Catalan Clinical Audit
Network for Quality Improvement
in Radiotherapy

Development of Clinical Audit Methodology, Infrastructure

Presentation of Cat ClinArt QI (pilot)

WP 4-3 team

Radiation Oncology

HU Vall d'Hebron

Co-funded by
the European Union

CAT ClinART

Nom	T4.1	T4.2	T4.3	T4.4	T4.5	T4.6	Centre	Correu
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Thank You!!

Disclousures

NO

Model:

Cat-clinArt AUDITORIA

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New Core Curricula for Radiation Oncologists 2019

Contribute to the improvement of cancer care delivery in teams and the wider health care system

Identify where quality improvements may be initiated in the work environment

- **Improvement processes** including the use of data to drive change
- Describe key **quality indicators** for monitoring service performance in radiation oncology

- Describe radiation oncology **incident reporting** and **monitoring** systems
- Participate in the development and implementation of **patient safety** initiatives
- Participate in the **investigation** of a radiation-related **adverse event**, "near miss" or system error

ESTRO Calidad en RT Dir: N-Jornet)

Background:

Vall d'Hebron Hospital General
Servei d'Oncologia Radioteràpica

MANUAL DE LA QUALITAT			
Codi: MQ-001	Revisió: 011	Data: 03/03/2022	Pàg.: 1 de 50

IMP-001 Rev. 007

SORT-HUVH

SERVEI D'ONCOLOGIA RADIOTERÀPICA

MANUAL DE LA QUALITAT

Segons UNE-EN ISO 9001:2015 i Real Decreto 1566/1998 de 17 de Julio

Vall d'Hebron Hospital General
Servei d'Oncologia Radioteràpica

MANUAL DE LA SEGURETAT			
Codi: MQ-02	Revisió: 01	Data: 4/05/2021	Pàg.: 1 de 28

IMP-001 Rev. 007

SORT-HUVH

SERVEI D'ONCOLOGIA RADIOTERÀPICA

MANUAL DE LA SEGURETAT I GESTIÓ DE RISCOS

Background:

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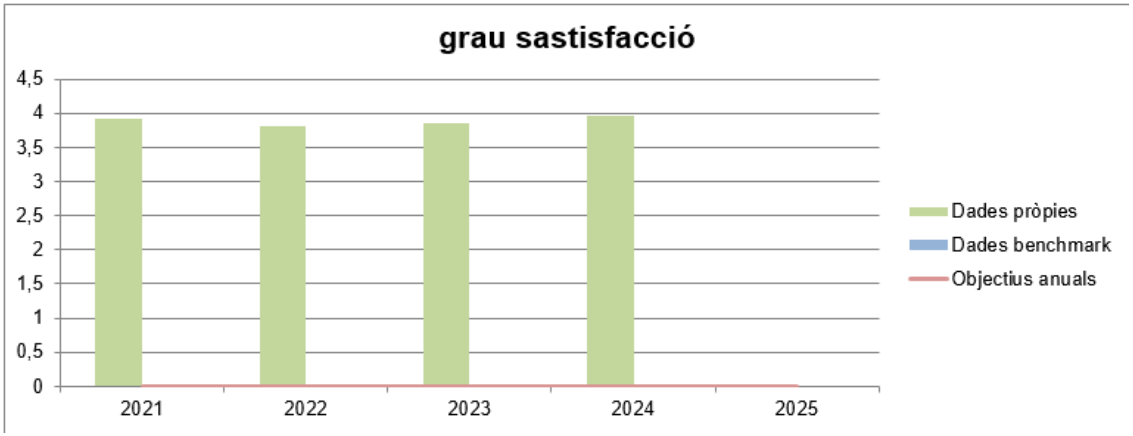
SEGUIMENT INDICADORS DEL SORT

PE1 Gestionar Sistema de Qualitat

Indicador	**Index de satisfacció del client**
Responsable	Coordinador TSS
Nombre de mesures necessàries	4
Fórmula de càlcul	Promig
Definició de termes Inclusions i exclusions	pacients en tractament de radioterapia sense incapactiacions per a la realització de l'enquesta
Fonts d'informació	Enquestes personals anonimes
Periodicitat	Semestral
Estàndard/meta	3,5
Font de l'estàndard	Iso SORT
Grup de comparació externa (benchmark)	n.a
Objetivo	N.A

	2021	2022	2023	2024	2025
Dades pròpies	3,92	3,82	3,86	3,96	
Objectius anuals					
Dades benchmark					



