



Catalan Clinical Audit
Network for Quality Improvement
in Radiotherapy

Audit methodology B-QUATRO

Clinical Audits in Radiation Oncology: Training for Auditors and Auditees

Day 1 (10/06/2025)

Aude Vaandering



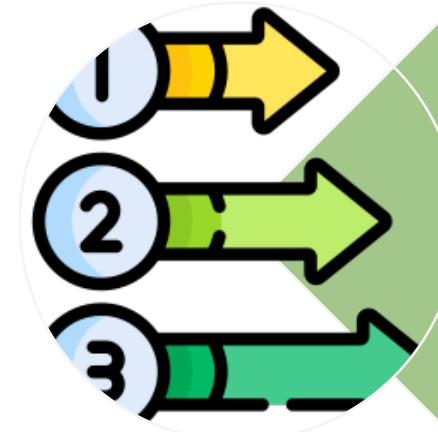
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CAT·ClinART



Definition

What is a clinical audit?



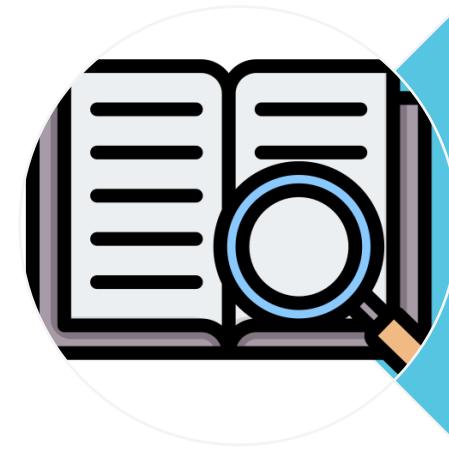
Audit process

How are audits organized? What are the different steps involved in an audit?



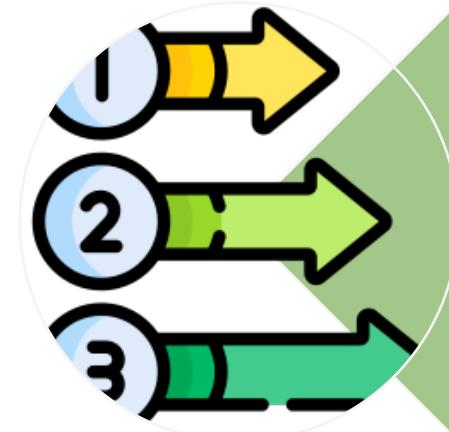
On-site audit methodology

How are the audits carried out? What does the auditor need to do?



Definition

What is a clinical audit?



Audit process

How are audits organized? What are the different steps involved in an audit?



On-site audit methodology

How are the audits carried out? What does the auditor need to do?



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On-site audit methodology

How are the audits carried out? What do the auditors/auditees need to do?



- BQUATRO excel sheet
- Spider diagrams
- Role of the quality managers



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BQUATRO checklist and spider charts



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BQUATRO outline

Introduction

Audit structure

Audit part I: Infrastructure

Audit part II: Patient related procedures

Audit part III: Equipment related procedures

Audit part IV: Quality management system

Audit part V: Communication management

Audit part VI: Radiation protection of staff and population

Audit part VII: RTT roles and responsibilities

Appendices

4 checklists

20 checklists

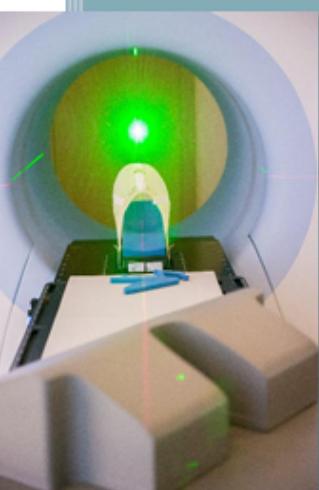
6 checklists

12 checklists

1 checklist

1 checklist

BQUATRO:
Comprehensive Audits of Radiotherapy
Practices: A Tool for Quality Improvement
adapted to the Belgian context



