



# Enhancing multi-disciplinary care for muscle invasive bladder cancer patients

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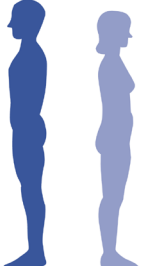
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# Disclosures

- OncLive: honoraria

# Bladder cancer – in all its forms

Figure 3. Leading Sites of New Cancer Cases and Deaths – 2022 Estimates

	Male				Female		
Estimated New Cases	Prostate	268,490	27%		Breast	287,850	31%
	Lung & bronchus	117,910	12%		Lung & bronchus	118,830	13%
	Colon & rectum	80,690	8%		Colon & rectum	70,340	8%
	<b>Urinary bladder</b>	<b>61,700</b>	<b>6%</b>		Uterine corpus	65,950	7%
	Melanoma of the skin	57,180	6%		Melanoma of the skin	42,600	5%
	Kidney & renal pelvis	50,290	5%		Non-Hodgkin lymphoma	36,350	4%
	Non-Hodgkin lymphoma	44,120	4%		Thyroid	31,940	3%
	Oral cavity & pharynx	38,700	4%		Pancreas	29,240	3%
	Leukemia	35,810	4%		Kidney & renal pelvis	28,710	3%
	Pancreas	32,970	3%		Leukemia	24,840	3%
	All sites	983,160			All sites	934,870	

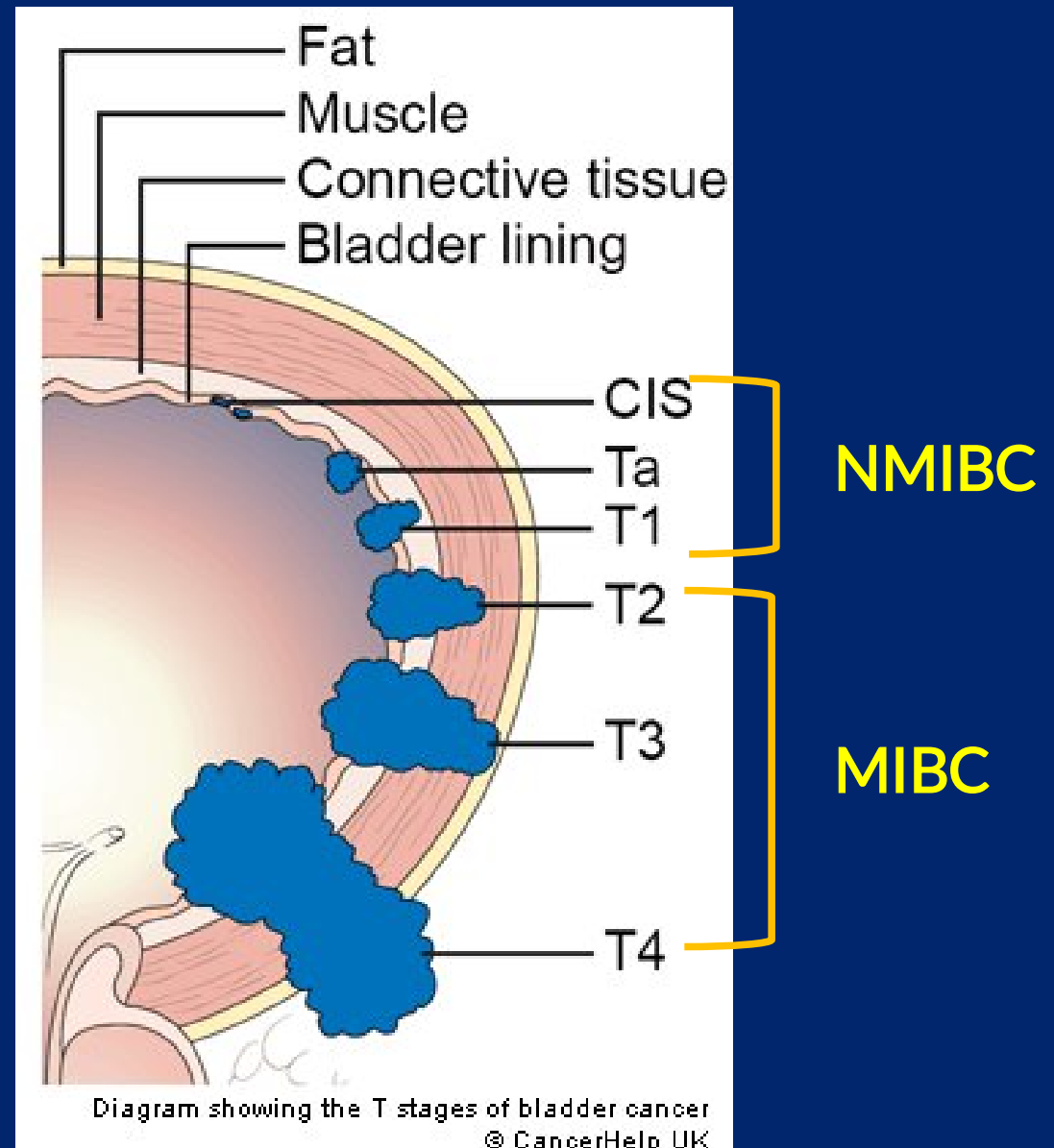
- Represents ~ 6% of overall cancers
- Median age of onset is 73 years
- 3-4:1 ratio for M:F
- Smoking is main risk factor
- Comes in different forms:
  - Non – muscle invasive bladder cancer (NMIBC) = 75% of initial diagnoses
    - Recurs, but can often be treated with local therapy
  - Muscle invasive bladder cancer (MIBC) = 25% of initial diagnoses
    - Can metastasize, requires more aggressive treatment → ↑ morbidity and mortality
- The most expensive cancer to treat over the lifetime of the patient

