

## **DEEL 2:**

### **RESULTATEN**

presentaties projecten 2020 gepresenteerd  
op de diensthooftenvergadering

## 2.1. INLEIDING

### **Introduction to the annual report 2020**

Dr Vincent Remouchamps / Dr Reinhilde Weytjens

As the last renewal of the mandates of the members of College took place in November 2017, there were new appointments to be done. Since these could not be published in the Belgian Official Gazette in 2020, it was agreed with the FOD, to implement these changes already functionally. Luigi Moretti and Nicolas Jansen renew their mandate. Yolande Lievens and Vincent Remouchamps won't, but they stay as experts. Sarah Roels (St Jan Brugge) and Jean Francois Rosier (Jolimont) join the College. Maarten Lambrecht continues as secretary. Reinhilde Weytjens takes over presidency from Vincent Remouchamps.

***In 2020 the College worked on different projects. Audits did not take place because of COVID-19.***

**QI project** (Coordination by Aude Vaandering, UCL St Luc, PhD student, thesis coordinator Prof. Yolande Lievens and Prof. Pierre Scalliet)

QI 's have been followed on a yearly basis in all Belgian RT centers for years The *infrastructure* QI survey will continue on a yearly basis. The *process and outcome* QI however will be first analysed.

A national questionnaire on patient satisfaction is work in progress.

**PRISMA RT:** (incident reports) Coordination Frederik Vanhoutte. National benchmarking of incidents and near incidents in radiotherapy based on Prisma methodology and Taxonomy recorded and analyzed in "Patient Safety Company" from Adheco

Technical problems are solved now, and the number of root causes slightly increases again. Frederik Vanhoutte has been given mandate (by the College) to analyse these data.

**Physics audits** (BELDART) Coordination B. Reniers and Y. Buldach, Hasselt University.

Dosimetric supervision, independent measures of the dose delivered by the linear accelerator in classical and technically challenging situations. Dosimetry audits for SBRT are ongoing and first results are favourable.

**ProCaLung project:** (Project Cancer of the Lung): Coordination by Dr Luigi Moretti and Dr Florian Charlier (PhD student), Bordet. Lung Cancer radiotherapy quality InterVision.

In the first phase we were able to demonstrate an improved homogeneity of delineation after the consensus was reached.

The next phase of the project is delayed, and more money was spent than foreseen. Contracts needed to be made GDPR proof and external testing/validation of the software needed to be done. But the College is

convinced that by working out this ProCaLung project and by drawing up all contracts correctly, the College does have a template for future similar prospective registrations with peer-review projects. We would also like to mention the PRocahn project, a Head and Neck delineation study moving to the next phase.

**Innovative techniques:**

BCR and the College agreed on a research project on SBRT liver. Young researchers will work on a database at the BCR, after a training to work in secured environment. Similar projects might be submitted.

***Furthermore, the college has worked closely together with other organizations and projects*** (BeSTRO, Belgian Cancer Barometer, College of Oncology, WG Ad hoc MOC, ..)

## 2.2. AUDITS

Ten gevolge van de Covid-19 pandemie hebben de **audits** niet plaats gevonden. De audits zijn wettelijk verplicht maar het KB voorziet dat een externe klinische audit maar om de vijf jaar wordt uitgevoerd. Om hieraan te voldoen zullen de audits bijgevolg terug worden uitgevoerd van zodra de pandemiemaatregelen dit toelaten.

### 2.3. PROCALUNG

## Update on ProCaLung Feb 26, 2021

Florian Charlier

On behalf of the College of Physicians for Radiotherapy

ProCaLung team: Y. Lievens, V. Remouchamps, X. Geets, M. Lambrecht, and L. Moretti



In partnership with



## Plan

- Project status
- Departments' participation
- Common questions
- Upcoming FAQ

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## Why the wait ?

- Many [contracts](#) to create and adapt
  - Taking much time and efforts because many parties must coordinate (GDPR)
  - All parties are deeply committed to moving forward as soon as possible
  - Aquilab, Belgian Cancer Registry, Institut Jules Bordet, CHU UCL Namur / College

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## Why the wait ?

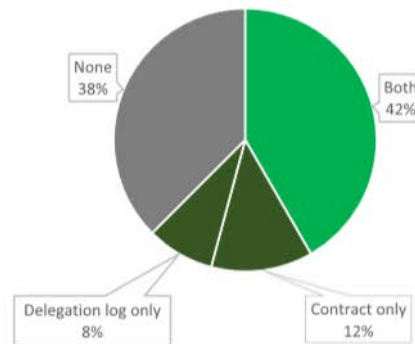
- Many [contracts](#) to create and adapt
    - Taking much time and efforts because many parties must coordinate (GDPR)
    - All parties are deeply committed to moving forward as soon as possible
    - [Aquilab](#), [Belgian Cancer Registry](#), [Institut Jules Bordet](#), [CHU UCL Namur / College](#)
  - External testing (validation) of the software used is also ongoing
-

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## RO departments participation

- 15 / 24+ sent back documents so far
  - 2 have sent completed [delegation log](#)
  - 3 have sent reviewed [site agreement](#)
  - 10 already sent [both documents](#)
- How does that work, again ?
  - Q&A
  - [ctsu.procalung@bordet.be](mailto:ctsu.procalung@bordet.be)

Documents sent back by RO departments



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## Common RO department questions

- Is ProCaLung a clinical trial ?
  - Do we need insurance ?
  - Do we need an ethics committee approval ?
  - Do we need to have signed informed consents from patients ?
  - Why is the contract so long ?
-



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## Common RO department questions

- Is ProCaLung a clinical trial ?
  - No, it is a prospective [registry](#) with a [peer-review](#) activity
  - Isn't a patient registry a clinical trial ?
    - Not when the focus is public health and the promotor a public authority (the College/Federal Public Service Health), not an academic institution
  - Isn't peer-review an [intervention](#) ?
    - No, it is a [highly recommended routine practice in radiation oncology](#)<sup>1</sup>.
    - ProCaLung does not chose/modify treatments, only advises based on current guidelines

1. Lewis, P. J., et al. (2020). "Structure and Processes of Existing Practice in Radiotherapy Peer Review: A Systematic Review of the Literature." Clinical Oncology.

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## Common RO department questions

- Is ProCaLung a clinical trial ?
  - Do we need insurance ?
    - No, as this is part of clinical practice, it is covered by your regular hospital insurance
-

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## Common RO department questions

- Is ProCaLung a clinical trial ?
- Do we need insurance ?
- Do we need an ethics committee approval ?
  - Legally, no (NB: not a clinical trial)
  - We did it to confirm [GDPR compliance](#) for the whole project and allow [academic publications](#)
  - If your hospital requires it nonetheless before sending any data, we will soon be able to provide [documentation to help](#).

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## Common RO department questions

- Is ProCaLung a clinical trial ?
- Do we need insurance ?
- Do we need an ethics committee approval ?
- Do we need to have signed informed consents from patients ?
  - No, as the basis for the data processing is public interest (OK GDPR)
  - Patients must only be [informed](#)
    - We will provide an information document as example to give to the patients, with a link to the website for more information
    - Patients can [oppose further treatment](#) of their data

[www.procalung.be](http://www.procalung.be)



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## Common RO department questions

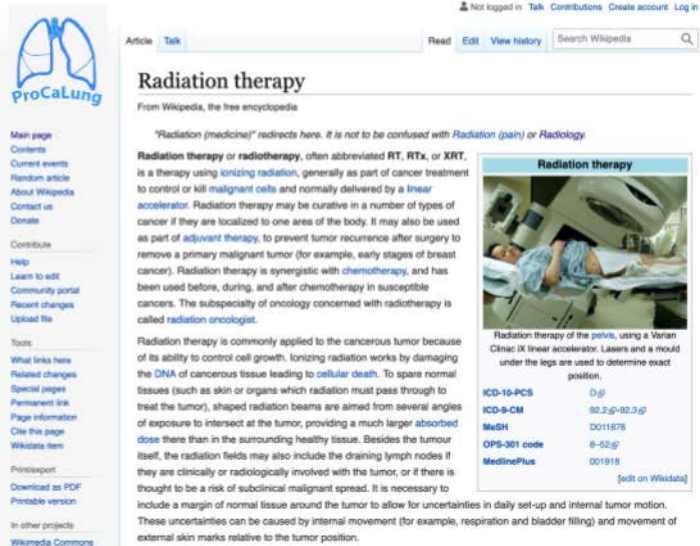
- Is ProCaLung a clinical trial ?
  - Do we need insurance ?
  - Do we need an ethics committee approval ?
  - Do we need to have signed informed consents from patients ?
  - Why is the contract so long ?
    - In order to comply with the GDPR requirements
- 

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## Upcoming FAQ

- Protocol is maybe unpractical for everyday use ?
  - (new) situations and pragmatic questions can come up during the project
  - English may not be the most convenient working language for all
  - ...
-

# FAQ / wiki



The screenshot shows the Wikipedia article for "Radiation therapy". At the top, there's a navigation bar with "Not logged in", "Talk", "Contributions", "Create account", and "Log in". Below this is the article title "Radiation therapy" with a subtitle "From Wikipedia, the free encyclopedia". The main text describes radiation therapy as a treatment for cancer using ionizing radiation. It mentions that it can be curative or used to prevent tumor recurrence. A small image shows a patient lying on a table in a treatment room. To the right of the image is a table with medical codes: ICD-10-PCS, ICD-9-CM, MeSH, OPS-301 code, and MedlinePlus. On the left side of the article, there's a sidebar with links like "Main page", "Contents", "Current events", "Random article", "About Wikipedia", "Contact us", "Donate", "Contribute", "Help", "Learn to edit", "Community portal", "Recent changes", "Upload file", "Tools", "What links here", "Related changes", "Special pages", "Permanent link", "Page information", "Old this page", "Wikidata item", "Print/export", "Download as PDF", "Printable version", "In other projects", and "Wikimedia Commons".

Wikipedia contributors. (2021, February 20). Radiation therapy. In *Wikipedia, The Free Encyclopedia*.

Retrieved 14:15, February 25, 2021, from [https://en.wikipedia.org/w/index.php?title=Radiation\\_therapy&oldid=1007895812](https://en.wikipedia.org/w/index.php?title=Radiation_therapy&oldid=1007895812)

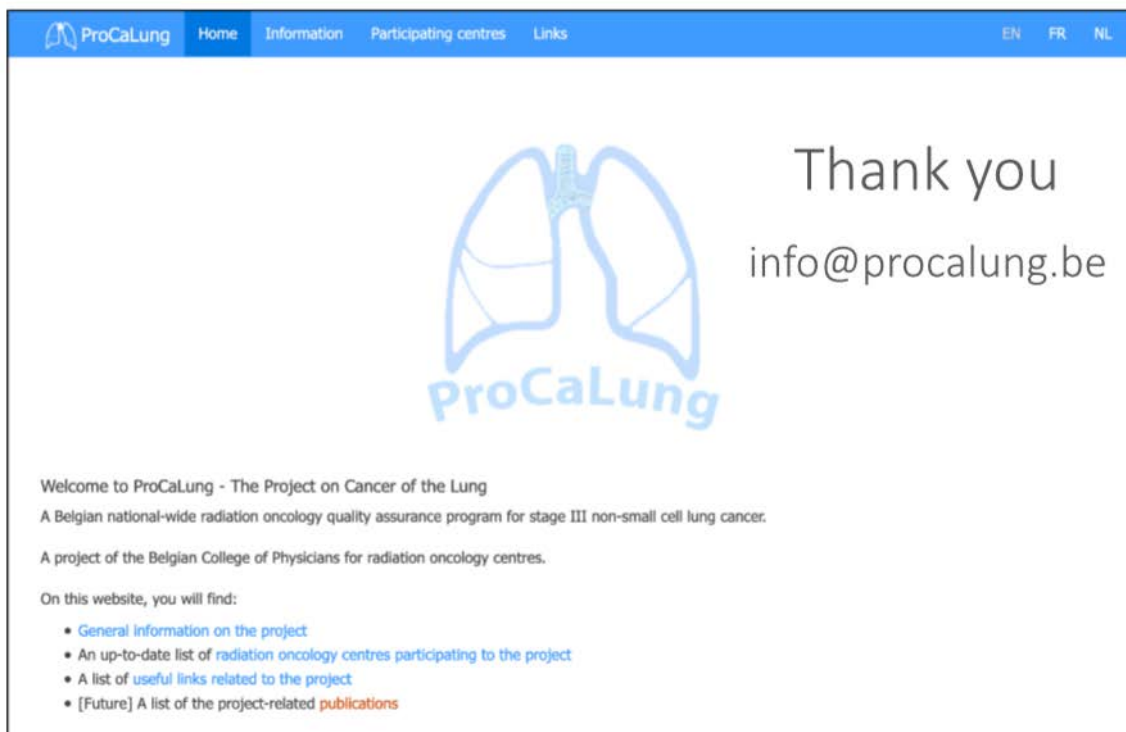
## Delegation log

- Participants will have access to a participant-only section of ProCaLung's website

