



Radiation Therapy Quality Assurance in Canada

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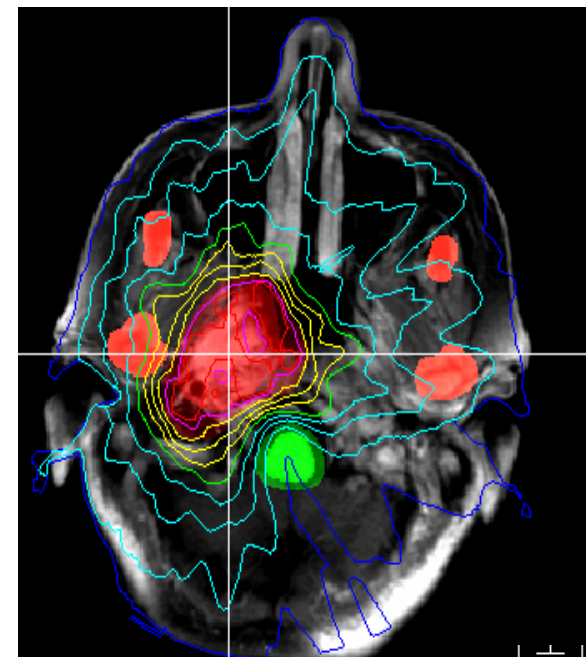
Radiation Therapy in Canada

- 31.5M population
- 170K new cancer cases annually
 - 50% will require radiation therapy
- Inter-disciplinary cooperation
 - Radiation oncology
 - Medical physics
 - Radiation therapy
- 38 radiation treatment centres
 - Annual CARO survey

Radiation Therapy in Canada

Environmental Forces

- Increasing cancer incidence
 - Aging population
- New indications for RT
- Complex treatment techniques
- Interdisciplinary care
- Increasing public awareness
 - Wait times, new treatments



