



Prostate cancer care in Victoria

Towards optimal care



Prostate Cancer Summit working party



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In this presentation...




- Incidence
- Diagnosis and management
- Access to treatment
- Care patterns and variation across Victoria

Optimal care pathway for men with prostate cancer



Prostate cancer optimal care pathway



**Prevention
and early
detection**

**Presentation,
initial
investigations
and referrals**

**Diagnosis,
staging and
treatment
planning**

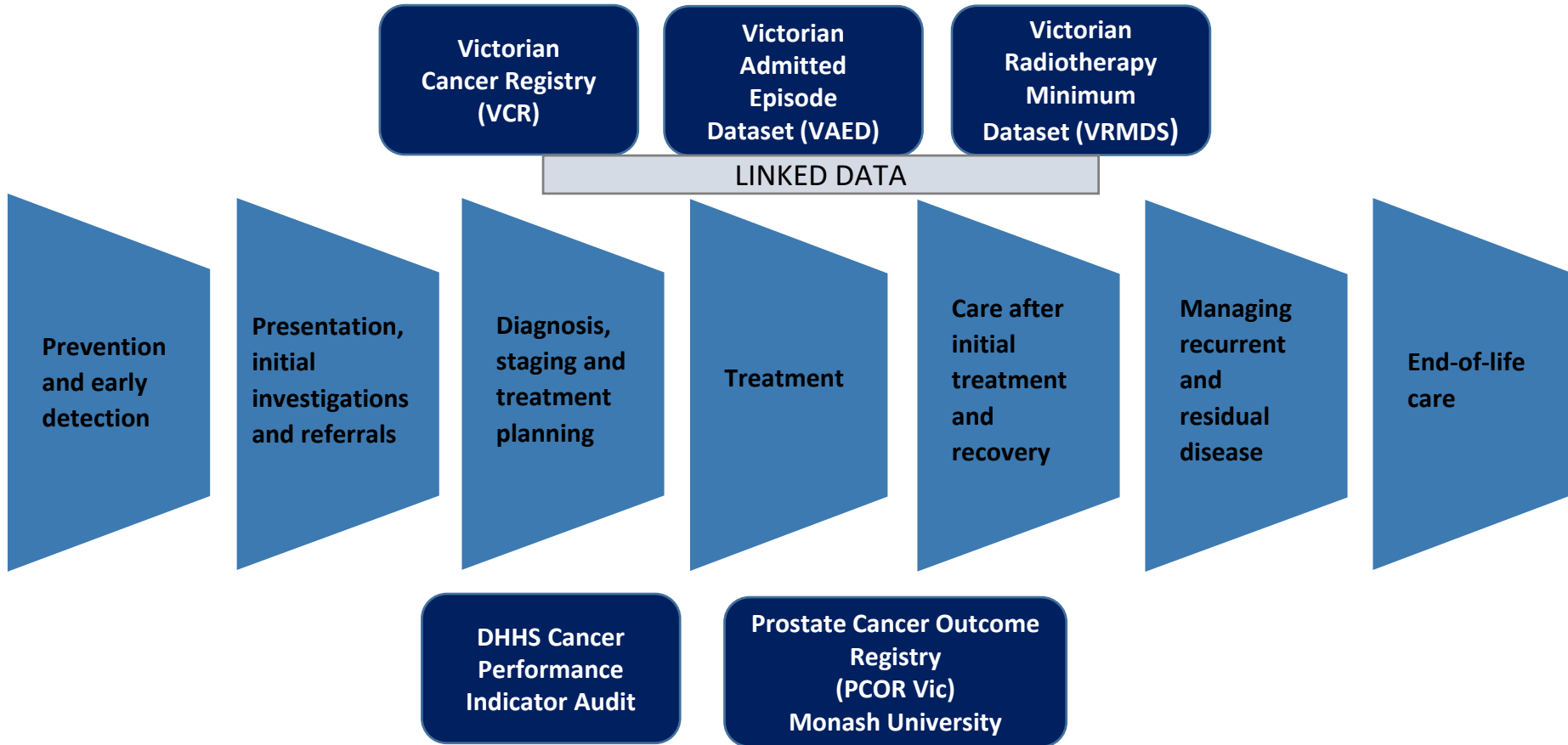
Treatment

**Care after
initial
treatment
and
recovery**

**Managing
recurrent
and
residual
disease**

**End-of-life
care**

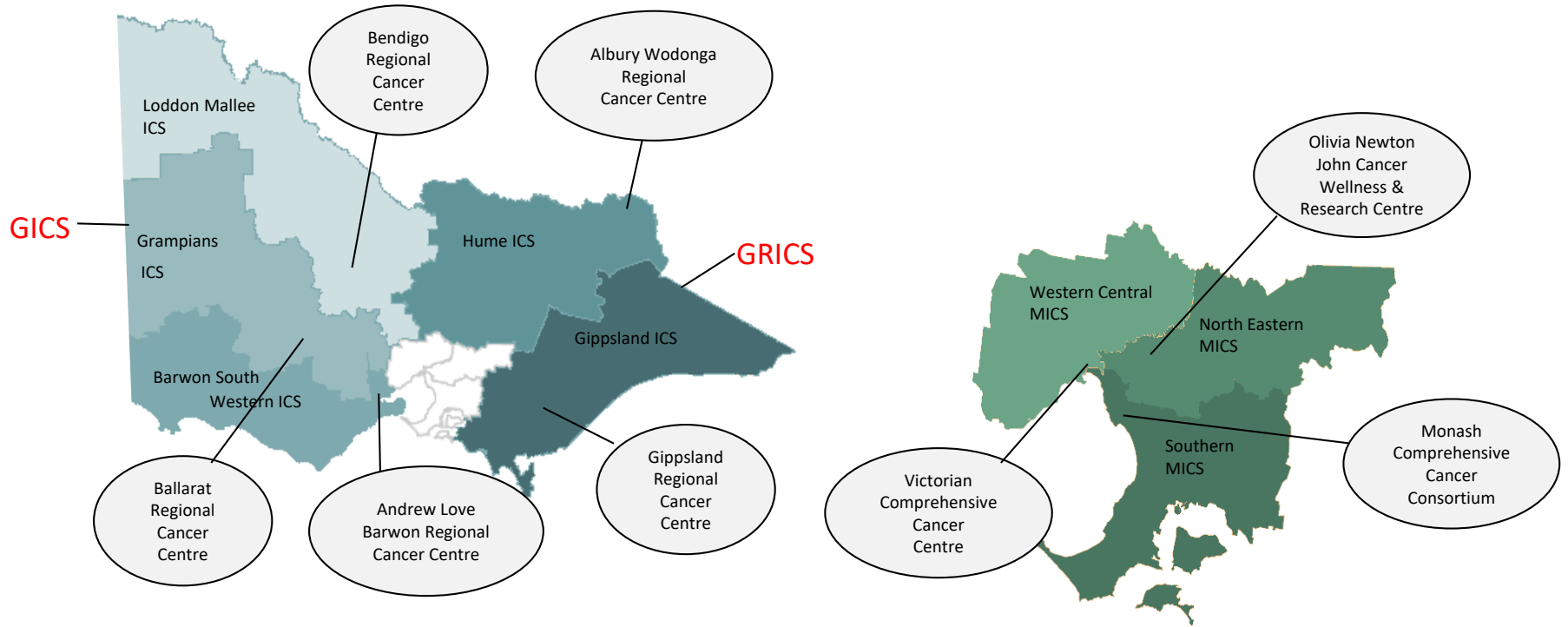
Sources of data to describe current practice



About data sources

	Linked data set (prostate cancer)			PCOR Vic
	VCR	VAED	VRMDS	
Coverage	100% of Vic	All Vic health services except Albury	All Vic radiotherapy centres	VCR through participating health services (6 in 2008, now ~90% pop. coverage)
Years	2008-2018	2008-2019	2011-2018	2008 – 2019
Number	54,000 patients	703,000 hospital admissions	18,000	25,981 patients consented
Purpose	Monitoring cancer population outcomes	Reimbursement of hospital activity	Reimbursement of hospital activity	Patterns of disease, management and patient-reported outcomes for quality improvement and research