- Updated answers to the Frequently Asked questions
- EN – NL – FR
- Suggest modifications / Discussions



<http://www.pngall.com/?p=13214> CC 4.0 BY-NC



The screenshot shows the ProCaLung website. At the top, there's a navigation bar with "ProCaLung", "Home", "Information", "Participating centres", and "Links". On the right side of the bar are language options: "EN", "FR", and "NL". The main content area features a large blue logo of lungs with the text "proCaLung" below it. To the right of the logo, it says "Thank you" and "info@procalung.be". Below the logo, there's a welcome message: "Welcome to ProCaLung - The Project on Cancer of the Lung". It describes the project as a Belgian national-wide radiation oncology quality assurance program for stage III non-small cell lung cancer. It also mentions that it's a project of the Belgian College of Physicians for radiation oncology centres. At the bottom, it says "On this website, you will find:" followed by a list of links: "General information on the project", "An up-to-date list of radiation oncology centres participating to the project", "A list of useful links related to the project", and "[Future] A list of the project-related publications".

## 2.4. QUALITY INDICATORS

# Radiotherapy Quality Indicator project

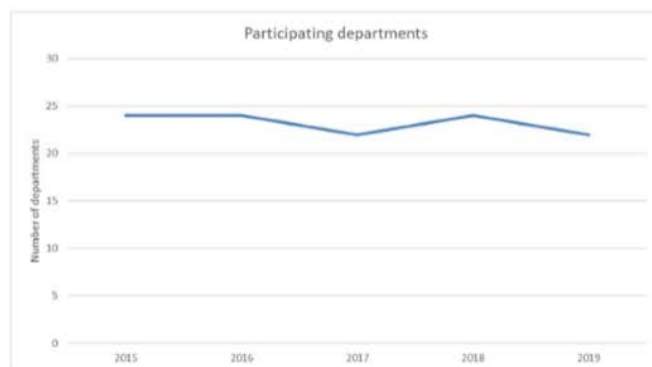
College Heads of Department meeting

25/02/2021

Aude Vaandering ([aude.vaandering@uclouvain.be](mailto:aude.vaandering@uclouvain.be))

## Status of the project

- Yearly collection of data from 2015 - 2019 included
  - +- 95% participation rate

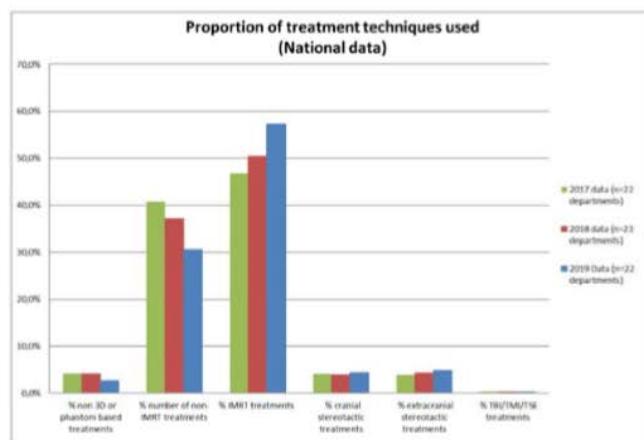


- 2020 infrastructural and structural data in the process of being collected

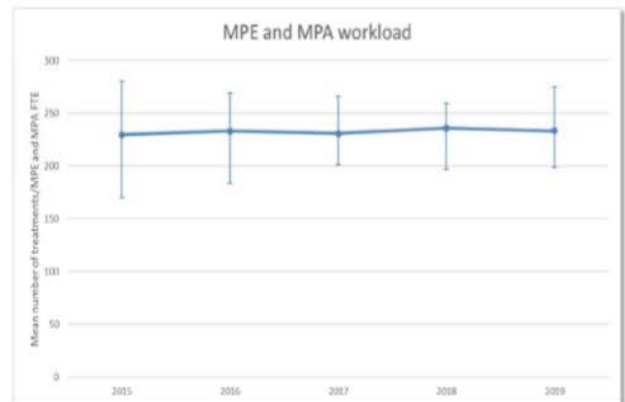
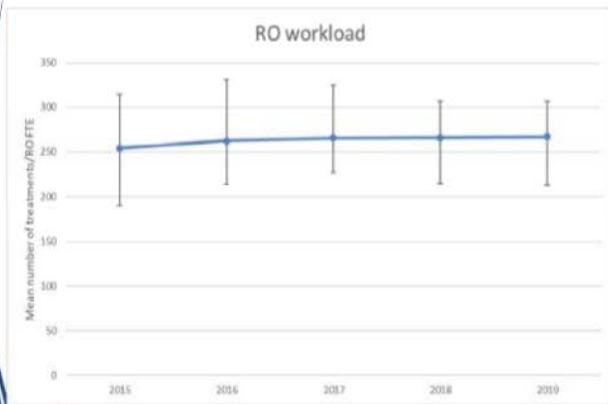
4 year status: can we observe  
some trends in the data collected?

## Treatment activities

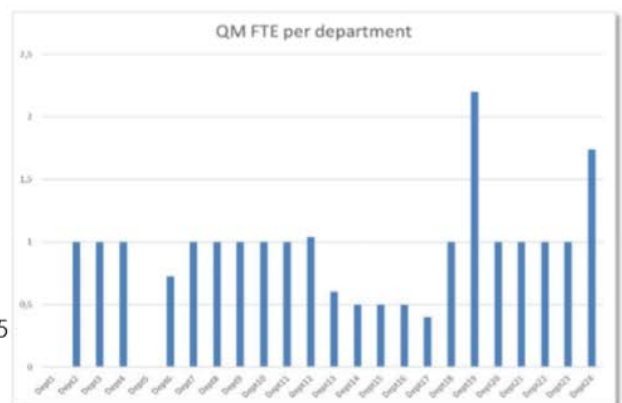
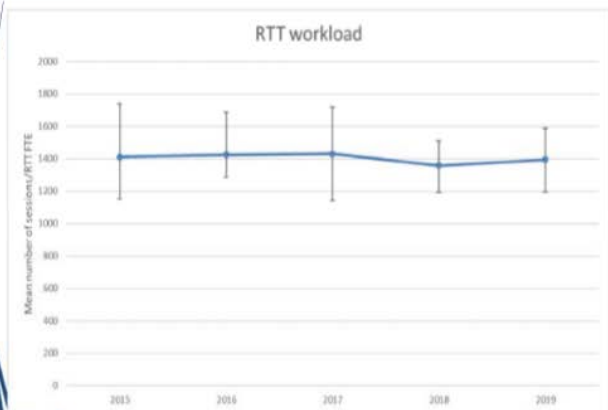
- #RT treatment activities is stable (..if not increasing)
- Mean number of sessions per treatment are decreasing (hypofractionation)
- Evolution in used treatment techniques



## RT workload



## RT workload



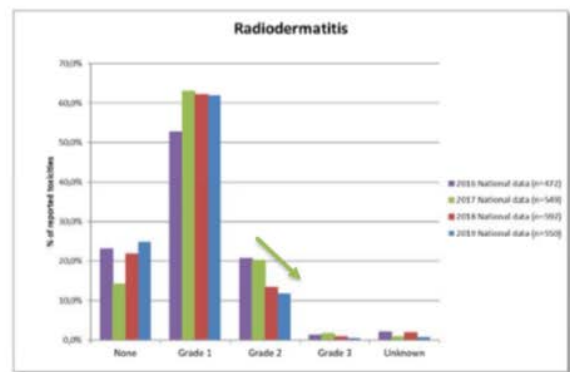
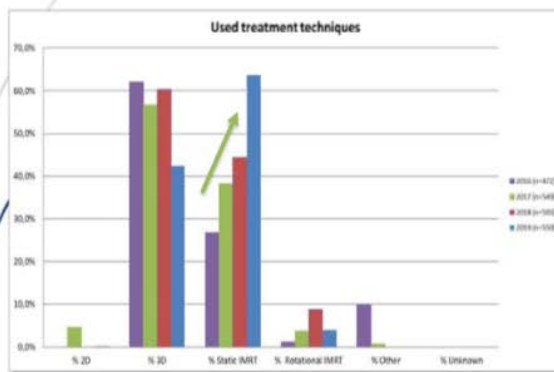
6 departments  
have a FTE QM  $\leq 0,5$



## Breast (breast post-op/no nodal RT/excluding bilateral RT and partial breast irradiation)



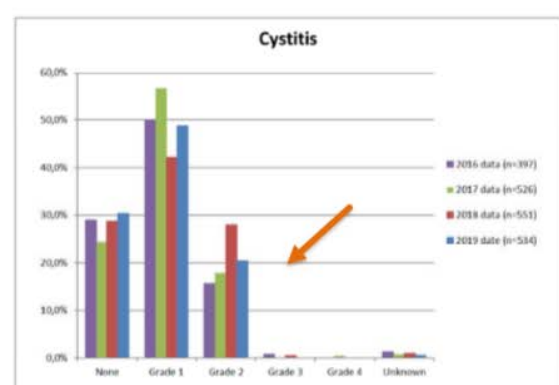
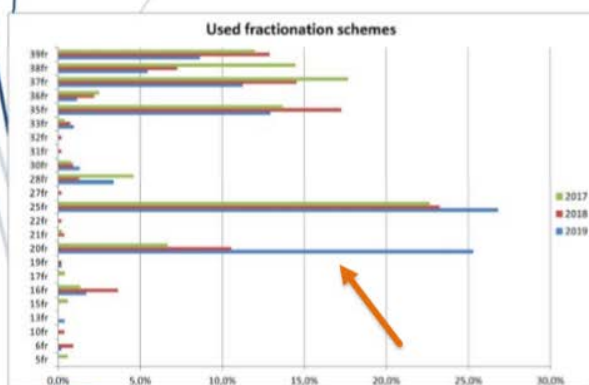
- Trend towards hypo-fractionation
- Trend towards volumetric IGRT, surface imaging and static IMRT>3D
- Recorded toxicities (decrease in grade 2?)



