Quality in Surgical Oncology

Armen Aprikian
RCN Executive Committee
Surgical Oncology
## MSSS Surgical Wait Times – Montreal region

### Patients opérés depuis le 1er avril 2016

<table>
<thead>
<tr>
<th>Région</th>
<th>Nombre de patients opérés</th>
<th>Pourcentage de patients opérés</th>
<th>Durée moyenne d’attente (jours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Par groupe de temps</td>
<td>À l’intérieur de 28 jours</td>
<td>Entre 29 et 56 jours</td>
<td>57 jours et plus</td>
</tr>
<tr>
<td>CENTRE HOSPITALIER DE ST. MARY</td>
<td>161</td>
<td>80 %</td>
<td>16 %</td>
</tr>
<tr>
<td>CHU SAINTE-JUSTINE</td>
<td>14</td>
<td>57 %</td>
<td>29 %</td>
</tr>
<tr>
<td>HOPITAL DE LACHINE</td>
<td>20</td>
<td>65 %</td>
<td>25 %</td>
</tr>
<tr>
<td>HOPITAL DE LASALLE</td>
<td>6</td>
<td>67 %</td>
<td>33 %</td>
</tr>
<tr>
<td>HOPITAL DE VERDUN</td>
<td>113</td>
<td>76 %</td>
<td>17 %</td>
</tr>
<tr>
<td>HOPITAL DU SACRE-COEUR DE MONTREAL</td>
<td>359</td>
<td>64 %</td>
<td>25 %</td>
</tr>
<tr>
<td>HOPITAL FLEURY</td>
<td>69</td>
<td>48 %</td>
<td>39 %</td>
</tr>
<tr>
<td>HOPITAL GENERAL DE MONTREAL</td>
<td>379</td>
<td>63 %</td>
<td>26 %</td>
</tr>
<tr>
<td>HOPITAL GENERAL DU LAKESHORE</td>
<td>169</td>
<td>59 %</td>
<td>34 %</td>
</tr>
<tr>
<td>HOPITAL GENERAL JUIF</td>
<td>607</td>
<td>39 %</td>
<td>33 %</td>
</tr>
<tr>
<td>HOPITAL JEAN-TALON</td>
<td>129</td>
<td>86 %</td>
<td>8 %</td>
</tr>
<tr>
<td>HOPITAL NEUROLOGIQUE DE MONTREAL</td>
<td>45</td>
<td>80 %</td>
<td>16 %</td>
</tr>
<tr>
<td>HOPITAL NOTRE-DAME DU CHUM</td>
<td>646</td>
<td>53 %</td>
<td>34 %</td>
</tr>
<tr>
<td>HOPITAL ROYAL VICTORIA</td>
<td>534</td>
<td>44 %</td>
<td>40 %</td>
</tr>
<tr>
<td>HOPITAL SAINT-LUC DU CHUM</td>
<td>600</td>
<td>47 %</td>
<td>36 %</td>
</tr>
<tr>
<td>HOPITAL SANTA CABRINI</td>
<td>122</td>
<td>44 %</td>
<td>31 %</td>
</tr>
<tr>
<td>HOTEL-DIEU DU CHUM</td>
<td>114</td>
<td>50 %</td>
<td>38 %</td>
</tr>
<tr>
<td>L’HÔPITAL DE MONTREAL POUR ENFANTS</td>
<td>15</td>
<td>93 %</td>
<td>7 %</td>
</tr>
<tr>
<td>PAVILLON MAISONNEUVE/PAVILLON MARCEL-LAMOUREUX</td>
<td>491</td>
<td>42 %</td>
<td>38 %</td>
</tr>
<tr>
<td>Ensemble de la région</td>
<td>4593</td>
<td>53 %</td>
<td>32 %</td>
</tr>
</tbody>
</table>

Source: [http://wpp01.msss.gouv.qc.ca/appl/g74web/Oncologie.asp](http://wpp01.msss.gouv.qc.ca/appl/g74web/Oncologie.asp)
Quality in Surgical Oncology

