

Patient Reported Outcomes and Dosimetric Impact of Hydrogel Rectal Spacers in Prostate Radiotherapy

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INTRODUCTION

Minimising rectal toxicity remains a central challenge in prostate radiotherapy.

This study evaluates whether the use of a hydrogel rectal spacer improves patient experience and reduces radiation exposure to the rectum.

PROMs data and dosimetric metrics were compared between patients treated with and without a spacer.

AIMS

Quantify rectal dose reduction associated with SpaceOAR in EBRT (Dmean) and LDR brachytherapy (D2cc).

Assess PROMs (bowel and urinary domains) at 3, 6, 12, and 24 months.

Evaluate CTCAE clinician-reported rectal toxicity over the same period.

Explore correlations between rectal dose metrics and PROMs/toxicity.

PATIENT COHORT

Treatment	With SpaceOAR	Without
LDR 145 Gy	16	16
EBRT 60/20	54	53
EBRT 78/39	10	11

DOSIMETRY

- EBRT**
- **Primary metric:** Rectal **Dmean**
 - Extracted from planning DVHs
 - Same contouring protocol across all patients

- LDR Brachytherapy**
- **Primary metric:** Rectal **D2.0cc**
 - Derived from post-implant dosimetry

PROMS COLLECTION

PROMS were collected for:

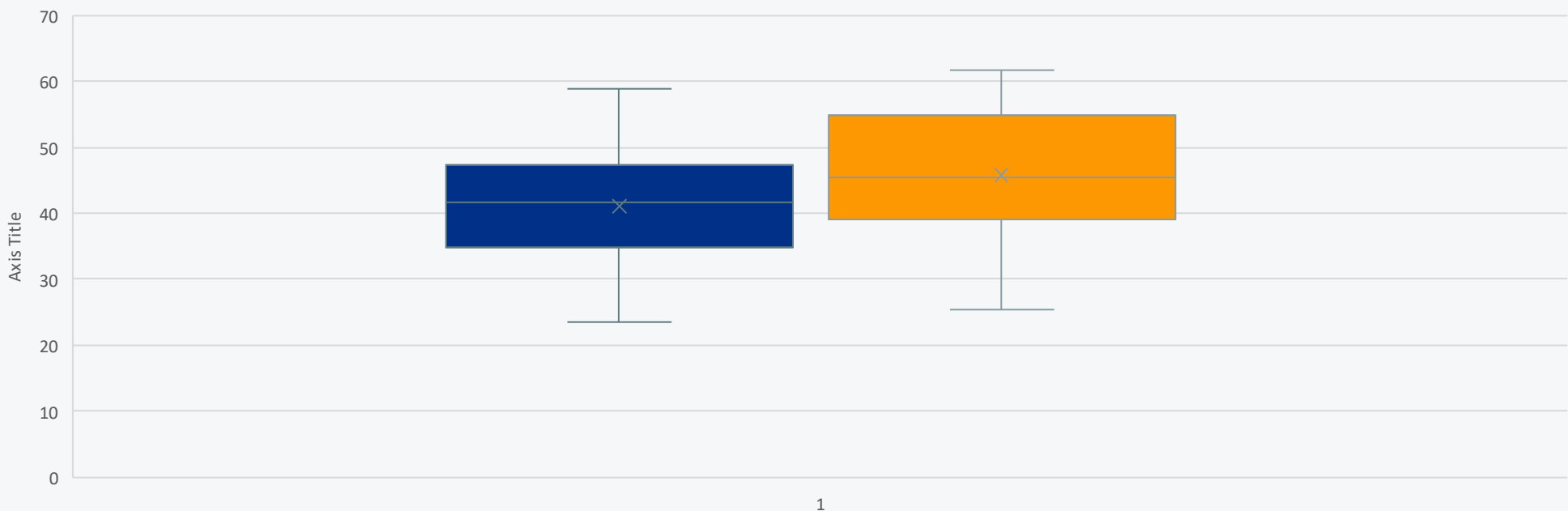
- Bowel function scores
- Urine function scores

Timepoints:

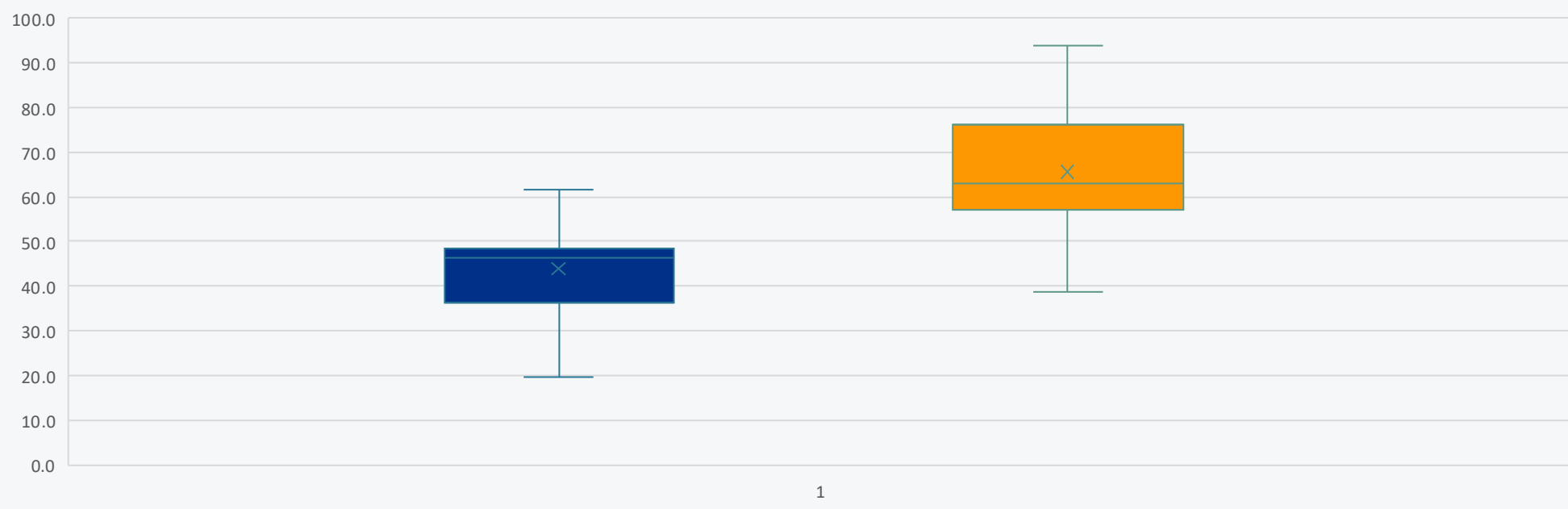
- 3 months
- 6 months
- 12 months
- 24 months

RESULTS

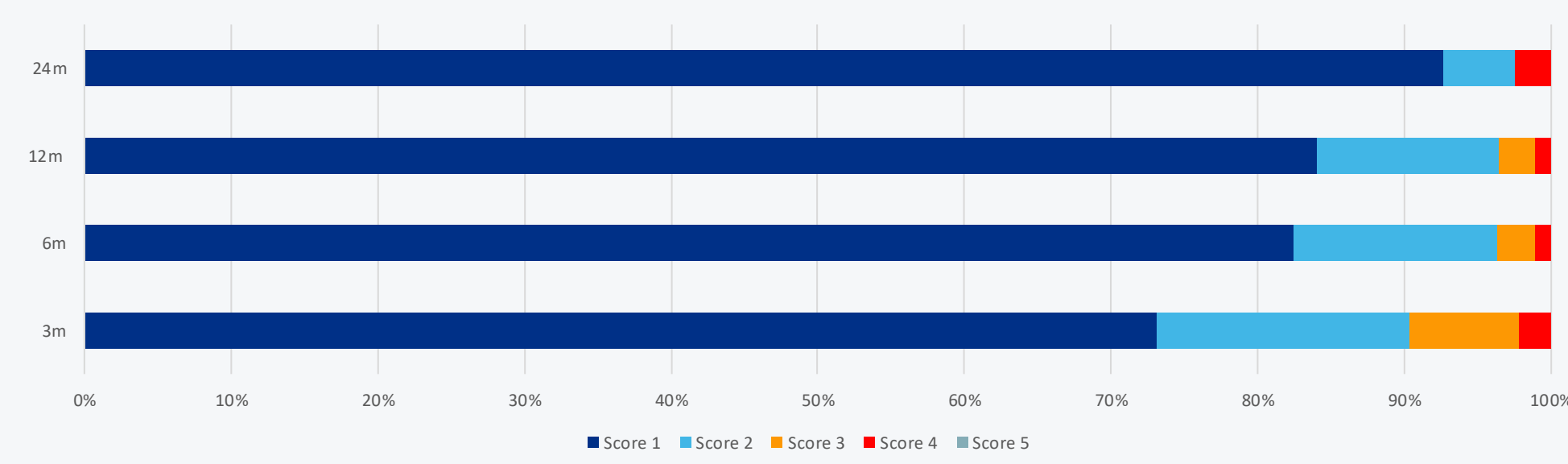
 **EBRT Rectal Dmean (60/20 and 78/39)**
SpaceOAR vs No SpaceOAR