## Prostate (excluding patients with prostatectomy and patients benefiting from BT to target volume)



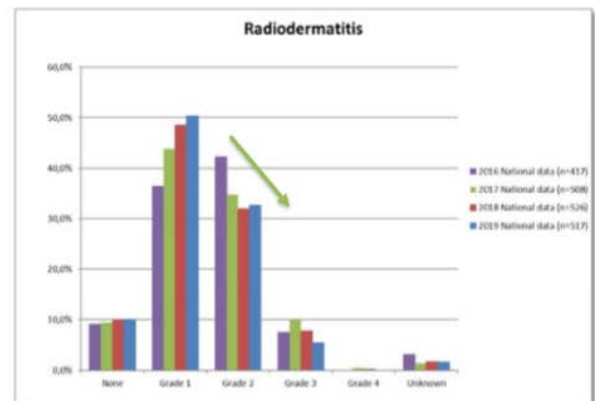
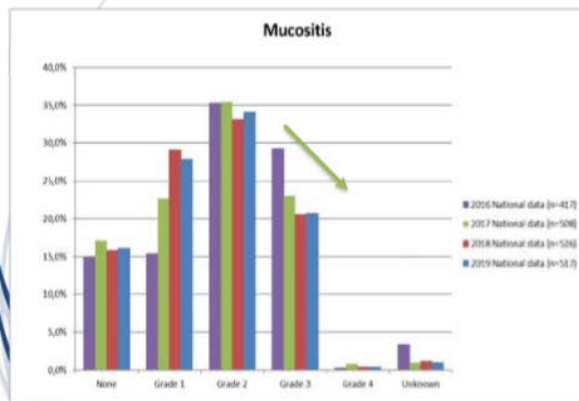
- Between 2018 and 2019 huge movement towards hypo-fractionation
- Movement toward volumetric IMRT and daily IGRT
- Recorded toxicities stable (cystitis and proctitis)



## H&N (excluding T1N0 Glottis)



- Fractionations schemes are stable
- Since 2017, volumetric IGRT and rotational IMRT used in majority of included patients
- Decrease in recorded toxicities



## QI project survey: results

## Survey description

- Aim: obtain feedback of the QI project:
  - Level of participation of the department
  - Global evaluation of the project
  - **Ease of data collection** - how easy was it for the department to extract the data needed for this QI
  - **Importance of collected QI** – Does the department believe that the information collected through the QI is useful to monitor performance and/or to set up quality improvement initiatives?
  - **Scientific validity of collected QI** – Does the department believe that the element that is being measured is precisely defined and reliable?
- Data collected through RedCap

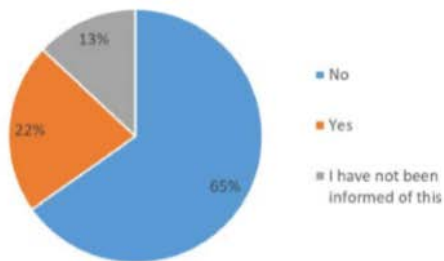
## Survey results

- 23/26 of the contacted departments responded
- Participation to the project
  - 16/23 departments participated every year
  - 6\* departments did not participate on a yearly basis
  - *Reasons for not participating*
    - *Absence of QM*
    - *Lack of time (1 department)*
    - *Stopped with outcome data collection*

\* including 1 recently included department

## Survey results

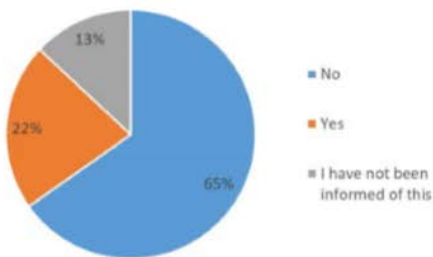
Overall, did your participation in the quality indicator project stimulate you in changing your CLINICAL PRACTICE ?



- **Change in fractionation schemes**
- **Better documentation of radiation toxicities**
- Focus on delay between pre-treatment – overall treatment times
- IGRT practice
- Change in used treatment techniques
- Use of breath hold

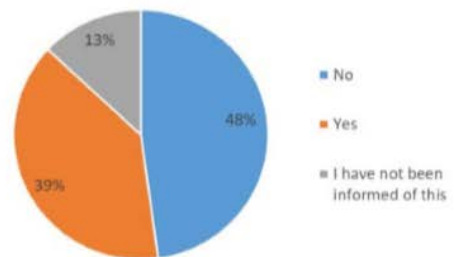
## Survey results

Overall, did your participation in the quality indicator project stimulate you in changing your CLINICAL PRACTICE ?



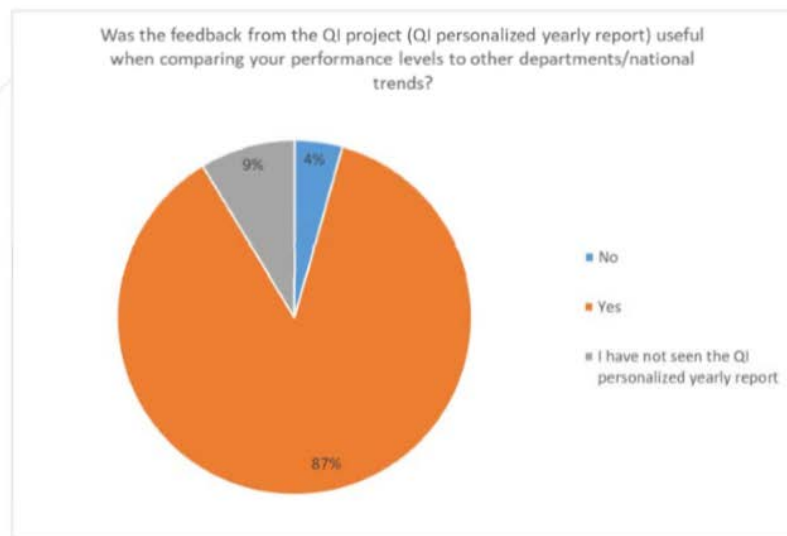
- **Change in fractionation schemes**
- **Better documentation of radiation toxicities**
- Focus on delay between pre-treatment – overall treatment times
- IGRT practice
- Change in used treatment techniques
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Overall, did your participation in the quality indicator project stimulate you in changing your ORGANIZATIONAL PRACTICE?



- **Increase in staff numbers (RO)**
- **Better documentation of radiation toxicities**
- Collecting data became a centralized process
- Integration of QI in own dashboard
- Stimulation in hypo fractionation use

## Survey results



## Survey results: Ease of data collection

### Infrastructure data



- Difficulty in calculating FTE (maternity leave...)
- Need to collect prospectively

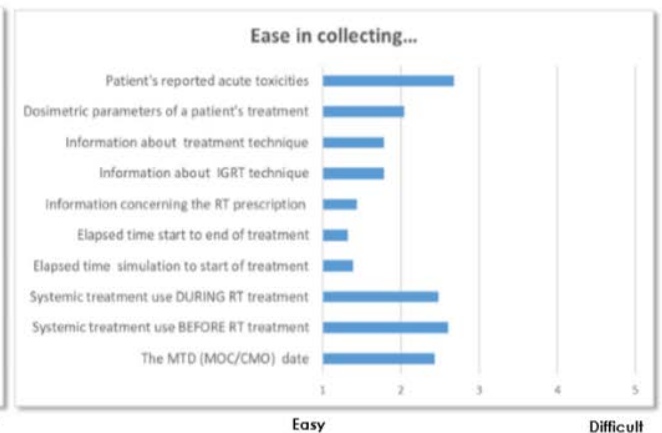
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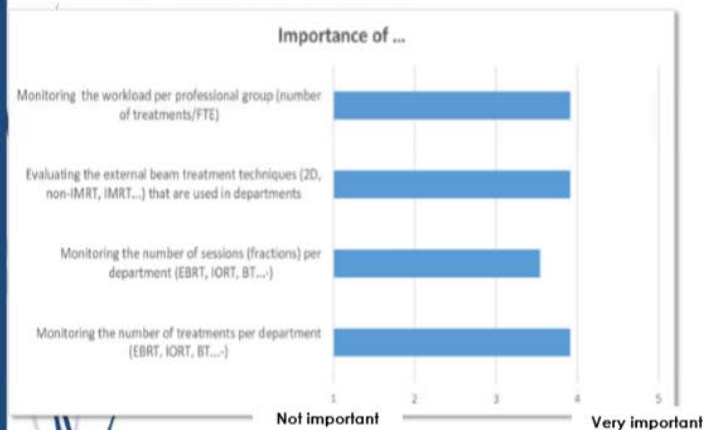
### Process and outcome data



- Lack of centralized database with all concerned data
- OK if data can be queried in database
- Lack of automation

## Survey results: Importance of data collection

### Infrastructure data

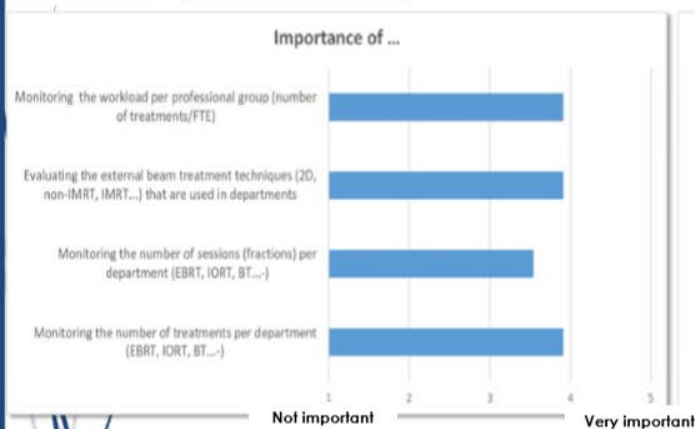


- **The workload of radiation oncologists/physicists/RTT's depend not only on the number of treatments.**
- The ratio of patients to sessions only says something about the evolution towards hypofractionation (not workload)
- Is it necessary to follow up on the technique?
- The treatment techniques per pathology is more interesting to know than per department



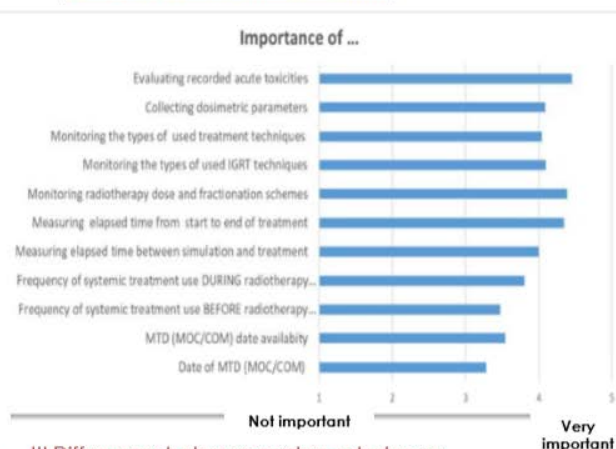
# Survey results: Importance of data collection

## Infrastructure data



- The workload of radiation oncologists/physicists/RTT's depend **not only on the number of treatments**.
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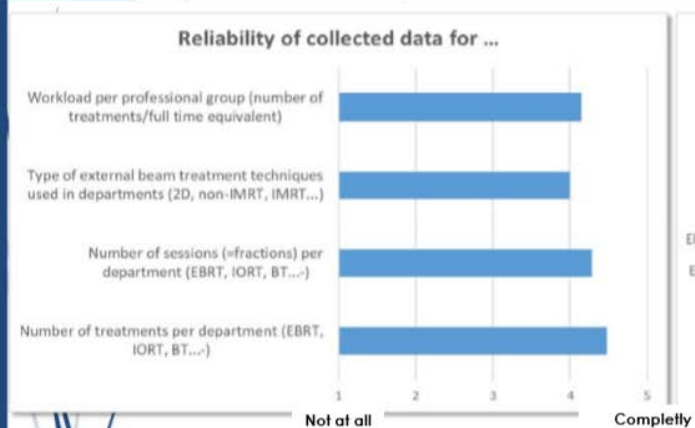
## Process and outcome data



- !!! Differences between centers or between doctors evaluating toxicities, limited sample size (25) and patient selection

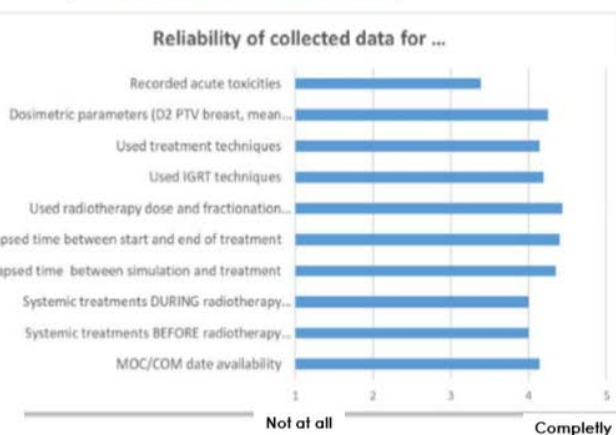
# Survey results: Reliability of data

## Infrastructure data

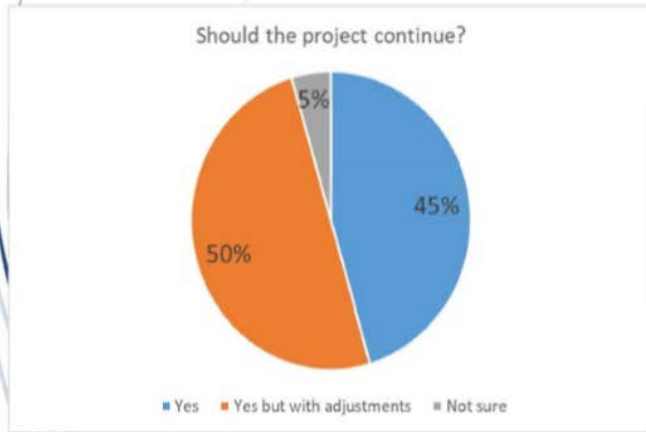


- !! **Toxicities**
- Need for clear definition of some items (ex: FTE...)
- Amount of manual work in adapting hospital figures to College FTE definitions increases risk of errors
- Limited sample size

## Process and outcome data



## Survey results: Project continuation



11 departments with adjustments

QI should be:

- refined (7 departments)
- added (6 departments)
- removed (5 department)
- include more patients (7 departments)
- be collected another way (6 departments)

Suggestions:

- **Automation**, big data,
- Use of PROMS,
- Same QI as other countries to allow for further benchmarking
- Include other pathologies
- Standardized patient selection and EPD review
- More dosimetric parameters

## Next steps



- Finalize statistical analysis
- Continue process and outcome QI
  - More pathologies
  - Expert groups
- "Facilitation" of QI collection (eHealth, ...)





