

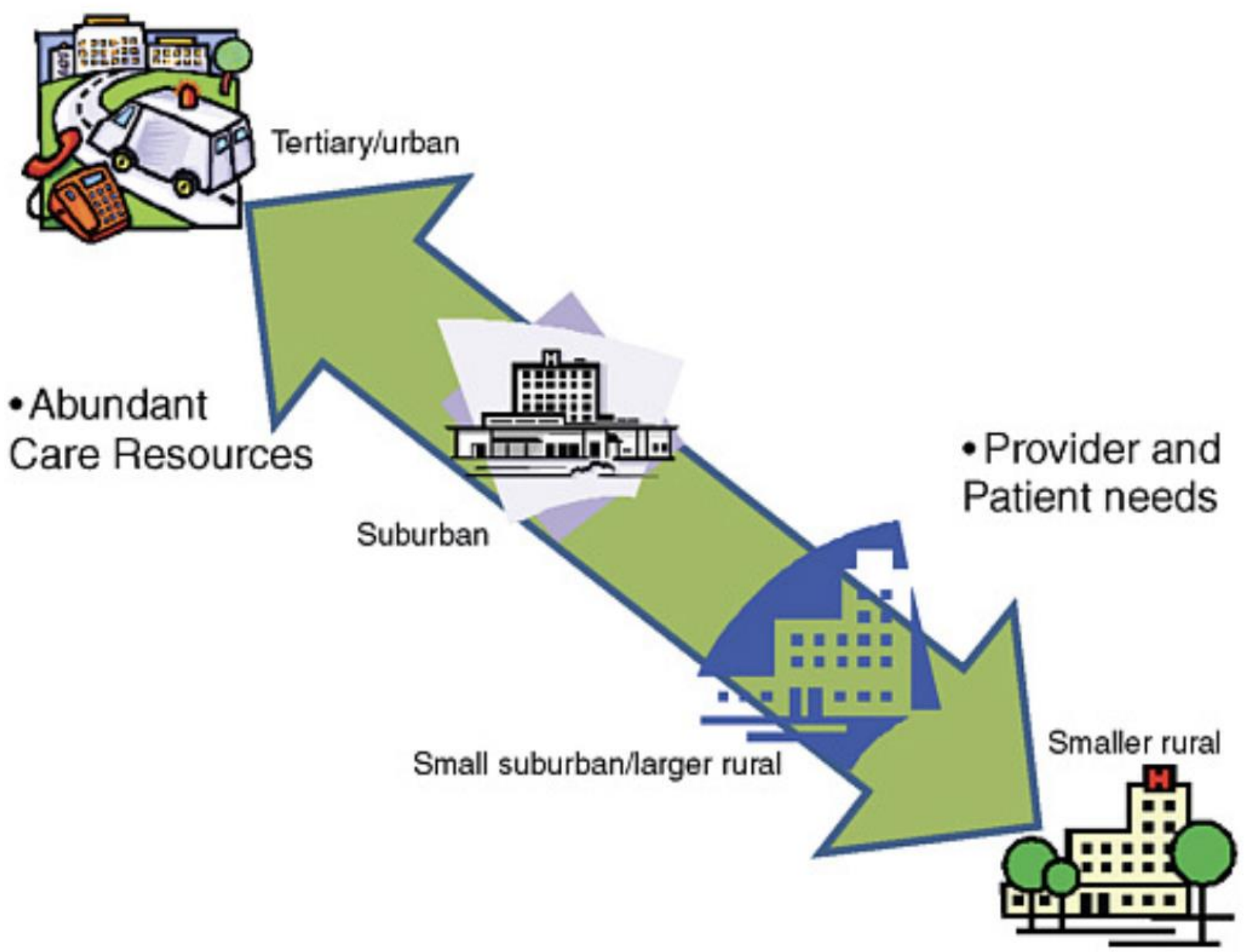


Regionalization of Cancer Care

Conflicts of Interest







Ontario begins dismantling local health integration system

ELIZABETH PAYNE Updated: March 15, 2019



Kitchener-Waterloo

Reconsider public health restructuring, regional councillors tell province



Province needs to hear 'this is not an improvement,' regional chair says

Kirthana Sasitharan · CBC News · Posted: Aug 13, 2019 4:08 PM ET | Last Updated: August 13



The region's community services committee passed a motion Tuesday to send a report to the province with concerns about the implications of the restructuring public health boards in Ontario. (Kirthana Sasitharan/CBC)



Ontario to lay off more than 400 people at health agencies as government continues cutting jobs

LAURA STONE > QUEEN'S PARK REPORTER
KELLY GRANT > HEALTH REPORTER
JEFF GRAY > QUEEN'S PARK REPORTER
PUBLISHED JUNE 19, 2019
UPDATED JUNE 20, 2019

338 COMMENTS



Ontario Health Minister Christine Elliott announced in February that her government would fold the work of six health-care agencies and 14 LHINs into a new superagency called Ontario Health.

TRENDING

- 1 **OPINION**
Trump bites the biggest hand that feeds him: Fox News
LAWRENCE MARTIN
- 2 State elections in Germany bring anti-immigrant fury to the fore
- 3 Buyers trim \$21,000 from asking price for top-floor unit in Vancouver
- 4 The week's most oversold and overbought stocks on the TSX
- 5 **ROB MAGAZINE**
Trash talking: How Patrick Dovigi built Green For Life into a waste empire



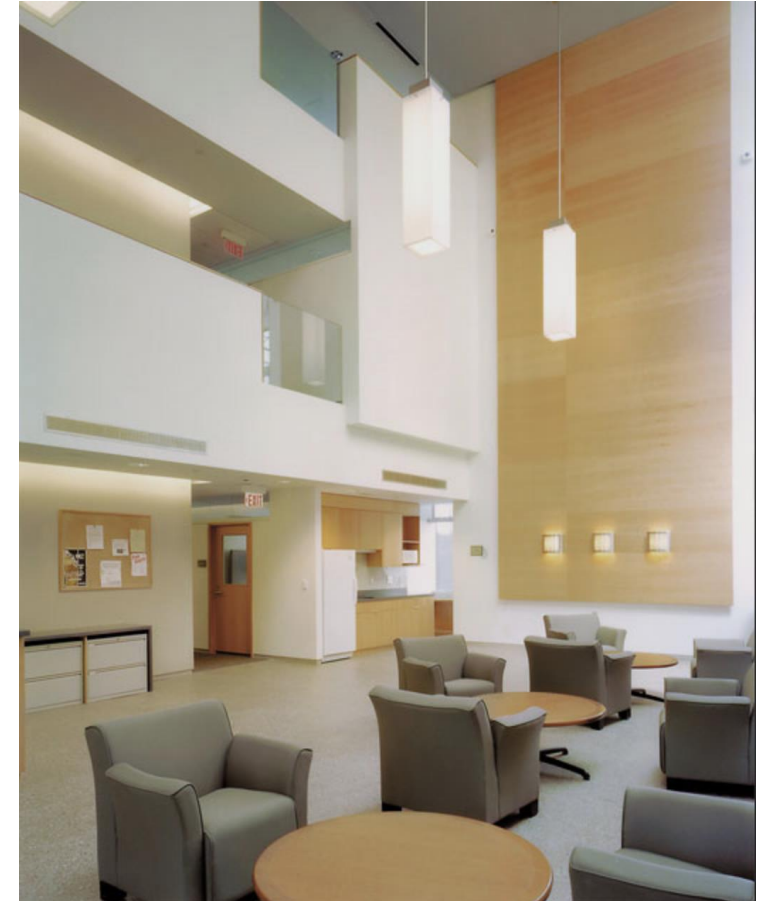
Health Services Research Queen's Cancer Research Institute