IMRT for HN cancer

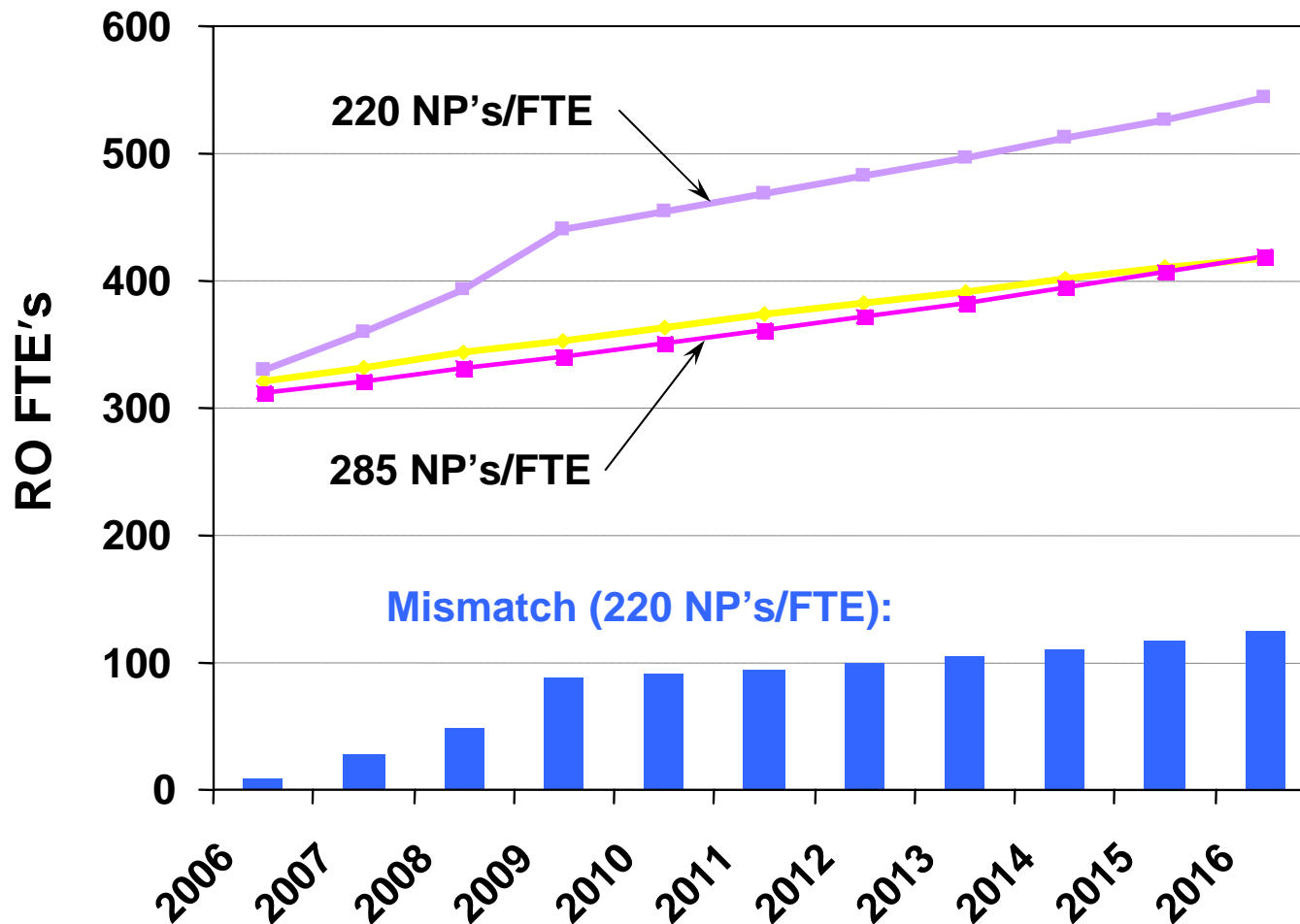
Radiotherapy Quality Metrics

- Appropriate access
 - Radiation utilization
 - New and specialized techniques
- Timely access
 - Wait times
- Workload
 - Staffing levels
 - Patient volume and plan complexity
- Radiotherapy quality assurance
 - Treatment planning and delivery
 - Oversight and accountability

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Radiation Oncology Workforce *Long-Term Planning*