Integrated Cancer Services (ICS) & Cancer Centres





Incidence and demographics

Demographic and tumour characteristics

	Linked dataset (VCR, VAED) Diagnosed 2014-2018 N = 23,395		Prostate Cancer Outcomes Registry- Victoria Diagnosed 2008-2019 N = 25,981	
Variable	Level	Median [IQR] or N (%)	Level	Median [IQR] or N (%)
Age	Years	68 [62 - 74]	Years	66.8 (60.9 - 72.5)
Socio-economic status (address at diagnosis)	Disadvantaged (Q1)	4141 (18%)	Disadvantaged (Q1)	16%
	Middle (Q2-Q4)	13736 (59%)	Middle (Q2-Q4)	57%
	Affluent (Q5)	5514 (24%)	Affluent (Q5)	27%
Stage at diagnosis	1 - VCR derived	3095 (13%)	NCCN Low risk	19%
	2 - VCR derived	8124 (35%)	NCCN Int risk	49%
	3 - VCR derived	8320 (36%)	NCCN High risk	24%
	4 - VCR derived	1983 (8%)	cN1, but not cM1	4%
	Unknown - VCR derived	1873 (8%)	cM1	4%
PSA		NA	ng/ml	7 (4.9 - 11)
Grade	ISUP1	6881 (29%)	ISUP1	30%
	ISUP2	6288 (27%)	ISUP2	31%
	ISUP3	3220 (14%)	ISUP3	17%
	ISUP4	1713 (7%)	ISUP4	10%
	ISUP5	2077 (9%)	ISUP5	12%
	Metastatic	1917 (8%)		
	Unknown	1299 (6%)		
Death Certificate Only (DCO) patients excluded (n = 315)				

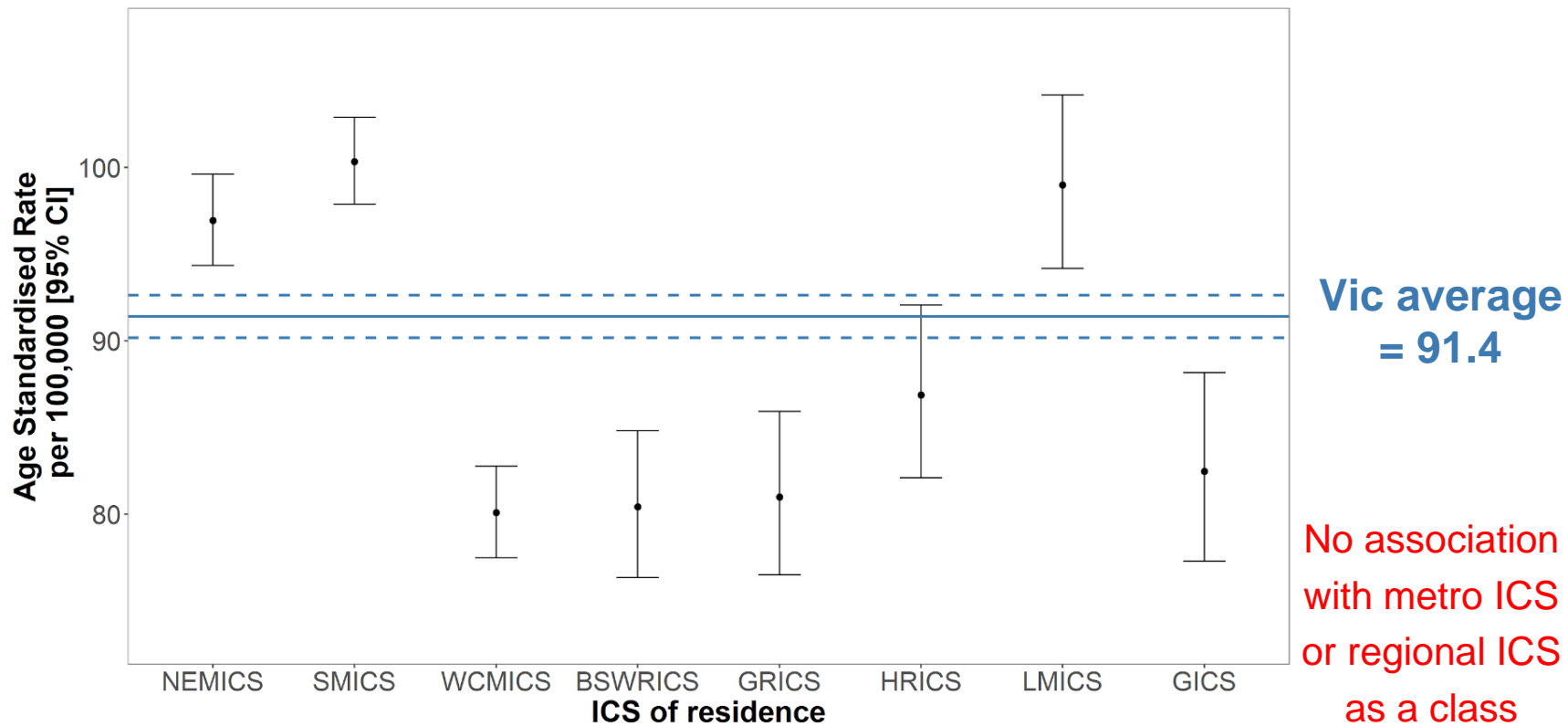
Slightly older

Slightly higher
SES

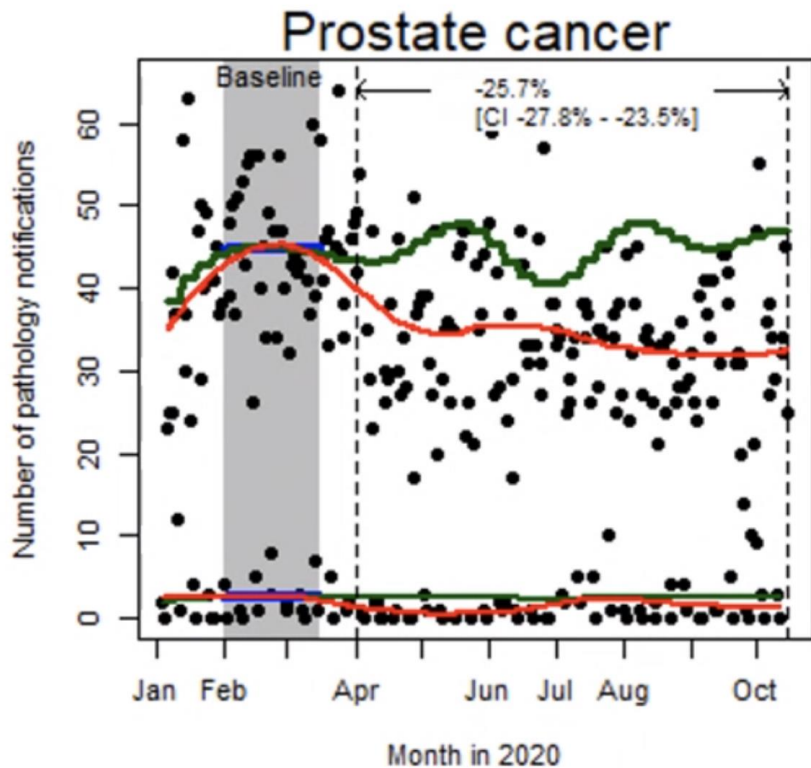
PCOR includes
stage, PSA &
grade

Might reflect
accrual at earlier
period

Variation in prostate cancer (C61) incidence by ICS of residence (2014-2018) N= 23,380



