

Radiotherapy underutilisation in prostate cancer and its effect on overall survival & local control, NSW - Australia

BACKGROUND

- Optimal RT decision tree developed by CCORE in 2003 & updated in 2012¹.
- Modelling suggests that 52% of all Australian prostate cancer patients would benefit from radiotherapy (RT) at diagnosis¹⁻³
- Overall Survival (OS) shortfall and local control (LC) benefit were developed in 2015⁴⁻⁵
- Estimated 5-year OS shortfall for prostate cancer due to not receiving RT was 1.1%
- The 5-yr irreplaceable LC benefit for receiving RT was 12.4%⁴⁻⁵
- Irreplaceable benefit of RT means no guideline-recommended alternative treatment⁵ other than radiotherapy.
- Previous studies indicated that RTU rates decreased with increasing travel distance from patient residence to the nearest RTD⁶.

AIMS

1. To calculate actual Radiotherapy Utilisation Rate for prostate cancer patients during the study period (2009-11)
2. To estimate the shortfall in OS and irreplaceable LC
3. To identify factors affecting RTU in prostate cancer patients

METHODS AND MATERIALS

- Data from NSW CCR for patients diagnosed with prostate cancer were linked to:
 - Public and private radiotherapy data,
 - Admitted patient data collection,
 - Clinical cancer registry data,
 - Death & cause of death records.
- Patients residential addresses were geocoded and road distances to the nearest RT facility were calculated.
- Patients located near the State border where their nearest RT facility was outside NSW (cross borders) were excluded from the analysis.

RESULTS

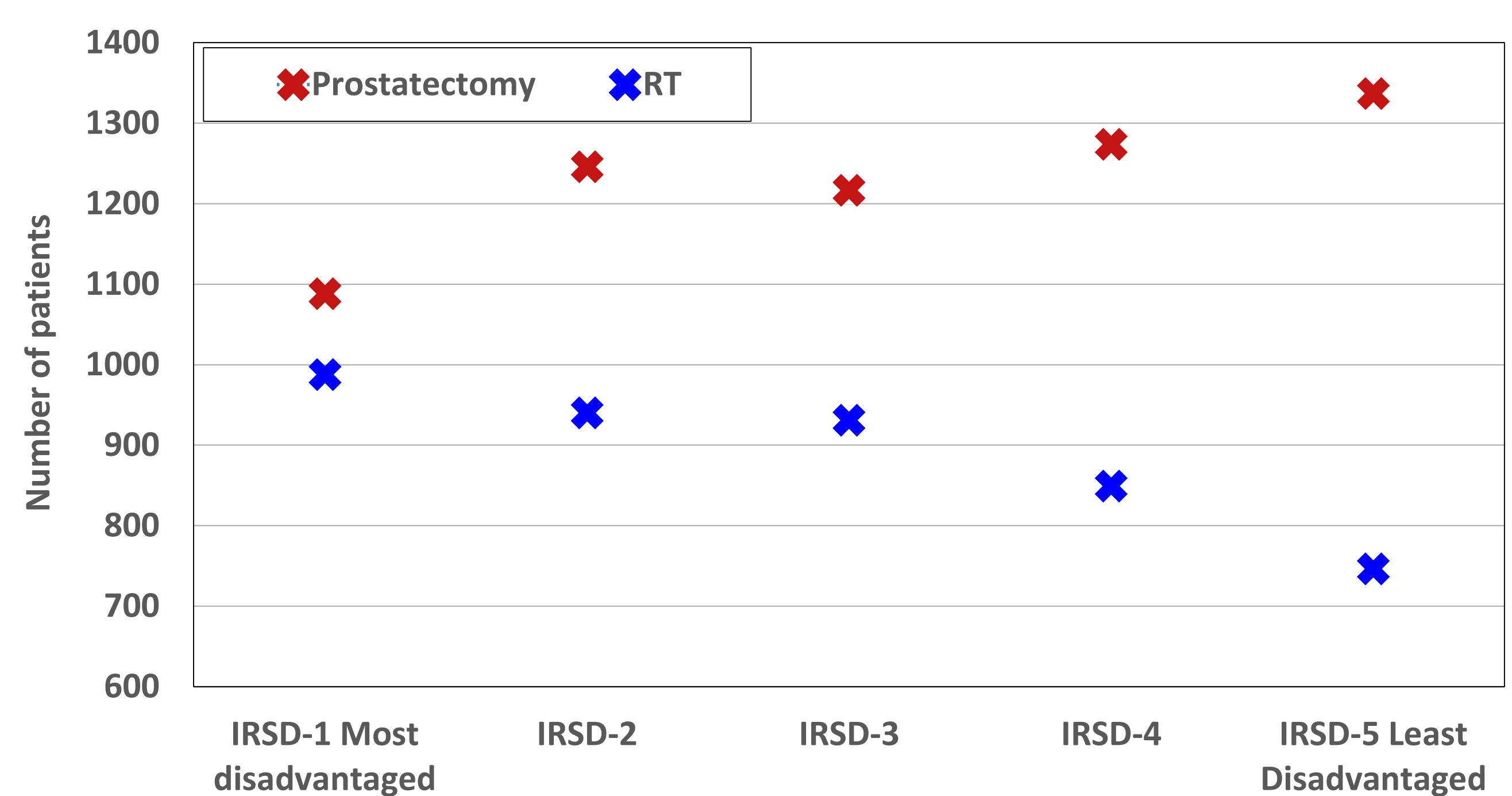
- 19,816 patients (18% of all cancer patients)
- Median age: 67 years (range: 24-101 years)
- 94% had loco-regional disease
- 43% were born in Australia
- 68% resided in major cities
- 80% were living within 50 km from the nearest RT facility.