Data actualització	gener 2025

Background:

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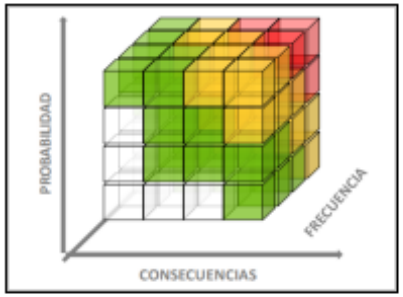
Servei d'Oncologia Radioteràpica	MAPA DE RISCOS DE SEGURETAT DEL PACIENT	Codi: DC-009	Revisió: 001
		Pàgina: 1 de 1	Data: 20/10/2021
		Aprovat per: Jordi Giralt	

IMP-014 Rev003



RIESGO	Clasificación
RMA	Riesgo muy alto
RA	Riesgo alto
RM	Riesgo medio
RB	Riesgo bajo

Etapas y subetapas incluidas en el mapa de riesgos según criterios MARRTA para el tratamiento radioterápico (PC)

DECISIÓN TERAPÉUTICA:
EVALUACIÓN DE LA INFORMACIÓN
SELECCIÓN DEL OBJETIVO DE TRATAMIENTO
PRESCRIPCIÓN PROVISIONAL

DELINEACIÓN DE VOLÚMENES:
DELINEACIÓN OAR
DELINEACIÓN PTV
VALIDACIÓN OAR

PLANIFICACIÓN DE TRATAMIENTO:
IDENTIFICACIÓN DEL PACIENTE
PRESCRIPCIÓN CLÍNICA
REVISIÓN DE IMÁGENES
ASIGNACIÓN DE MARCAS TC
ELIMINACIÓN/ MODELIZACIÓN MESA
SOBREESCRITURA DE DENSIDADES
ELECCIÓN DE PARÁMETROS TÉCNICOS OPTIMIZACIÓN
CÁLCULO DE DOSIS
REVISIÓN DEL PLAN
APROBACIÓN

LOCALIZACIÓN:
IDENTIFICACIÓN DEL PACIENTE
INDICACIONES PARA LA OBTENCIÓN DE IMÁGENES Y PROPUESTA DE INMOVILIZACIÓN
PREPARACIÓN DEL PACIENTE
REALIZAR INMOVILIZACIÓN
REALIZACIÓN DEL TC
ADQUISICIÓN DE IMÁGENES MEDIANTE OTRAS MODALIDADES
DOCUMENTAR INMOVILIZACIÓN
PREPARAR PACIENTE
PARÁMETROS TÉCNICOS DE ADQUISICIÓN
TRANSFERENCIA DE IMÁGENES
ASIGNACIÓN DE IMÁGENES AL PACIENTE EN EL PLANIFICADOR
FUSIÓN Y VALIDACIÓN DE FUSIÓN

SESION INICIAL:
INMOVILIZACIÓN DEL PACIENTE EN POSICIÓN DE TRATAMIENTO
ADQUISICIÓN DE IMÁGENES DE VERIFICACIÓN
EVALUACIÓN DE IMÁGENES Y ACEPTACIÓN DE DESPLAZAMIENTOS
APLICACIÓN DE DESPLAZAMIENTOS Y ROTACIONES
APROBACIÓN FINAL TRATAMIENTO

TRATAMIENTO DIARIO:
APLICACIÓN DE DESPLAZAMIENTOS EVALUACIÓN IN SITU DE IMÁGENES
APROBACIÓN DE DESPLAZAMIENTOS VERIFICACIÓN DOSIS TRATAMIENTO
EVALUACIÓN/APROBACIÓN DE IMÁGENES OFFLINE

Model:

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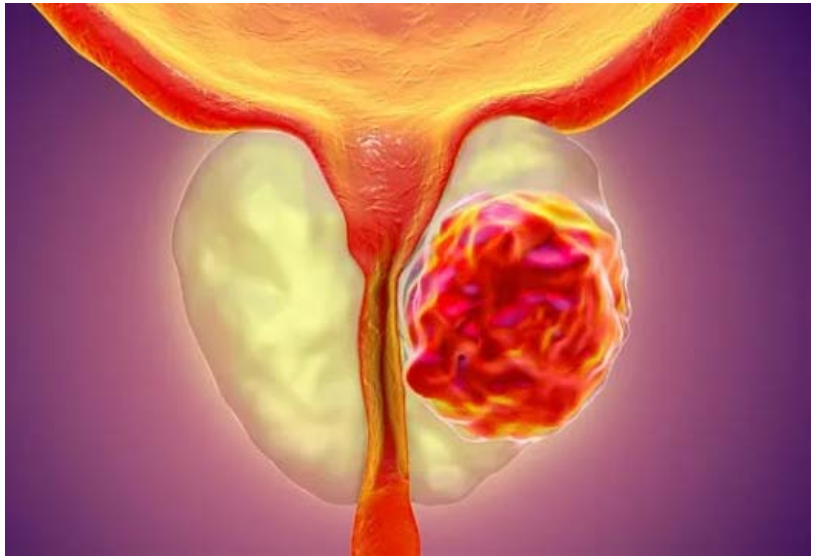