Observed notifications of prostate cancer down 25.6%



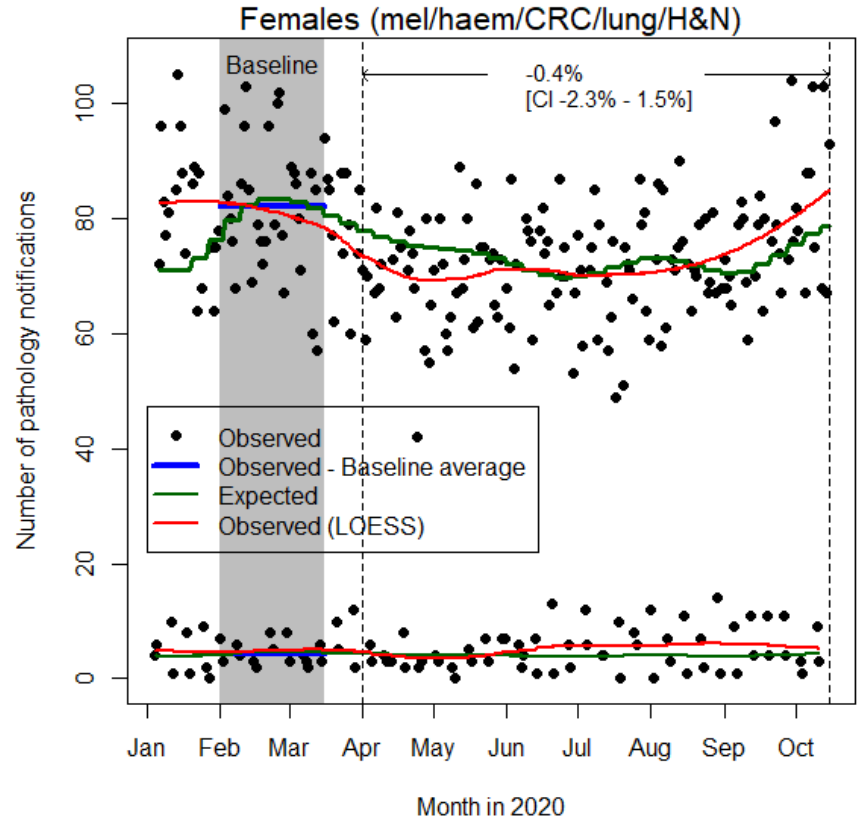
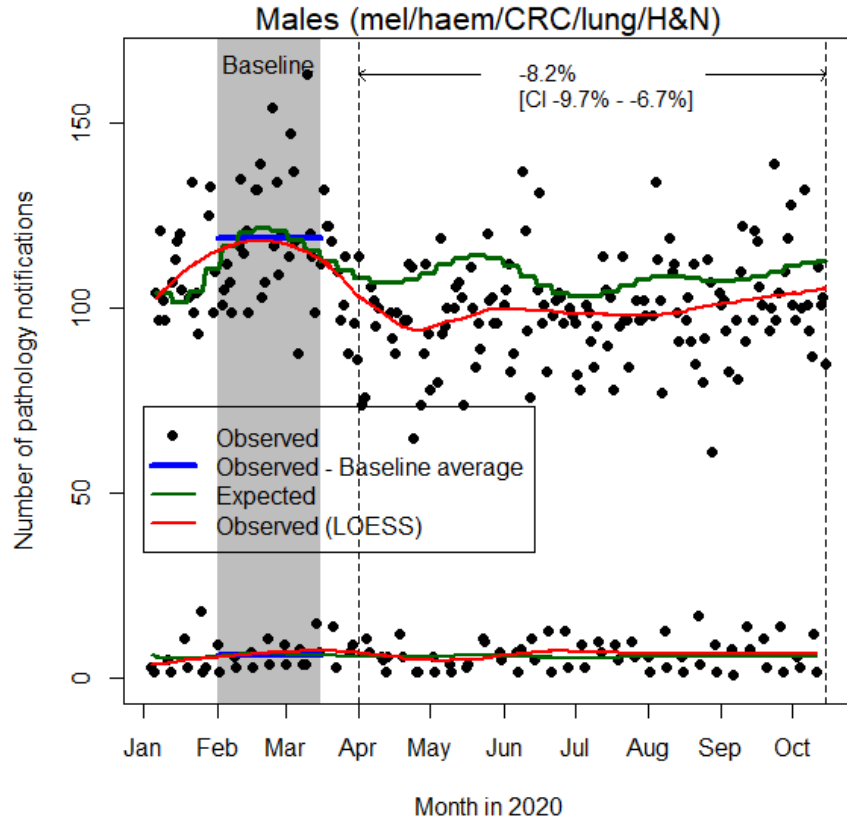
•• Daily notifications

← Expected notification rate

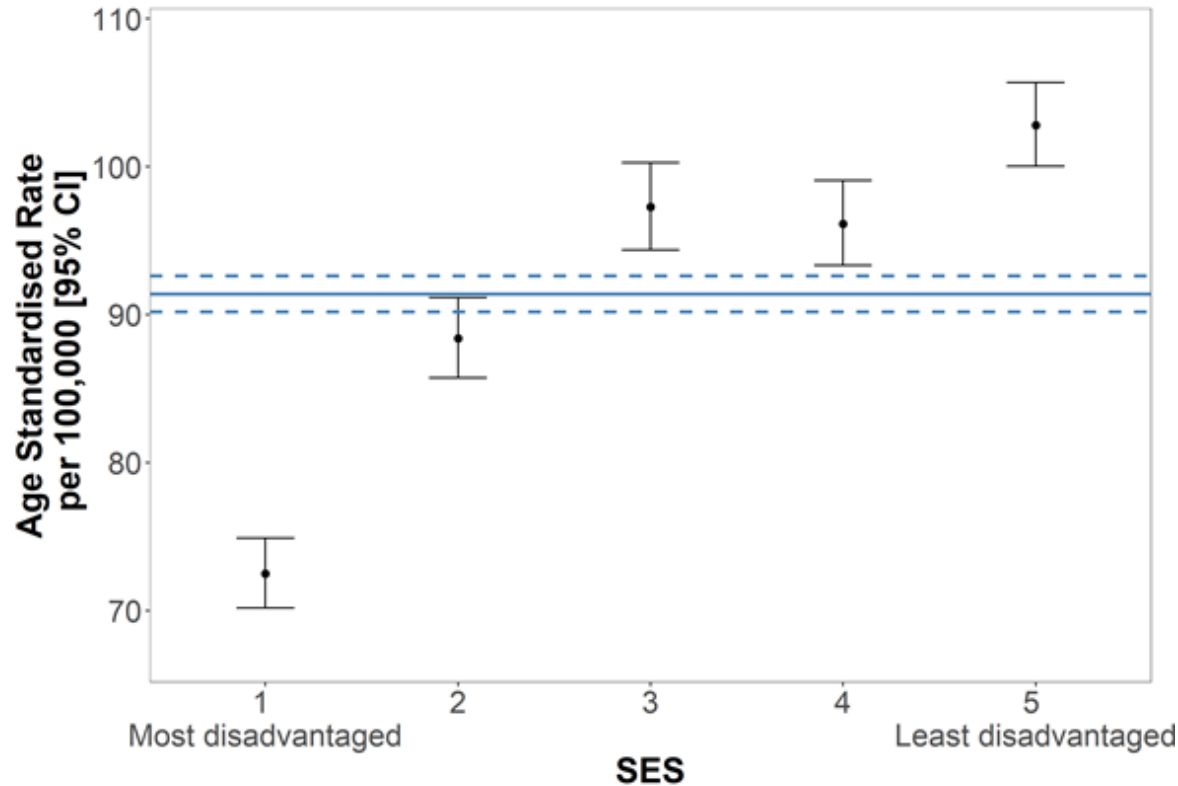
← Lowess smoothed actual rate

← Weekend reported rates

In cancers common in both males and females, the decline in pathology notifications is larger in males compared to females.



