- Review and evaluation of procedures and all relevant documentation, including review of treatment records and QA documents
- Observation of practical implementation of working procedures

(this may require both the patient and doctor's consent)



Methodology of the audit

After the audit ...



- **Exit briefing:**
At the completion of the audit, members from all groups of the therapy team are invited to participate at an interactive exit briefing offering:
 - **time for questions**
 - **detailed and open discussion**
 - of all the findings of the audit team
 - of preliminary recommendations from the audit team
- Preparation of **a written draft report** of the visit
- **Discussion of the draft report** with the heads of departments and the steps intended by the institution
 - to respond to the recommendations
 - to improve the activities of the department
- **Anonymized reports** are analyzed in global report for the “College voor radiotherapie – oncologie”, and presented at annual “Diensthoofdenvergadering”

CONFIDENTIALITY

Confidentiality will be respected
at all moments, towards:

the Centre
the Personnel
the Patients

Agenda

Wednesday

- 13h00-14h00: Entrance briefing
- 14h00-17h00: Visit centre, observations in group

Thursday

- Warm-up linacs / MOC /dossiers / ...
- 8h00-12h00: Focus meetings
- 12h00-13h00: Lunch
- 13h00-17h00: Split up
 - Audit MPE-MPA, QM, clinical files, ...

Friday

- 08h00-12h00: Follow-up meetings
- 12h00-16h00: Lunch and preparation report
- 16h00-16h30: De-briefing management
- 16h30-17h30: Exit briefing

Goal

Improving overall quality in radiotherapy!



Mad-eye Moody's Mantra:
"Constant Vigilance"



D. Verellen - entrance and exit briefing

The exit meeting

- What has been done?
- What are the main findings?
- Suggestions for improvement?
- What' next?



Franquin

Exit briefing

- **Essential** – typically early afternoon of last audit day
- Audience similar to entrance briefing
- **Preliminary feedback** to the department
- Stimulate local team for **discussion / clarifications**



Exit briefing

- Include feedback from all members of the team
- Include positive and negative findings
- **Be constructive**
- **Focus on facts** (photos)
- Avoid value judgments
- Consider local culture

- Detailed and open discussion of ALL the findings
- Initial recommendations could be made, if obvious
- Ample time for questions
- **Encourage an initial response to the assessment**
- Discussion
- If measurements have been performed as part of the audit, completed forms and calculations should be left with the institution