- Patient registration
- Physician Consultation
- Simulation
- Treatment planning
- Treatment delivery
- Patient Follow up

T4.3 QI and standard definitions

- **Task:** define QI for prostate cancer radiotherapy treatment
  - Literature review
  - QI pilot proposal (definitions and standards)
  - Automatic PROMS data collection via app
  - Automatic ARIA data collection

CPQR's Key Quality Indicators:
-Programmatic Organization
-Personnel
-Radiation Treatment Equipment
-Policy & Procedure

Tumour Site Specific KQ

Academic Contribution

Interprofessional care-RO/MO/surgery

In Canada, such quality indicators would be recommended by provincial/regional/local organizations (ie not national).

T4.3 QI and standard definitions

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- **Task:** define QI for prostate cancer radiotherapy treatment

  - **Literature review**

Proposal: 1 month → three groups:
a) Quality indicators
b) Safety indicators
c) QoL→ PROMS

1) QI: IROCRATES, QUARTET-B,

Radiotherapy and Oncology 203 (2025) 110657

Contents lists available at ScienceDirect

Radiotherapy and Oncology

journal homepage: www.thegreenjournal.com

Review Article

Aiming for patient safety indicators in radiation oncology – Results from a systematic literature review as part of the PaSaGeRO study

Andrea Baehr [a,*], Maximilian Grohmann [a], Eva Christalle [b], Felicitas Schwenzer [b], Isabelle Scholl [b]

[a] Department of Radiation Oncology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany
[b] Department of Medical Psychology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

Radiotherapy and Oncology 179 (2023) 109452

Contents lists available at ScienceDirect

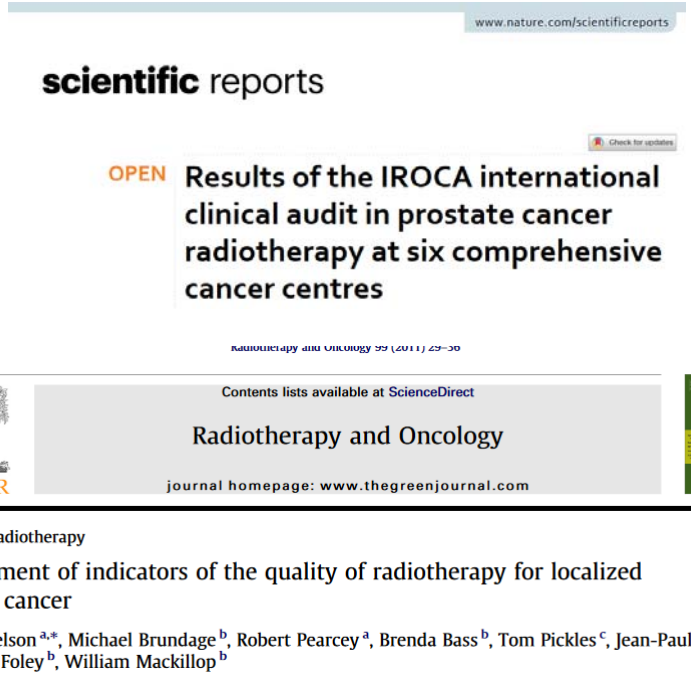
Radiotherapy and Oncology

journal homepage: www.thegreenjournal.com

Original Article

Establishing quality indicators to comprehensively assess quality assurance and patient safety in radiotherapy and their relationship with an institution's background

Norifumi Mizuno [a,*], Hiroyuki Okamoto [b], Toshiyuki Minemura [c], Shinji Kawamura [d], Naoki Tohyama [e], Masahiko Kurooka [f], Ryu Kawamorita [g], Masaru Nakamura [h], Yoshinori Ito [i], Yoshiyuki Shioyama [i], Hidefumi Aoyama [k], Hiroshi Igaki [l]



www.nature.com/scientificreports

scientific reports

OPEN

Results of the IROCA international clinical audit in prostate cancer radiotherapy at six comprehensive cancer centres