Population-based data

- Ontario Cancer Registry
- Hospital discharge data
- Statistics Canada
- Regional cancer center clinical databases
- ICES

1990-2013

- 81,566 prostate cancer
- 6,145 bladder cancer
- 533 penile cancer



Overview

Regionalization/Bladder Cancer

- Houston, we have a problem
 - Apollo 13 (1995)
- What are you talkin' about Willis?
 - Gary Coleman (1978)
- The bureaucrats are in charge now. What options have we?
 - Star Wars: The Phantom Menace (1999)



SPECIAL ARTICLE

The Quality of Health Care Delivered to Adults in the United States

VOLUME 34 · NUMBER 8 · MARCH 10, 2016

JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

ADULT UROLOGY



CYSTECTOMY FOR MUSCLE-INVASIVE BLADDER CANCER: PATTERNS AND OUTCOMES OF CARE IN THE MEDICARE POPULATION

DEBORAH SCHRAG, NANDITA MITRA, FENG XU, FARHANG RABBANI, PETER B. BACH, HARRY HERR, AND COLIN B. BEGG

Effectiveness of Adjuvant Chemotherapy for Locally Advanced Bladder Cancer

Matthew D. Galsky, Kristian D. Stensland, Erin Moshier, John P. Sfakianos, Russell B. McBride, Che-Kai Tsao, Martin Casey, Paolo Boffetta, William K. Oh, Madhu Mazumdar, and Juan P. Wisnivesky

Original article

Annals of Oncology 14 (Supplement 5): v61–v118, 2003
DOI: 10.1093/annonc/mdg754

EUROCare-3: survival of cancer patients diagnosed 1990–94—results and commentary

M. Sant¹*, T. Aareleid²‡, F. Berrino¹‡¶, M. Bielska Lasota³‡, P. M. Carli⁴‡, J. Faivre⁵‡, P. Grosclaude⁶‡, G. Hédelin⁷‡, T. Matsuda⁶‡, H. Möller⁸‡, T. Möller⁹‡, A. Verdecchia¹⁰‡¶, R. Capocaccia¹⁰¶, G. Gatta¹¶, A. Micheli⁴¶, M. Santaquilani¹⁰¶, P. Roazzi¹⁰¶, D. Lisi¹⁰¶ and the EUROCare Working Group†

Effect of Preoperative Delay on Survival in Patients With Bladder Cancer Undergoing Cystectomy in Quebec: A Population Based Study

Salaheddin M. Mahmud, Brian Fong, Nader Fahmy, Simon Tanguay and Armen G. Aprikian*,†

From the Departments of Oncology (SMM), Surgery (Urology) (SMM, BF, NF, ST, AGA) and Epidemiology and Biostatistics (SMM), McGill University, Montreal, Quebec, Canada

Ontario Context- Access to Care/Delayed Diagnosis?

- 8005 deaths from bladder cancer
- Cystectomy 2409 (30%)
- Radiation 737 (9%)
- None 4859 (61%)
- 25% (n=1,964) received palliative chemotherapy
 - Geographic variation from 18% to 30%

Ontario Context- Early Outcomes-Cystectomy

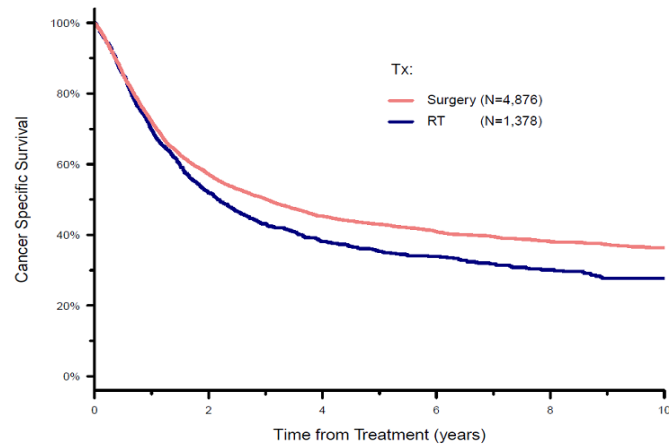
Post-operative mortality rates

- Tertiary Care Centres:
30, 90-days were 1.3% and 3.2%
- Quebec:
30, 90 days were 2.8% and 7.5%
- Ontario:
30, 90 days were 2.5% and 8.7%

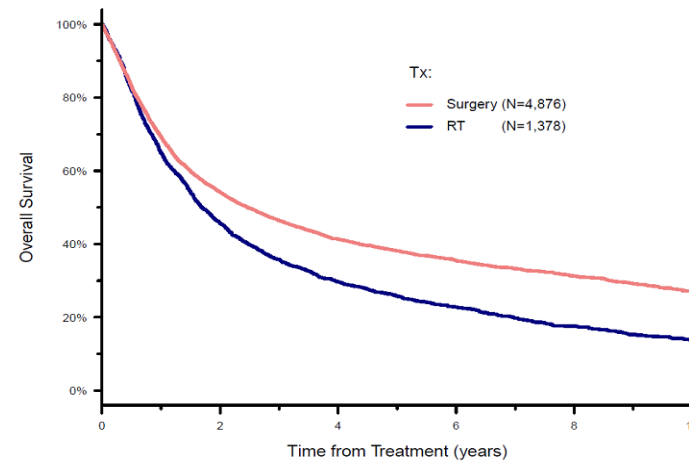
Ontario Context- MIBC Survival

Among all cases in Ontario

- 5 yr OS 30% (95% CI 28-31%)
- 5 yr CSS 34% (95% CI 32-36%)



CSS



OS



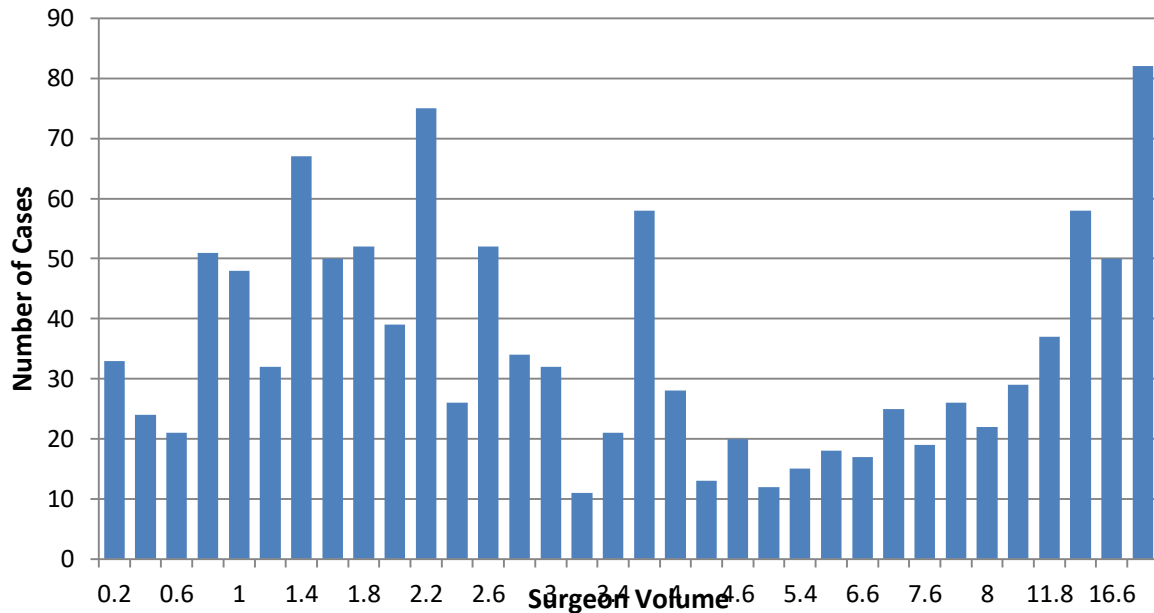
Approaches To High-Risk, Resource Intensive Cancer Surgical Care In Canada