Variation in prostate cancer (C61) incidence by socioeconomic status (2014-2018) N= 23,391



Vic average =
91.4

Tendency for less
diagnosis in most
disadvantaged

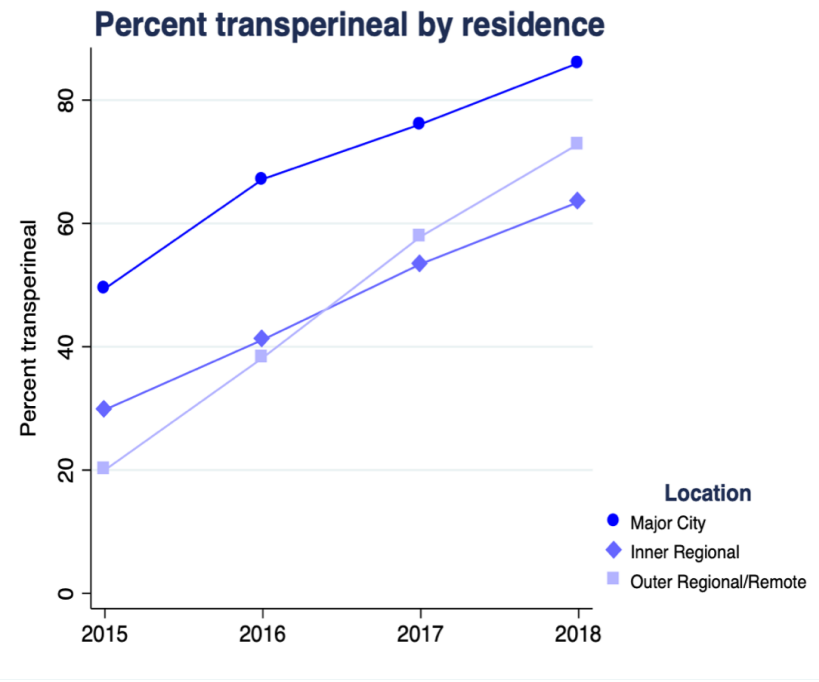
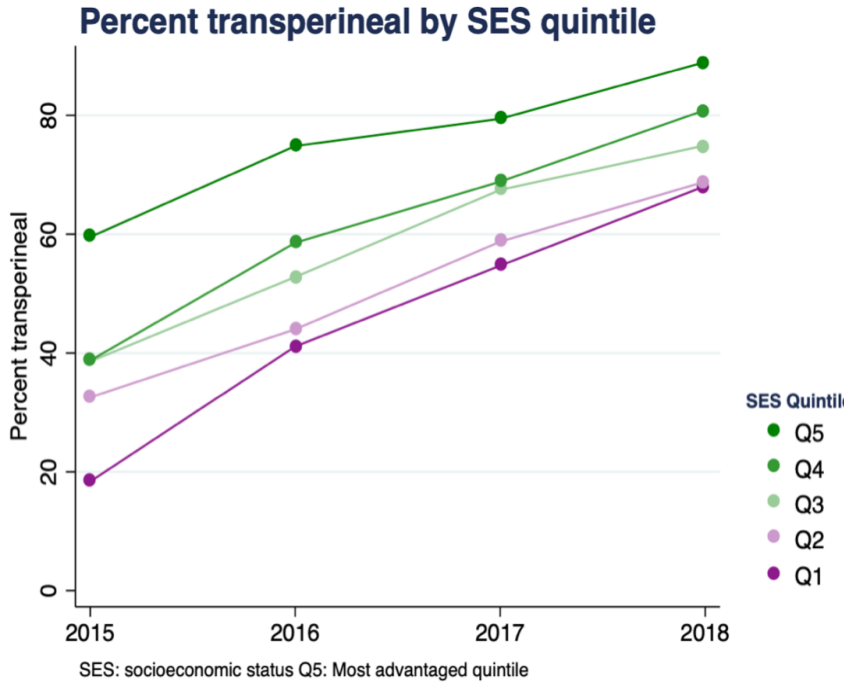


Diagnosis and treatment planning

Increase in transperineal dx, but variable

Transperineal biopsy uptake: SES

Transperineal biopsy uptake: metro/rural



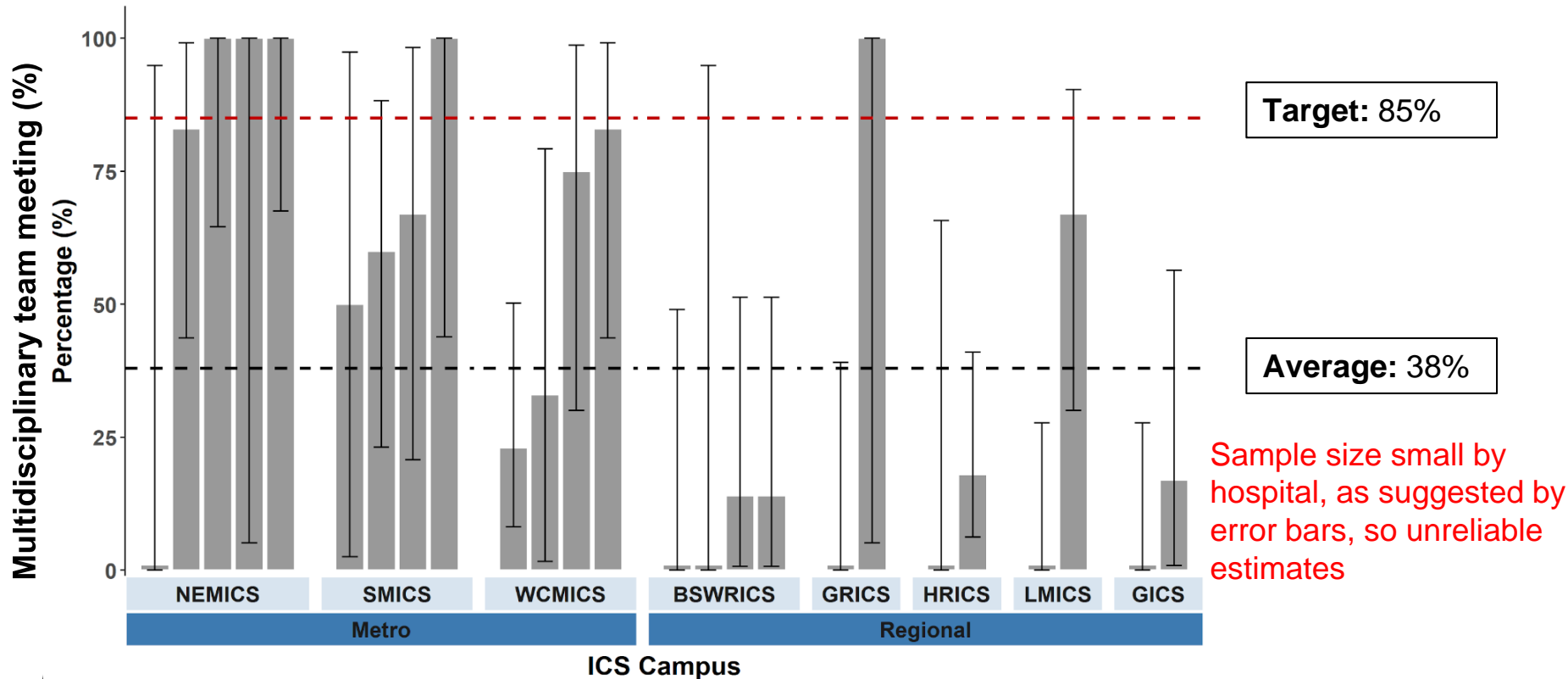
Proportion of prostate cancer patients in each ISUP group, by SES status (2014-2018) (N=23,391)

Socioeconomic status	ISUP group (% row)						
	1	2	3	4	5	Metastatic	Unknown
1- most disadv (n=4141)	27%	23%	14%	9%	11%	10%	6%
2 (n=4496)	28%	25%	13%	8%	10%	9%	6%
3 (n=4543)	28%	26%	15%	8%	9%	8%	6%
4 (n=4697)	31%	28%	13%	7%	8%	8%	5%
5 - least disadv (n=5514)	32%	31%	14%	6%	7%	6%	5%
Victoria (n=23391)	29%	27%	14%	7%	9%	8%	6%

Data Source: VCR

Note: Hume data limitations

38% of prostate cancer patients had documented evidence of multidisciplinary team meeting (2018) (N = 139)



Data limitation: Prostate cancer patients were audited from 21 public hospitals and 4 private hospitals *HRICS data limitation