*Thank You*

## 2.5. BELDART

BEL<sup>d</sup>ART-SBRT*BELgian dosimetry Audits in Radio Therapy**Progress report Feb 2021*

B. Yalvac, N. Reulens, B. Reniers

## Introduction



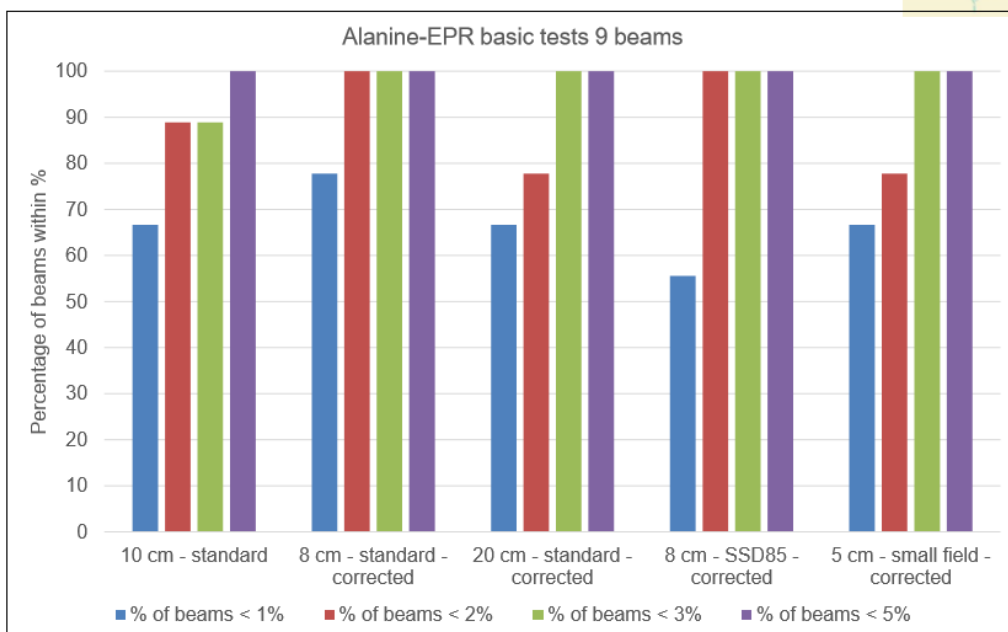
- 9 audits performed
- Problems due to Covid-19 pandemic
  - Visited audits at pilot phase interrupted
  - Difficult access hospitals for testing
    - Now easier access
- ESTRO39 presentation (inv. Speaker B. Reniers)
- Tender in process for tabletop EPR spectrometer
  - As backup

# Audits

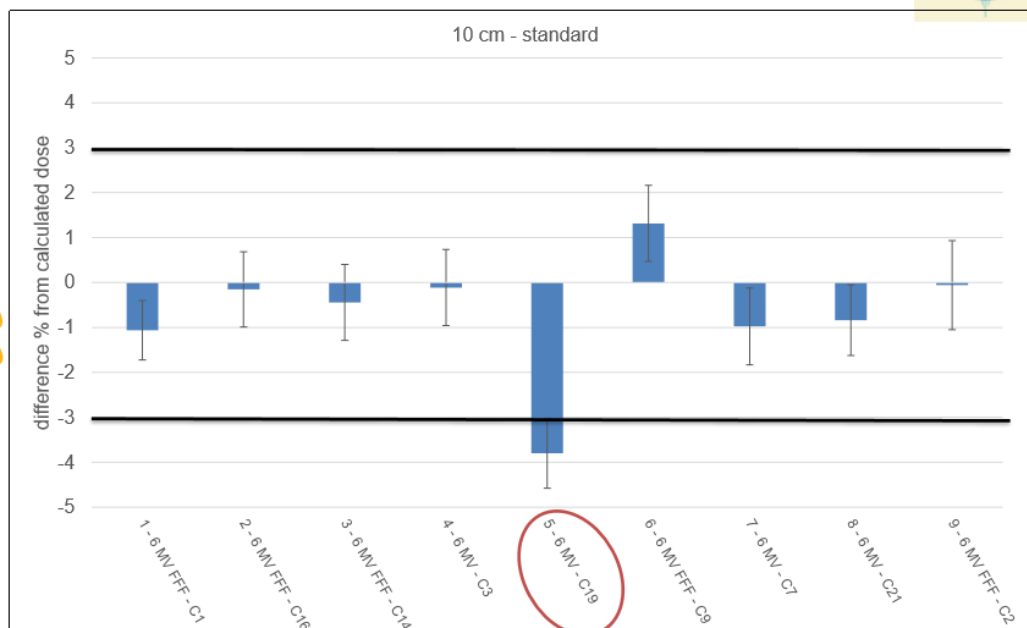


|                | TPS        | Energy   | Algorithm | Prescription dose/fraction (Gy) |
|----------------|------------|----------|-----------|---------------------------------|
| <b>Audit 1</b> | Eclipse    | 6 MV FFF | AAA       | 11                              |
| <b>Audit 2</b> | Eclipse    | 6 MV FFF | Acuros Dm | 12                              |
| <b>Audit 3</b> | Raystation | 6 MV FFF | CCC       | 12                              |
| <b>Audit 4</b> | Eclipse    | 6 MV     | AAA       | 20                              |
| <b>Audit 5</b> | Raystation | 6 MV     | CCC       | 15                              |
| <b>Audit 6</b> | Eclipse    | 6 MV FFF | Acuros Dm | 15                              |
| <b>Audit 7</b> | Eclipse    | 6 MV     | Acuros Dm | 11                              |
| <b>Audit 8</b> | Raystation | 6 MV     | CCC       | 11                              |
| <b>Audit 9</b> | Raystation | 6 MV FFF | CCC       | 12                              |