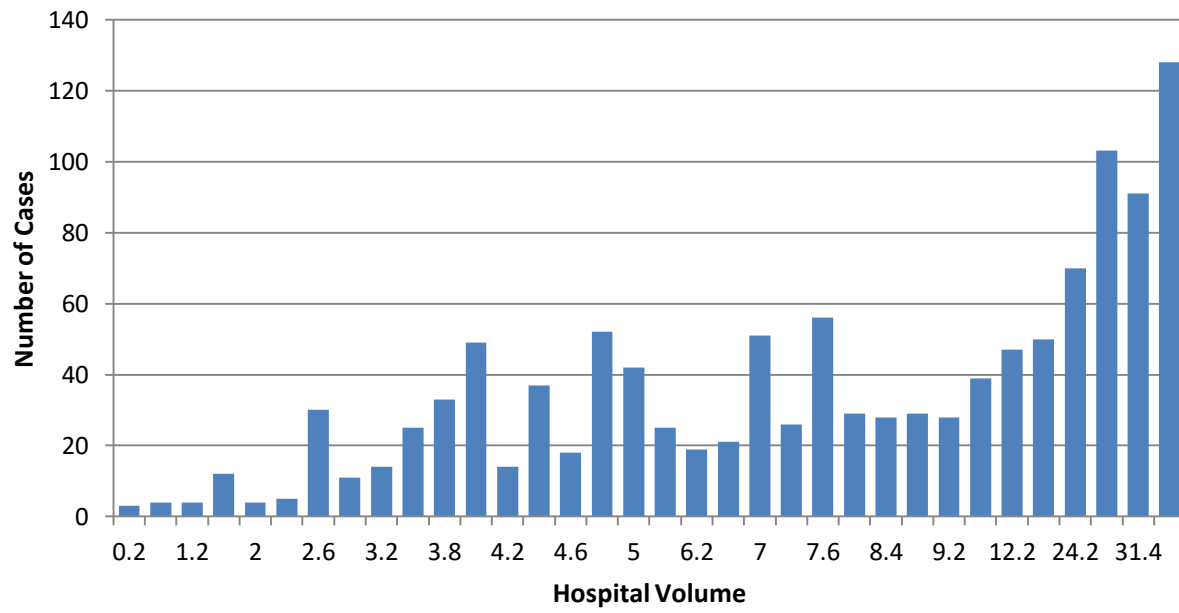
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Inside the fierce debate over surgical volume standards

Experts speak out for—and against—the 'volume pledge'



69.2% less than 5/year



42.6% less than 10/year

Effect of Hospital and Surgeon Volume

Hospital Volume

	Q1 <4.1 cases/yr N=763	Q2 4.1-8.2 cases/yr N=730	Q3 8.3-20.0 cases/yr N=648	Q4 >20.0 cases/yr N=661
Median/Mean LOS	16/13 days	16/12 days	16/11 days	13/9 days
Post-operative mortality				
30-day mortality rate	26 (3%)	20 (3%)	15 (2%)	10 (2%)
90-day mortality rate	76 (10%)	77 (11%)	47 (7%)	44 (7%)
Post-operative morbidity [#]				
30-day readmission rate	104 (14%)	85 (12%)	111 (17%)	124 (19%)
90-day readmission rate	236 (31%)	200 (27%)	206 (32%)	254 (38%)
5 year OS (95%CI)	27% (24-31%)	28% (25-32%)	29% (26-32%)	35% (31-38%)
5 year CSS (95%CI)	31% (28-36%)	32% (28-36%)	35% (30-38%)	38% (33-42%)

Surgeon Volume

	Q1 <1.3 cases/yr N=705	Q2 1.3-2.4 cases/yr N=797	Q3 2.5-6.2 cases/yr N=676	Q4 >6.2 cases/yr N=624
Mean/Median LOS	17/12	16/12	15/11	13/10
Post-operative mortality				
30-day mortality rate	22 (3%)	23 (3%)	16 (2%)	10 (2%)
90-day mortality rate	79 (11%)	69 (9%)	56 (8%)	40 (6%)
Post-operative morbidity [#]				
30-day readmission rate	223 (32%)	216 (27%)	201 (30%)	256 (41%)
90-day readmission rate	93 (13%)	91 (11%)	97 (14%)	143 (23%)
5 year OS (95%CI)	28%	28%	27%	36%
5 year CSS (95%CI)	31%	33%	33%	39%

Decreased LOS

Lower post-operative mortality

Higher readmission rates

Better 5 year OS/CSS

Regionalization

Deliberate reorganization of cancer services based on explicit and planned processes and structures, with the intent of improving the quality of care

Consolidation

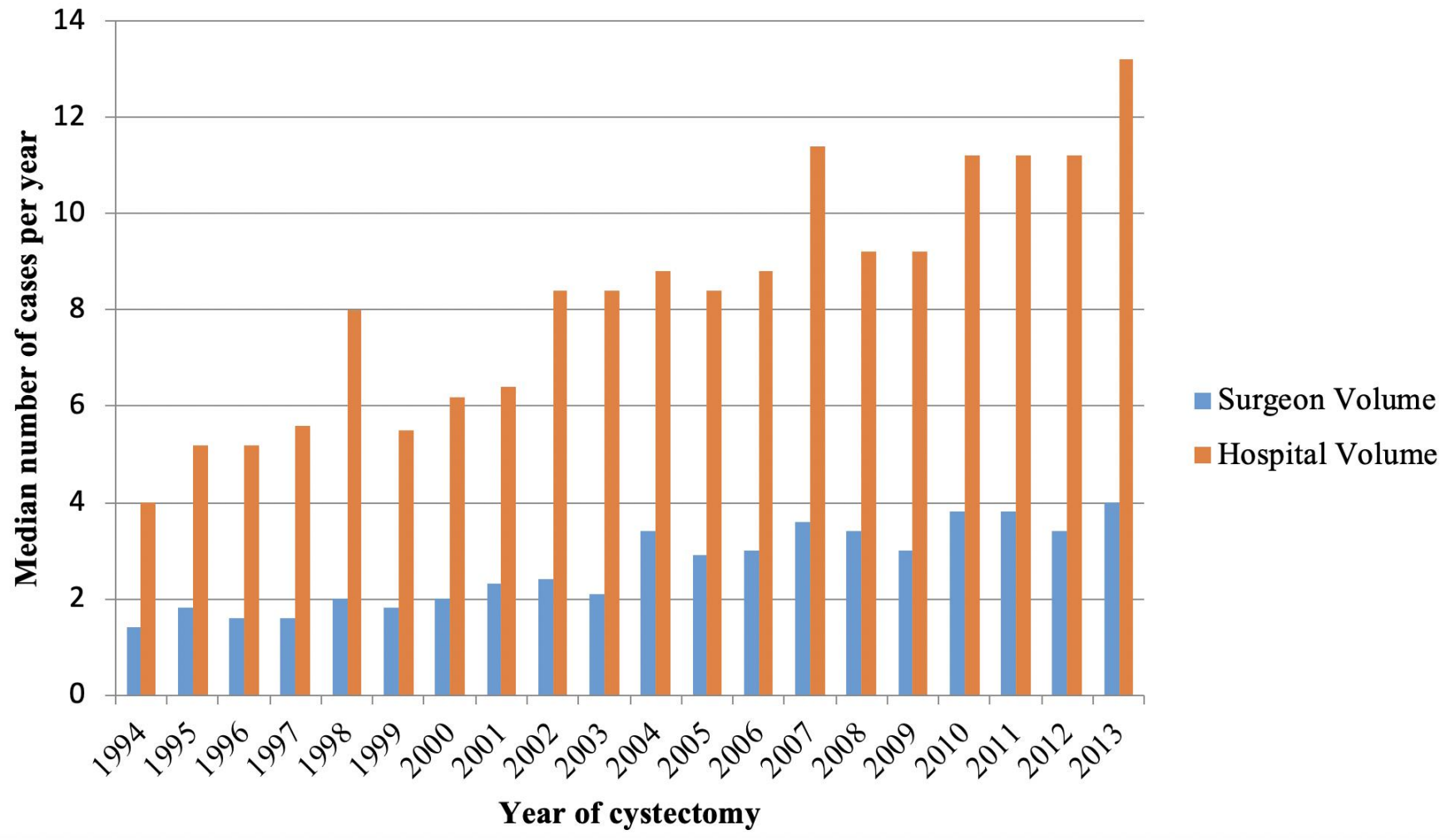
The merger and/or acquisition of smaller health organizations into larger ones