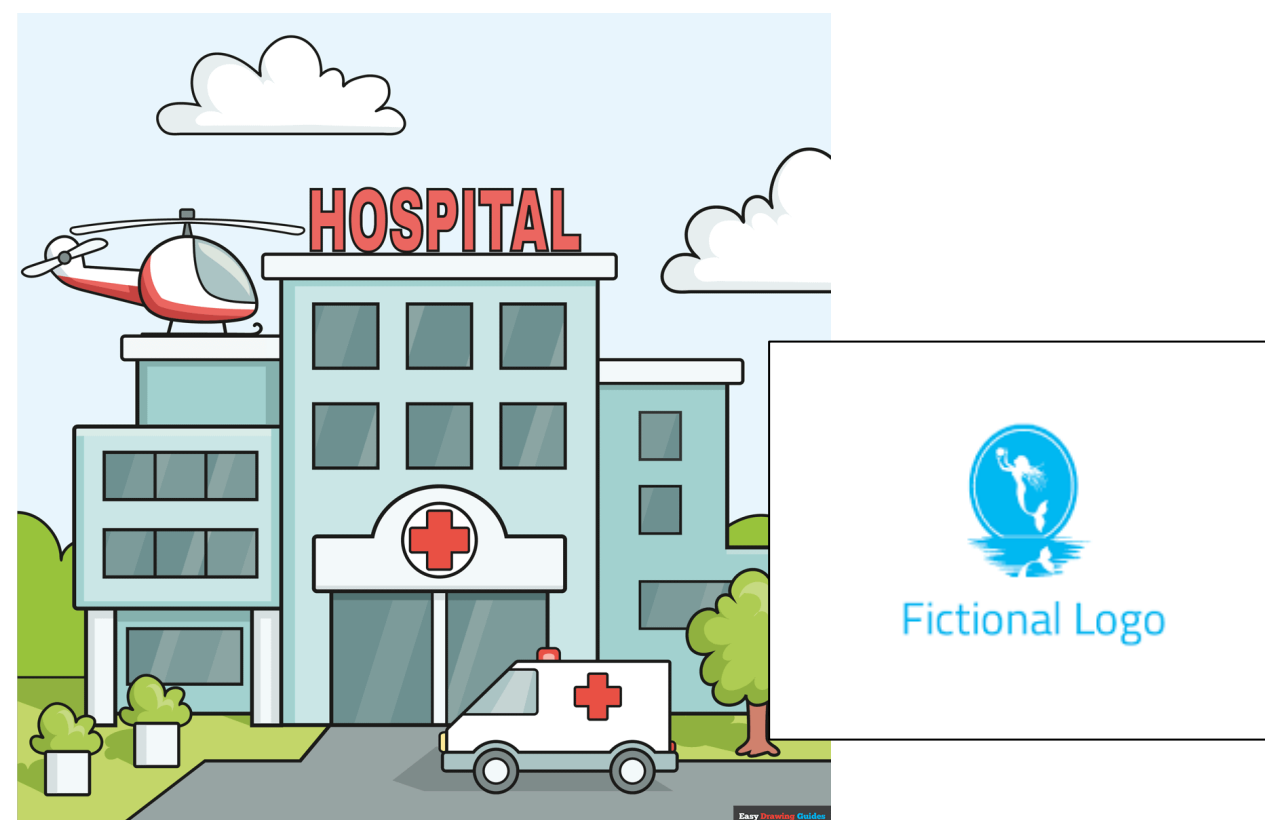


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Exit Briefing

Fictitious hospital in Belgium

An example



Anna Boch, Quality Manager

Peter Paul Rubens, Radiation Oncologist

René Magritte, RTT

Franquin, Medical Physicist



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Objectives of the audit

This audit had been initiated by the Belgian College of Radiotherapy to perform **a comprehensive audit of the centre by a peer review** team to develop a comprehensive quality management system in Belgium.

In addition, the following issues have been formulated to be important:

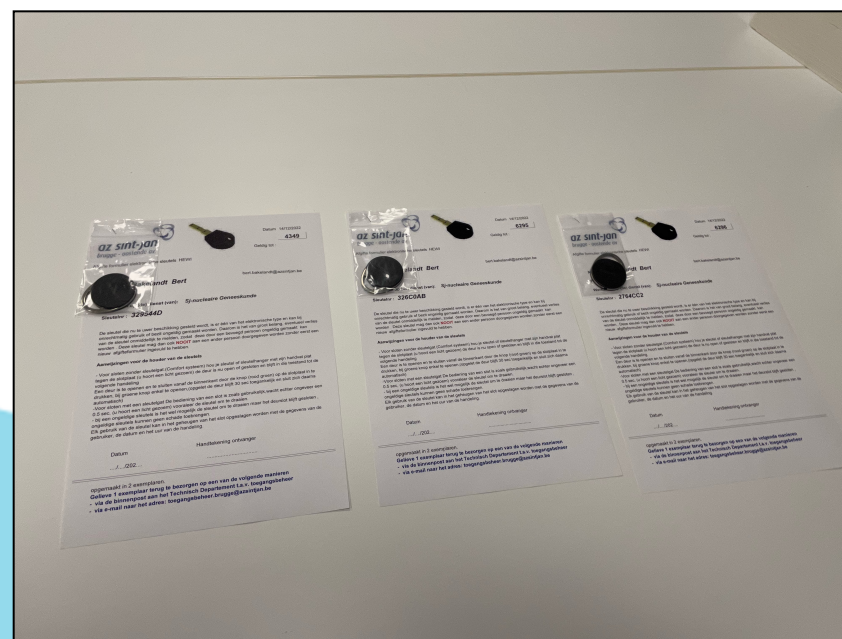
- **to perform an independent evaluation**
- **to discuss on various aspects of radiotherapy**
- **to look for points to improve**

What has been done

- The audit team has discussed their intentions and the audit program with the staff members.
- The members of the team performed interviews and observatory visits in the different sections in order to assess the status and the quality of all elements involved in radiation therapy.
- In addition, the QA/QC chain from simulation and treatment planning to delivery, including dosimetric measurements and mechanical checks have been evaluated.