Contents lists available at ScienceDirect

Radiotherapy and Oncology

journal homepage: www.thegreenjournal.com

Quality of radiotherapy

Development of indicators of the quality of radiotherapy for localized prostate cancer

Brita Danielson [a,*], Michael Brundage [b], Robert Pearcey [a], Brenda Bass [b], Tom Pickles [c], Jean-Paul Bahary [d], Kimberley Foley [b], William Mackillop [b]

T4.3 QI and standard definitions

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- **Task:** define QI for prostate cancer radiotherapy treatment

a) Quality indicators
b) Safety indicators
c) QoL→ PROMS

2) Safety indicators

Radiotherapy and Oncology 179 (2023) 109452

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Norifumi Mizuno [a,*], Hiroyuki Okamoto [b], Toshiyuki Minemura [c], Shinji Kawamura [d], Naoki Tohyama [e], Masahiko Kurooka [f], Ryu Kawamorita [g], Masaru Nakamura [h], Yoshinori Ito [i], Yoshiyuki Shioyama [j], Hidefumi Aoyama [k], Hiroshi Igaki [l]

T4.3 QI and standard definitions

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- **Task:** define QI for prostate cancer radiotherapy treatment

a) Quality indicators
b) Safety indicators
c) QoL→ PROMS

3) QoL/PROMS: EORTC QoL-C30,

Public reporting of outcomes in radiation oncology: the National Prostate Cancer Audit

Ajay Aggarwal, Julie Nossiter, Matthew Parry, Arunan Sujenthiran, Anthony Zietman, Noel Clarke, Heather Payne, Jan van der Meulen

The public reporting of patient outcomes is crucial for quality improvement and informing patient choice. However, outcome reporting in radiotherapy, despite being a major component of cancer control, is extremely sparse globally. Public reporting has many challenges, including difficulties in defining meaningful measures of treatment quality, limitations in data infrastructure, and fragmented health insurance schemes. The National Prostate Cancer Audit (NPCA), done in the England and Wales National Health Service (NHS), shows that it is feasible to develop outcome indicators for radiotherapy treatment, including patient-reported outcomes. The NPCA provides a transparent mechanism for comparing the performance of all NHS providers, with results accessible to patients, providers, and policy makers. Using the NPCA as a case study, we discuss the development of a radiotherapy-outcomes reporting programme, its impact and future potential, and the challenges and opportunities to develop this approach across other tumour types and in different health systems.

Lancet Oncol 2021; 22: e207–15
Published Online March 4, 2021 https://doi.org/10.1016/S1470-2045(20)30558-1

Department of Health Services Research and Policy, London School of Hygiene & Tropical Medicine, London, UK (A Aggarwal PhD, J Nossiter PhD, M Parry PhD, Prof J van der Meulen PhD);

EUROPEAN UROLOGY ONCOLOGY 7 (2024) 1255–1266

available at www.sciencedirect.com
journal homepage: euoncology.europeanurology.com

European Association of Urology

Review

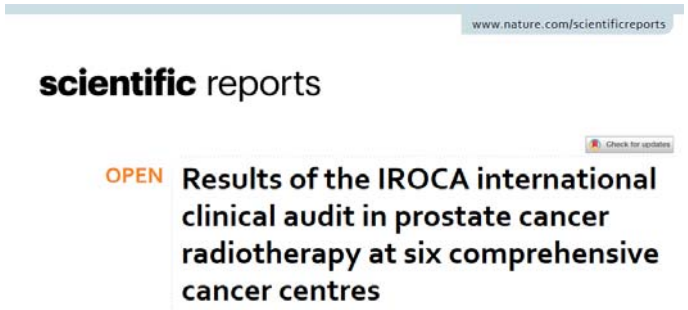
Patient-reported Outcome Measures and Experience Measures After Active Surveillance Versus Radiation Therapy Versus Radical Prostatectomy for Prostate Cancer: A Systematic Review of Prospective Comparative Studies

Andrea Alberti [a,b,†], *Rossella Nicoletti* [a,b,c,†], *Daniele Castellani* [d], *Yuhong Yuan* [e], *Martina Maggi* [f], *Edoardo Dibilio* [a,b], *Giulio Raffaele Resta* [a,b], *Pantelis Makrides* [a,b], *Francesco Sessa* [a,b], *Arcangelo Sebastianelli* [a,b], *Sergio Serni* [a,b], *Mauro Gacci* [a,b], *Cosimo De Nunzio* [g], *Jeremy Y.C. Teoh* [c,h,‡], *Riccardo Campi* [a,b,‡,*]