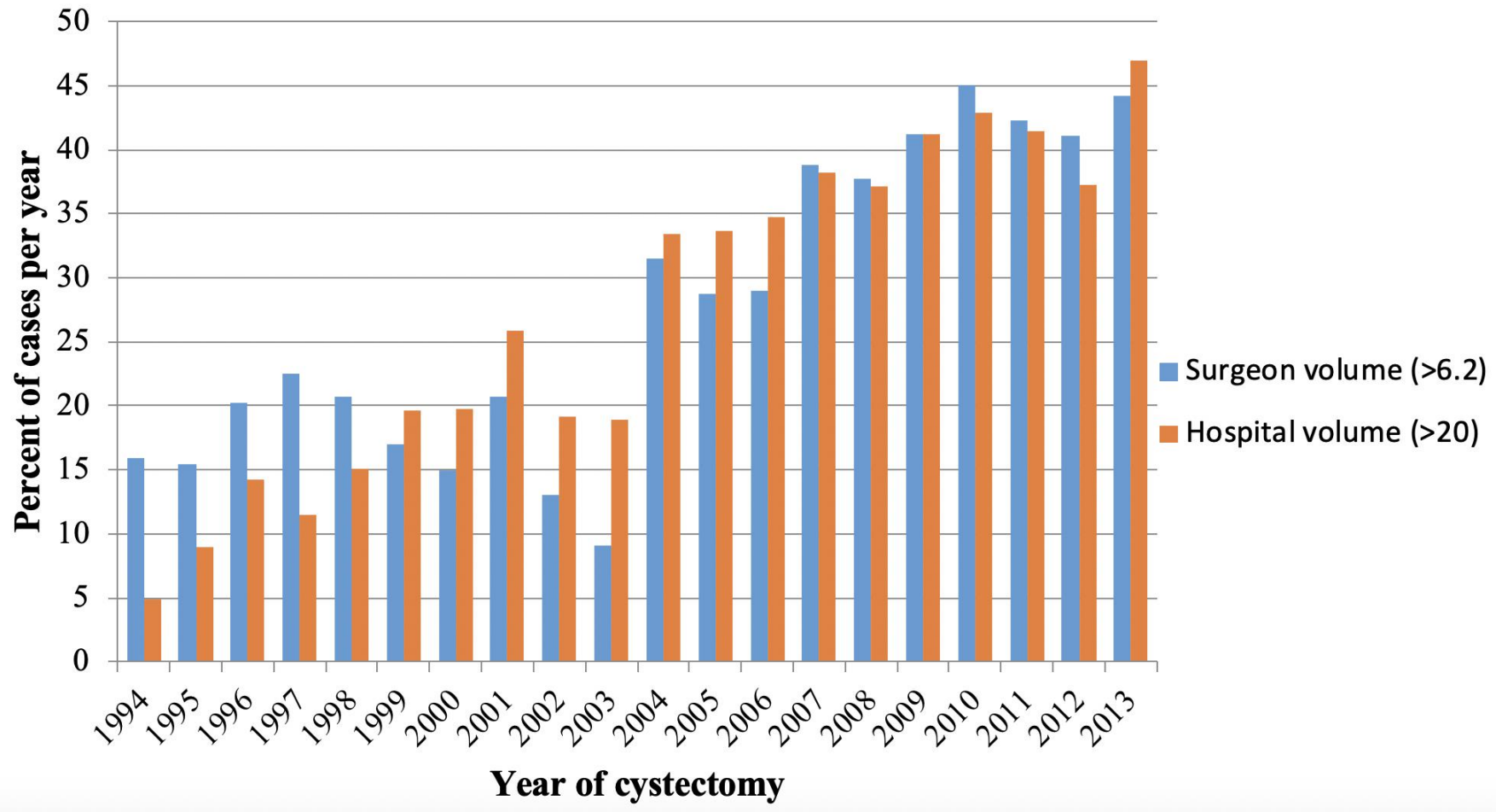
The purpose of consolidation is not an increase in quality of care, but rather an increase in efficiency

Passive Centralization

Reorganized care delivery through a process of unintentional consolidation of care to specific sites

Based on natural geographic location of hospitals in relation to population density or may reflect the choices of referring clinicians or patients





Regionalization = Volume Effect

Institute of Medicine recommended tracking case volumes for major cancer surgeries as a quality indicator

Large consortia groups of health care purchasers began to support selective referral to high- volume centers and surgeons

Extensive regionalization of complex cancer surgery over the past 10 years

Push back

Yearly experience vs lifetime experience?

Low volume surgeons in high volume centers?

Unintended consequences- inappropriate procedures to “make my numbers”?

Cross-training-do similar cases count?

Training the next generation?

Patient preference and autonomy?

Where does it end?



Arguments against a simplistic
structure-focused (provider volume)
case for regionalization

Limitations of Volume-Outcome Literature

Databases of restricted populations

Lack information on important prognostic factors,
(stage, co-morbidity)

Procedure-specific risk adjustment tool

Few address long-term survival

Adjust for the relative effects of both surgeon and
hospital volume

Investigate process-of-care factors underpinning the
volume-outcome relationship

Furthermore

1. Patient willingness and ability to travel for cancer care
2. Marginalize rural populations already experiencing disparities in access to care and outcomes
3. Higher-volume center has the necessary resources to provide care in a timely manner
4. Further reduction of case volume/expertise at low-volume centers
5. Requirement for increased involvement of and coordination with primary care providers
6. Benefits from implemented regionalization policies for complex surgeries have not been uniformly demonstrated

Is provider volume an appropriate surrogate measure for improved outcomes?