What has been done

- The audit team was able to carry out their tasks in the Radiotherapy Department of fictitious hospital in perfect conditions.
- The team was made very welcome and has worked in a very **friendly atmosphere**.
- All staff members were most cooperative and open in providing information
- The audit was well prepared



The department of this fictitious hospital

Is a centre of excellence



- Overall high quality radiotherapy
- Offering real state-of-the-art radiotherapy
- QA programs and medical physics well developed, of high quality and efficient. Following recent developments and guidelines.
- Experienced, motivated and flexible team (RTTs, Rad Oncs and Physicists)
- MDs patient oriented with high medical standard and multidisciplinary view towards patient care and clinical research
- Enthused team and patient friendly team

The department of this fictitious hospital

Can be considered as a model example

- No rush!
- Serene and quiet throughout department
- No queues!
- Modern infrastructure, clean

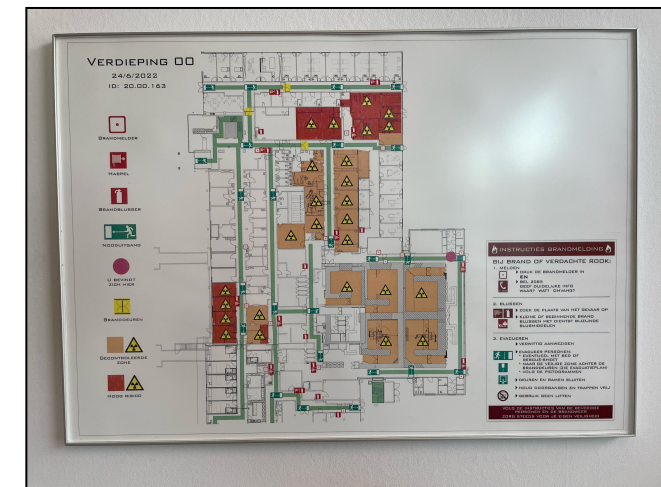


D. Verellen - entrance and exit briefing

The department of this fictitious hospital

A well organized department

- Patient flow and personnel separated in subtle way
- Infrastructure well balanced, functional
- Interior clean and functional
- Orderly department.
- Easy access for patients



Benchmarking and workload

National level

Aantal equivalente behandelingen	Aantal FTE artsen
- tot 550 equiv. behandelingen	2 artsen
- 551-825 equiv. behandelingen	2,5 tot 3 FTE artsen
- 826-1100 equiv. behandelingen	3,5 tot 4 FTE artsen
- etc.	etc.

Aantal equivalente behandelingen	Erkend deskundige ¹ FTE	Bijkomend dosimetrist(2) of erkend deskundige
tot 500	2	0
501-850	2	1
851-1200	2	2
1201-1550	3	2
1551-1900	3	3
Etc.	Etc.	Etc.