**Table 7. Trends in 5-year Relative Survival Rates\* (%) by Race, US, 1975-2017**

	All races			White			Black		
	1975-77	1995-97	2011-17	1975-77	1995-97	2011-17	1975-77	1995-97	2011-17
All sites	49	63	68	50	64	68	39	54	63
Breast (female)	75	87	90	76	89	92	62	75	82
Colon & rectum	50	61	65	50	62	65	45	54	59
Colon	51	61	64	51	62	65	45	54	58
Rectum	48	62	67	48	62	67	44	55	64
Kidney & renal pelvis	50	62	76	50	62	76	49	62	76
Larynx	66	66	61	67	68	62	58	52	53
Leukemia	34	48	65	35	50	66	33	42	61
Liver & intrahepatic bile duct	3	7	20	3	7	19	2	4	17
Lung & bronchus	12	15	22	12	15	22	11	13	20
Melanoma of the skin	82	91	93	82	91	93	57 <sup>†</sup>	76 <sup>†</sup>	71
Pancreas	3	4	11	3	4	11	2	4	10
Prostate	68	97	98	69	97	98	61	94	96
Stomach	15	22	32	14	20	32	16	22	32
Testis	83	96	95	83	96	96	73 <sup>†‡</sup>	86 <sup>†</sup>	92
Thyroid	92	95	98	92	96	99	90	95	97
Urinary bladder	72	80	77	73	81	78	50	63	65
Uterine cervix	69	73	66	70	74	67	65	66	56
Uterine corpus	87	84	81	88	86	84	60	62	63

# Staging

Stage group 0a:	Ta	N0	M0
Stage group 0is:	Tis	N0	M0
Stage group I:	T1	N0	M0
Stage group II:	T2a - 2b	N0	M0
Stage group IIIA:	T3a - 4a	N0	M0
	T1 - 4a	N1	M0
Stage group IIIB:	T1 - 4a	N2 - 3	M0
Stage group IVA:	T4b	any N	M0
	any T	any N	M1a
Stage group IVB:	any T	any N	M1b



- Transurethral resection of bladder tumor (TURBT) + exam + imaging = clinical staging

# NMIBC treatment

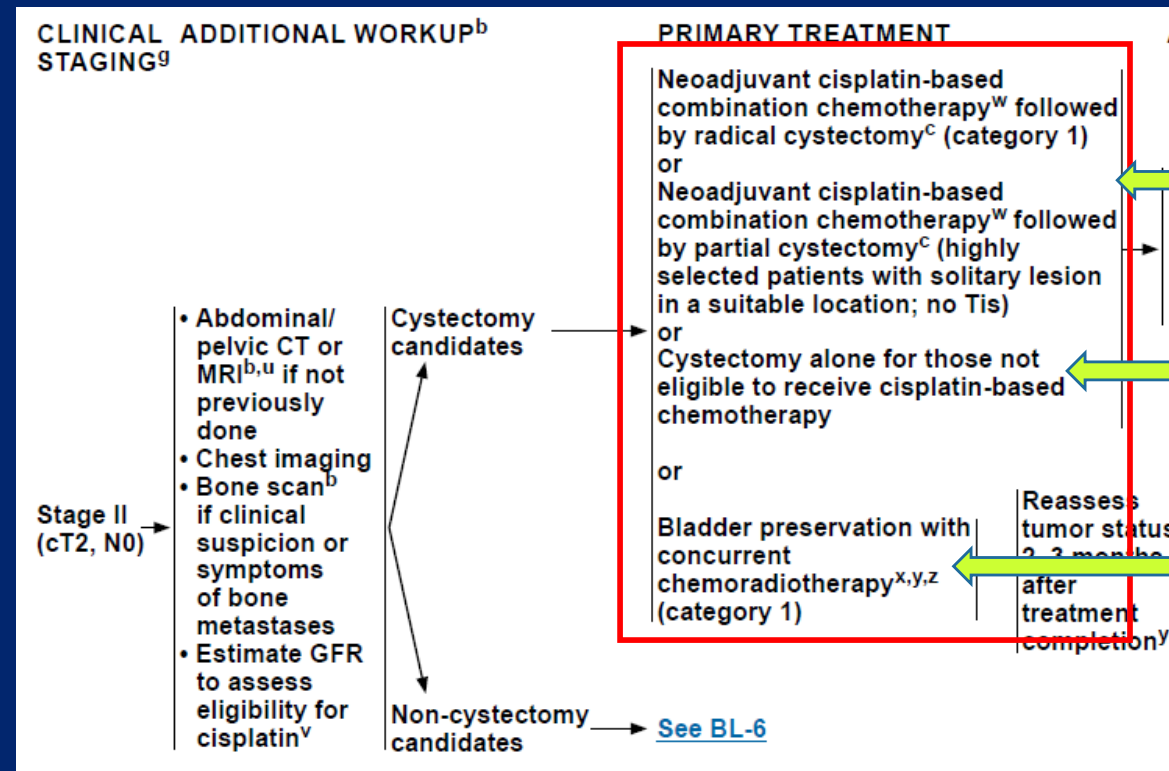
- Low grade: Endoscopic resection + perioperative intravesical chemotherapy instillation
- High grade: Endoscopic resection +
  - Adjuvant intravesical chemotherapy or immunotherapy (BCG)
  - Systemic immunotherapy
  - Surgical extirpation: radical cystectomy and urinary diversion
- Disciplines: urologic oncology, medical oncology