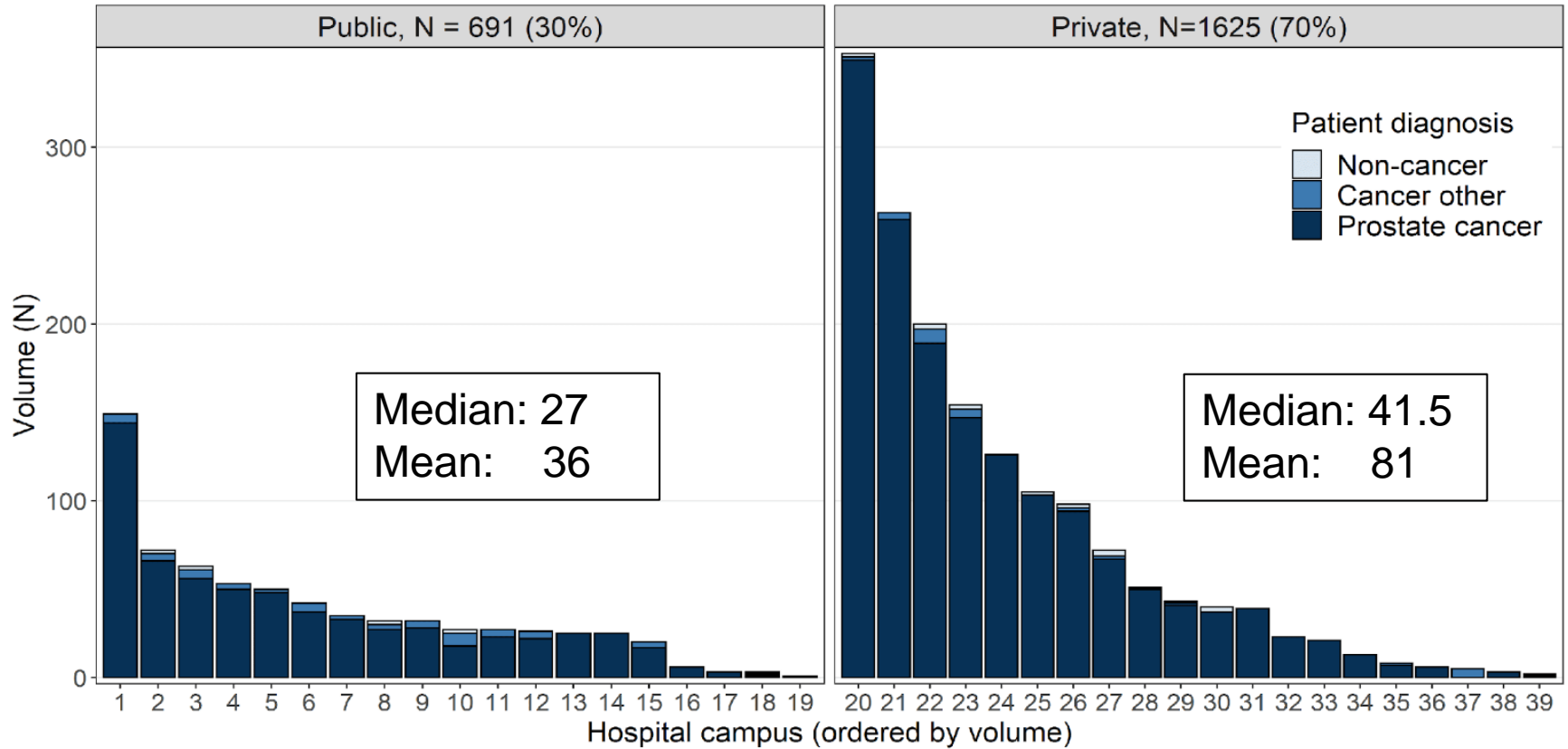
Treatment

Cumulative incidence of radical prostatectomy within 1 year of diagnosis (2014-18) N=23,380

ICS of residence	Diagnosis year					2014-2018
	2014	2015	2016	2017	2018	
NEMICS (n=5772)	37%	43%	42%	39%	40%	40%
SMICS (n=6761)	36%	36%	37%	35%	32%	35%
WCMICS (n=3748)	37%	41%	36%	34%	34%	36%
BSWRICS (n=1601)	34%	38%	45%	47%	42%	42%
GRICS (n=1360)	35%	32%	32%	41%	37%	36%
HRICS (n=1359)	31%	27%	32%	26%	24%	28%
LMICS (n=1756)	31%	33%	29%	34%	34%	32%
GICS (n=1023)	28%	23%	32%	32%	24%	28%
Victoria	35%	37%	37%	36%	35%	36%

Data Source: VAED / VCR - Hume data limitation

Annual prostatectomy hospital volume (2018/19) (N=2,316)



19 public hospitals

20 private hospitals

Patient flow for radical prostatectomies within 1 year of diagnosis: Non-metastatic prostate cancer (2014-2018) N = 8,040

ICS Campus	ICS of residence							
	NEMICS	SMICS	WCMICS	BSWRICS	GRICS	HRICS	LMICS	GICS
NEMICS	1175 (53%)	225 (10%)	179 (14%)	6 (1%)	26 (6%)	87 (24%)	32 (6%)	5 (2%)
SMICS	196 (9%)	1426 (63%)	65 (5%)	8 (1%)	191 (42%)	22 (6%)	12 (2%)	5 (2%)
WCMICS	850 (38%)	595 (26%)	1016 (78%)	89 (14%)	208 (46%)	196 (54%)	252 (47%)	42 (15%)
BSWRICS	4 (0%)		21 (2%)	505 (79%)	1 (0%)	1 (0%)	1 (0%)	22 (8%)
GRICS					31 (7%)			
HRICS						53 (15%)		
LMICS			1 (0%)	1 (0%)		1 (0%)	197 (37%)	1 (0%)
GICS		1 (0%)	18 (1%)	32 (5%)			41 (8%)	200 (73%)
Victoria	2225	2247	1300	641	457	360	535	275

Data Source: VAED / Victorian Cancer Registry – Hume data limitation
Non-metastatic patients only.

	≤ 9%		50% - 69%
	10% - 29%		70% - 89%
	30% - 49%		≥90%

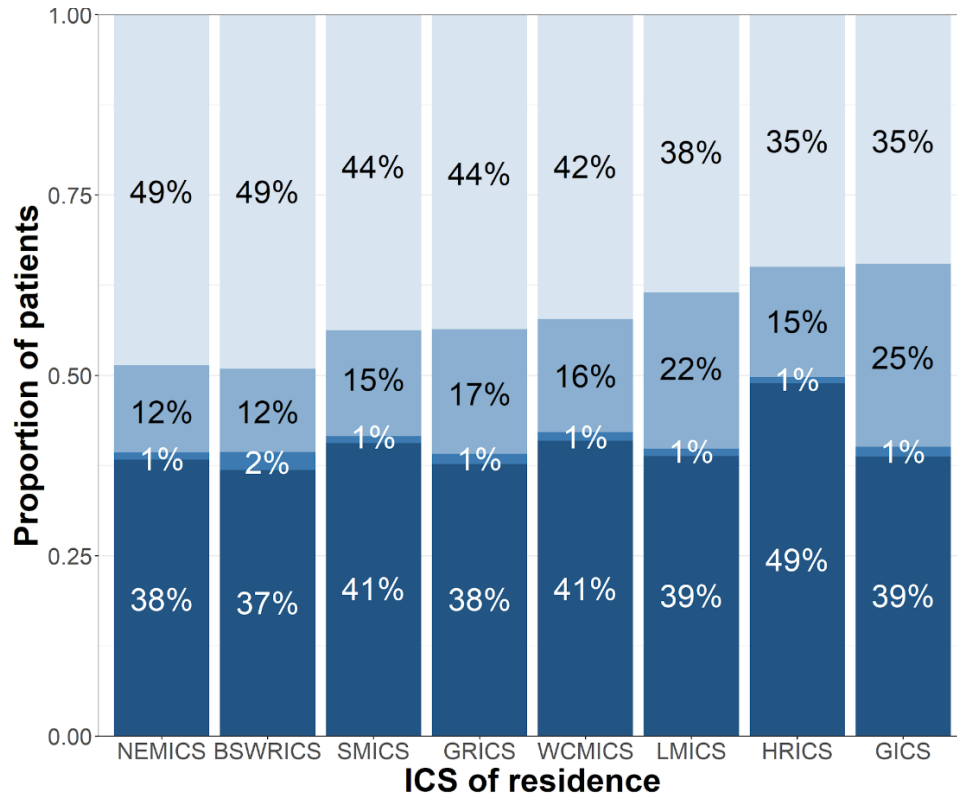
Patient flow for radical radiotherapy within 1 year of diagnosis: Non-metastatic prostate cancer (2014-2018) N = 3,272