Quality of Care Framework

Structure

- Characteristics such as professionals, equipment, resources

Process

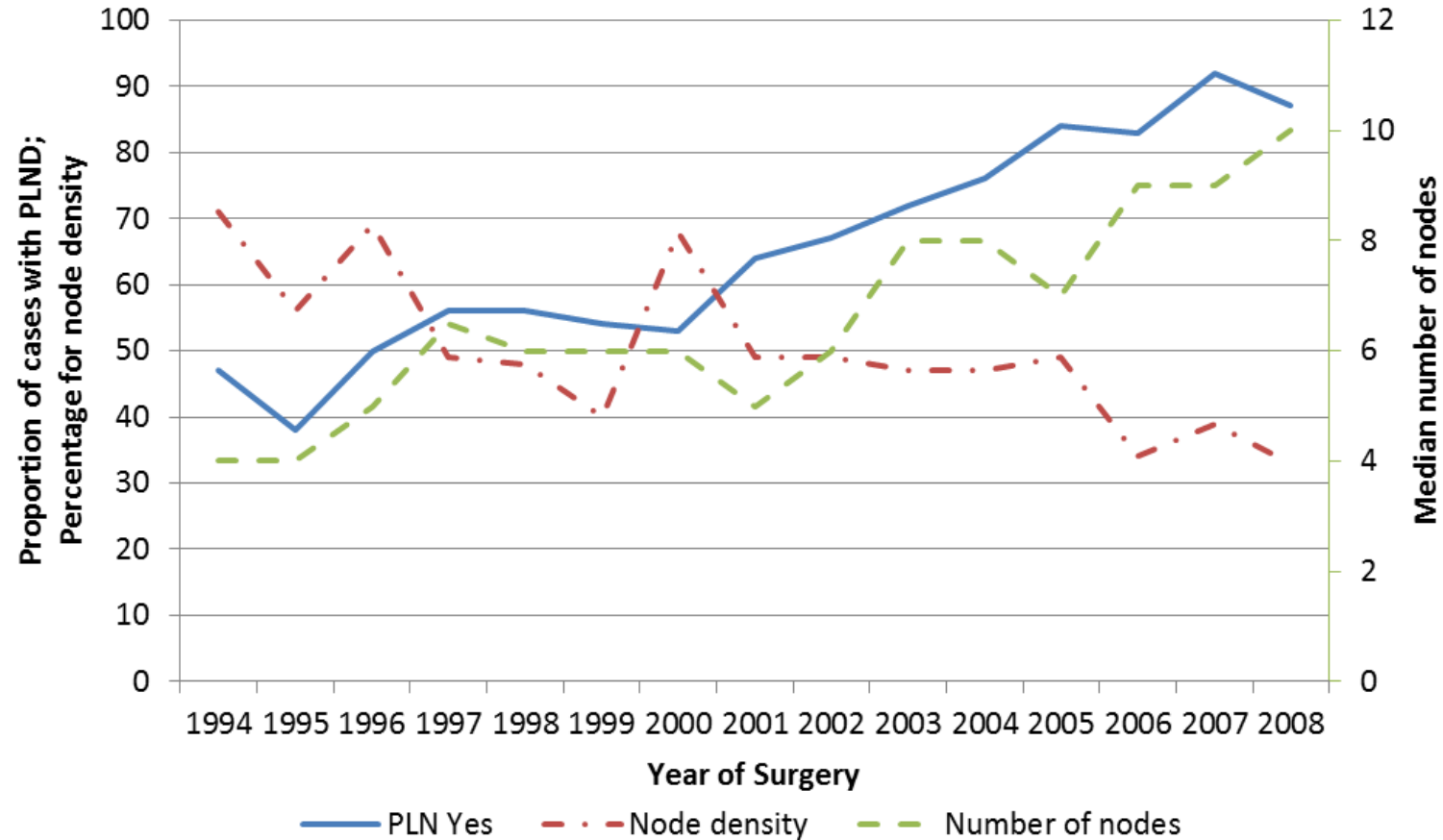
- Care that is provided and the technical or inter-personal aspects of the delivery of the care

Outcomes

- states of health or events that are consequences of the care provided to patients

	SURGEON Volume				P value
	Q1 (low volume)	Q2	Q3	Q4 (high volume)	
Pre-op MO referral [^]	102 (23%)	122 (30%)	121 (27%)	116 (29%)	0.141
Pre-op MO referral*	95 (28%)	112 (34%)	104 (31%)	99 (35%)	0.224
Pre-op RO referral [^]	44 (10%)	50 (12%)	93 (21%)	46 (11%)	<0.001
PLND yes [^]	396 (90%)	364 (89%)	430 (97%)	398 (99%)	<0.001
Median node count# (IQR)	9 (5-15)	10 (6-15)	11 (7-18)	15 (9-21)	<0.001
Mean node density	0.34 ± 0.27	0.31 ± 0.25	0.28 ± 0.26	0.26 ± 0.25	0.096
Margin status					0.685
Any positive	83 (19%)	71 (17%)	89 (20%)	71 (18%)	
All negative	349 (79%)	331 (81%)	351 (79%)	330 (82%)	
Unstated	7 (2%)	6 (1%)	<=5 (1%)	<=5 (1%)	
NACT rate*	56 (16%)	63 (19%)	52 (15%)	72 (25%)	0.009
ACT rate*	60 (17%)	77 (23%)	63 (19%)	55 (19%)	0.283

Quality Indicators PLND



LND, number, and density are strongly associated with hospital/surgeon volume

Explanatory Variables of Cystectomy Volume Effect

QUARTILE		VARIABLES ADDED TO THE MODEL				
		Volume alone	Volume + #nodes*	Volume + #nodes^	Volume+ nodes*/ACT/margin	Volume+ nodes^/ACT/margin
OS	Q1	1.28 (1.07-1.53)	1.23 (1.02-1.47)	1.23 (1.02-1.48)	1.21 (1.01-1.45)	1.21 (1.01-1.46)
	Q2	1.31 (1.10-1.55)	1.25 (1.04-1.49)	1.25 (1.05-1.49)	1.23 (1.03-1.46)	1.23 (1.03-1.47)
	Q3	1.30 (1.10-1.54)	1.26 (1.07-1.50)	1.27 (1.07-1.51)	1.26 (1.06-1.50)	1.27 (1.08-1.51)
	Q4	REF	REF	REF	REF	REF
CSS	Q1	1.29 (1.06-1.58)	1.25 (1.02-1.54)	1.22 (0.99-1.50)	1.25 (1.01-1.53)	1.22 (0.99-1.50)
	Q2	1.22 (1.01-1.49)	1.18 (0.96-1.45)	1.15 (0.94-1.41)	1.17 (0.96-1.44)	1.15 (0.94-1.41)
	Q3	1.23 (1.02-1.49)	1.21 (0.99-1.47)	1.20 (0.99-1.45)	1.22 (1.00-1.48)	1.21 (1.00-1.47)
	Q4	REF	REF	REF	REF	REF

Node dissection explains some of the difference
seen in CSS across quartiles

Quality Indicators

Pre-operative Imaging

Characteristic	Overall Survival			Cancer Specific Survival		
	5 year OS	Multivariate analysis HR (95%CI)	P trend	5 year CSS	Multivariate analysis HR (95%CI)	P trend
Chest imaging			0.035			0.151
Yes (n=2129)	31%	Ref		35%	Ref	
No (n=669)	26%	1.12 (1.01-1.24)		31%	1.09 (0.97-1.22)	

Characteristic	Overall Survival			Cancer Specific Survival		
	5 year OS	Multivariate analysis HR (95%CI)	P trend	5 year CSS	Multivariate analysis HR (95%CI)	P trend
Bone scan			0.032			0.030
Yes (n=949)	31%	Ref		36%	Ref	
No (n=1849)	28%	1.11 (1.01-1.22)		32%	1.13 (1.01-1.25)	