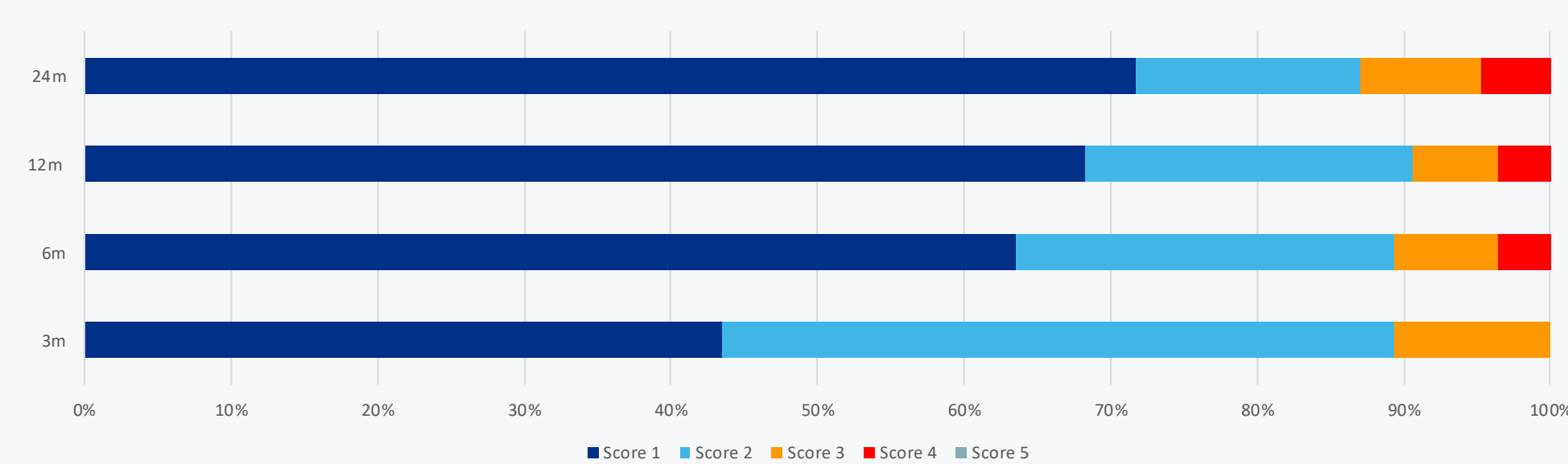
 **Brachytherapy Rectal D2cc (LDR 145 Gy)**
SpaceOAR vs No SpaceOAR