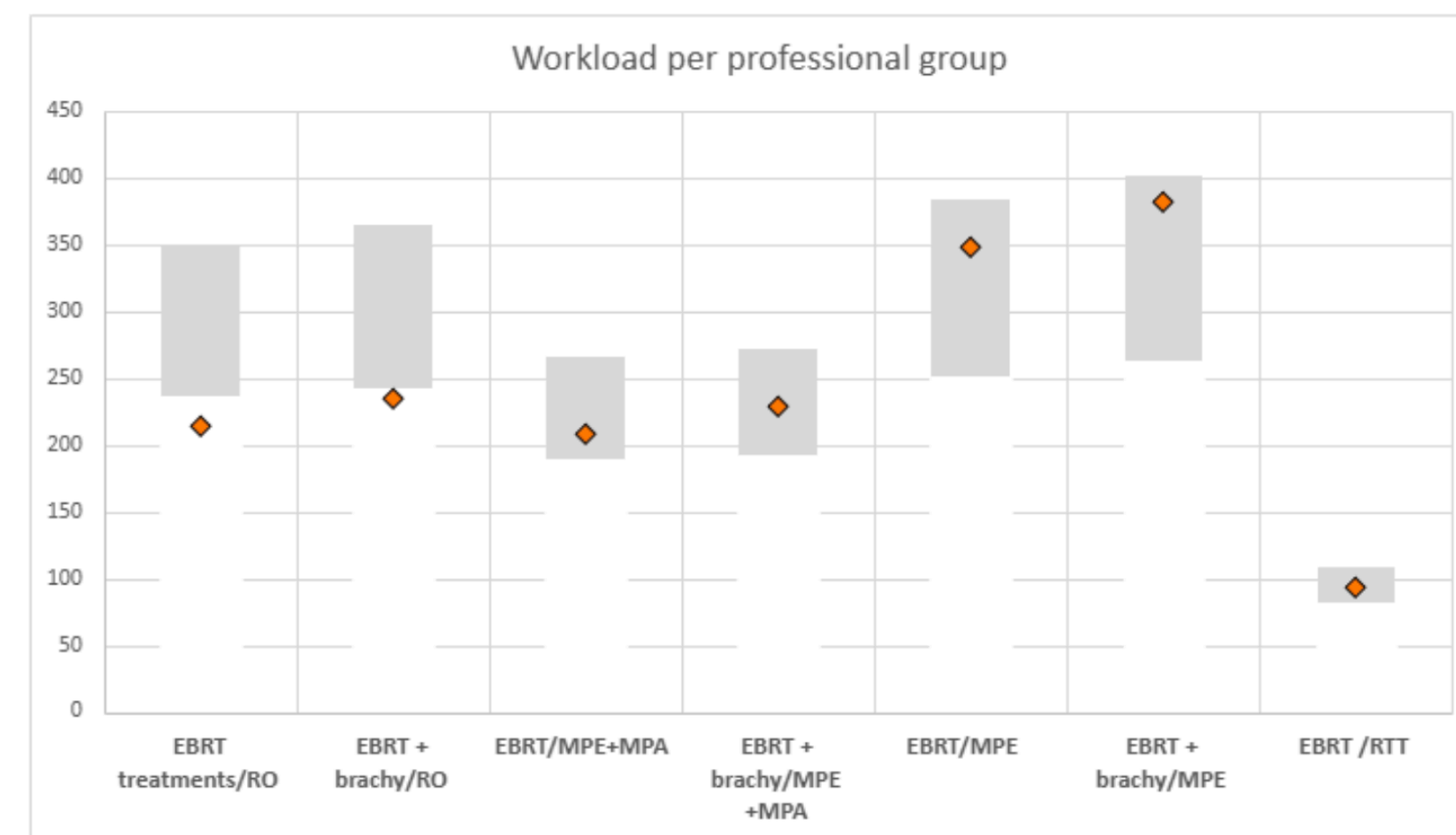
- Per treatment unit 3 RTT
- 2 RTT , exceptional, evening
- 2 RTT for (virtual) simulation
- Only 5% accredited with title of Oncology and Radiotherapy