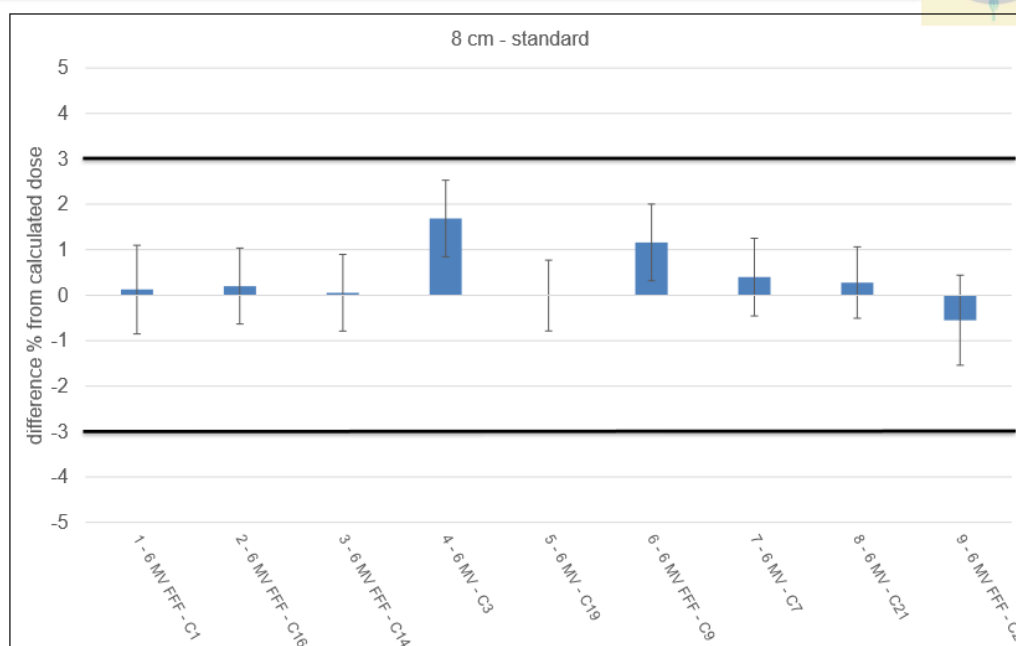
## Basic tests – corrected for output



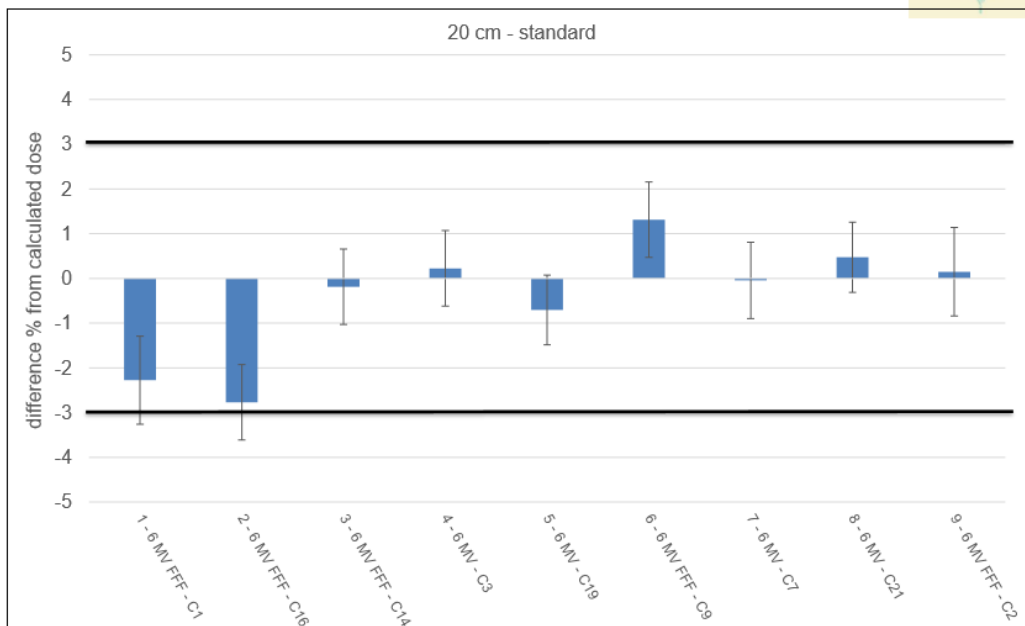
## 10 cm – output



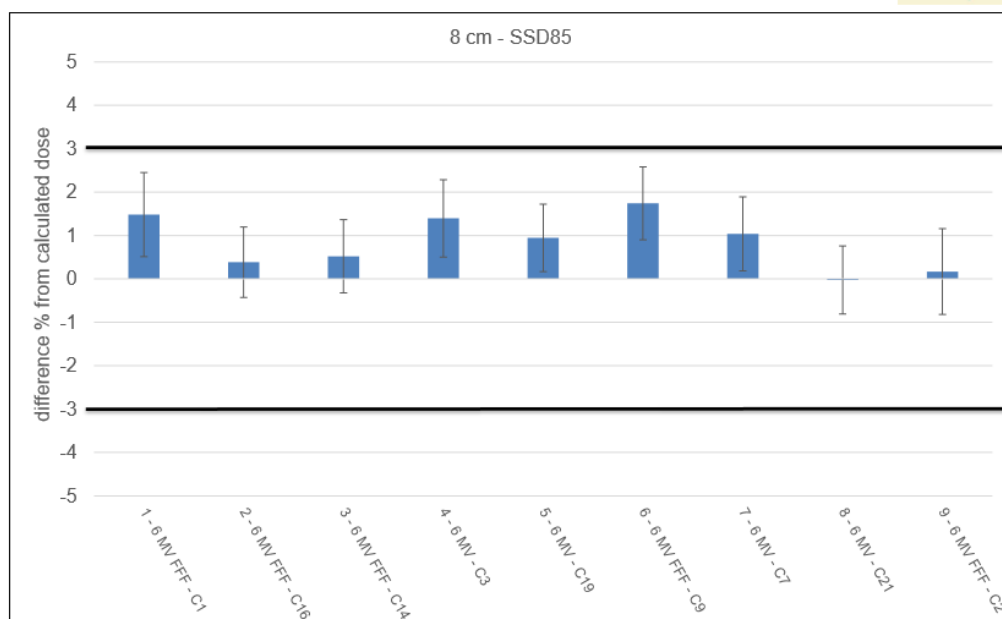
## 8 cm – corrected for output



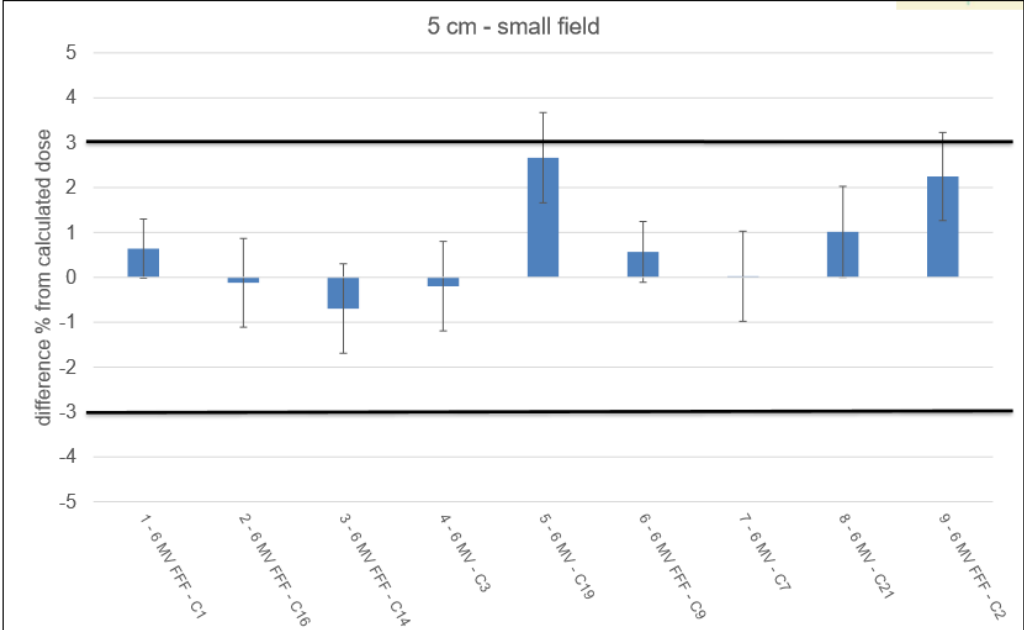
## 20 cm – corrected for output



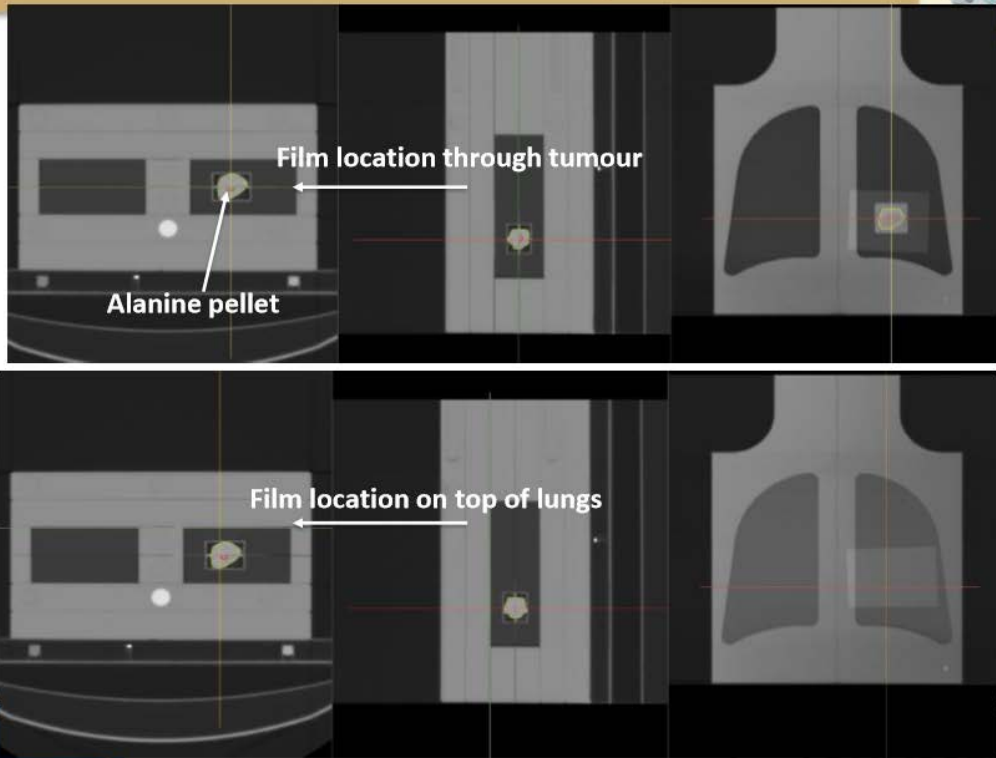
## 8 cm – SSD85 – corrected for output



# 5 cm – small field- corrected for output



# SBRT delivery



# BELdART-SBRT



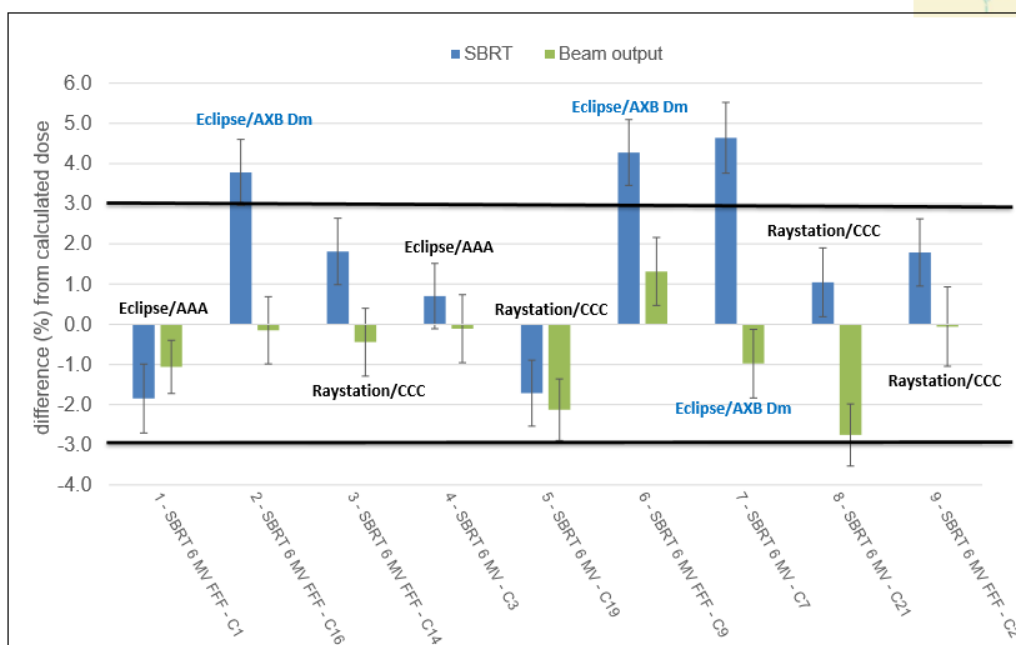
## Alanine results summary

|              | Nr. of beams | %             |
|--------------|--------------|---------------|
| Beams < 1%   | 1            | 11.11         |
| Beams < 2%   | 6            | 66.67         |
| Beams < 3%   | 6            | 66.67         |
| Beams < 5%   | 9            | 100.00        |
| <b>Total</b> | <b>9</b>     | <b>100.00</b> |

## Film results summary

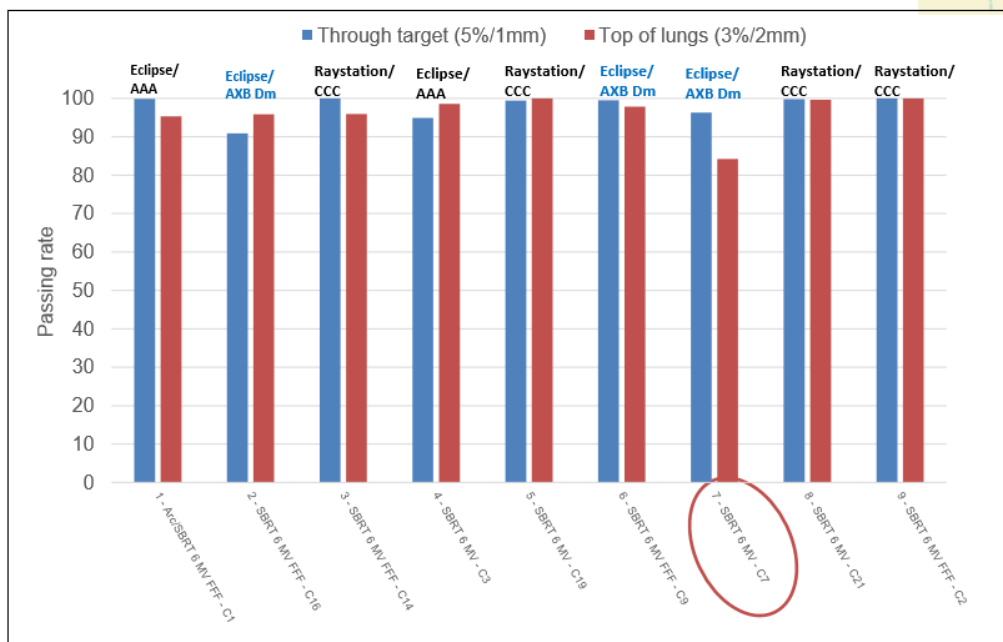
|               | Through target (5%/1mm) |               | Top of lungs (3%/2mm) |               |
|---------------|-------------------------|---------------|-----------------------|---------------|
|               | Number of beams         | %             | Number of beams       | %             |
| Beams >98%    | 6                       | 66.70         | 4                     | 44.40         |
| Beams 98%-95% | 1                       | 11.10         | 4                     | 44.40         |
| Beams 95%-90% | 2                       | 22.20         | 0                     | 0.00          |
| Beams <90%    | 0                       | 0.00          | 1                     | 11.20         |
| <b>Total</b>  | <b>9</b>                | <b>100.00</b> | <b>9</b>              | <b>100.00</b> |