Collège de Radiothérapie
Version 2 - updated in 2024



Checklists

Evaluation

Items

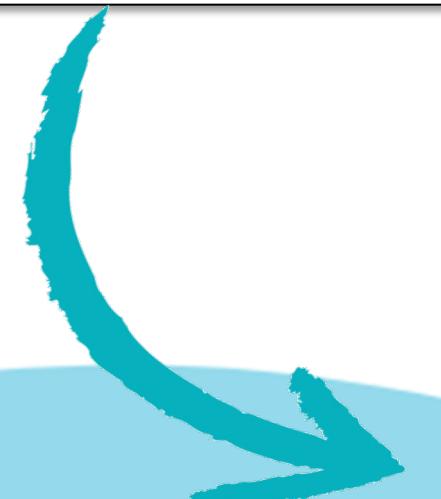
Comments

Items to be reviewed by the auditor	YES	In progress	NO	N/A
Are written cancer handbooks available for the most common clinical management situations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are written departmental protocols available for the most common clinical management situations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have cancer handbook protocols been ratified by an oncology committee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have clinical protocols been ratified by a departmental committee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the treatment protocols regularly reviewed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Is there protocol review committee that verifies that treatments conform to protocols/GUIDELINES (at MOC level)?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Are treatments not corresponding to a protocol/guideline medically justified?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have all research protocols been ratified by an institutional ethics committee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments				



B-QUATRO Excel checklist

CHECKLIST 4. Practice guidelines				
Items to be reviewed by the auditor	YES	In progress	NO	N/A
Are written cancer handbooks available for the most common clinical management situations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are written departmental protocols available for the most common clinical management situations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have cancer handbook protocols been ratified by an oncology committee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have clinical protocols been ratified by a departmental committee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the treatment protocols regularly reviewed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Is there protocol review committee that verifies that treatments conform to protocols/GUIDELINES) (at MOC level)?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Are treatments not corresponding to a protocol/guideline medically justified?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have all research protocols been ratified by an institutional ethics committee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments				



A	B	C	D	E	F	G	H	I
Checklist number	Item	Link to checklist	Comments					
5	A Infrastructure	Infrastructure						
6	B Equipment ressources	Equipment resources						
7	C Human resources	Human resources						
8	D Workload	Workload						
9	1 Patient assessment	Pt assessment						
10	2 Access to diagnostic procedures	Access diagnostics						
11	3 Multidisciplinary Medical Approach	MOCs	Also includes overview of MOCs					
12	4 Practice guidelines	Guidelines						
13	5 Research & Clinical trials	Research						
14	6 Patient information and consent	Patient info						
15	7 Treatment preparation and image acquisition	Trt prep and image acq						
16	8 Infrastructure	Simulation proc						
17	9 Simulation procedures	Simulation workflow						
18	10 & 11 Generation of target volume and OAR delineations	Contouring	Also roles in contouring					
19	12 Treatment aim	Trt aim						
20	13 Treatment planning	Trt planning						
21	14 Pre-treatment checks	Pre-trt checks						
	15 Patient identification on a daily basis	pt ID						
	16 Patient set up and set up verification	Pt setup and verif	Also includes roles in IGRT					