ICS Campus	ICS of residence							
	NEMICS	SMICS	WCMICS	BSWRICS	GRICS	HRICS	LMICS	GICS
NEMICS	475 (72%)	68 (7%)	84 (15%)		3 (1%)	26 (15%)	8 (2%)	1 (0%)
SMICS	40 (6%)	778 (82%)	7 (1%)	2 (1%)	31 (15%)	2 (1%)	2 (1%)	
WCMICS	144 (22%)	99 (10%)	422 (78%)	12 (7%)	10 (5%)	19 (11%)	60 (18%)	9 (4%)
BSWRICS		1 (0%)	13 (2%)	131 (78%)			3 (1%)	6 (3%)
GRICS	1 (0%)	4 (0%)			167 (79%)			
HRICS		1 (0%)	1 (0%)			80 (46%)		
LMICS						48 (27%)	235 (72%)	7 (3%)
GICS			17 (3%)	23 (14%)			17 (5%)	215 (90%)
Victoria	660	951	544	168	211	175	325	238

Data Source: VCR and VRMDS
Non-metastatic patients only.

	≤ 9%		50% - 69%
	10% - 29%		70% - 89%
	30% - 49%		≥90%

Initial treatment for stage 2-3 prostate cancer by ICS of residence (2014-2018), N=16,441



Initial Treatment

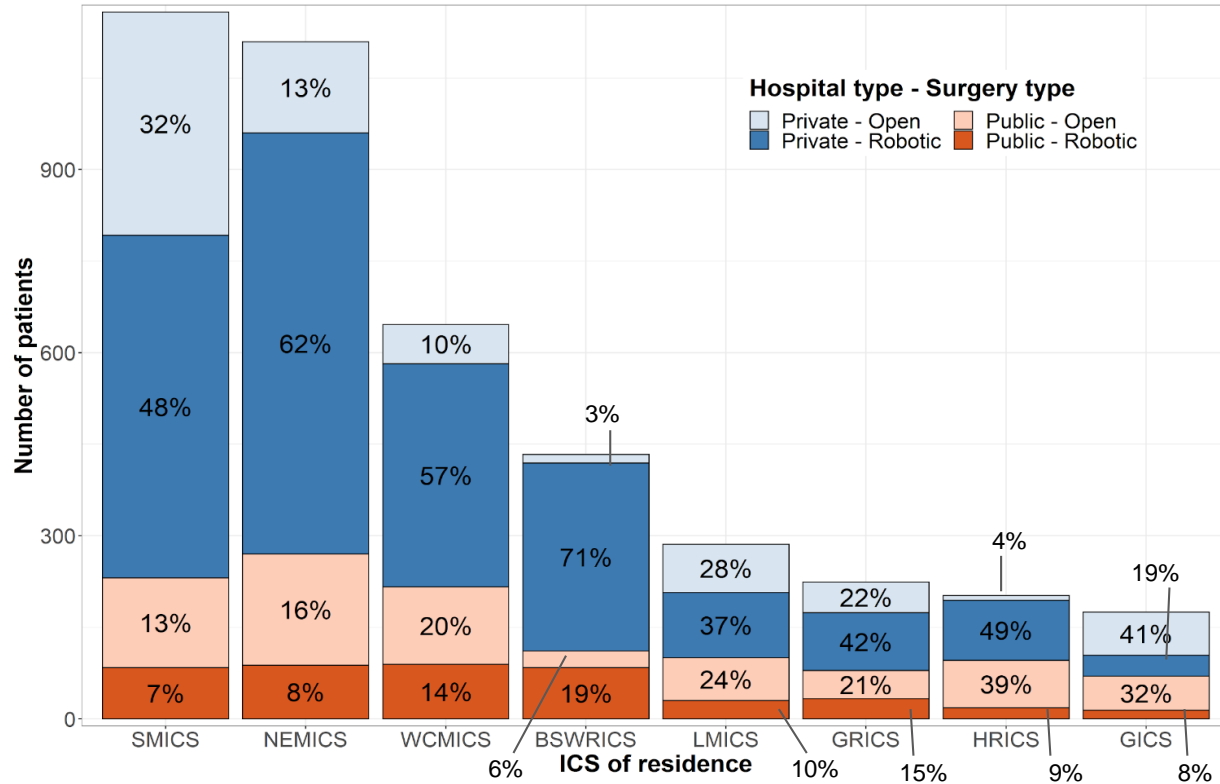
- Radical Prostatectomy
- Radical Radiotherapy
- Chemotherapy
- No active treatment

The “No active treatment” group includes patients who did not receive radical prostatectomy, radical radiotherapy, or chemotherapy. This cohort may include patients under active surveillance, and those receiving androgen suppression therapy.

Disparity in equally effective treatment options, and variation across ICS region. More marked with brachytherapy.

Data Source: VCR, VAED & VRMDS
Hume data limitations

Variation in surgery type (robotic/open prostatectomy) and hospital type (public/private) by ICS of residence (2018-2019) (N=4,233)