# SBRT alanine results





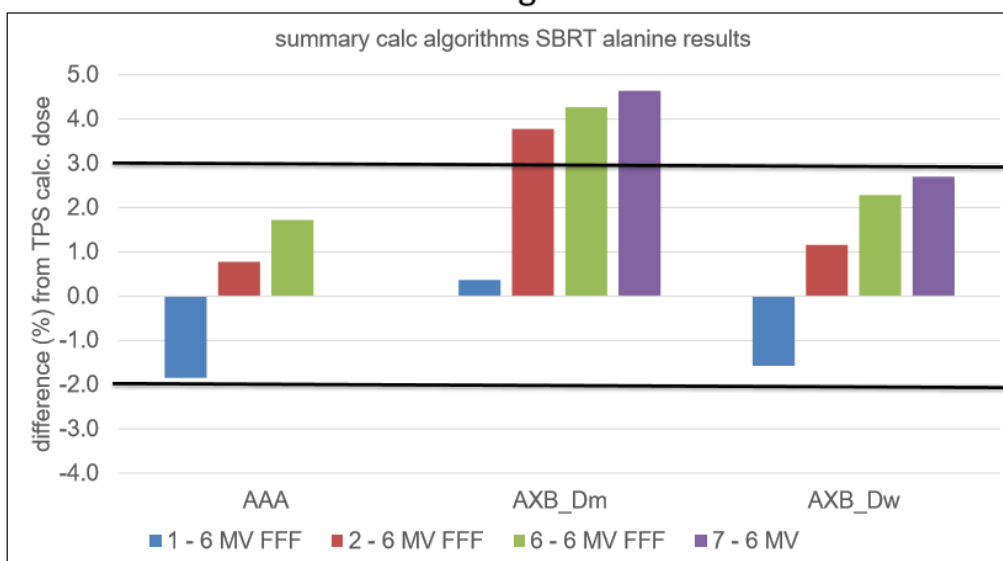
## SBRT film



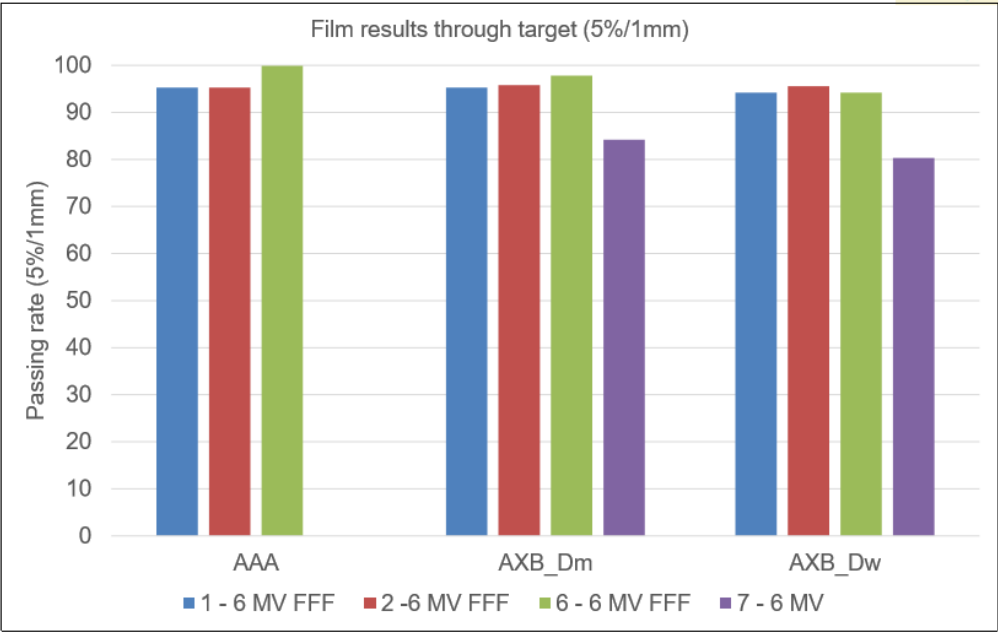
## Study Acuros Dm or Dw



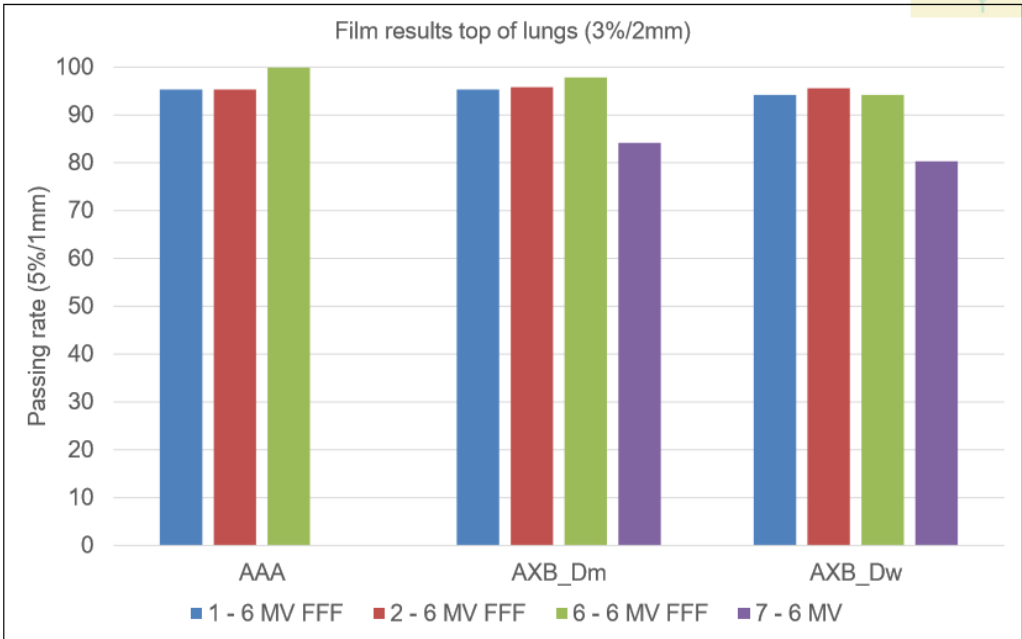
- Plans were recalculated using Acuros Dw



# Study Acuros Dm or Dw



# Study Acuros Dm or Dw



## Summary



- Alanine results Acuros Dw better than Acuros Dm
- For Acuros we should use Dw
  - Alanine/film detectors measure Dw
  - Alanine and tumour material is assigned cartilage
- No clear trend from the film results

## Conclusions SBRT



- Small sample size (9 centres)
- Basic test results are good
- E2E test results are good
  - Acuros Dw
  - Alanine/film measure Dw

## 2.6. PRISMA-RT

## College meeting

December, 1 2020

PRISMA-RT.be



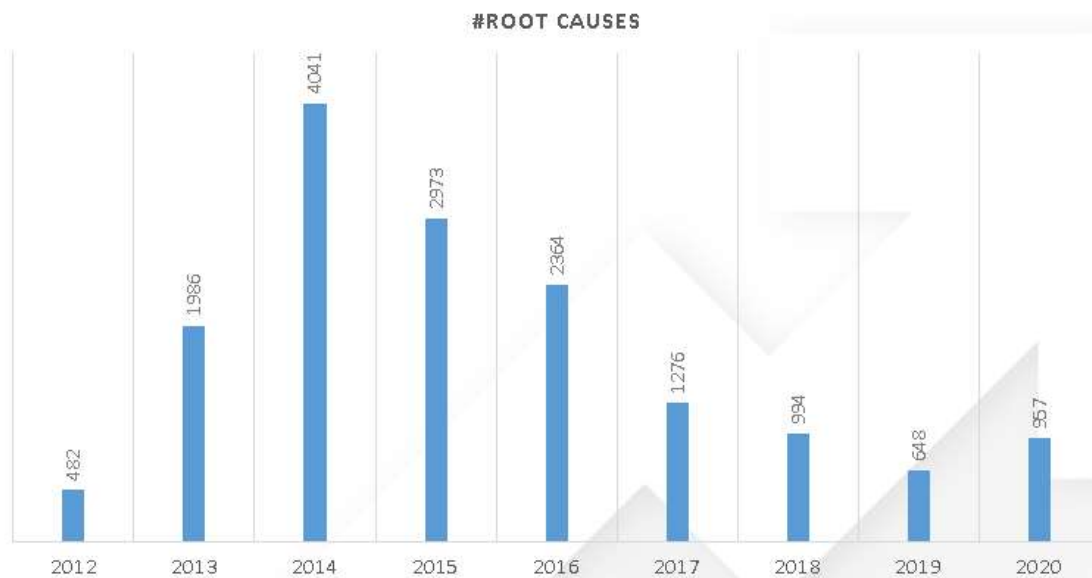
## Follow-up

- Can we separate satellite centers from main sites?
  - Not with additional funding
  - But web platform has been made available to the satellite sites requesting it
- Specific project
  - No clear project has emerged from QM group
  - To be discussed
- Financing
  - Transparency?
  - Relationship College-Adheco



# Status benchmark

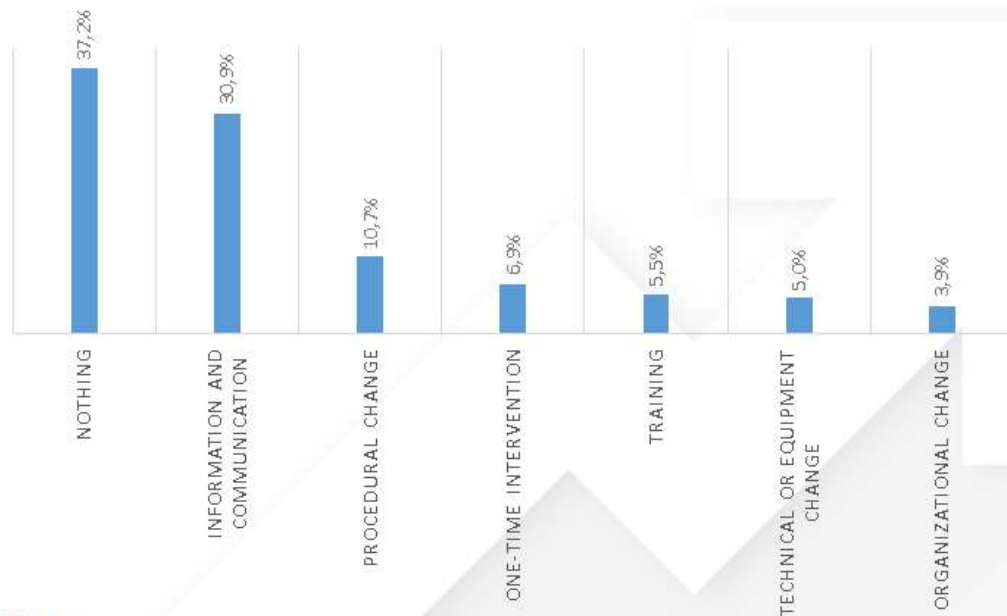
## # added root causes (total per year)



 PRISMA profiles

| Step                              | Percentage |
|-----------------------------------|------------|
| Treatment Delivery                | 22.4%      |
| Data Entry, Record and Management | 21.0%      |
| Simulation                        | 19.1%      |
| Pre-treatment Check               | 12.5%      |
| Treatment Planning                | 10.8%      |
| Acceptance and Commissioning      | 4.0%       |
| Prescription                      | 3.9%       |
| Diagnosis, MOC and Consultation   | 2.2%       |
| Maintenance and Technical         | 1.9%       |
| Follow-up                         | 1.3%       |
| Machine QA                        | 0.6%       |
| Patient Transport                 | 0.1%       |
| In vivo Dosimetry                 | 0.1%       |

## Action undertaken for root cause



## Question

- Data belongs to College
- Formally: access to data, with center identified, belongs to 2 College members
- In practice, FVH
- Who has mandate to analyse data?