Draft proposal 'Normen radiotherapie België' 2008

Benchmarking and workload

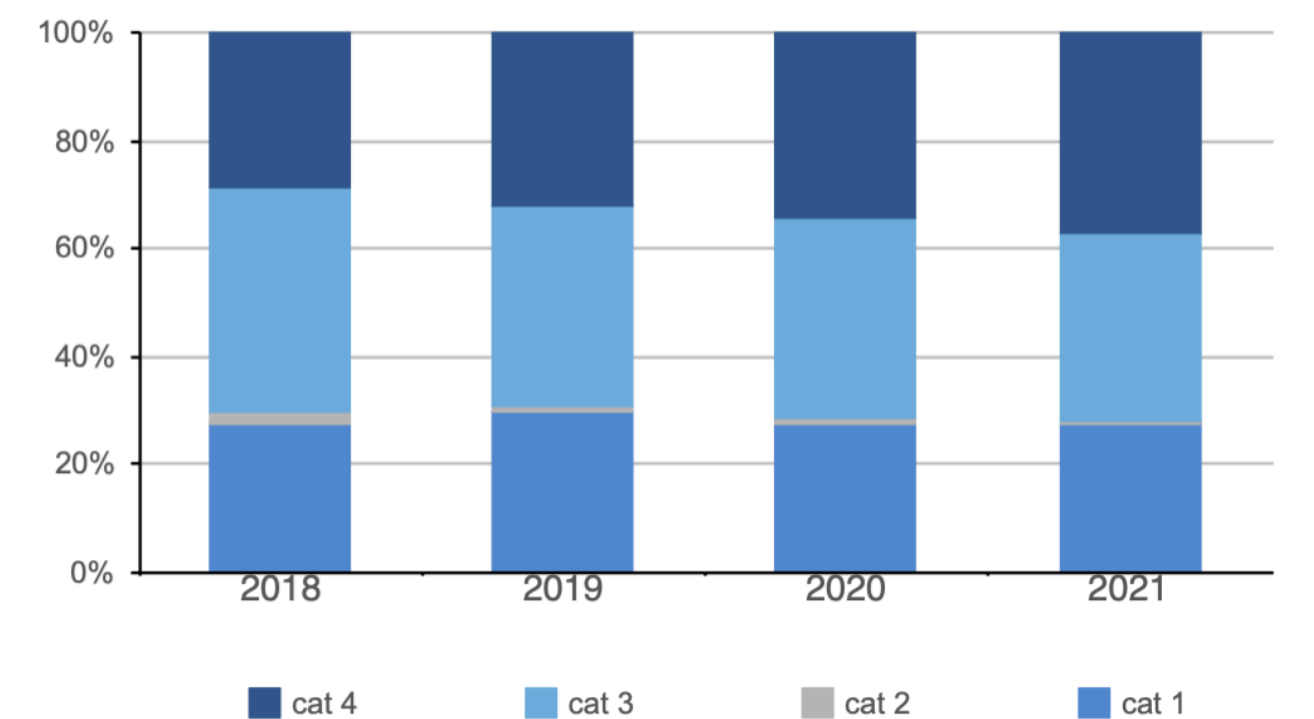