Excel checklist

Before the audit

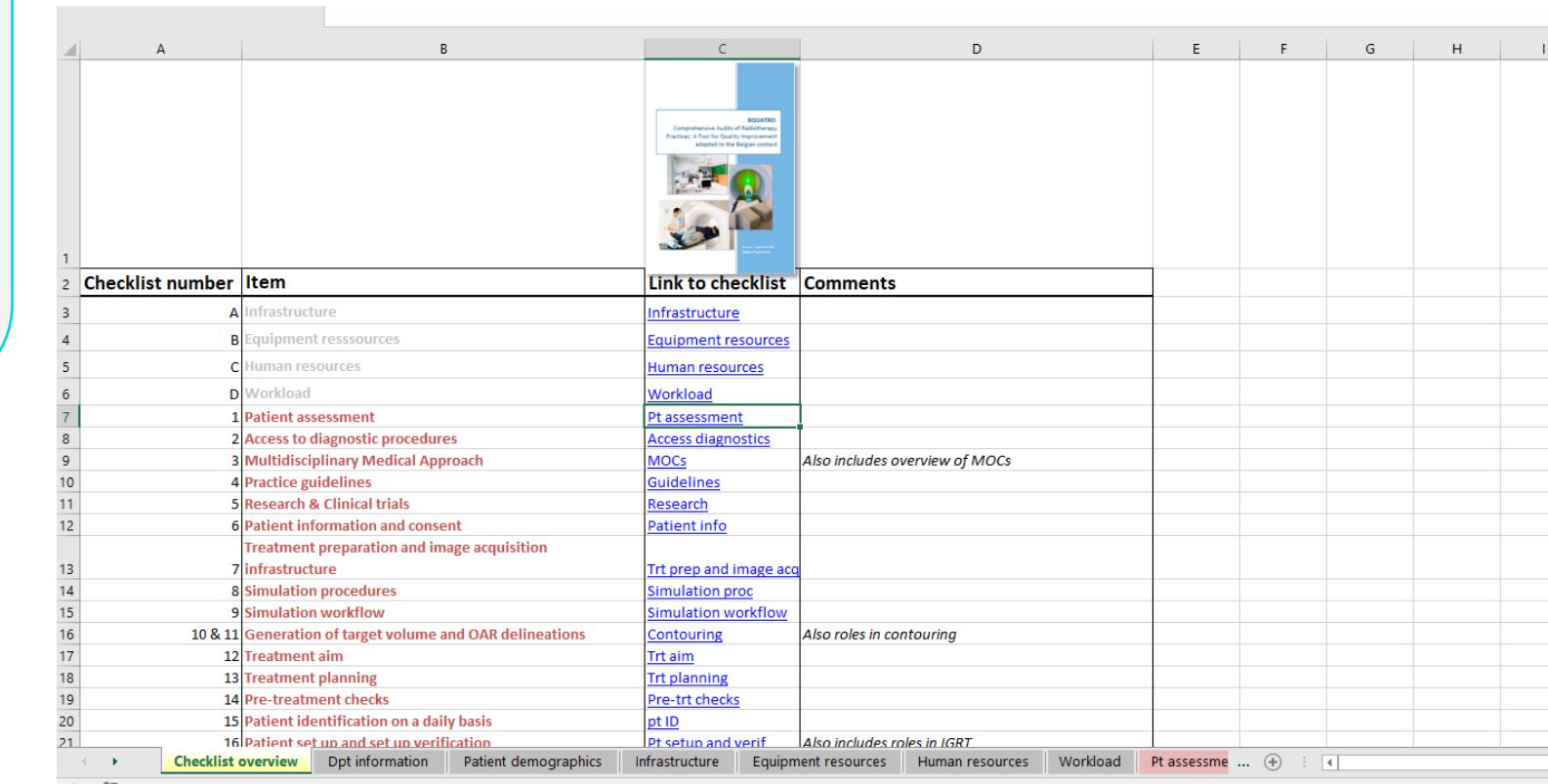
- The Excel document is sent to the department +-2 months before the audit
- Department completes it (**Department self assessment/evaluation**)
- This is sent back to the auditors

Audit

- The Excel document is completed by the auditors during the audit

After the audit

- The Excel forms the basis for the audit report



The screenshot shows an Excel spreadsheet with a table titled 'Checklist overview'. The table has columns for 'Checklist number', 'Item', 'Link to checklist', and 'Comments'. The 'Link to checklist' column contains blue hyperlinks to various sections of the checklist. The 'Comments' column contains some descriptive text and small icons. The table is filled with rows of audit items, each with a corresponding link in the 'Link to checklist' column.