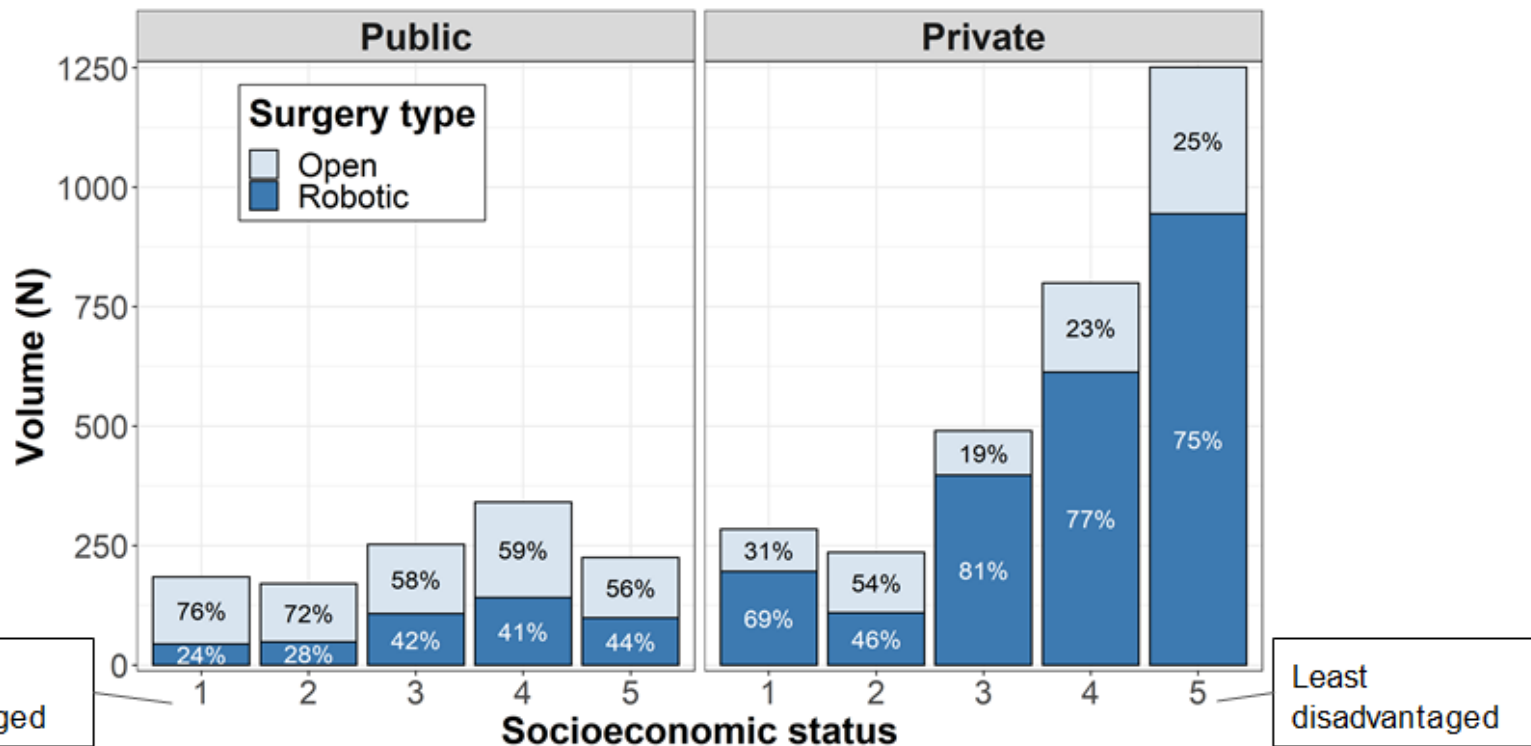


ICS of residence	Surgery	Robotic
BSWRICS	433	392 (90.5%)
WCMICS	646	455 (70.4%)
NEMICS	1109	778 (70.2%)
HRICS	202	116 (57.4%)
GRICS	224	128 (57.1%)
SMICS	1158	645 (55.7%)
LMICS	286	137 (47.9%)
GICS	175	48 (27.4%)
Victoria	4233	2699 (64%)

Data Source: VAED 2018-2019 (calendar years)

ICS of residence based on postcode recorded in VAED admission. Non-Victorian patients excluded.

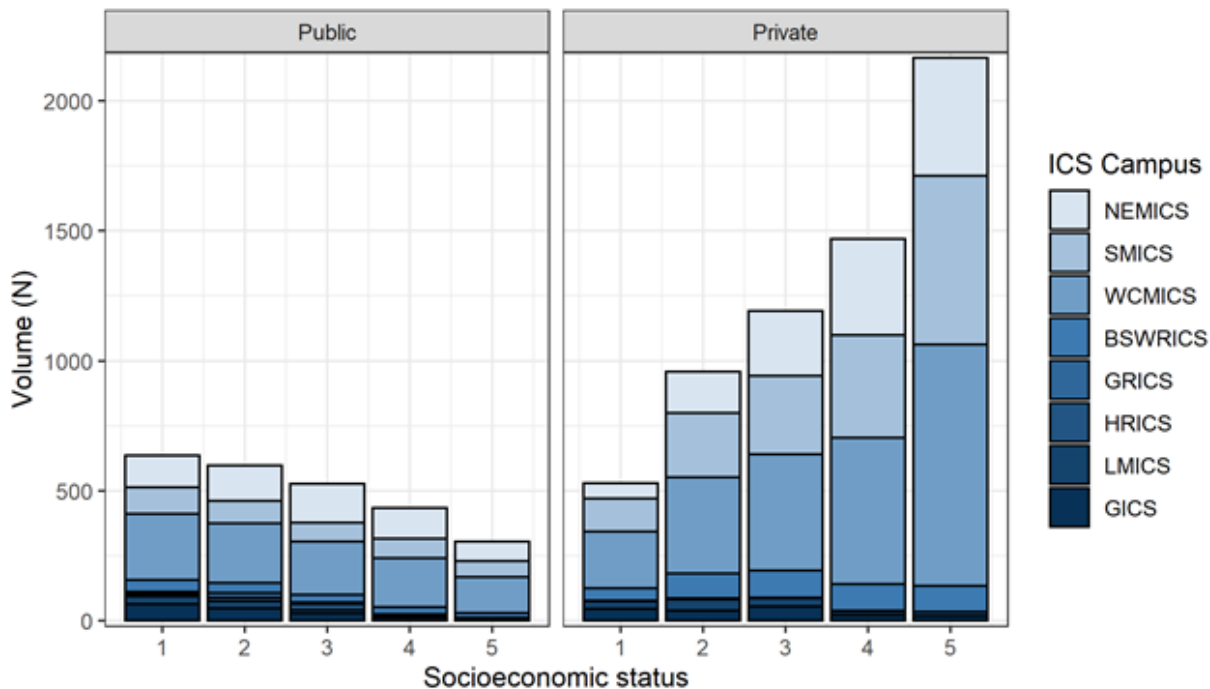
Variation in surgery type (robotic/open prostatectomy), by hospital type and socioeconomic status (2018-2019) (N=4,233)



Data Source: VAED 2018-2019 (calendar years)

ICS of residence based on postcode recorded in VAED admission. Non-Victorian patients excluded.

Number of prostatectomies for non-metastatic prostate cancer patients by socioeconomic status and ICS of treatment (2014-2018) (N=8,818)



Socioeconomic status	Total patients	Surgery
1 (Most disadvantaged)	3695	1167 (32%)
2	4075	1557 (38%)
3	4162	1720 (41%)
4	4334	1905 (44%)
5 (Least disadvantaged)	5159	2469 (48%)
<i>Total</i>	21425	8818 (41%)

Most disadvantaged

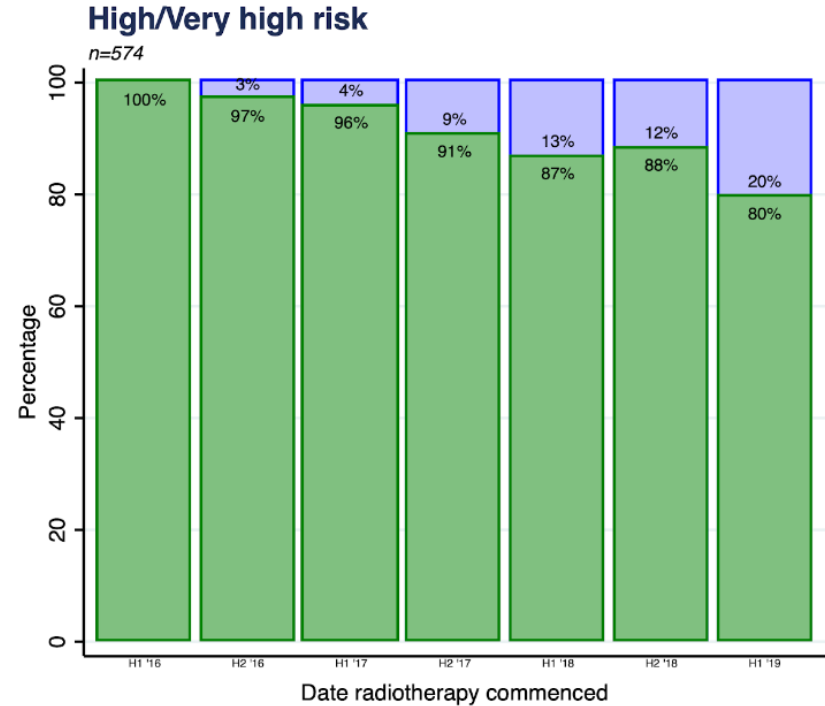
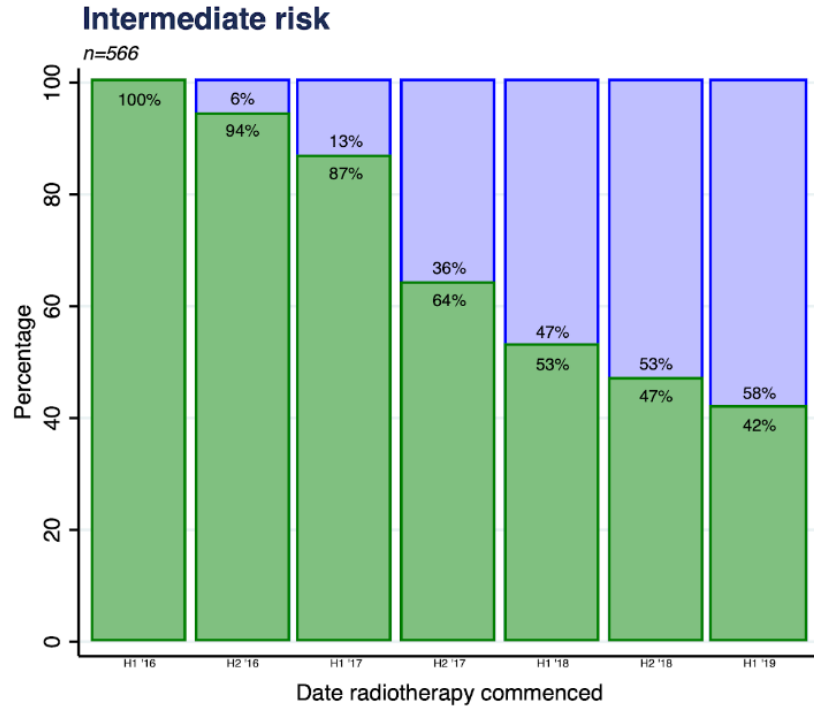
Least disadvantaged