Quality Indicators Peri-operative Care

Anesthesiology Volumes \cong
Readmission Rates

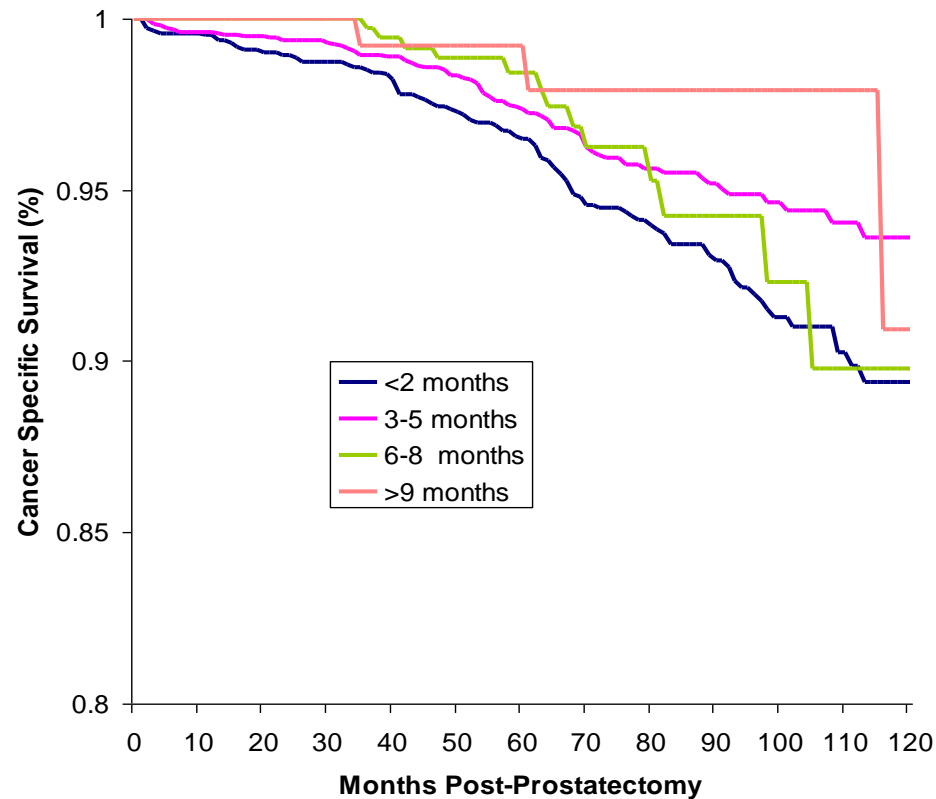


Quality Indicators

Transfusion

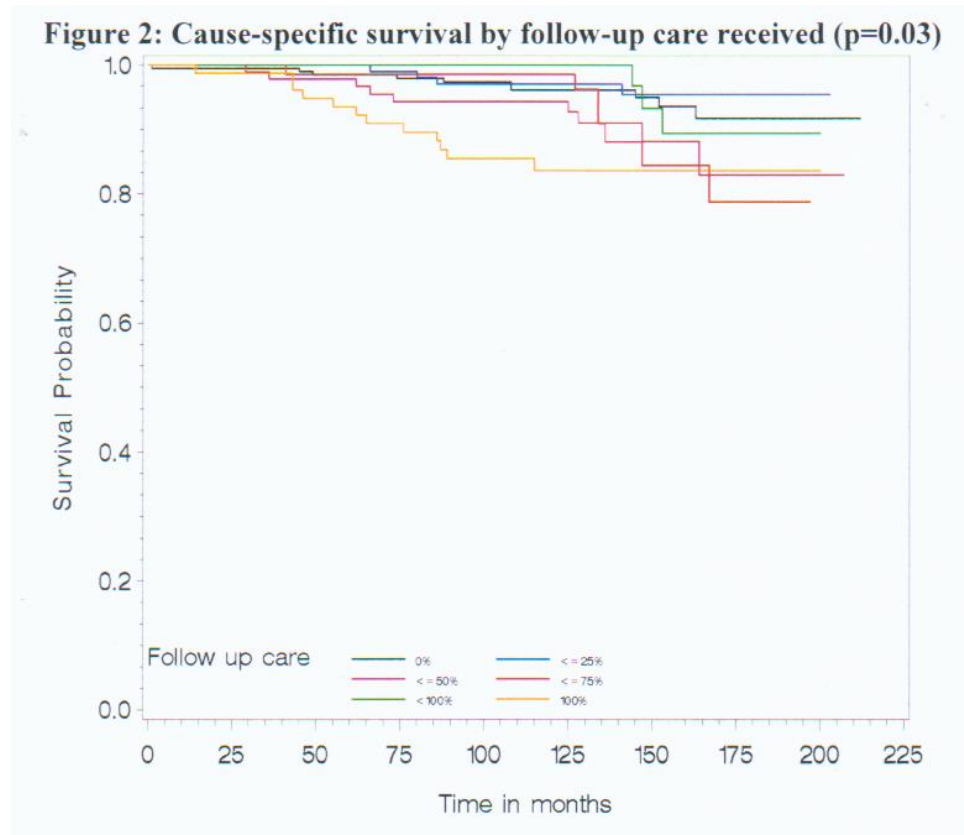
	RBC Transfusion		p-value
	Yes N=1608	No N=985	
Outcome			
Mean LOS (days)	17	11	<0.001
Median LOS (days)	11	9	<0.001
30 day mortality	60 (4%)	15 (2%)	0.001
90 day mortality	171 (11%)	43 (4%)	<0.001
30 day re-admission [#]	448 (28%)	181 (18%)	<0.001
90 day re-admission [#]	615 (38%)	284 (29%)	<0.001
5 year OS (95% CI)	32% (29-34%)	47% (44-50%)	<0.001
5 year CSS (95% CI)	38% (36-41%)	54% (50-57%)	<0.001

Wait times (unadjusted) and cause-specific survival



Shorter wait times \approx
 $1/\text{cause-specific survival}$

Follow-up Care



More follow-up care \approx
1/cause-specific survival

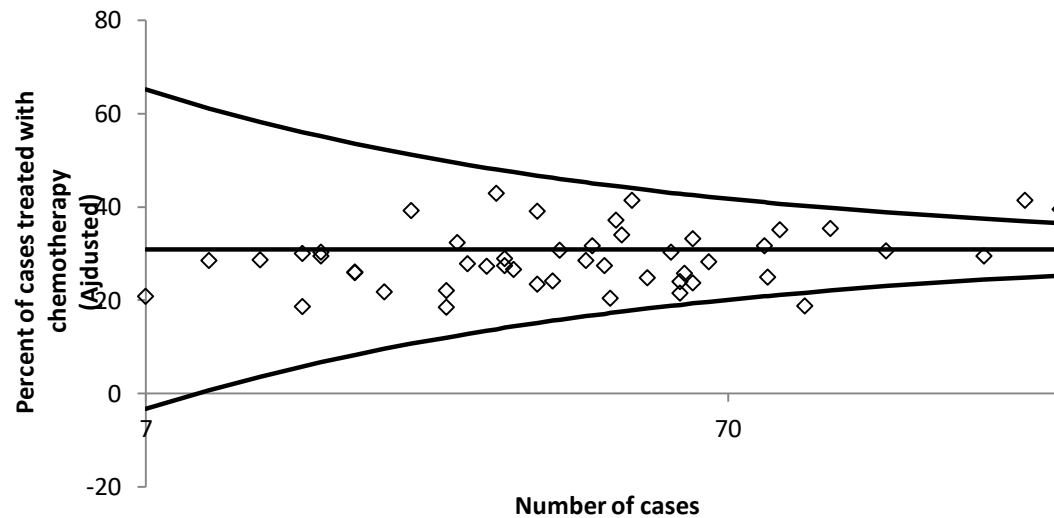
Benchmarking Quality Indicators

- Expert opinion/“evidence based”
- The University of Alabama at Birmingham’s Achievable Benchmarks of Care (ABC™s)
 - peer-group based, data driven method for identifying benchmark performance for a variety of process-of-care indicators.
 - achieved by calculating a “pared-mean”, defined as the mean of the best care achieved for at least 10% of the population
- Criterion-based benchmarking (CBB)
 - empirical method for estimating the appropriate rate of the use of a specific therapy that does not require comprehensive information about case mix at the population level