# MIBC treatment

- Requires more radical approach
  - Neoadjuvant chemotherapy (NAC) + radical cystectomy (RC) and urinary diversion
  - Trimodality therapy (TMT) = endoscopic resection, chemotherapy, radiotherapy
    - Response assessed post-treatment, if residual disease → salvage cystectomy
- Up to 25% of patients will have occult metastatic disease (LN)

# What is the gold standard for MIBC?

- Has been radical cystectomy and urinary diversion
- Neoadjuvant chemotherapy if eligible

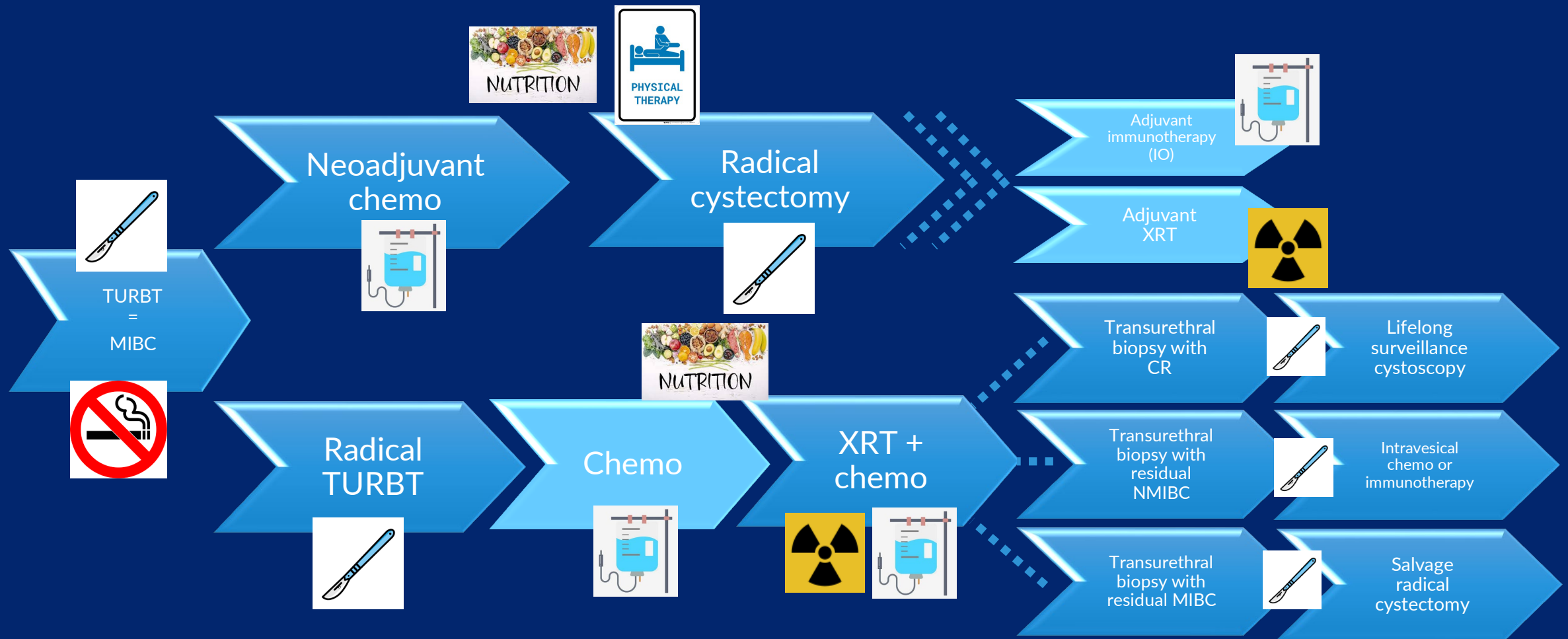


Medical oncology

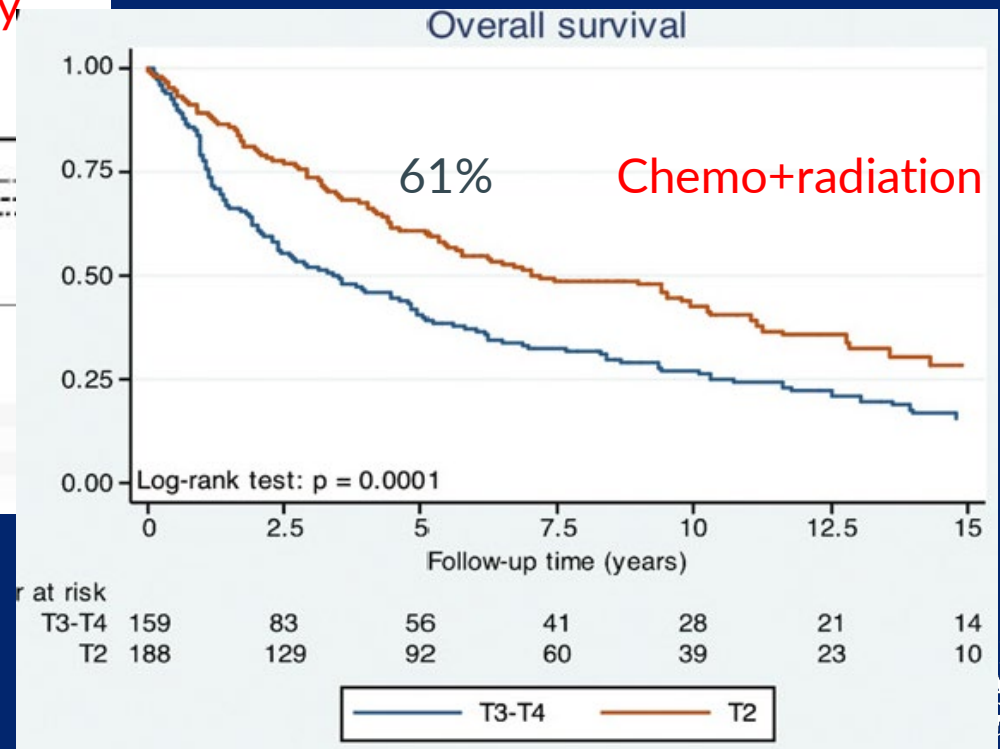
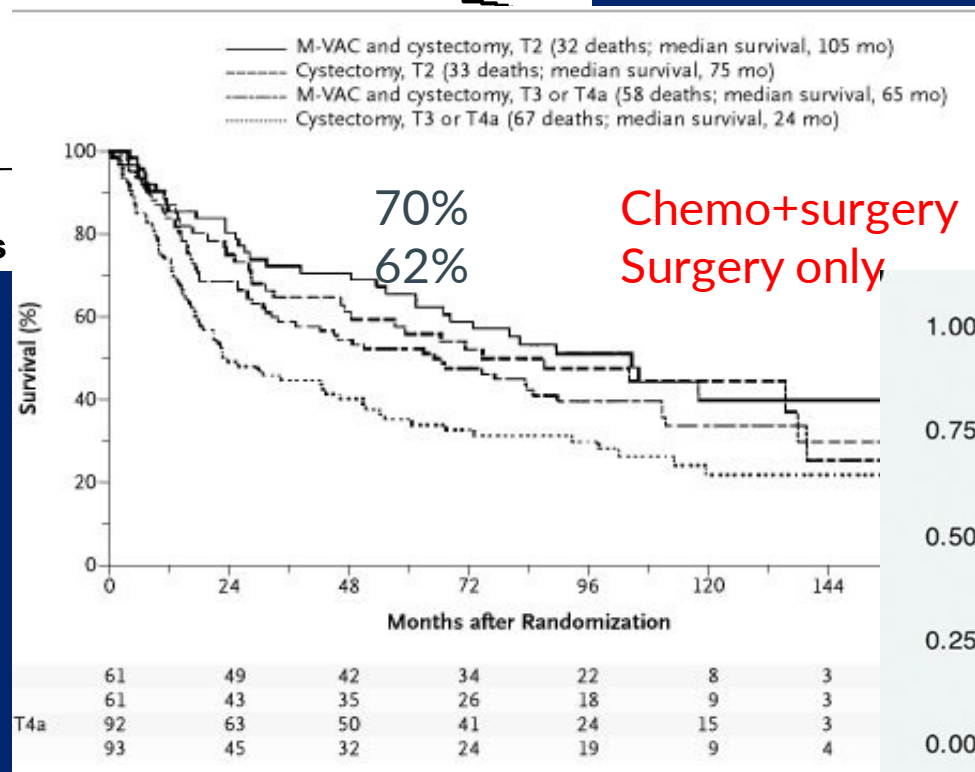
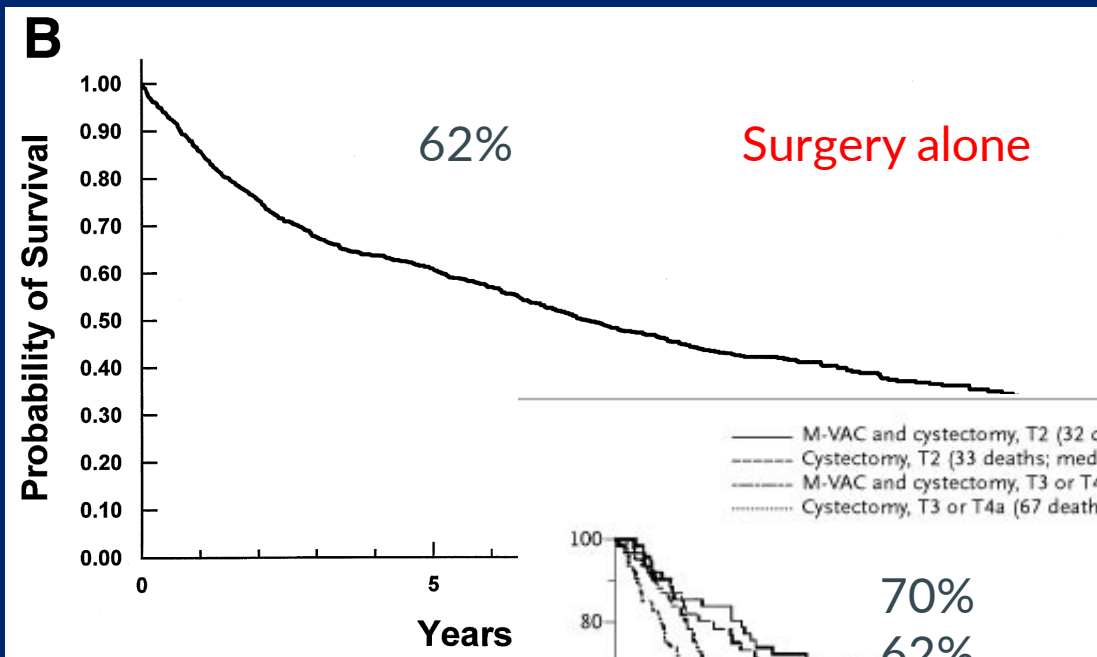
Urologic oncology

Radiation oncology





- Timing is critical
- Clinical trials may span multiple disciplines
- MIBC is aggressive → left untreated it is deadly *and* morbid