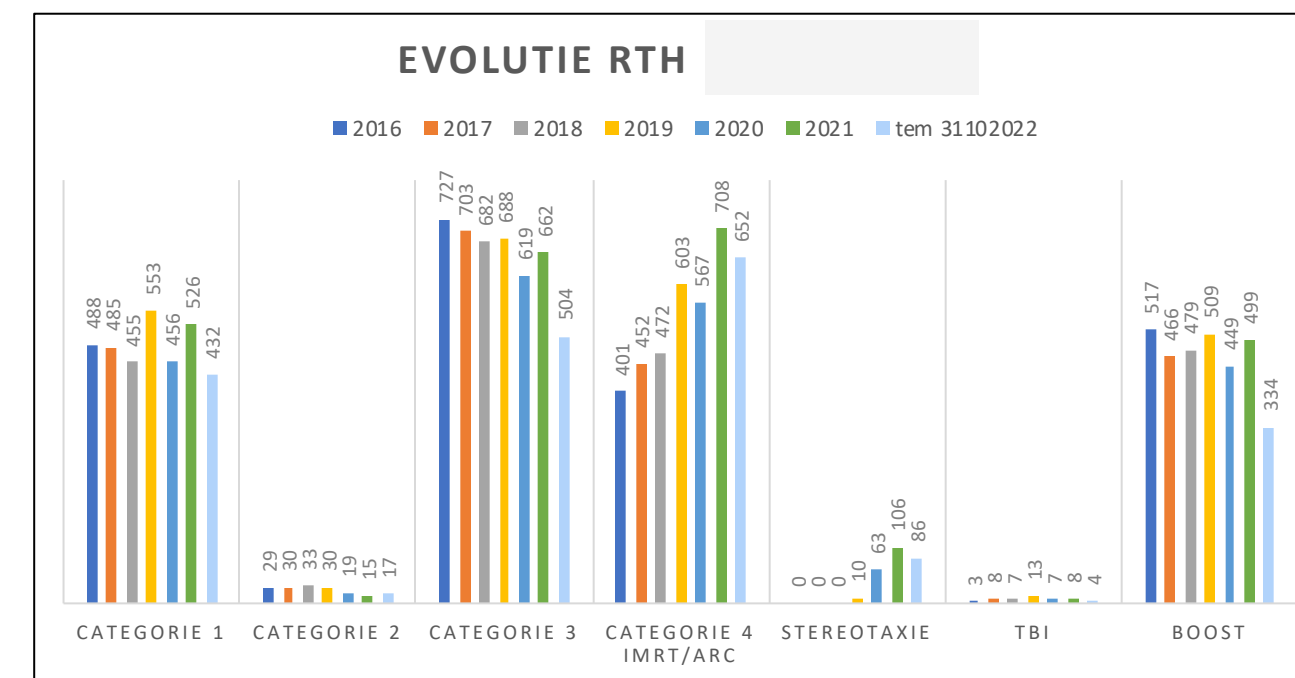
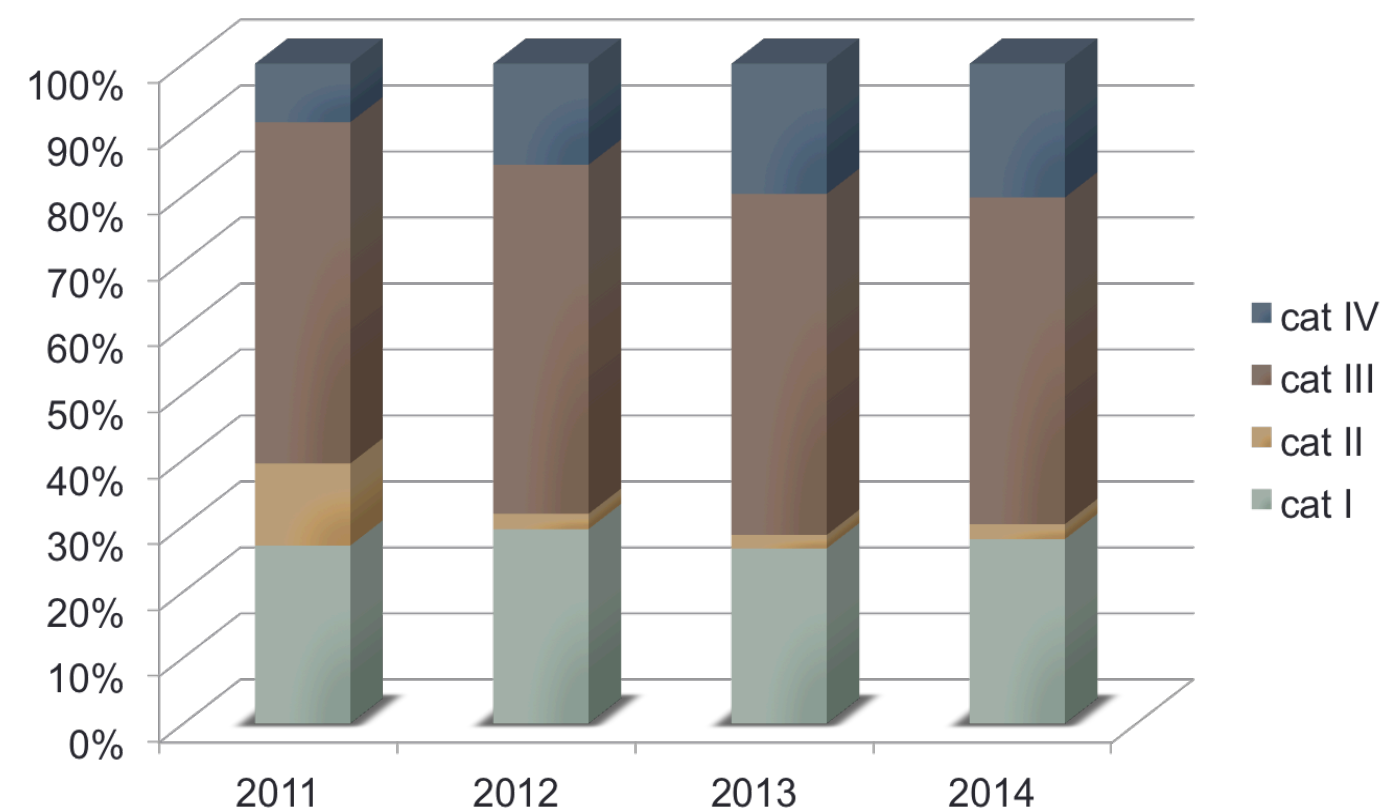
National level