NACT Benchmarks

Significant systematic variation in perioperative CT rates across hospitals (0-52%)

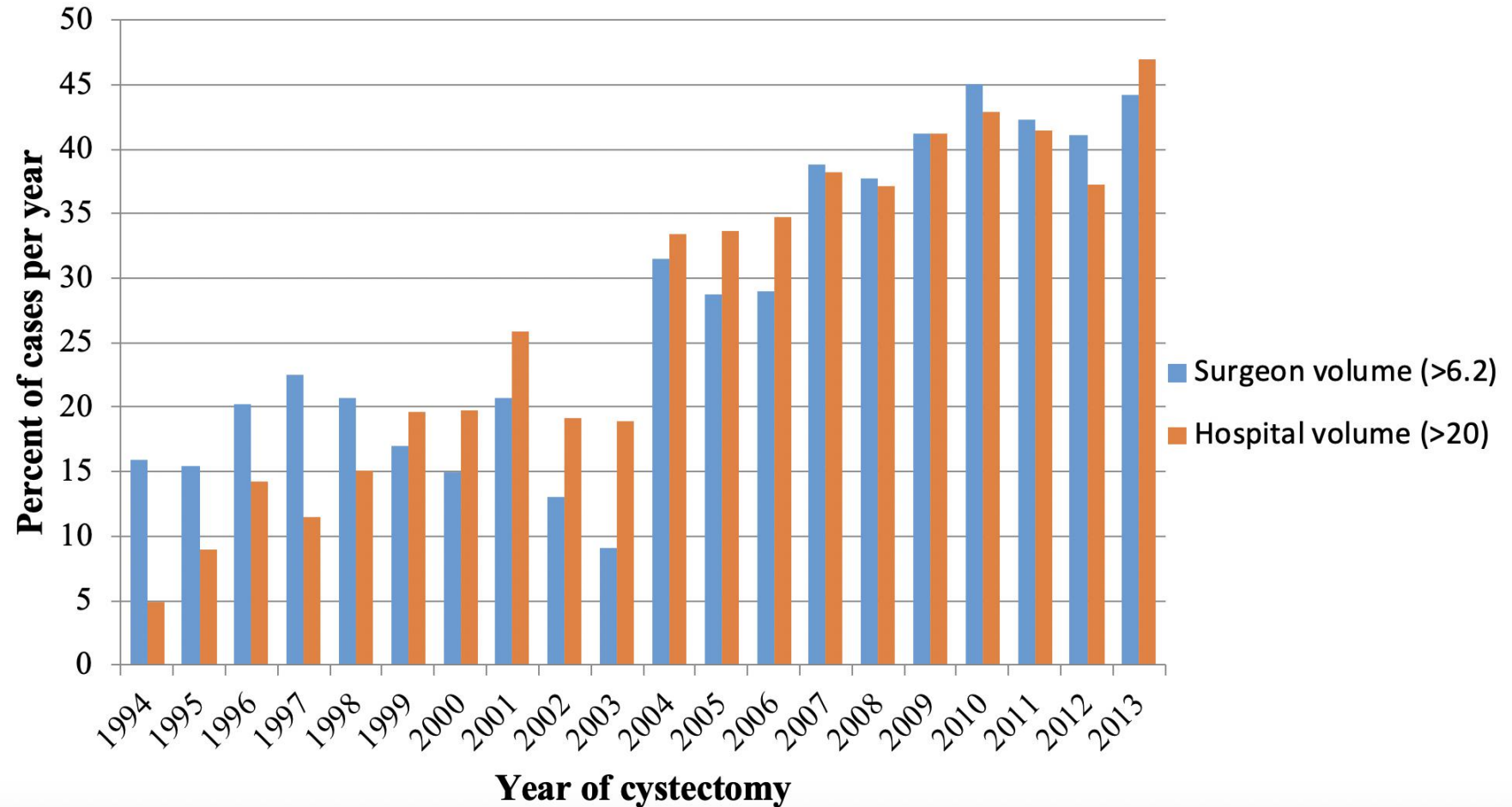
The benchmark rates was 36-41%



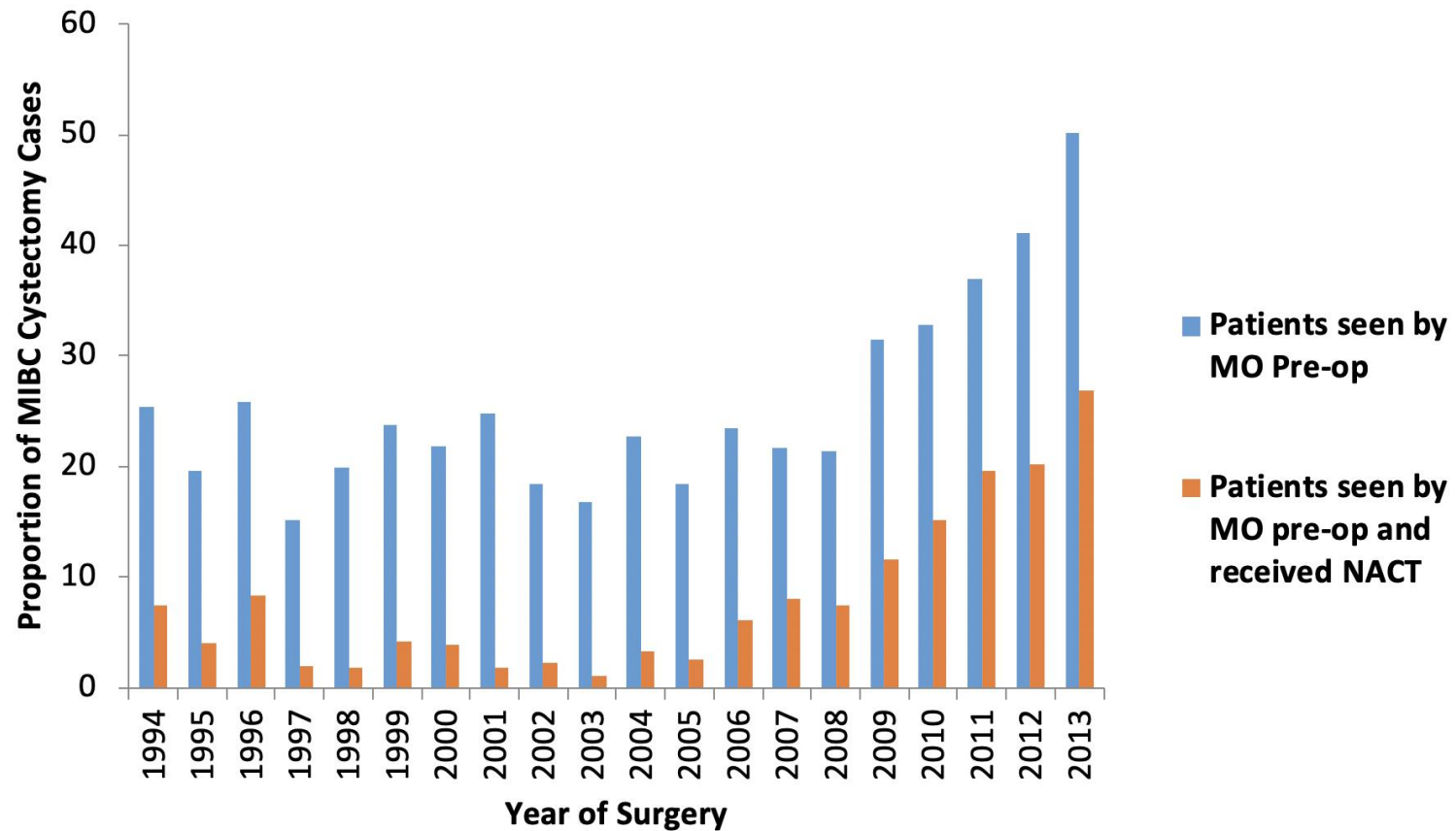
My Thoughts

- Modest “centralization” to avoid low volume providers is strongly supported
- Regionalization of urological oncology in Ontario will be complex and potentially problematic
- Focus on improving processes of care optimal (benchmarking)