Stein, JCO, 2001  
 Efsthathiou, Eur Urol, 2012  
 Grossman, NEJM, 2003

# Timing is everything

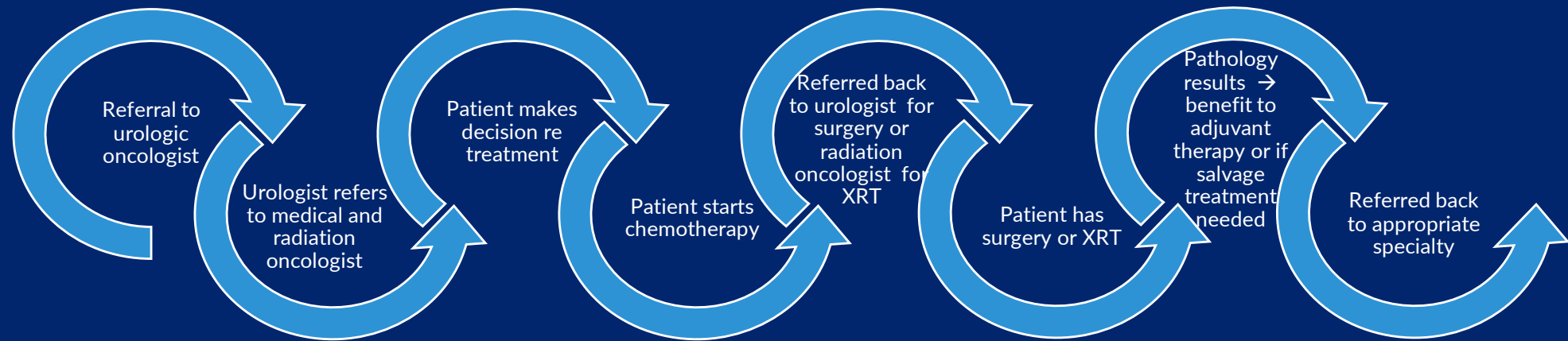
Independent variable	Lymph node metastasis - Univariate		Lymph node metastasis - Multivariable*		Lymph node metastasis - Full Multivariable Model†	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Age at RC	0.99 (0.96–1.01)	0.325				
Number of chemotherapy cycles	1.11 (0.92–1.33)	0.288				
ASA score (<3 vs ≤3)	0.75 (0.35–1.60)	0.462				
ECOG PS						
(0 vs 1)	1.32 (0.78–2.24)	0.299				
(0 vs 2)	0.60 (0.13–2.81)	0.517				
Preoperative hydronephrosis (yes vs no)	1.44 (0.87–2.38)	0.161	1.39 (0.77–2.50)	0.278		
Concomitant clinical CIS (yes vs no)	0.67 (0.36–1.23)	0.195	0.62 (0.30–1.29)	0.201		
Clinical LVI (yes vs no)	1.52 (0.92–2.51)	0.100	1.71 (0.94–3.09)	0.077		
Variant clinical histology (yes vs no)	1.35 (0.82–2.21)	0.241				
Clinical stage						
cT1–cTa vs cT2	9.72 (1.28–74.01)	0.028	5.11 (0.65–40.25)	0.121		
cT1–cTa vs cT3–4	9.32 (1.23–70.76)	0.031	5.81 (0.74–45.70)	0.095		
Cisplatin-based NAC (yes vs no)	0.76 (0.41–1.43)	0.397				
Interval between NAC and RC, days (RW)						
18–42 vs 43–63	1.24 (0.66–2.32)	0.510	1.13 (0.59–2.15)	0.713	1.24 (0.66–2.32)	0.510
18–42 vs 64–84	1.03 (0.42–2.51)	0.948	0.98 (0.39–2.44)	0.965	1.03 (0.42–2.1)	0.948
18–42 vs ≥85	2.92 (1.20–7.10)	0.018	2.56 (1.03–6.38)	0.043	2.92 (1.20–7.09)	0.018

Time from completion of chemotherapy to surgery >12 weeks



Higher rate of LN metastases

# What normally happens



Fragmented care, loss to follow up, failure to follow guidelines

# How do you fix this?

- 51 studies (2005-2012)
- Various cancers
- Having a MDT →
  - Better clinical and process outcomes
  - **Improved survival** for colorectal, head and neck, breast, esophageal, lung cancers
  - **Changed diagnostic or treatment decision making** for prostate, pancreatic, upper GI, breast, melanoma, bladder, colorectal, head and neck and gynecological cancers