	This hospital	This hospital	Belgium	Europe (ESTRO-HERO) *
	2014	2021	(2017)	2014
N° of EBRT+ HDR treatments	1603	2094	1388	
N° treatments/RO	320	349	261,2	208,9
N° treatments/MPE + MPA	320	246	227,4	303,3
N° treatments/RTT	82	107	83,6	76,8
N° sessions/RTT	1674	1604	1364,5	



* Lievens et al. Radiotherapy staffing levels in the European countries: Final results from the ESTRO-HERO survey. Radiotherapy and Oncology. 112(2014)

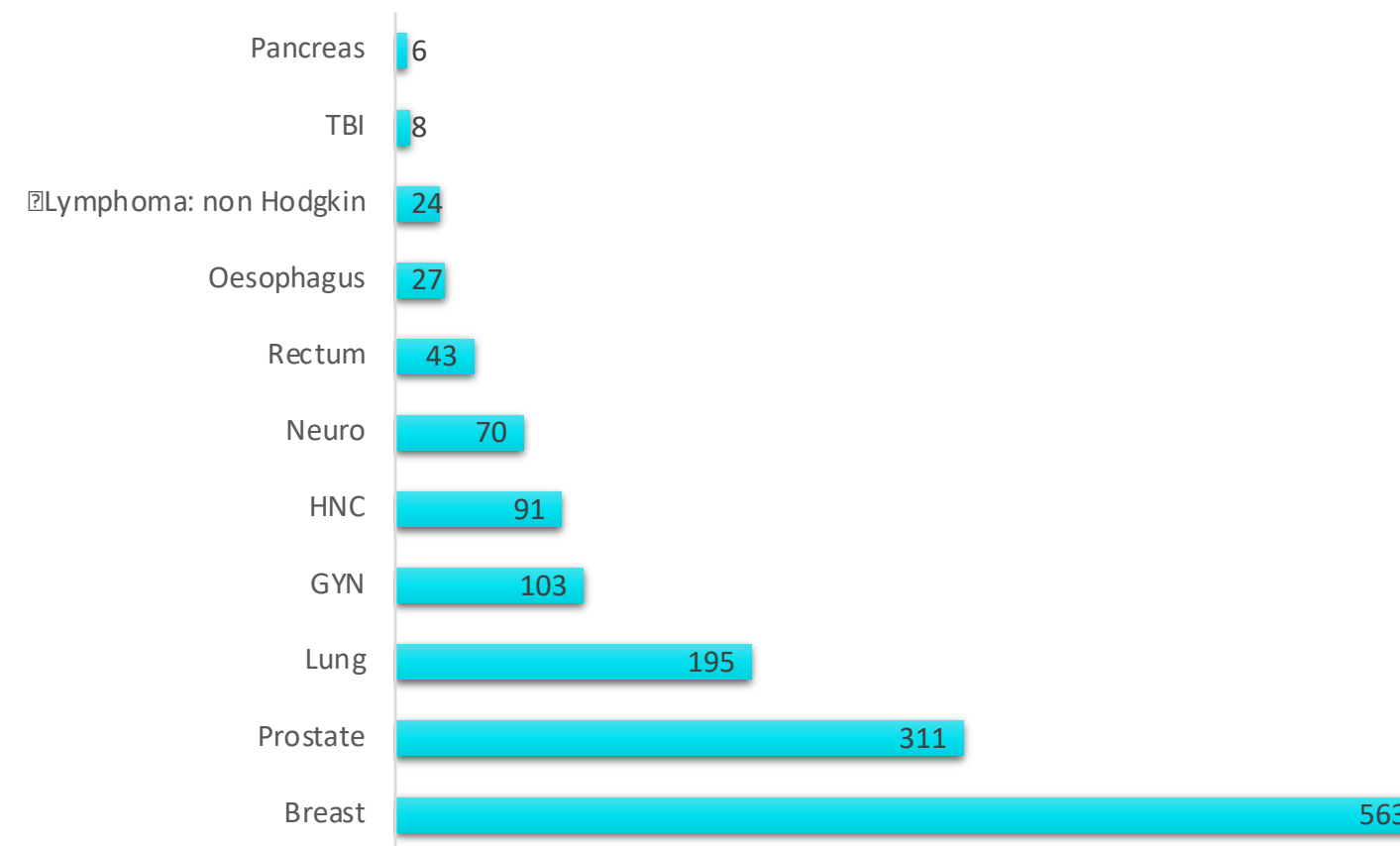
Activity evolution



Treatment courses in 2021

- ▶ 2094 treatment courses
- ▶ 2191 simulations
- ▶ EBRT
 - ▶ 2029 courses
- ▶ Brachytherapy
 - ▶ 57 ptn brachy only – 143 frct
 - ▶ 22 ptn brachy boost – 75 frct

- ▶ 73% curative treatments
- ▶ 27% palliative treatments





Medical aspects

- ✓ Personal and global approach
 - Very good patient information; brochure, film,...
 - Standardized and uniform medical practice
 - Global approach by medical and paramedical personal
 - Balance between personal approach and standardized treatment
- ✓ Flexible and available
 - MOC on different sites (life and digital)
 - Covered sectorisation
- ✓ Accesibel for other professional colleagues. “permanentiearts”
- ✓ Team spirit
- ✓ ...

Medical aspects

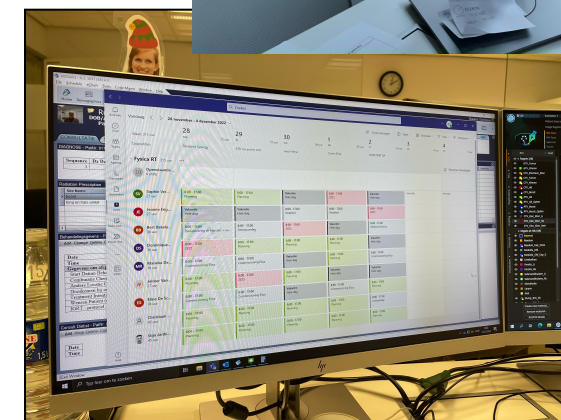


- ✓ Registration of side effects in a non- systematic way
- ✓ No standardised peer-review in
 - indication setting
 - contouring
 - plan acceptance
- ✓ Imaging protocol ?
 - ✓ What if out of tolerance? Action levels? IGRT? Online imaging, Off line review? ...