Courtesy of T. Stuckless, Queens University, Kingston

CMA Wait Time Alliance

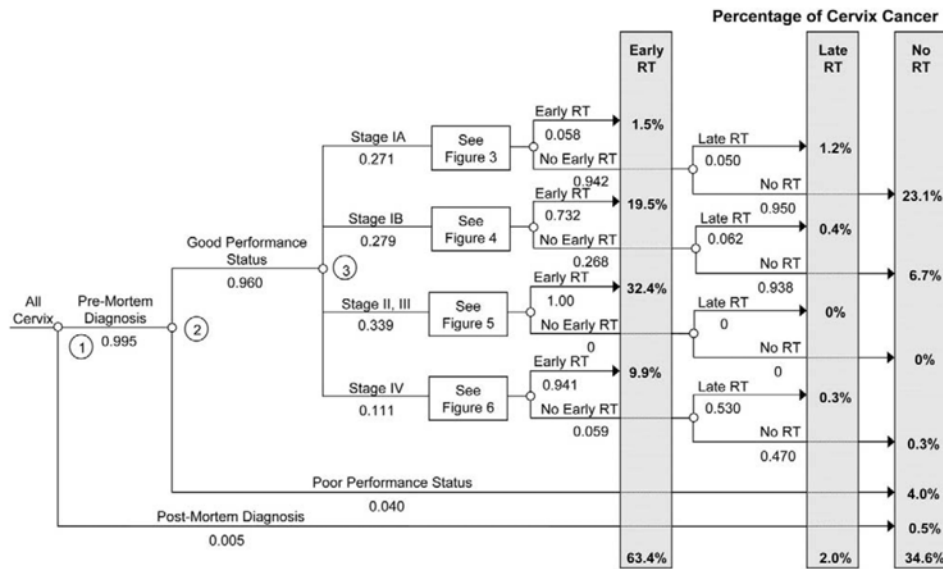
June 2009 Report Card

Province	CT		MRI		Hip		Knee		Radiation Oncology		Cataract		CABG*	
NL	nb	?	nb	?	B	↑	C	↑	A	↓	A	↓	A	↓
PEI	nb	↑	nb	↔	na	?	na	?	A	↓	na	?	/	/
NS	nb	?	nb	?	F	↔	F	↓	na	↔	B	↔	na	?
NB	nb	?	nb	?	C	↔	D	↔	A	↓	B	↔	A	↔
QC	nb	?	nb	?	A	↔	A	↔	A	↓	na	↔	na	?
ON	nb	↔	nb	↔	A	↓	A	↓	A	↓	A	↓	A	↔
MB	nb	↓	nb	↑	A	↓	A	↓	A	↔	B	↔	A	↓
SK	nb	?	nb	?	C	↔	F	↔	A	↓	A	↓	A	↔
AB†	nb	?	nb	?	na	?	na	?	na	?	na	?	na	?
BC	nb	?	nb	?	A	↓	A	↓	A	↔	A	↔	A	↓
Annual National Wait Time Grades‡														
2007	nb	?	nb	?	B	↓	B	↓	C	↓	B	↔	A	↔
2008	nb	?	nb	?	B	↔	B	↓	B	↔	B	↔	A	↔
2009	nb	?	nb	?	B	↓	C	↔	A	↓	A	↓	A	↔

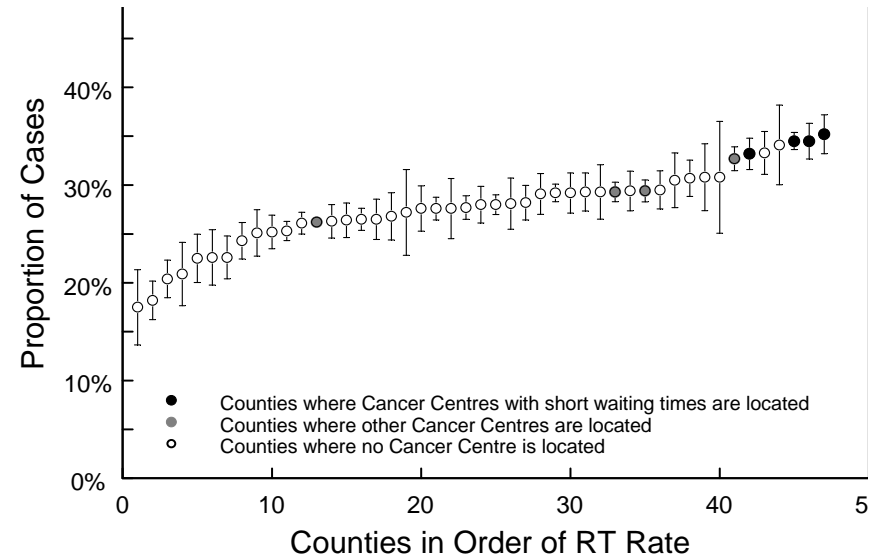
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RT Utilization Benchmarks