- MDTs recommended by



Prades et al. *Health Policy*. 2015



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Health Policy

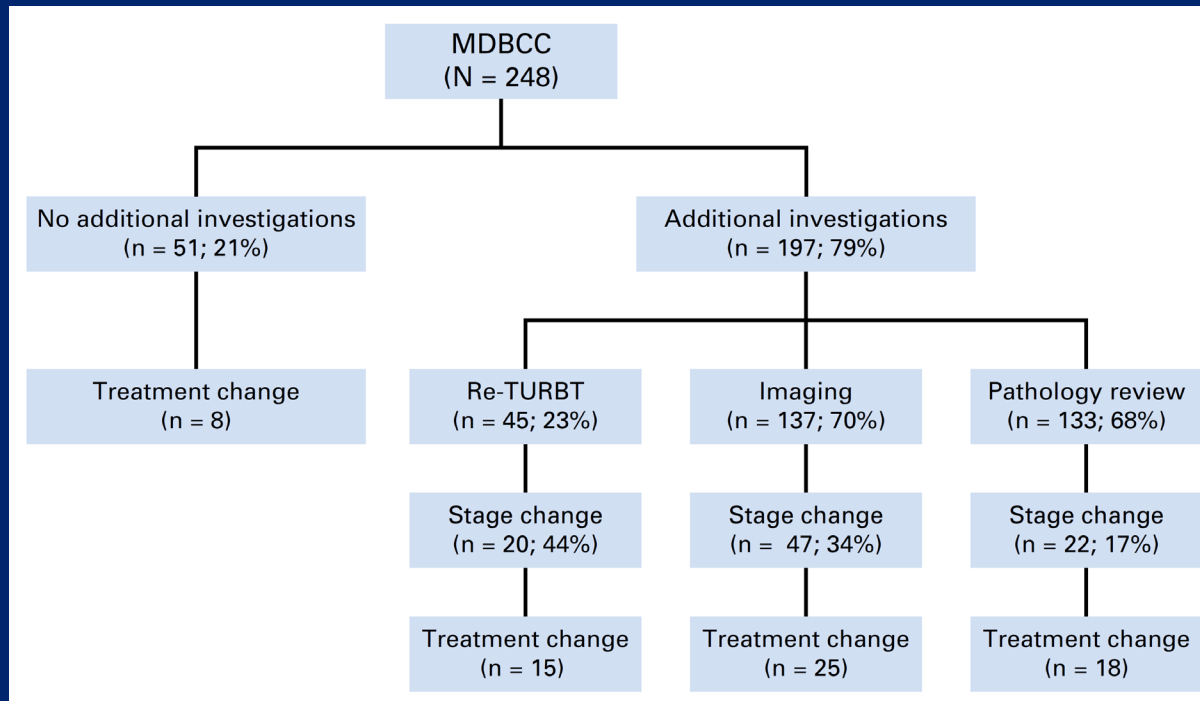
journal homepage: [www.elsevier.com/locate/healthpol](http://www.elsevier.com/locate/healthpol)



Is it worth reorganising cancer services on the basis of multidisciplinary teams (MDTs)? A systematic review of the objectives and organisation of MDTs and their impact on patient outcomes



# Multi-disciplinary care for bladder cancer changes diagnosis and management

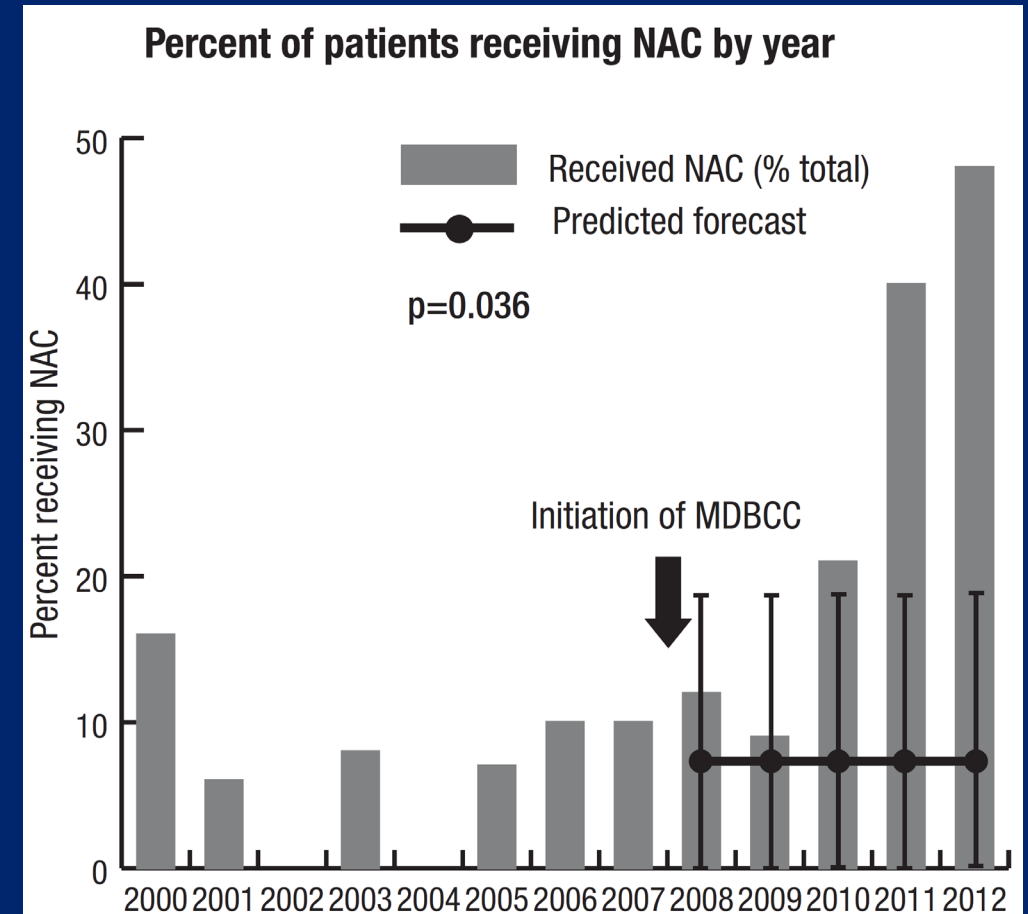


- 248 patients 2008 and 2012
- 79% needed additional studies
- 36%  $\Delta$  in stage
- 33%  $\Delta$  in treatment recommendation

# Multi-disciplinary clinic (MDC) enhances adherence to clinical guidelines

- Neoadjuvant chemotherapy (NAC) is the standard of care in eligible patients prior to surgery
  - Rates of administration are low (~10-17%)\*
- Assessed rate of NAC before/after establishing a MDC
- Rate increased from 7.7 to 26.4%