Checklist number	Item	Link to checklist	Comments
3	A Infrastructure	Infrastructure	
4	B Equipment resources	Equipment resources	
5	C Human resources	Human resources	
6	D Workload	Workload	
7	1 Patient assessment	Pt assessment	
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16	10 & 11 Generation of target volume and OAR delineations	Contouring	Also roles in contouring
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20	15 Patient identification on a daily basis	pt ID	
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Excel checklist

Checklist number	Item	Link to checklist	Comments
A	Infrastructure	Infrastructure	
B	Equipment ressources	Equipment resources	
C	Human resources	Human resources	
D	Workload	Workload	
1	Patient assessment	Pt assessment	
2	Access to diagnostic procedures	Access diagnostics	
3	Multidisciplinary Medical Approach	MOCs	<i>Also includes overview of MOCs</i>
4	Practice guidelines	Guidelines	
5	Research & Clinical trials	Research	
6	Patient information and consent	Patient info	
	Treatment preparation and image acquisition		
7	infrastructure	Trt prep and image acq	
8	Simulation procedures	Simulation proc	
9	Simulation workflow	Simulation workflow	
10 & 11	Generation of target volume and OAR delineations	Contouring	<i>Also roles in contouring</i>
12	Treatment aim	Trt aim	
13	Treatment planning	Trt planning	
14	Pre-treatment checks	Pre-trt checks	
15	Patient identification on a daily basis	pt ID	
16	Patient set up and set up verification	Pt setup and verif	<i>Also includes roles in IGRT</i>



Example of an Excel sheet

Checklist 1		Patient assessment			
Items to be reviewed	Department's self-assessment		Auditors' assessment		Comments
	Evaluation	Comments	Evaluation	Comments	
Is patient specific and relevant radiotherapy information easily accessible by the rest of the institution?					
Does the radiotherapy department have access to all relevant patient clinical data/records?					
Please comment					
Is there an ease of access to patient imaging data?					
Is the pathology report included in all patients' files?					
Are patients staged?					
Is an international staging system used (TNM ^[1] AJCC ^[2] , FIGO ^[3] ...)?					
Is the pTNM available when indicated?					
Is the patient's performance status assessed (WHO ^[4] , Karnofsky or ECOG ^[5])?					
Is systematic geriatric assessment carried out in patients >75 year old?					
Is there a systematic inquiry for previous radiation treatment made?					
Is this formally recorded in order to allow for					



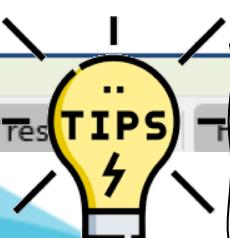
Example of an Excel sheet

Checklist 1		Patient assessment		
Items to be reviewed	Department's self-assessment		Auditors' assessment	
	Evaluation	Comments	Evaluation	Comments
Is patient specific and relevant radiotherapy information easily accessible by the rest of the institution?	No		In Progress	
Does the radiotherapy department have access to all relevant patient clinical data/records?	No		Yes	
Please comment	this is a comment that the department has made			
Is there an ease of access to patient imaging data?	In Progress			
Is the pathology report included in all patients' files?	Yes		Yes In Progress No N/A	
Are patients staged?	Yes			
Is an international staging system used (TNM ^[1] AJCC ^[2] , FIGO ^[3] ...)?	Yes			
Is the pTNM available when indicated?	Yes			
Is the patient's performance status assessed (WHO ^[4] , Karnofsky or ECOG ^[5])?	Yes	some text here		
Is systematic geriatric assessment carried out in patients >75 year old?	Yes			
Is there a systematic inquiry for previous radiation treatment made?	Yes	and some text here		
Is this formally recorded in order to allow for data analysis?	Yes			
Is this formally communicated amongst the different disciplines?	Yes			
Are patients with radiation-sensitive implanted material identified (ex: pacemaker)?	No			