Evidence-based Benchmarks



Criterion-based Benchmarks

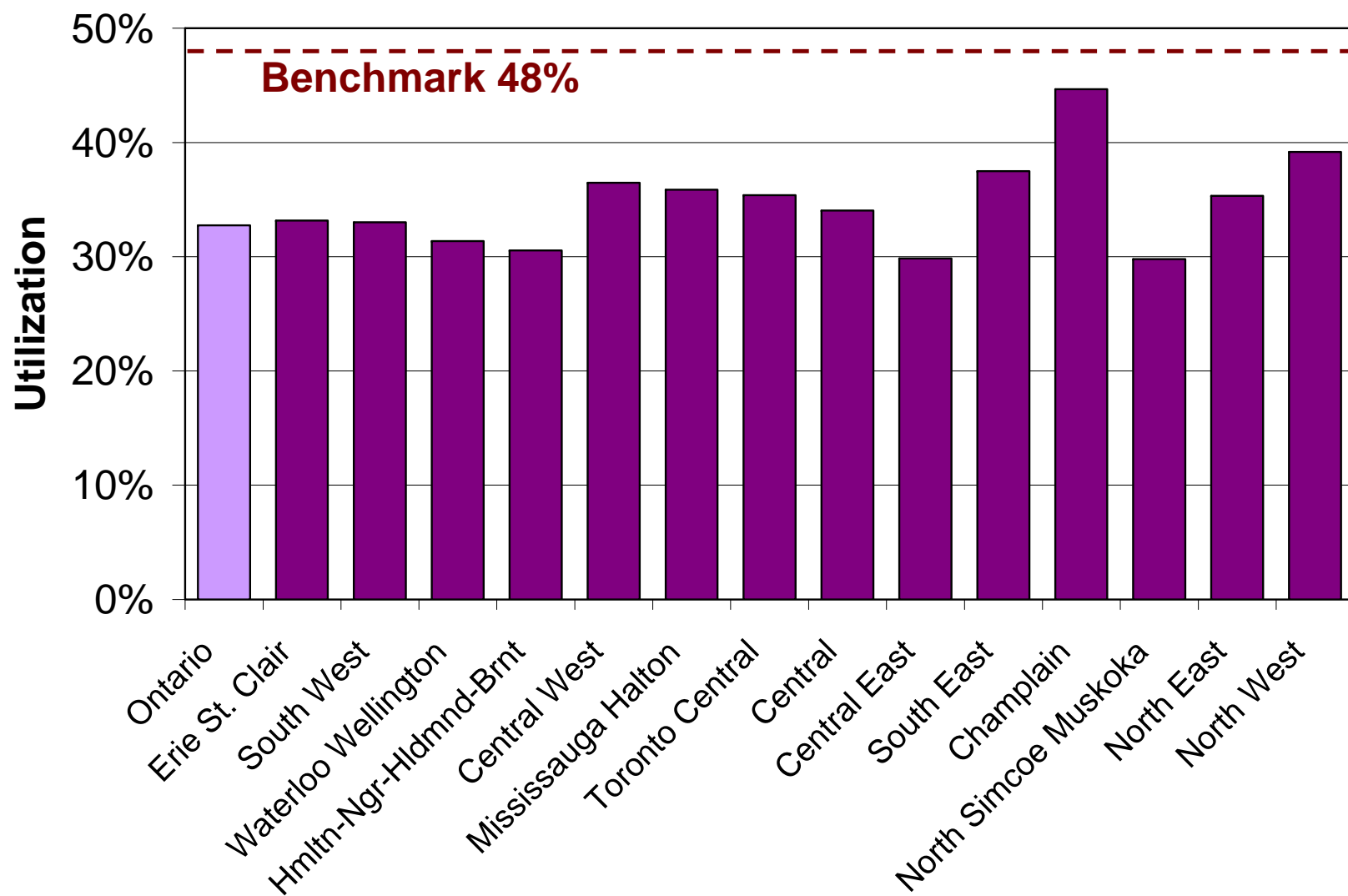
RT Utilization in Ontario

	<u>Australia</u>	<u>Ontario, Canada</u>		
	Evidence	Evidence	Benchmark	Actual
Breast	83%	66%	72%	64%
Lung	76%	61%	54%	45%
Prostate	60%	61%	57%	40%
Rectal	61%	72%	52%	46%

Delaney, 2005; Tyldesley, 2001; Foroudi, 2002 and 2003

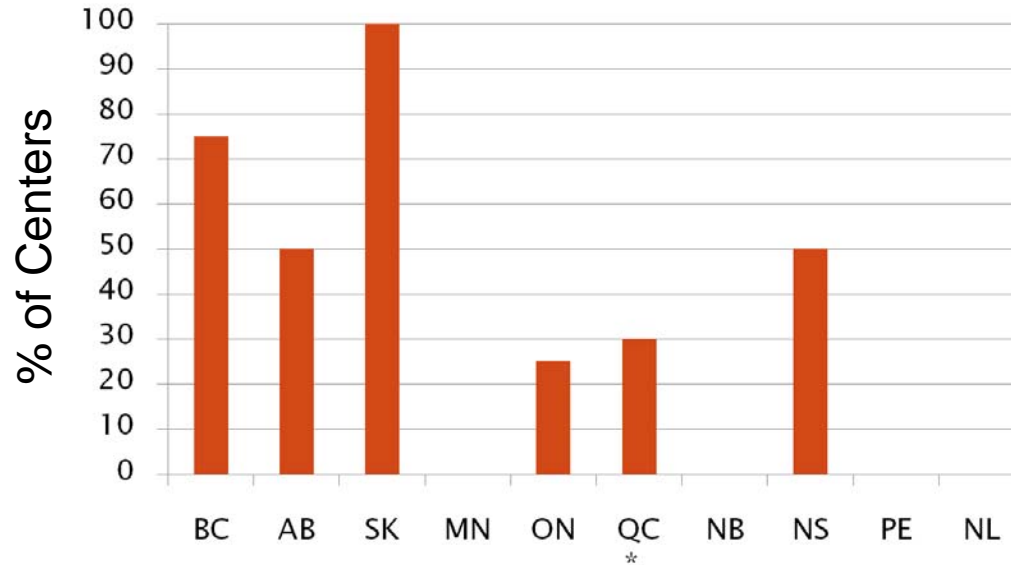
<http://www.cancercare.on.ca/english/csqi2008/csqiaccess/csqi-radiation-utiliz/>