\*during the time period that corresponded to this study



Zaid et al. *Urology*. 2014

Nayan et al. *Can Urol Assoc J*. 2016



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# Multi-disciplinary approach expedites time to radical cystectomy

Original Article

## Efficient Delivery of Radical Cystectomy After Neoadjuvant Chemotherapy for Muscle-Invasive Bladder Cancer

A Multidisciplinary Approach

Ajjai S. Alva, MD<sup>1</sup>; Christopher T. Tallman, MS<sup>2</sup>; Chang He, MS<sup>2</sup>; Maha H. Hussain, MD<sup>1</sup>; Khaled Hafez, MD<sup>2</sup>; James E. Montie, MD<sup>2</sup>; David C. Smith, MD<sup>1</sup>; Alon Z. Weizer, MD<sup>2</sup>; David Wood, MD<sup>2</sup>; and Cheryl T. Lee, MD<sup>2</sup>



THE OHIO STATE UNIVERSITY  
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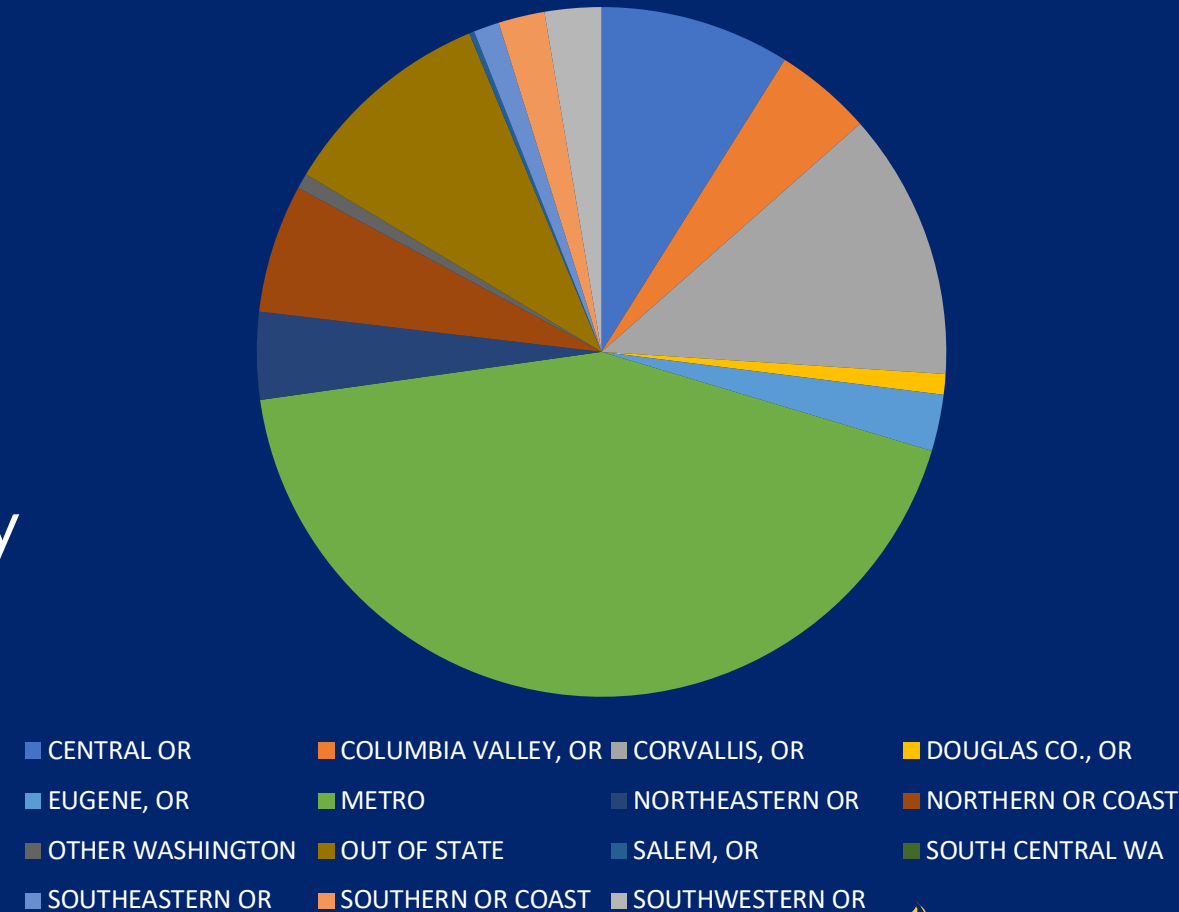
- Median time of 6.9 weeks from end of chemotherapy to radical cystectomy by scheduling surgery at chemotherapy initiation



# Academic center challenges

- OHSU has a broad catchment area
  - >50% pts come from outside metro area
- Travel is burdensome
- Delays in care?
- Coordination of care on the same day is convenient and less fragmented
  - Important when choosing between treatment options (e.g., surgery vs XRT)

Urology oncology referrals at OHSU 2021



# Delays in care associated with receiving care in different centers

Median number of days of delay in each step of process of receiving NAC in our AMC and in community setting

	NAC in AMC	NAC in community	<i>P</i> value
Initial visit to starting NAC	11	21	0.002
Starting to ending NAC	64	68	0.33
Ending NAC to urology visit	24	30	0.48
Urology visit to cystectomy	32	37.5	0.18
Initial visit to cystectomy	128	162	0.006*

\**P* = 0.015 after adjusting for stage, comorbidity status, and distance to AMC.