Example of an Excel sheet

Checklist 1		Patient assessment		
Items to be reviewed	Evaluation	Department's self-assessment		Auditors' assessment
		Comments	Evaluation	Comments
Is patient specific and relevant radiotherapy information easily accessible by the rest of the institution?	No		In Progress	
Does the radiotherapy department have access to all relevant patient clinical data/records?	No		Yes	
Please comment	this is a comment that the department has made			
Is there an ease of access to patient imaging data?	In Progress			
Is the pathology report included in all patients' files?	Yes		Yes In Progress No N/A	
Are patients staged?	Yes			
Is an international staging system used (TNM ^[1] AJCC ^[2] , FIGO ^[3] ...)?	Yes			
Is the pTNM available when indicated?	Yes			
Is the patient's performance status assessed (WHO ^[4] , Karnofsky or ECOG ^[5])?	Yes	some text here		
Is systematic geriatric assessment carried out in patients >75 year old?	Yes			
Is there a systematic inquiry for previous radiation treatment made?	Yes	and some text here		
Is this formally recorded in order to allow for data analysis?	Yes			
Is this formally communicated amongst the different disciplines?	Yes			
Are patients with radiation-sensitive implanted material identified (ex: pacemaker)?	No			

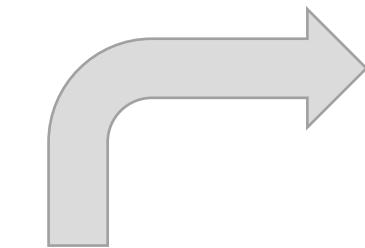


Integrated within a Sharepoint/Onedrive for mutual completion by the auditors

Global evaluations

Overall Score (auditors' assessment)	
Is patient assessment properly carried out by the radiotherapy department?	Partially compliant
Commendations/Recommendations	Here are some recommendations and suggestions that the auditors write here

Global score



No recommendations – only suggestions
for improvement (= “*it would be nice to
have this*”)

Overall Score	Compliant	Partially compliant	Non-compliant
Is patient assessment properly carried out by the radiotherapy department?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commendations/Recommendations	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		