T4.3 QI and standard definitions

- **Task:** define QI for prostate cancer radiotherapy treatment

a) Quality indicators
b) Safety indicators
c) QoL→ PROMS



T4.3 QI and standard definitions

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- **Task:** define QI for prostate cancer radiotherapy treatment

Group	Number	Definition	Formula	Green	Yellow	Red	Action Level	Frequency
Process Start	3	Average time between biopsy diagnosis and start of radiotherapy	Median in days +/- SD of all patients who started radiotherapy treatment for prostate cancer with curative intent	≤30 days	30-60 days	>60 days		annual (cross-sectional)
Process Start	4	Percentage of patients with PSMA-PET prior to radiotherapy indication for oligometastatic disease	n patients with PSMA-PET and oligometastatic disease treated with radiotherapy / n patients with oligometastatic disease by CT/GGO treated with radiotherapy	≥90%	70–89%	<70%		annual
Process Start	5	% of patients with documented and specific informed consent for radiotherapy	n patients with signed informed consent for pelvic radiotherapy / n without specific signed consent	≥90%	80–89%	<79%		semestral (cross-sectional)
Optimization	8	% of re-planning requirements due to non-compliance with setup or critical organs	n patients requiring re-simulation due to non-compliance with setup limits or critical organ discrepancies in IGRT / procedures without re-simulation	≤5%	6-10%	>10%		semestral (cross-sectional)
Optimization	12	Existence of peer review procedures for volume delineation	Active peer review procedures for prostate cancer radiotherapy treatments	yes	partial	no		annual
Optimization	13	% of patients with dosimetric planning reviewed by independent double-check	n patients with dosimetric planning reviewed by independent double-check for prostate cancer / n patients planned for prostate cancer	≥90%	70–89%	<70%		annual (cross-sectional)

T4.3 QI and standard definitions

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- **Task:** define QI for prostate cancer radiotherapy treatment

Individualization	16	% of patients receiving hypofractionated radiotherapy based on risk criteria	n patients with localized prostate cancer (non-postoperative) receiving hypofractionated RT / n patients receiving treatments with 2 Gy/fraction	≥90%	70–89%	<70%		annual (cross-sectional)
Individualization	18	% of treatments integrating simultaneous modulated boost (SIB)	n patients with integrated boost technique treatment / n patients with sequential treatments (includes radical and postoperative)	≥90%	70–89%	<70%		annual (cross-sectional)
Documentation	21	% of medical records with structured toxicity registration (CTCAE v4.0 or v5.0)	n medical records of prostate cancer patients treated with radiotherapy registering toxicity in a structured way / medical records without structured toxicity registration	≥90%	70–89%	<70%		semestral (cross-sectional)
Documentation	22	% of treatment reports including detailed and structured mandatory information	n treatment reports including detailed and structured mandatory information on fractionation, dose, and technique used / n reports not meeting criteria	≥95%	90-94%	<89%		annual (cross-sectional)
Documentation	23	% of patients with documented baseline functional assessment (urinary, intestinal, sexual)	n patients with correct assessment at follow-up / total patients treated with radiotherapy for prostate cancer	≥90%	70–89%	<70%		annual (cross-sectional)
Documentation	25	% of patients with documented treatment summary in medical record	n prostate cancer patients treated with radiotherapy with correct summary / n prostate cancer patients treated with radiotherapy	≥95%	90-94%	<89%		annual (cross-sectional)

T4.3 QI and standard definitions

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- **Task:** define QI for prostate cancer radiotherapy treatment