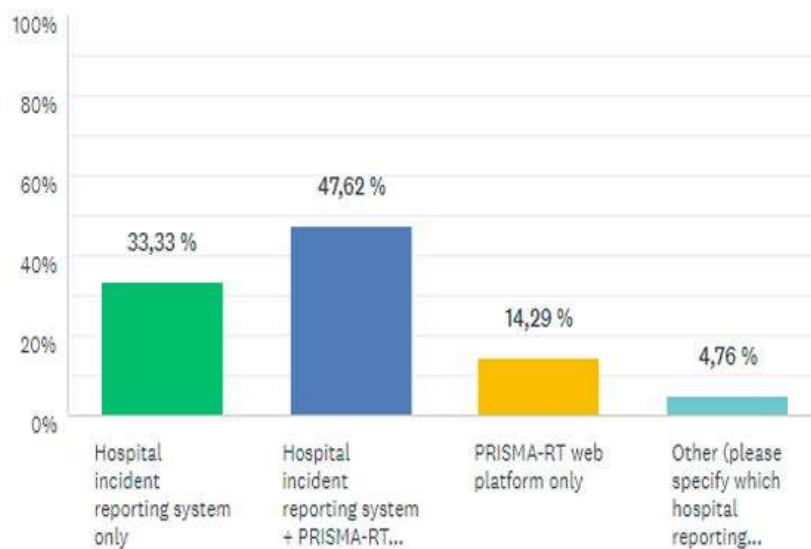


# Prisma-RT survey

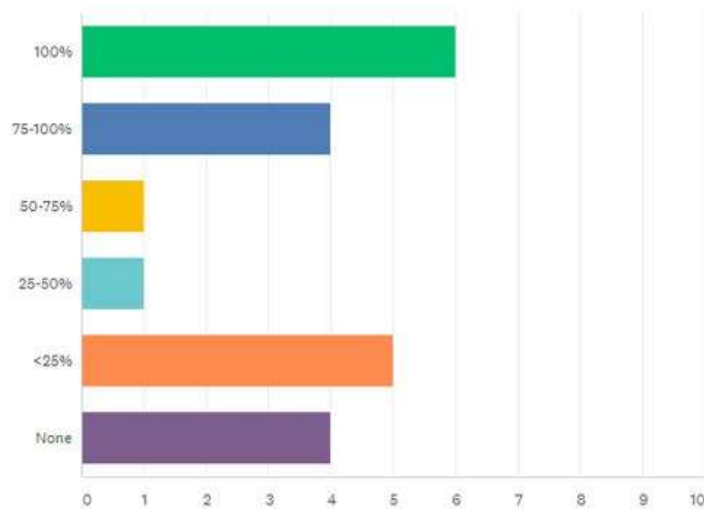
- 20 centers responded



In your department, which incident reporting and analysis platform do you use?



For which percentage of those events do you carry PRISMA analysis for?



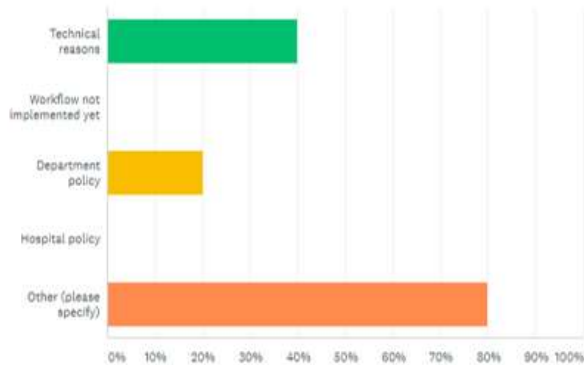
If not 100%, why not?

| CHOIX DE RÉPONSES                    | RÉPONSES         |   |
|--------------------------------------|------------------|---|
| ▼ Not enough time to do so           | 64,29 %          | 9 |
| ▼ Not trained to do so               | 14,29 %          | 2 |
| ▼ It's not useful/helpful            | 42,86 %          | 6 |
| ▼ Due to technical/ IT reasons       | 7,14 %           | 1 |
| ▼ Other (please specify and comment) | Réponses 42,86 % | 6 |

- Need to encode twice (hospital + PRISMA → not enough time
- Anonymous reporting so not enough information to do the analysis
- Incidents that repeat themselves
- Hospital quality vision: Prisma-RT is not needed

## Are Prisma-RT analyses shared? If not, why not?

- 5 centers replied no



- Security reasons
- No idea → no login to see if contributing
- Finalizing technical problems

## Summary status

- 23 centers willing to participate, one center abstains
- Out of 23, 22 are connected to benchmark
- Out of 22, about 18 do RT-Prisma analyses (survey 16 out of 20 centers)
- According to survey, about 15 contribute to benchmark
- In practice, only 10 contributors
- Frederik and Aude: closer look at survey, correlate to "non-anonymized" benchmark

# Project

- Would you like to participate in a PRISMA-RT project?
  - 10 yes
  - 3 no
- Subjects
  - Any
  - Lung/ProCaLung
  - SBRT
  - Prostate/Pelvic
- Proposal: continue reporting with increased emphasis in 2021 on SBRT. Include Context Variable "Treatment" in every root cause. Question to be answered: Is "SBRT/SABR" root cause profile different from rest?

# Thank you

## **2.7. INNOVATIEVE TECHNIEKEN**

# Innovative Radiotherapy: Actual status of the analysis.

Yolande Lievens  
Radiation Oncology UZ Gent



Belgian Cancer Registry



2011

reimbursement for SBRT ?

what is  
the (level 1) evidence?  
the cost?  
the value for money?  
the budgetary impact?

2013

what is the actual cost of radiotherapy?



real-life resource cost calculation  
Time-Driven ABC  
2012  
10 Belgian RT departments

Close collaboration

National Institute for Health &  
Disability Insurance



Health Care Knowledge Centre



Belgian Radiation Oncology  
professionals



2013-17



agreement between  
radiotherapy departments & RIZIV/INAMI

RIJKSINSTITUUT VOOR ZIEKTE-EN INVALIDITEITSVERZEKERING  
Openbare instelling opgericht bij de wet van 9 augustus 1963  
Tervurenlaan 211 - 1150 Brussel  
Dienst Geneeskundige Verzorging  
VERZEKERINGSCOMITÉ

Nota CGV 2013/175

Brussel, 17 05 2013

**BETREFT:**

Artikel 56 § 1 van de GVV-wet – Onderzoeksfinanciering "Innovatieve radiotherapie technieken" – ontwerp van overeenkomst

4 year period: 2013-2016  
Techniques: SBRT and APBI/Boost  
Pre-defined target populations  
Registration of clinical/technical data

2 project specific online registration modules were created

➡ Innovative RT - Stereotactic Body Radiation Therapy (SBRT)

➡ Innovative RT - Breast - Accelerated Breast RT (APBI) and Boost

2018 

| Type of indication                          | Number of registrations by registration year |            |            |            |            |              |
|---|--|------------|------------|------------|------------|--------------|
|   | 2013   | 2014       | 2015       | 2016       | 2017       | Total        |
| Number of participating hospitals           | 3  | 14         | 15         | 16         | 16         | 17           |
| <b>Primary tumor</b>                        | <b>13</b>                                    | <b>369</b> | <b>408</b> | <b>489</b> | <b>480</b> | <b>1,759</b> |
| Primary lung (peripheral) lesion            | 13   | 360        | 399        | 462        | 462        | 1,696        |
| Primary (para-) spinal lesion               |  | 3          |            | 3          | 4          | 10           |
| Primary lung (central and/or > 5 cm) lesion |  | 5          |            | 1          |            | 6            |
| Primary prostate lesion                     |  | 1          | 9          | 23         | 12         | 45           |
| Primary renal lesion                        |  |            |            |            | 1          | 1            |
| Primary pancreatic lesion                   |  |            |            |            |            |              |
| Primary head & neck lesion                  |  |            |            |            | 1          | 1            |
| Primary hepatic lesion                      |  |            |            |            |            |              |
| <b>Metastases</b>                           | <b>5</b>                                     | <b>246</b> | <b>306</b> | <b>401</b> | <b>510</b> | <b>1,468</b> |
| Hepatic metastases                          |  | 40         | 32         | 53         | 78         | 203          |
| (Para-) spinal metastases                   |  | 26         | 34         | 81         | 119        | 260          |
| Lung metastases                             | 3  | 166        | 221        | 262        | 251        | 903          |
| Non-standard oligometastatic disease        | 2  | 14         | 19         | 5          | 62         | 102          |
| <b>Total</b>                                | <b>18</b>                                    | <b>615</b> | <b>714</b> | <b>890</b> | <b>990</b> | <b>3,227</b> |

2018 

Category 4bis

**RIJKSINSTITUUT VOOR ZIEKTE –EN INVALIDITEITSVERZEKERING**

Openbare instelling opgericht bij de wet van 9 augustus 1963

TERVURENLAAN 211 – 1150 BRUSSEL

Dienst voor geneeskundige verzorging

**COMMISSIE VOOR BEGROTINGSCONTROLE**

Nota CGV 2018/203

Brussel, 2 juli 2018

**BETREFT :**

Artsen - Nomenclatuur van de geneeskundige verstrekkingen –Wijziging van artikel 18 §1 en artikel 19 §1 - **Radiotherapie**

**BIJLAGEN :**

- Bijlage 1 : Ontwerp koninklijk besluit
- Bijlage 2 : Gecoördineerde versie van de nomenclatuur
- Bijlage 3 : Ontwerp registratiemodule
- Bijlage 4 : Brieven BVRO
- Bijlage 5 : Financiële analyse van het actuaariaat
- Bijlage 6 : Eindrapport art 56 project "innovatieve radiotherapie" 2014-2017



2020



28758

BELGISCH STAATSBLAAD — 27/04/2020 — MONITEUR BELGE

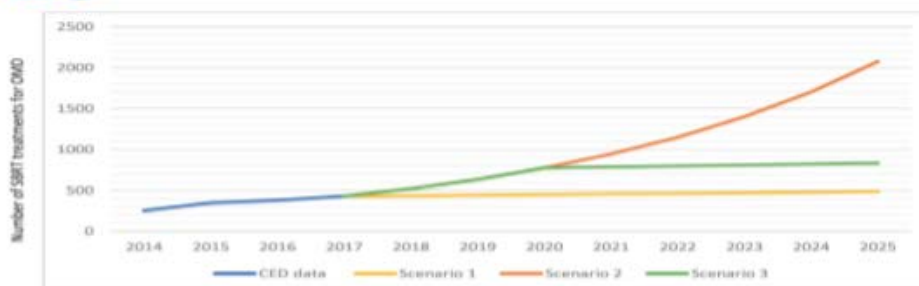
## Category 4bis

| FEDERALE OVERHEIDSDIENST<br>SOCIALE ZEKERHEID   | SERVICE PUBLIC FEDERAL<br>SECURITE SOCIALE   |
|---|--|
| [C - 2020/30749]  | [C - 2020/30749]   |
| 16 APRIL 2020. — Koninklijk besluit tot wijziging van de artikelen 18, § 1, A, en 19, § 1, van de bijlage bij het koninklijk besluit van 14 september 1984 tot vaststelling van de nomenclatuur van de geneeskundige verstrekkingen inzake verplichte verzekering voor geneeskundige verzorging en uitkeringen  | 16 AVRIL 2020. — Arrêté royal modifiant les articles 18, § 1 <sup>er</sup> , A, et 19, § 1 <sup>er</sup> , de l'annexe à l'arrêté royal du 14 septembre 1984 établissant la nomenclature des prestations de santé en matière d'assurance obligatoire soins de santé et indemnités  |
| PHILIP, Koning der Belgen,<br>Aan allen die nu zijn en hierna wezen zullen, Onze Groot,   | PHILIPPE, Roi des Belges,<br>A tous, présents et à venir, Salut.   |
| Gelet op de wet betreffende de verplichte verzekering voor geneeskundige verzorging en uitkeringen, gecoördineerd op 14 juli 1994, artikel 18er ingevoegd bij de wet van 19 maart 2013, artikel 35, § 2, eerste lid, 1 <sup>o</sup> , gewijzigd bij het koninklijk besluit van 25 april 1997, bekrachtigd bij de wet van 12 december 1997;                                    | Vu la loi relative à l'assurance obligatoire soins de santé et indemnités, coordonnée le 14 juillet 1994, l'article 18er, inséré par la loi du 19 mars 2013, l'article 35, § 2, alinéa 1 <sup>er</sup> , modifié par l'arrêté royal du 25 avril 1997, confirmé par la loi du 12 décembre 1997 ;  |
| Hebben Wij besloten en besluiten Wij :  | Nous avons arrêté et arrêtons :  |
| <b>Artikel 1.</b> In artikel 18, § 1, A, van de bijlage bij het koninklijk besluit van 14 september 1984 tot vaststelling van de nomenclatuur van de geneeskundige verstrekkingen inzake verplichte verzekering voor geneeskundige verzorging en uitkeringen, laatstelijk gewijzigd bij het koninklijk besluit van 18 juni 2017, worden de volgende wijzigingen aangebracht : | <b>Article 1<sup>er</sup>.</b> A l'article 18, § 1 <sup>er</sup> , A, de l'annexe à l'arrêté royal du 14 septembre 1984 établissant la nomenclature des prestations de santé en matière d'assurance obligatoire soins de santé et indemnités, modifié en dernier lieu par l'arrêté royal du 18 juin 2017, sont apportées les modifications suivantes : |
| 1 <sup>o</sup> de volgende verstrekkingen en toepassingsregel worden nu de verstrekking 444172-444183 ingevoegd :   | 1 <sup>o</sup> les prestations et la règle d'application suivantes sont insérées après la prestation 444172-444183 :   |
| *444636-444640  | *444636-444640   |
| Forfaitaire barometer voor een stereotactische bestralingstechniek voor een patiënt die beantwoordt aan de criteria en ligt aan een aandoening opgenomen in categorie 4bis, primaire tumoren, uitgezonderd hersentumoren..... K 2000  | Honoraires forfaitaires pour une série d'irradiations stéréotactiques chez un patient qui répond aux critères repris dans la catégorie 4bis, tumeurs primaires, à l'exception de tumeurs cérébrales..... K 2000  |