RT Utilization in Ontario

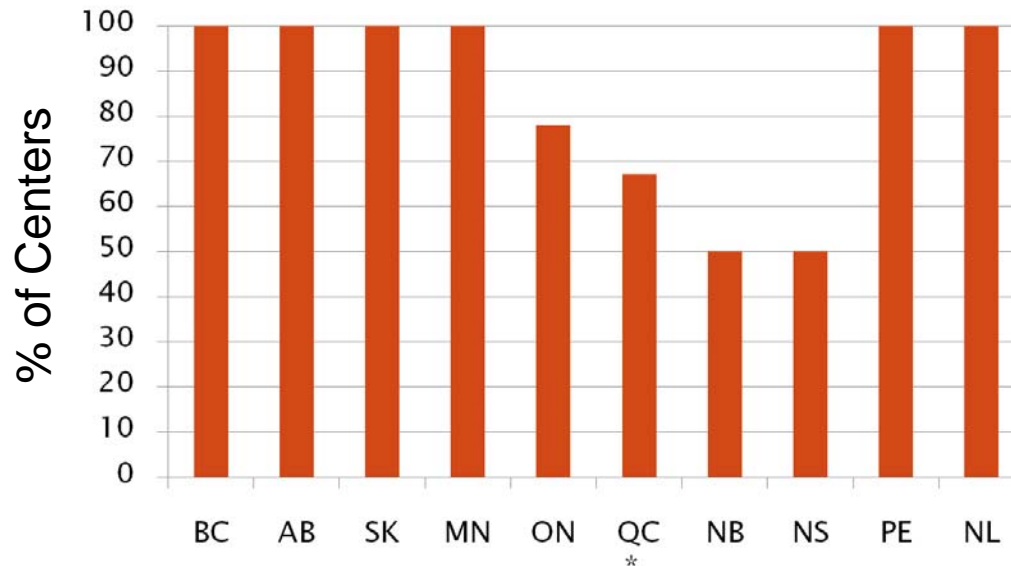


IMRT Utilization by Center

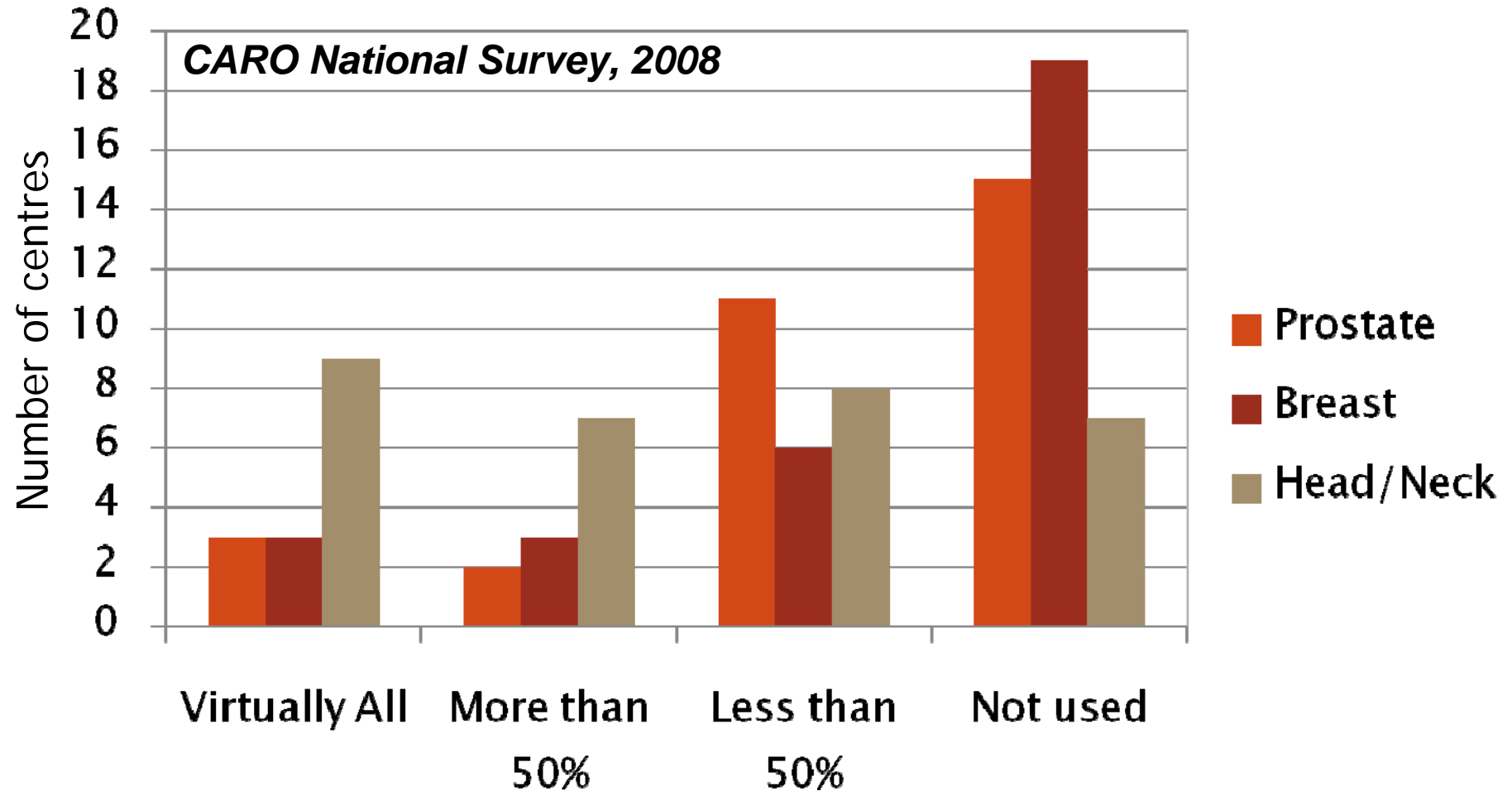
**2006
CARO
Survey**



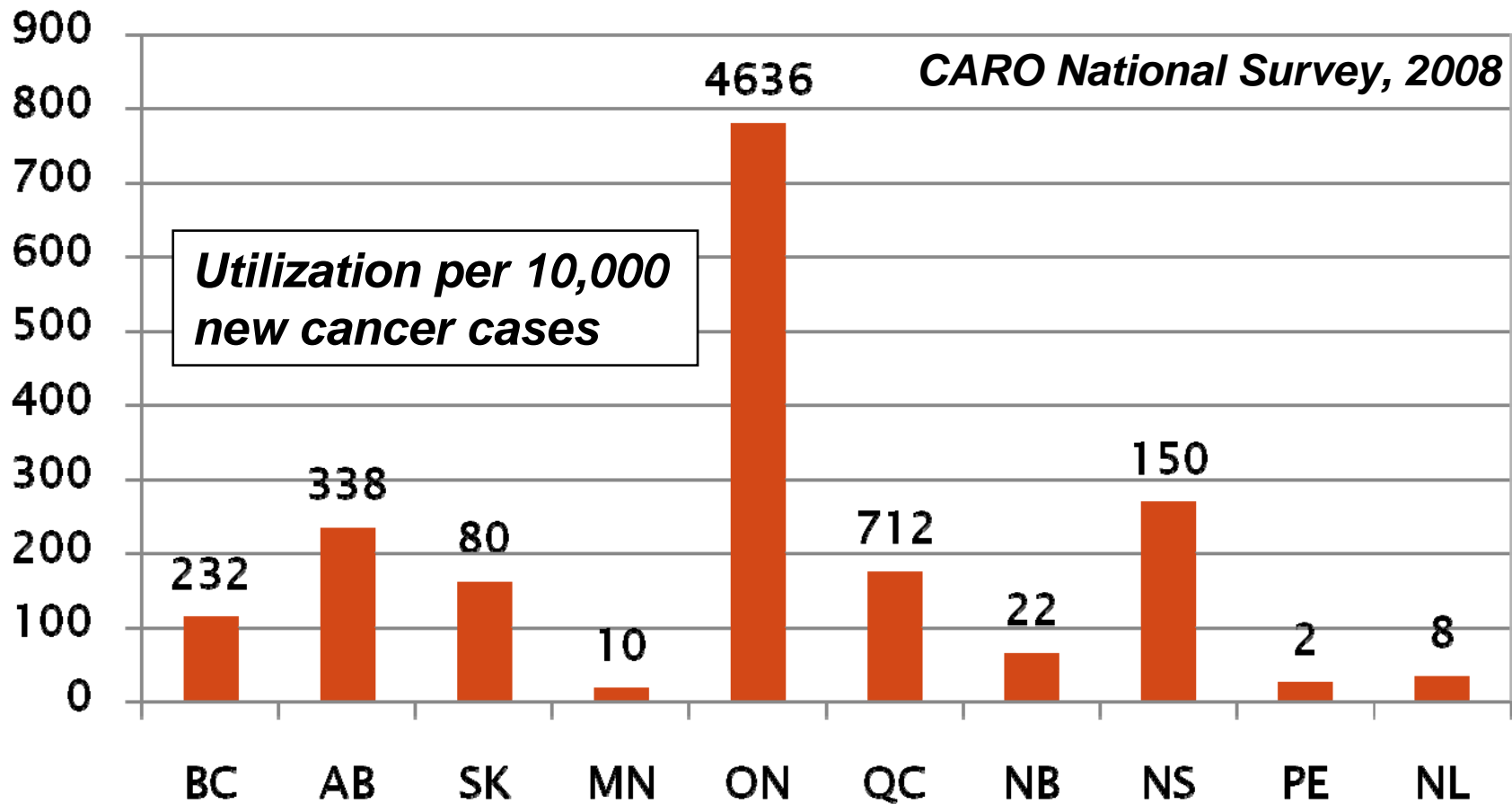
**2008
CARO
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IMRT Utilization by Tumor Site



IMRT Utilization by Province



IMRT Utilization

Barriers to Implementation

- Therapist training (65% of centers)
- Too few therapists (45%)
- Physicist training (45%)
- Oncologist training (40%)
- Equipment and software (40%)

CARO National Survey, 2006

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Radiation Therapy Quality Assurance in Canada

- Essential requirement for good patient care
- Increasingly important because of:
 - Complexity of new treatment techniques (IMRT)
 - Complexity of the radiation treatment process
 - Evolving team roles and responsibilities
- Mandated by the CNSC
- Variable implementation nationally
 - Equipment quality checks done consistently
 - No central repository for reporting, communication and education

“Structural Standards for Quality Assurance at Canadian Radiation Treatment Centres”

- RT Policy Advisory Committee of CAPCA
- Canadian Organization of Medical Physicists (COMP)
- Common quality assurance program for radiation treatment centres in Canada
 - Standards for Quality Assurance at Canadian Radiation Treatment Centres
 - Joint Quality Assurance Committee
 - National Registry of Radiation Treatment Incidents
- Comprehensive
 - All aspects of the radiation treatment process