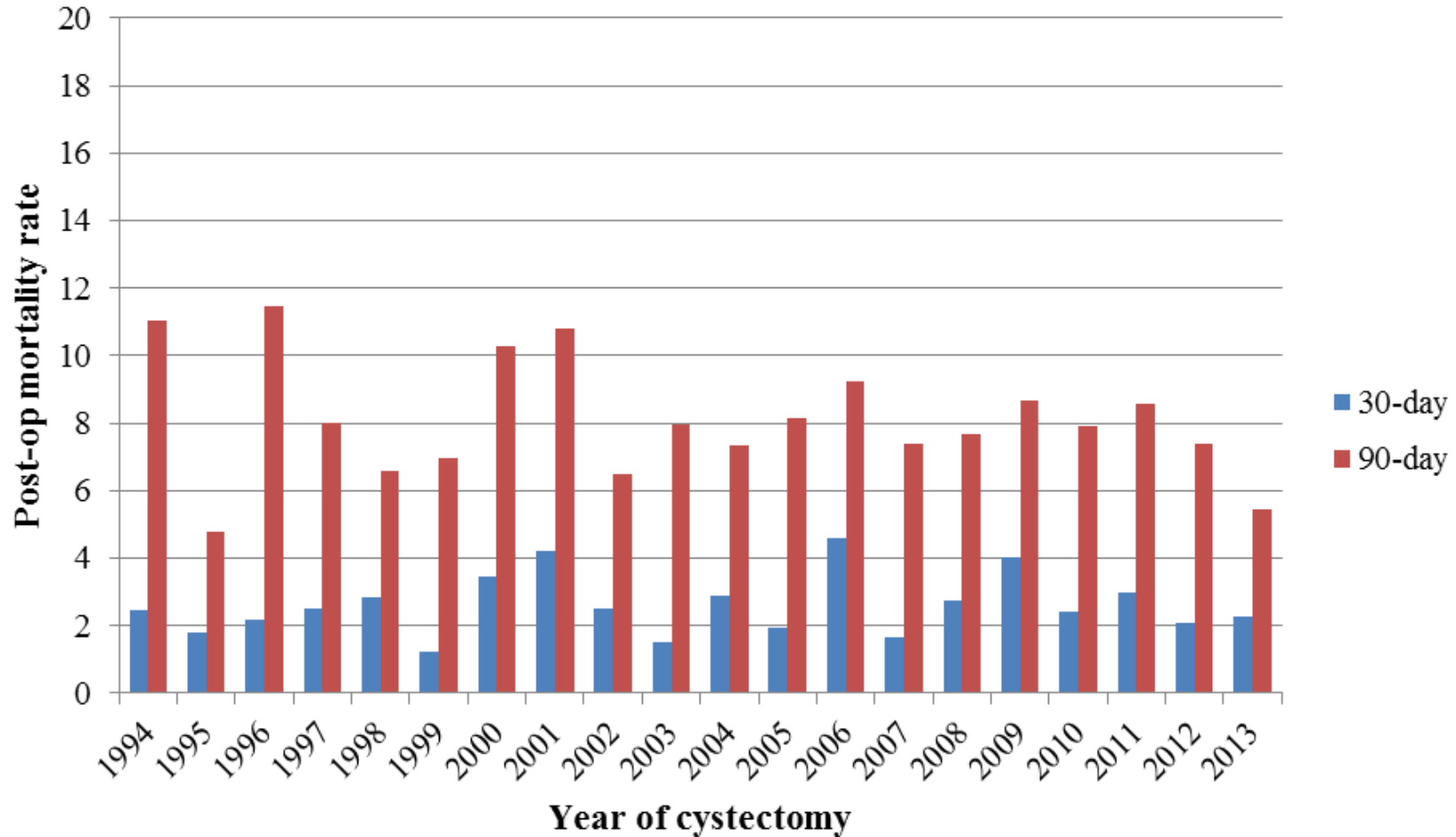
Passive Centralization in Ontario



Centralization associated with NACT/ACT

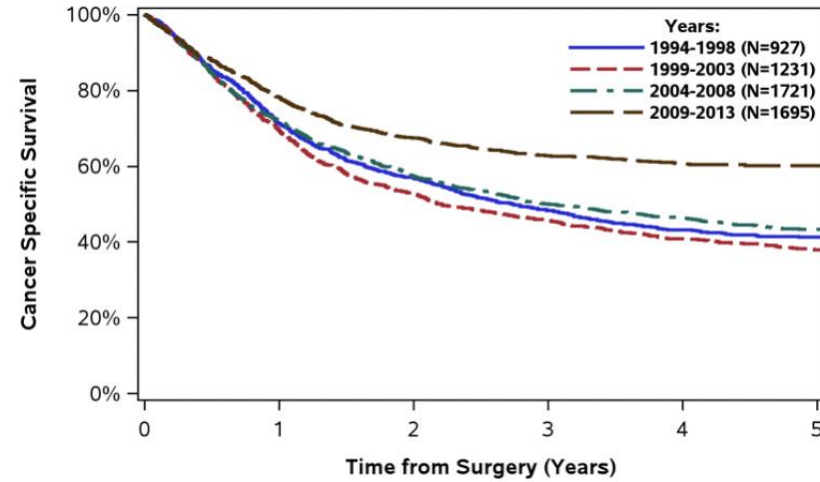


Centralization associated with 90-day mortality

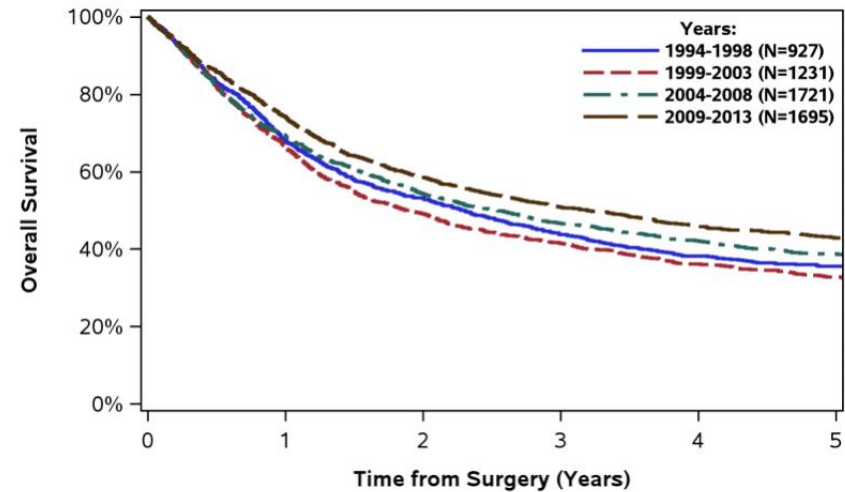


Centralization associated with improved survival

A. CSS



B. OS





Queen's
UNIVERSITY