Changing trends in treatment

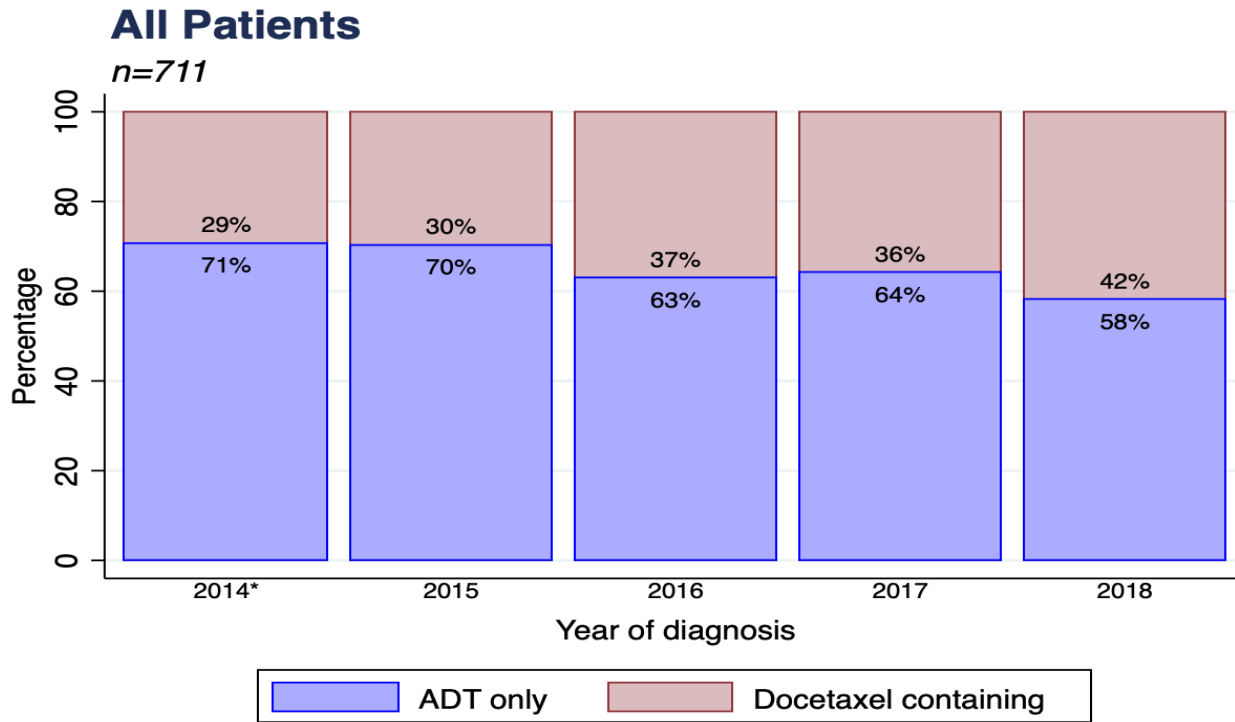
Recent treatment trends within modalities

Hypofractionation by NCCN risk group and time



Recent treatment trends within modalities

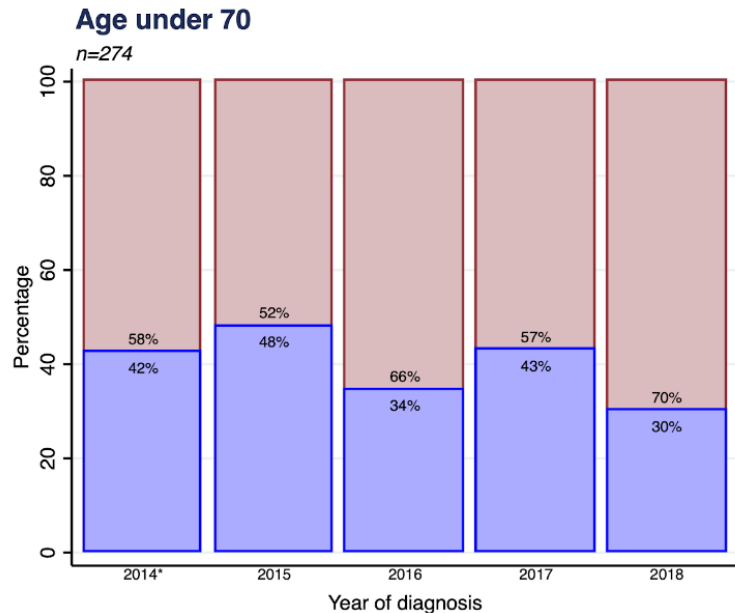
Docetaxel in mHSPC by time



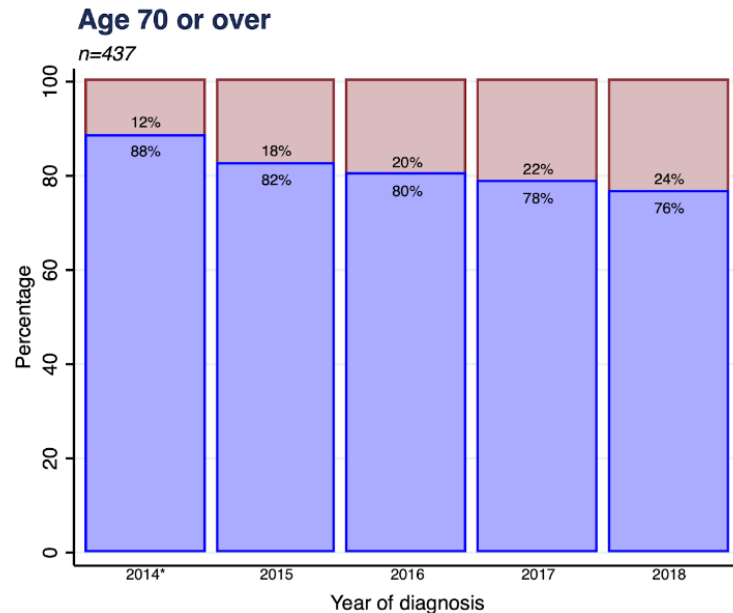
* From June 2014

Recent treatment trends within modalities

Docetaxel in mHSPC by age and time



* From June 2014



* From June 2014



What could we conclude from this...



- Linked datasets provide a wealth of data.
- Access to this data and the expertise of data managers means that we can now measure and manage variations in care.

Variations



- in information & support at diagnosis and treatment planning
- in access to multidisciplinary meeting discussion
- in access to prostatectomy by SEIFA (socioeconomic) status & geography
- in surgical volumes
- in access to RT (incl brachytherapy) balance of surgery and radiotherapy

Acknowledgments

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The Prostate Cancer Outcomes Registry

Nathan Papa

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Victorian Integrated Cancer Services

DHHS Cancer Strategy & Development