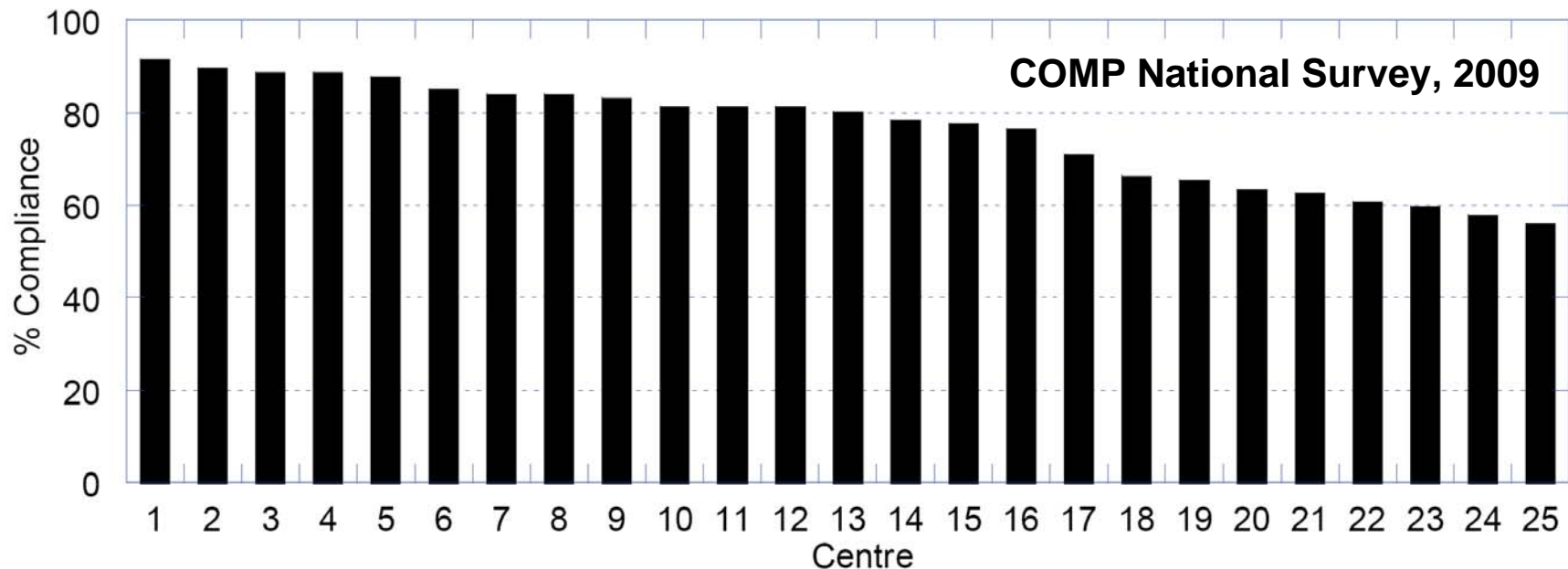
“Structural Standards for Quality Assurance at Canadian Radiation Treatment Centres”

Standards for Quality Assurance:

- Radiation treatment centre organization
 - QA program, radiation safety program
- Radiation treatment equipment
 - Equipment Quality Control documents (COMP)
- Personnel
 - Qualifications, training, maintenance of certification
- Radiation treatment procedures
 - Informed consent, authorizations, plan QA, QA rounds, incident reporting, record keeping, analysis of outcome

“Structural Standards for Quality Assurance at Canadian Radiation Treatment Centres”

National compliance with CAPCA treatment equipment* quality assurance guidelines:



* Linear accelerators, multileaf collimators, portal imagers, kV imaging systems

“Structural Standards for Quality Assurance at Canadian Radiation Treatment Centres”

National quality review and reporting:

- Joint Quality Assurance Committee
 - Multi-disciplinary representation
 - Maintenance and dissemination of guidelines
 - Review and classification of critical incidents
- National Registry of Incidents
 - Collate and disseminate information about critical incidents that have the potential to recur elsewhere in Canada or abroad

Radiation Therapy Quality

Future Direction

- Build treatment capacity
 - Recruitment and training of personnel
 - Equipment (27 RT machines in new centers by 2012)
- National strategy for workforce planning
 - Radiation oncology, medical physics, radiation therapy
 - CPAC Human Resources Action Group
- National guidelines for:
 - Use of specialized techniques
 - Integration of new techniques into clinical practice
- National radiation therapy quality program
 - Implementation of CAPCA guidelines