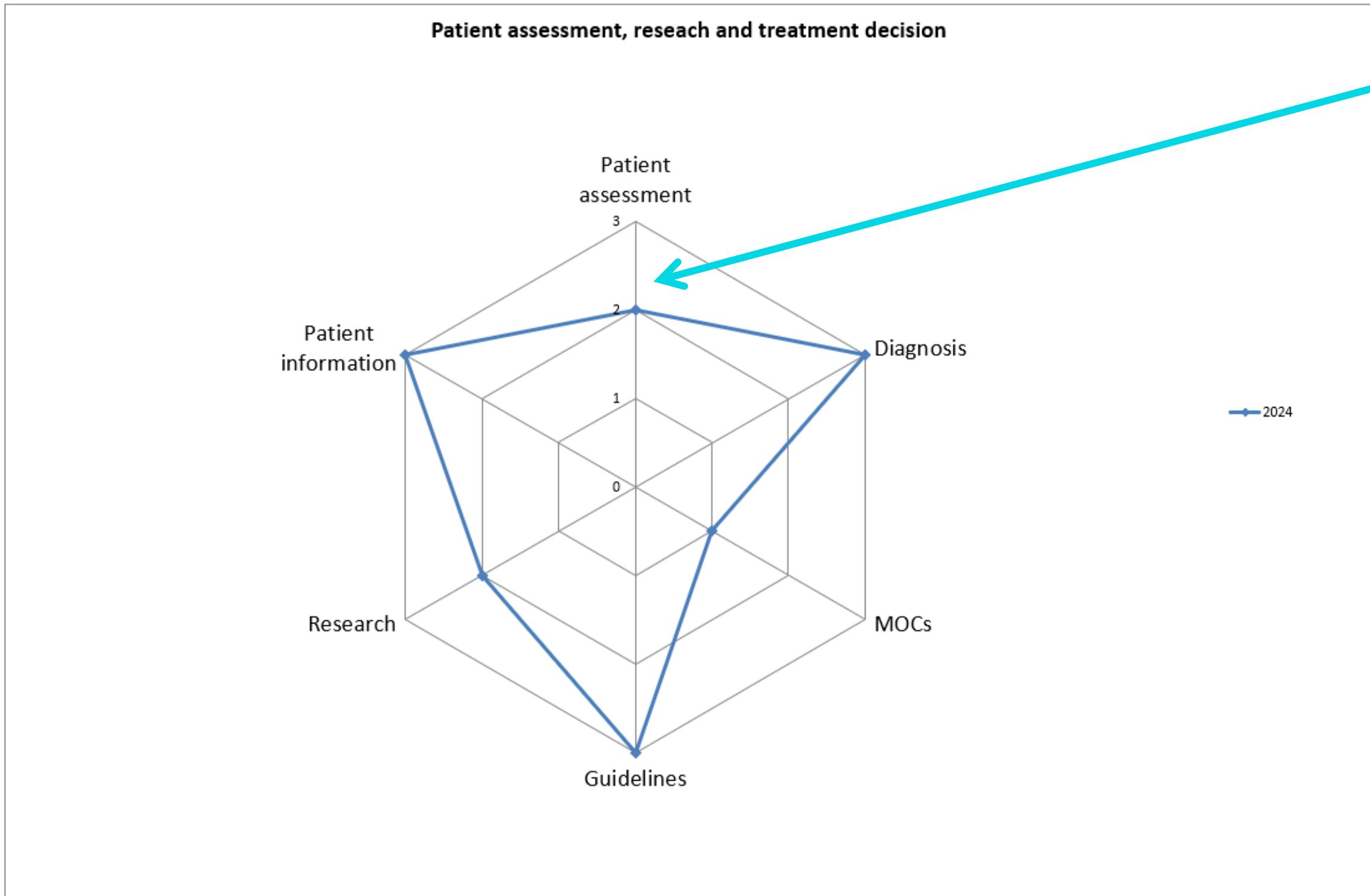


>2 minor recommendations or ≥ 1
major recommendation (+-
suggestions)

1-2 minor recommendations (+-
suggestions)

Suggestion: Potential impact on patient/personnel satisfaction
Recommendation: Potential impact on patient safety/treatments

Global score → spider diagrams



1= non-compliant
2= Partially compliant
3= Compliant

Easy visualisation
→ of global scores
obtained
→ areas of strength
and weaknesses

→ Used in the reports
→ yearly auditor
departments
(national trends)



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The role of the quality manager

Quality managers in radiotherapy

- **Context:**

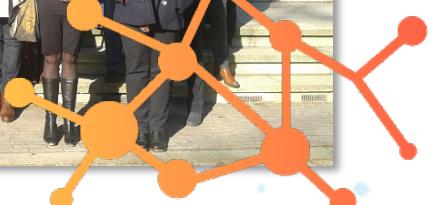
Since 2010, the Belgian National Cancer plan finances one quality manager per radiotherapy department

- **Role of the quality manager:**

“To setup and maintain a comprehensive quality management system in the radiotherapy department”

- **Role of QMs in Belgium**

- Creation of QMRT's tool (guidance document and audit checklist for quality management systems in RT)
- At the basis of national quality initiatives (National Quality indicator project, National symposiums and surveys, centralised incident reporting platform, BQUATRO audit preparations...)
- Integral part of the B-QUATRO audit team



QMRT.BE

Role of the QM in B-QUATRO audits

- Often the **team leader** of the auditor group
- Focuses on auditing the **quality management system**
- Often possesses a very **transversal view** of the department's organisation and clinical processes
- In the RT department, the QM
 - Prepares the departments for the audit (informs the teams, prepares documentation, ...)
 - Coordinates the on-site visit
 - Facilitates the implementation of improvement actions based on the audit report recommendations





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Any Questions?