Of patients with loco-regional disease, 22% received external beam radiotherapy, 41% had radical prostatectomy and 42% did not have either radiotherapy or radical prostatectomy.

RESULTS

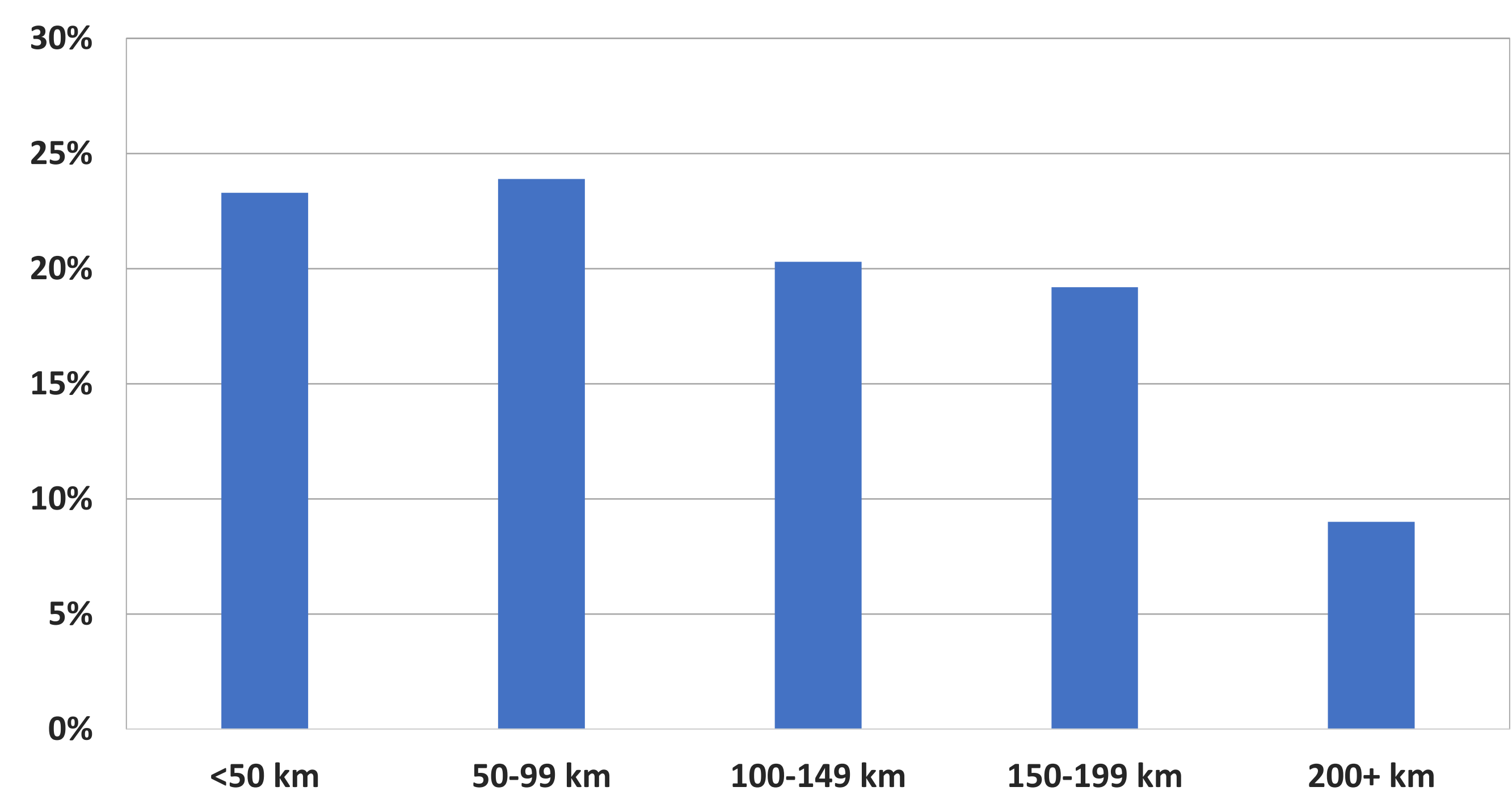
- Patients living in most disadvantaged areas were more likely to receive RT than patients living in least disadvantaged areas.
- Patients living in least disadvantaged areas were more likely to have radical prostatectomy than patients living in most disadvantaged areas.

Figure 1. Number of Patients who had Prostatectomy and/or Radiotherapy by Socioeconomic status



Patients were less likely to receive RT with increasing travel distance from patient residence to the nearest RT facility.

Figure 2. Radiotherapy Utilisation Rate by Distance to the nearest RT Facility - NSW 2009-11



CONCLUSIONS

- Prostate cancer was the most diagnosed cancer in NSW (18%)
- Actual RTU rate was half of the estimated optimal rate.
- Underutilization of RT increases the disease burden on health system due to higher risks of local failure and overall survival shortfall.
- Giving RT according to evidence-based guidelines would probably have prevented **41** early deaths & **466** local failures each year.

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