- Navigation can help ensure patients receiving chemotherapy in the community are not delayed due to handoffs
- Pathological outcomes were similar regardless of chemotherapy location

# Establishing a MDC for bladder cancer at OHSU

- OHSU Genitourinary Multidisciplinary (GU MDC) clinic
- Diagnoses: bladder, kidney, penile, testicular and all non-prostate GU cancers
- Established in October of 2020
- Biweekly half day of clinic

# The Team



Jen-Jane Liu, MD



Sudhir Isharwal, MD



Marshall Strother, MD



Jacqueline Vuky, MD



Christopher Ryan, MD



Casey Williamson, MD



Crystal LeBoeuf, RN

## Medical Staff

- 3 urologic oncologists
- 2 medical oncologists
- 1 radiation oncologist
- 1 RN navigator

Not pictured:

Monica Griffin, PAS

Solen Sanchez, PAS

Molly Thomas, BA

# GU MDC structure

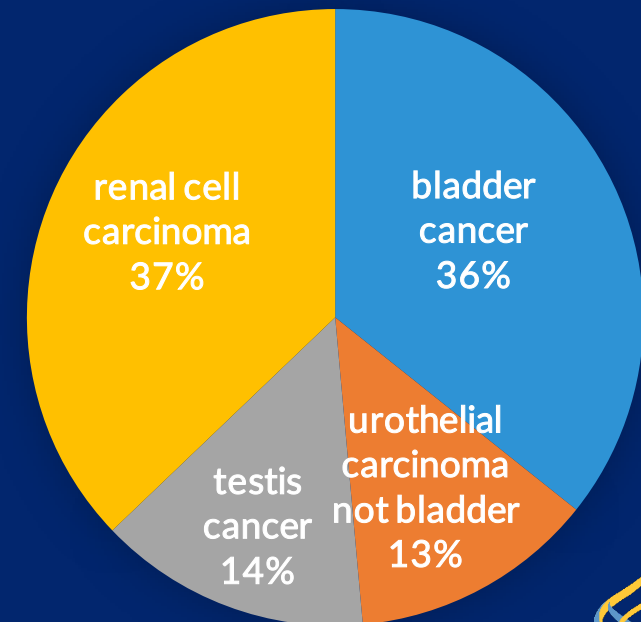
- Referral received: goal is for 'first touch' within 24-48h by RN navigator
- Pre-clinic review:
  - Pathology slide review
  - RN navigator referral review
    - Determine if any labs or imaging need to be completed prior and schedule
- Care team meeting just prior to review:
  - History, imaging, eligibility for clinical trials

# Metrics

- 10/2020 to 2/2023
- Lead time of 17d between patient contact and appointment
  - 27d for urology clinic
- 31 patients enrolled on clinical trials

	All NPV	NPV MIBC
2020 (9 mo)	123	52
2021 (12 mo)	108	52
2022 (9 mo to date)	235	64
TOTAL	466	168

## Diagnosis breakdown



# Taking a closer look at the MIBC population

- Goal: Compare treatment times and type in patients seen in the GU MDC to a historical cohort seen in urology clinic (URO) prior to establishment of MDC
- Time frame
  - URO 12/2018 – 8/2020
  - MDC 10/2020 – 8/2021
- Metrics
  - Referral to first visit
  - Referral to initial consultation
  - Referral to initiation of treatment(s)
- Assess treatment patterns
  - Surgery, radiation



# Do multidisciplinary clinics expedite care for muscle invasive bladder cancer?

Colin Boehnlein BS<sup>1</sup>, Rebecca Agnor MS<sup>2</sup>, Crystal LeBeouf RN<sup>3</sup>, Sudhir Isharwal MD<sup>1</sup>, Christopher W Ryan MD<sup>3</sup>, Jenna Kahn MD<sup>4</sup>, Jacqueline Vuky MD<sup>3</sup>, and Jen-Jane Liu MD<sup>1</sup>

Departments of Urology<sup>1</sup>, Knight Biostatistics<sup>2</sup>, Medical Oncology<sup>3</sup>, and Radiation Oncology<sup>4</sup>, Oregon Health & Science University, Portland OR

- Referral to initial consultation quicker with MDC
  - MDC 22d vs URO 27d,  $p < 0.05$
- No significant difference for days between consultation and initiation of treatment
  - ~47 days for both



	MDC N=63	UC N=93
<b>Demographics</b>		
Male	48 (76.2%)	74 (79.6%)
Female	15 (23.8%)	19 (20.4%)
Mean Age	71.8	69.2
Median Age	73	71
<b>Treatments</b>		
Surgery	21 (33.3%)	64 (68.8%)
Neoadjuvant Chemotherapy	15 (71.4%)	48 (75.0%)
NAC Prior to Initial Consult	1 (6.7%)	22 (45.8%)
Chemotherapy only	14 (22.2%)	6 (6.5%)
Chemotherapy + Radiation	20 (31.7%)	9 (9.7%)
Radiation	1 (1.6%)	1 (1.1%)
Other treatment	2 (3.2%)	1 (1.1%)
No treatment	5 (7.9%)	12 (12.9%)
<b>Chemotherapy Location</b>		
OHSU	23 (46.9%)	21 (33.3%)

- High rate of utilization for NAC in both clinics (>70%)
- MDC increased:
  - Utilization of chemotherapy + radiation
    - MDC 32% vs URO 10%
  - Receiving NAC at OHSU
    - 37% vs 23%

# Final thoughts

- Bladder cancer care is complicated and requires a team-based approach
- Multi-disciplinary clinics can facilitate better care for bladder cancer patients
  - Seen faster
  - More treatment options presented
  - High rate of guidelines based treatment
  - Does not delay care

# References

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# Thank you!

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