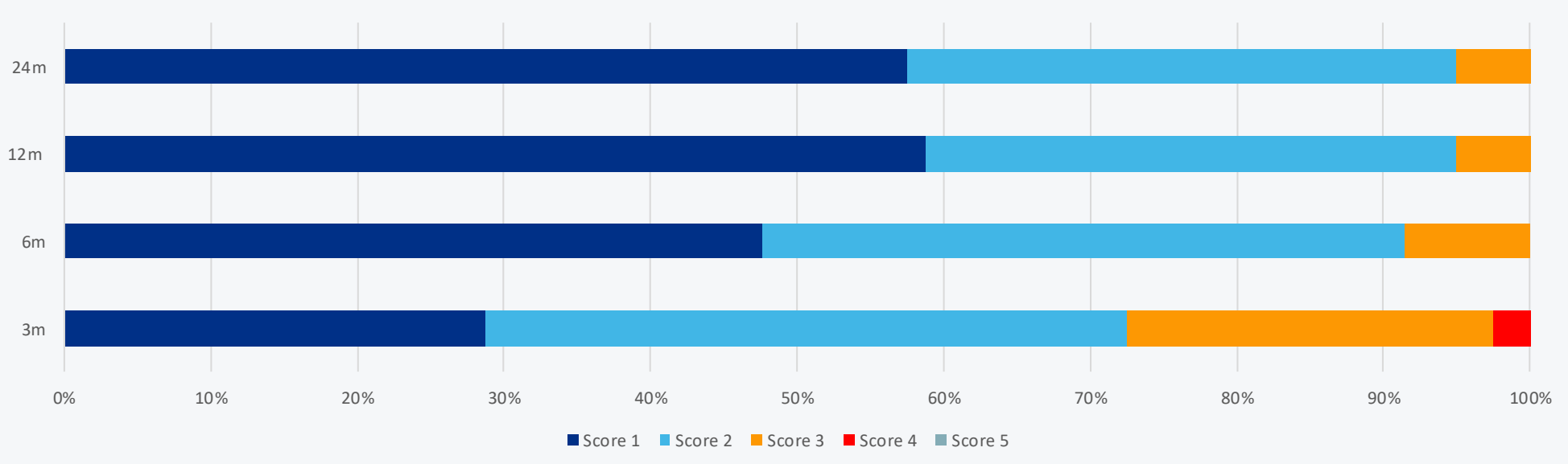
Bowel function PROMS SpaceOAR



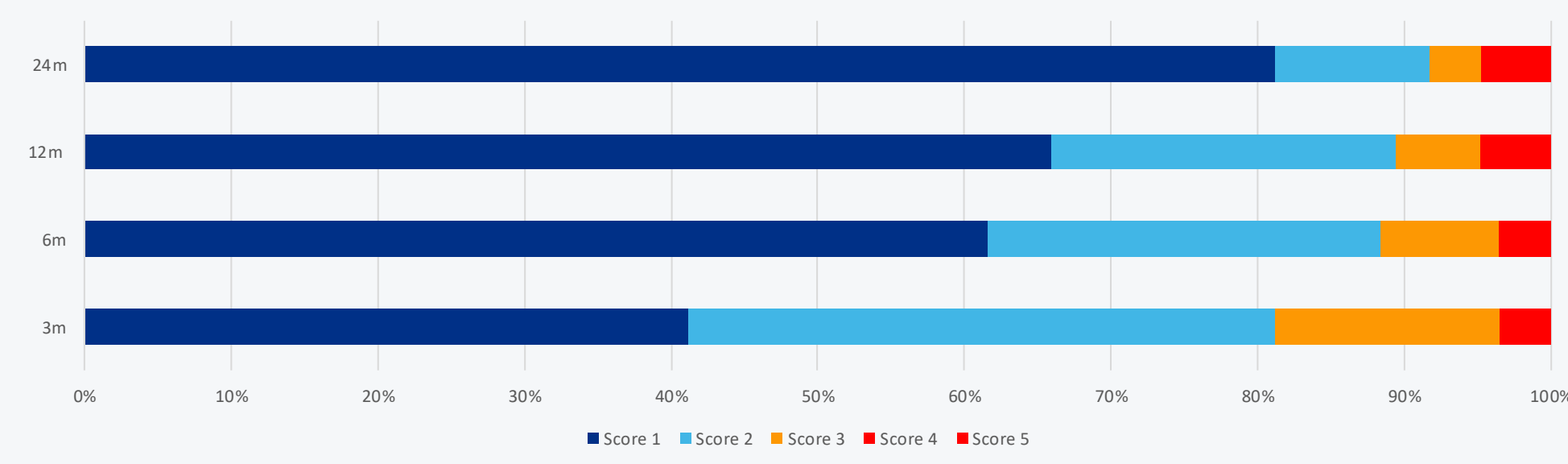
Bowel function PROMS No SpaceOAR



Urine function PROMS SpaceOAR



Urine function PROMS no SpaceOAR



RESULTS SUMMARY

-  **Key Messages**
- SpaceOAR **reduces rectal dose** in both EBRT and LDR
 - Early bowel function PROMs **improved** with SpaceOAR
 - Urinary function PROMs **unchanged**
 - Dose–response relationship consistent across modalities
 - Supports use of hydrogel spacers in NHS practice

CONCLUSIONS

TOXICITY OUTCOMES

- Acute Toxicity (≤ 3 months)**
- ☐ No grade ≥ 3 acute GI or GU toxicity in either group.
 - ☐ SpaceOAR patients reported **fewer acute bowel symptoms**, consistent with reduced early rectal dose.
 - ☐ GU toxicity remained low and comparable.
- Late Toxicity (≥ 12 months)**
- ☐ No grade ≥ 3 late GI toxicity observed.
 - ☐ Low rates of grade 1–2 proctitis in both groups.
 - ☐ Slightly fewer persistent bowel symptoms in the SpaceOAR group.
 - ☐ GU toxicity remained low and similar.

PATIENT REPORTED OUTCOMES

- ☐ SpaceOAR patients reported **better bowel function early** (3–6 months).
- ☐ Differences diminished by 12 months and **becoming aligned by 24 months**.
- ☐ PROMs captured **subtle early benefits** not visible in clinician-graded toxicity.
- ☐ No deterioration in urinary with SpaceOAR.

CLINICAL INTERPRETATION

- EBRT (Rectal Dmean)**
- ☐ SpaceOAR reduced overall rectal dose, particularly in 60/20 schedules.
 - ☐ Lower Dmean explains the **early PROMs advantage**.
- LDR (Rectal D2cc)**
- ☐ Reduced high-dose hotspots with SpaceOAR.
 - ☐ Supports the **absence of late GI toxicity**.
- Integrated view**
- ☐ Dosimetry → early PROMs → stable long-term toxicity
 - ☐ A coherent pattern across modalities.

OVERALL SUMMARY

SpaceOAR reduced rectal dose across EBRT and LDR, translating into **better early bowel function** without increasing GU or late GI toxicity. Long-term outcomes were excellent in both groups, reflecting modern prostate radiotherapy standards.

CONCLUSIONS

- ☐ SpaceOAR lowers rectal dose.
- ☐ Improves early bowel function.
- ☐ Maintains low long-term toxicity.
- ☐ Best suited for patients at higher risk of bowel morbidity.