Follow-up	28	Prevalence of urinary toxicity grade 2 or higher at 6 months	n prostate cancer patients treated with radiotherapy presenting grade 2 or higher toxicity at six months / n patients treated with radiotherapy for prostate cancer	≤15%	15-20%	>20%		annual (cross-sectional)
Follow-up	29	% of patients with rectal toxicity registered in medical record	n prostate cancer patients with rectal toxicity registered in medical record / n prostate cancer patients treated with radiotherapy	≥90%	70–89%	<70%		annual (cross-sectional)
Leadership and Clinical Management	31	% of treatment decisions validated in multidisciplinary tumor board	n patients with decision recorded in urological tumor board / n patients treated with radiotherapy for prostate cancer	≥90%	70–89%	<70%		annual (cross-sectional)
Leadership and Clinical Management	33	Review/update of Service clinical protocol for prostate cancer	Review/update of Service clinical protocol for prostate cancer by years	annual	1-2 years	> 2 years		annual
Patient Safety	34	% of Safety checklists performed by technicians before first radiotherapy session	n safety checklists before first radiotherapy session for prostate cancer / n treatment starts for prostate cancer	≥95%	90-94%	<89%		semestral (cross-sectional)
Patient Safety	36	% of adverse events notified and categorized by severity	n adverse effects registered in safety database with categorization / adverse effects registered in patients treated for prostate cancer	≥90%	70–89%	<70%		annual (cross-sectional)
Patient Safety	38	Average downtime due to critical SBRT event during prostate cancer treatment	Average downtime in days due to critical event or SBRT failure during prostate cancer treatment	≤7 days	8–14 days	> 14 days		annual

T4.3 QI and standard definitions

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- **Task:** define QI for prostate cancer radiotherapy treatment

Clinical Outcomes	39	Biochemical progression-free survival at 3 years	Biochemical progression-free survival at 3 years in patients treated with radiotherapy for curative intent for prostate cancer	≥85%	70–84%	<70%		annual (cross-sectional)
Clinical Outcomes	40	% of patients with local control at two years	n prostate cancer patients treated with radiotherapy with local control / n prostate cancer patients treated with radiotherapy with radical intent	≥90%	70–89%	<70%		annual (cross-sectional)
Patient Experience	43	% of patients with improvement or stability in IPSS at 12 months post-radiotherapy	Percentage of patients who, one year post-treatment, show improvement or stability in prostate symptom severity defined by the International Prostate Symptom Score (IPSS). Pre-treatment and 12-month IPSS.	≥90%	70–89%	<70%		annual (cross-sectional)
Patient Experience	44	% of patients satisfied with received information (post-treatment survey)	n Patients with favorable scores in post-treatment satisfaction survey / n surveys of prostate cancer patients treated with radiotherapy	≥90%	70–89%	<70%		annual (cross-sectional)
Patient Experience	46	Average time from consultation to resolution of patient clinical queries	Average time from consultation to resolution of patient clinical queries by the care team	≤1 day	2-5 days	> 5 days		annual (cross-sectional)
Innovation	49	% of patients with daily IGRT control	n prostate cancer patients treated with daily IGRT / n prostate cancer patients treated	≥90%	70–89%	<70%		annual (cross-sectional)
Innovation	50	Active participation in prostate cancer clinical trials	Prostate cancer clinical trials program	yes	planned	no		annual
Training	51	Training program for advanced techniques in prostate cancer	Documented and registered training program for advanced techniques in prostate cancer	yes	in progress	no		annual

T4.3 QI and standard definitions

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- **Task:** define QI for prostate cancer radiotherapy treatment

Efficiency	55	Average time from simulation to first treatment	Average time from simulation to first treatment in prostate cancer patients in days	≤10 days	11-20 days	> 21 days		annual (cross-sectional)
Efficiency	56	% of treatments without interruptions >2 days due to technical issues	n prostate cancer patients stopping treatment due to technical issues > 2 days / n prostate cancer patients not stopping	≥90%	70–89%	<70%		annual (cross-sectional)
Efficiency	58	Average time from referral to radiotherapy oncology consultation	Average time from referral to radiotherapy oncology consultation in days	≤7 days	8-14 days	> 14 days		annual (cross-sectional)
Workload and Control Procedures	60	Annual number of treatments per radiotherapy oncologist	New treatments and second treatments per radiotherapy oncologist annually	<200	200-250	> 250		annual
Workload and Control Procedures	63	Written quality procedures in accessible document management system	Procedures for prostate cancer treatment written and registered in accessible document databases	yes	partial	no		annual
Workload and Control Procedures	64	External audits (quality or dosimetric) conducted in the last three years	Audits conducted and documented	yes	planned	no		annual
Workload and Control Procedures	65	Frequency of dosimetry equipment calibration and cross-verifications/calibrations	Compliance with annual calibration frequency or as determined by equipment complexity, type of radiation measured, and legal regulations (performed/not performed) in the last three years	100%	90-99%	<90%		annual
Workload and Control Procedures	69	Annual proactive risk analysis (proactive analyses)	Annual proactive risk analysis based on methodology recommended by a national or international organization	yes	partial	no		annual

Thank you for your attention.

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