+ continued  
real-life monitoring,  
updated registry form



2020



|   | Healthcare provider cost |            |            | Healthcare payer cost (reimbursement) |            |            |
|---|--------------------------|------------|------------|---------------------------------------|------------|------------|
|   | 2017                     | 2020       | 2025       | 2017                                  | 2020       | 2025       |
| scenario 1                                  |                          |            |            |                                       |            |            |
| - all additional courses                    | €1,866,080               | €1,954,205 | €2,110,424 | €1,839,972                            | €1,926,864 | €2,080,897 |
| - half additional, half incremental courses | €1,561,527               | €1,635,269 | €1,765,993 | €1,471,892                            | €1,541,401 | €1,664,621 |
| scenario 2                                  |                          |            |            |                                       |            |            |
| - all additional courses                    | €1,866,080               | €3,371,880 | €9,038,754 | €1,839,972                            | €3,324,705 | €8,912,294 |
| - half additional, half incremental courses | €1,561,527               | €2,821,574 | €7,563,587 | €1,471,892                            | €2,659,609 | €7,129,421 |
| scenario 3                                  |                          |            |            |                                       |            |            |
| - all additional courses                    | €1,866,080               | €3,371,880 | €3,641,428 | €1,839,972                            | €3,324,705 | €3,590,482 |
| - half additional, half incremental courses | €1,561,527               | €2,821,574 | €3,047,130 | €1,471,892                            | €2,659,609 | €2,872,218 |

Nevens et al, R&amp;O 2020

2020 

#### @ Belgian Cancer Registry

- Total number of cases until end of 2019: >6000 (2734 in last two years)
- First preliminary cleaning done
- Further detailed cleaning necessary
- Link with vital status to be done

#### → *Database ready for research projects*

Some accepted/discussed proposals:

- Liver M+
- Analysis lung pathology (primary/lung M+/OMD lung cancer) – JTO
- Policy story reimbursement/implementation SBRT (Health Policy? Other?)

2020 

#### Research Proposals & Steering Committee

- Cf. RALP (Robot assisted Laparoscopic Prostatectomie)
- SC could be the College
- Formulate a research proposal
  - BCR estimate impact of the work (cf. liver M+)
  - BCR and College agree on research proposal
- Researchers work on database at BCR, within secured environment
- Fees to be paid depending of project

#### → *First research agreement in finalisation for liver M+*

2020 

### Profile of the Researchers

- Ideally young researchers, in context of masterthesis or PhD project
- Preferably from departments that participated in data collection
- Basic statistical knowledge advised (SAS and R)
- Most efficient for persons with experience in RO
- BCR intake with researchers: feasibility? knowledge? use of data bases?

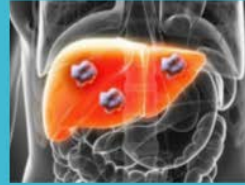
→ *Research agreement of BCR with institutes that participate*



# SBRT liver

Meeting College Radiotherapy-Oncology  
23/06/2020

Pieter Deseyne, Ines Joye



## Indications

liver **metastases** of solid tumours

OR

**hepatocellular carcinoma/cholangiocarcinoma**

not suitable for a surgical intervention

Compared to surgery

Inoperability

Medical  
inoperability

Central lesion

Compared to RFA

Size >3 cm

Location

Lesion in the proximity of  
major blood vessels, main  
biliary tract or gallbladder, or  
just beneath the diaphragm

## SBRT for liver M+: clinical results

| Study                                | Pts/<br>targets | Dose                 | Median<br>FUP | LC          | OS          | Primary<br>colorectal |
|--------------------------------------|-----------------|----------------------|---------------|-------------|-------------|-----------------------|
| Herfarth<br>JCO 2001                 | 37/60           | 14-26 Gy/ 1fr        | 6 mo          | 81% at 18 m | -           | 53%                   |
| Kavanagh<br>Acta Oncol<br>2006       | 21/28           | 36-60 Gy / 3fr       | 19 mo         | 93% at 18 m | -           | 25%                   |
| Mendez-<br>Romero Acta<br>Oncol 2006 |                 |                      |               |             |             | 88%                   |
| Katz<br>IJROBP 2007                  | 69/174          | 50 Gy / 5fr          | 14 mo         | 57% at 20 m | 37% at 20 m | 29%                   |
| Rusthoven<br>JCO 2009                | 47/63           | 36-60 Gy / 3fr       | 16 mo         | 92% at 24 m | 30% at 24m  | 32%                   |
| Lee<br>JCO 2009                      | 68/141          | 27.7-60 Gy /<br>6 fr | 11 m          | 71% at 12 m | 47% at 18 m | 59%                   |
| Van der Pool<br>Br J Surg 2010       | 20/31           | 37.5-45 Gy /<br>3 fr | 26 mo         | 74% at 24m  | 83% at 24m  | 100%                  |

- Variability in SBRT indications
- Heterogeneity applied techniques

Andratschke et al. BMC Cancer (2018) 18:283  
https://doi.org/10.1186/s12957-018-4191-2

BMC Cancer

### RESEARCH ARTICLE

Open Access

The SBRT database initiative of the German Society for Radiation Oncology (DEGRO): patterns of care and outcome analysis of stereotactic body radiotherapy (SBRT) for liver oligometastases in 474 patients with 623 metastases

N. Andratschke<sup>1,2</sup>, H. Alheid<sup>2</sup>, M. Allgauer<sup>3</sup>, G. Becker<sup>4</sup>, O. Blanck<sup>5</sup>, J. Boda-Heggemann<sup>6</sup>, T. Bi S. Gerum<sup>8</sup>, M. Guckenberger<sup>1</sup>, G. Hildebrandt<sup>10</sup>, R. J. Klement<sup>11</sup>, V. Lewitzki<sup>12</sup>, C. Ostheimer<sup>13</sup>, J. C. Petersen<sup>15</sup>, T. Schneider<sup>16</sup>, R. Semrau<sup>17</sup>, S. Wachter<sup>18</sup> and D. Habermehl<sup>19</sup>

Mahadevan et al. Radiation Oncology (2018) 3:26  
https://doi.org/10.1186/s13014-018-0560-2

Radiation Oncology

### RESEARCH

Open Access

Stereotactic Body Radiotherapy (SBRT) for liver metastasis – clinical outcomes from the international multi-institutional RSSearch® Patient Registry

Anand Mahadevan<sup>1\*</sup>, Oliver Blanck<sup>2,3</sup>, Rachelle Lanciano<sup>4</sup>, Anuj Peddada<sup>5</sup>, Srinath Sundararaman<sup>6</sup>, David D'Ambrosio<sup>7</sup>, Sanjeev Sharma<sup>8</sup>, David Perry<sup>9</sup>, James Kolker<sup>10</sup> and Joanne Davis<sup>11</sup>

## Aim

- To gain insight into the patterns of care for SBRT liver in Belgium
- Determine local control and overall survival and its influencing factors
- Determine minimal requirements of SBRT liver
- Increasing knowledge about SBRT liver
- Feeding discussion in the MTB

## Methods

- Using prospectively registered Belgian data
  - 293 liver metastases, 53 primary lesions between 2013 and 2018
  - Expected data update since last presentation
- Description of patterns of care using various patient, tumor and treatment related characteristics.
- Evolution of these parameters over time

# Methods

## LOCAL CONTROL

- most valuable endpoint
- not available in BCR questionnaire or KSZ/BCSS database
- Queried from treating centers by BCR with support of College

## SURVIVAL

- Linkage with Crossroads bank

## STRATIFICATION

- Patient-, tumor-, treatment related factors

# Methods

## Patient characteristics

- Age
- Gender
- Hospital
- WHO score

## Tumor characteristics

- Primary liver lesions vs. metastases vs. relapse primary tumor
- Tumor histology and location
- Differentiation grade
- Incidence date primary tumor
- Number of lesions
- Maximal diameter of lesions

# Methods

## Treatment-related parameters

- Identification tumor motion (kV fluoroscopy, cine MR, 4D CT, inhale/exhale breathhold CT, none, unknown, other)
- Tumor compensation strategy (abdominal compression, breath hold, gating, tracking, none, unknown, other)
- Imaging modalities treatment planning (CT, MR, PET)
- Personalized immobilization (yes, no)
- Image fusion for delineation (yes, no)
- Markers (implanted, skin sensors, no markers)
- Technique (3D, IMRT, other)
- Center
- Number of fractions
- Total dose
- Start and end date of RT
- Dose calculation algorithm (pencil beam, AAA, CCC, Monte Carlo, other)
- Patient specific QA
- Type of IGRT (CBCT, Exac-trac, EPID, no IGRT, other)

# Methods

## Data queried from treating centers through BCR

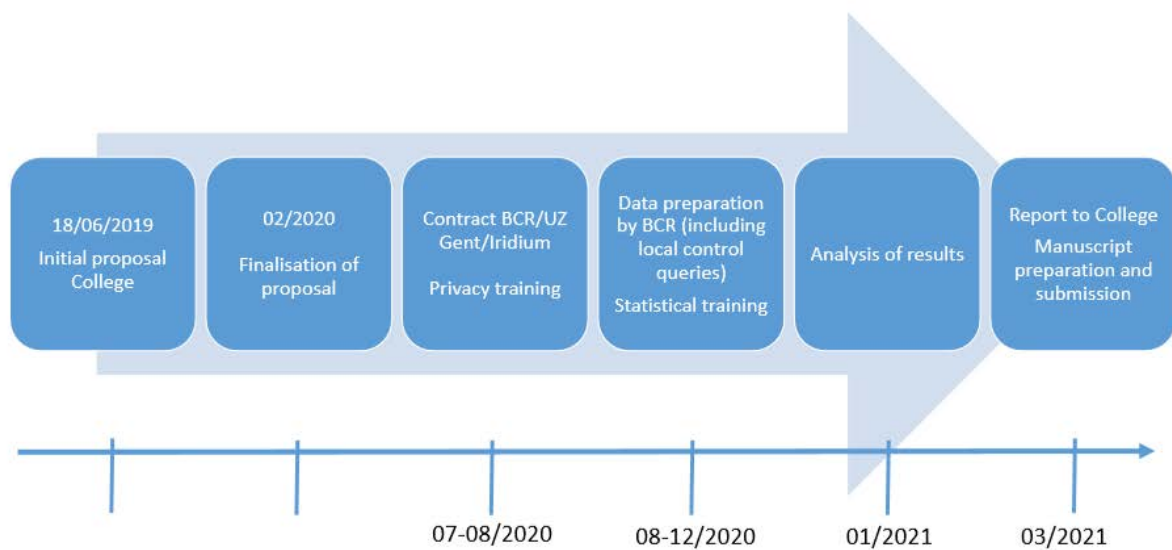
- Primary tumour histology
- Local control
  - Local relapse: yes/no
  - If yes: relapse date
  - If yes: relapse location: in-field of out-of-field (new liver lesions but not on the irradiated site)
- volume GTV (cc), PTV (cc)



## Expected results

- Increase in number of RT courses
- Decrease in variability
- Evolution IGRT, immobilization techniques...

## Timeline



## How will the College be involved

- Individual members can participate if interested
- Report of data to College
- Using results to propose a minimal standard of care for reimbursement?
- Additional research questions?
- Acknowledgement in submitted manuscript

## But...

- LOCAL CONTROL DATA
  - Individual radiation oncologists?
  - Privacy issue cfr GDPR
    - → Queries from BCR permitted within privacy regulations
- WORKING COSTS
  - €1860 BCR
  - Privacy tutorial, statistics course, database preparation, infrastructure