- ✓ ...

Medical Physics aspects



- Flexible, friendly, highly motivated team
- CPE well developed, highly qualified staff
- Systematic, scheduled and thorough QA/QC (linacs, Sim-CT, IGRT-SGRT)
- Safe and fast uptake of innovative and state-of-the-art techniques and technology
 - DIBH, SGRT, SBRT, SRS, ...
 - Standardisation (same couch tops, beam matched machines ...)
- Well documented procedures, traceability
- Adequate, high standard dosimetry equipment efficiently applied
- Regular external dosimetry audits
- Work budget investments: no complaints



Medical Physics aspects



- Hexapod/precise combo:
 - If “bridge” causes problems, corrected parameters have to be inserted manually however, corrections are not verified.
 - If couch parameters out of tolerance, MPE needs to override (this is irrelevant and only a “transfer of responsibility”)
- General use and one of the first to introduce SGRT, but still using tattoo’s ...
- No independent dose calculation (WIP, SunCHECK)
- “patient QA” with pre-treatment phantom measurements: high workload, might be reviewed/optimized
 - # patients goes up, available QA-time goes down, QA load goes up
- No sum-plan for boost breast



Administration

RTT aspects

Quality Management aspects



Recommendations

- ✓ Advise 1
- ✓ Suggestion 2
- ✓ Recommendation 3
- ✓ ...





**The audit team
thanks you all
for the hospitality and
the friendly atmosphere!**



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