• **Disease-specific surgical indicators**
  - Lymph node counts
  - Margins of resection
  - Functional outcomes
  - Recurrence rates
  - Disease-specific survival

• **General surgical oncology indicators**
  - Complications
  - Post-operative mortality
  - Cost
Postoperative Mortality, Outcomes & Hospital and Surgeon Volume

SPECIAL ARTICLE

Surgeon Volume and Operative Mortality in the United States

John D. Birkmeyer, M.D., Therese A. Stukel, Ph.D., Andrea E. Siewers, M.P.H., Philip P. Goodney, M.D., David E. Wennberg, M.D., M.P.H., and F. Lee Lucas, Ph.D.

Do Cancer Centers Designated by the National Cancer Institute Have Better Surgical Outcomes?

CANCER February 1, 2005 / Volume 103 / Number 3

Correlation between Annual Volume of Cystectomy, Professional Staffing, and Outcomes

A Statewide, Population-Based Study

CANCER September 1, 2005 / Volume 104 / Number 5
Post-operative mortality after radical cystectomy for bladder cancer in Quebec (2000-2009)
Overall survival after radical cystectomy for bladder cancer in Quebec: 2000-2009
Effect of High-Volume Hospital and Surgeon on Overall Survival (p < 0.05)

- Red curve: 3rd and 4th quartile of H-S volume distribution
- Blue curve: 1st and 2nd quartile of H-S volume distribution

HR = 0.80 (0.70-0.91)

Santos, Aprikian, World J Urol 2016
Quebec vs Ontario

- High annual RC volume hospitals and surgeons have a positive effect on OS after RC for BC in the province


Higher surgeon and hospital volume improves long-term survival after radical cystectomy.

Kulkarni GS¹, Urbach DR, Austin PC, Flesher NE, Laupacis A.

<table>
<thead>
<tr>
<th></th>
<th>ONTARIO</th>
<th>QUEBEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Load Across Quartiles</td>
<td>2.1, 4.5, 10.4 and 26.1</td>
<td>5, 9.6, 17.5 and 36</td>
</tr>
<tr>
<td>Surgeon Load Across Quartiles</td>
<td>0.96, 2, 4.4 and 11.5</td>
<td>1, 2, 3.4 and 9</td>
</tr>
<tr>
<td>5-Years Overall Survival</td>
<td>35%</td>
<td>46%</td>
</tr>
</tbody>
</table>
Medical Costs Associated with Radical Cystectomy in Quebec

- Cost estimates
- N = 2759
- Average cost = $18989 (range: $16005 – $25684)

Health-care services utilization and costs associated with radical cystectomy for bladder cancer: a descriptive population-based study in the province of Quebec, Canada. Santos F1, Dragomir A2, Zakaria AS3, Kassouf W4, Aprikian A5. BMC Health Services Research 2015
CPAC Report on Surgical Oncology – Health

- Pan-Canadian analysis (except Quebec), 2002-2012
- Esophageal, pancreatic, liver, lung, ovarian cancer surgery
- Higher volumes correlated with less post-op mortality and length of stay
- For every 10-case increase in volume leads to a 10-20% decrease in post-op mortality
- Recommend > 10-50 procedures per year per surgeon
- Prevent deaths

Finley et al CPAC 2015
Surgical Oncology Re-Organization

- Cancer Care Ontario – designated centres for thoracic surgery, hepatobiliary surgery
  - volume based (150 major lung/20 esophagus per year)
- Quebec – Thoracic Surgery (Deslauriers, Mulder et al)
  - centres of thoracic surgery – Sept 2015
  - volume based (MUHC, CHUM, CHUQ, CHUS, Sacre Coeur)
  - complete disease-site teams – level 3 or 4
- England - London

- Quality?
- Other indicators?

- RCN is ideal for leading such an initiative due to wealth of experts and access to funds
Quality in Surgical Oncology – RCN Domains

- Timely Access
- Post-operative morbidity and mortality
- Disease-specific indicators
- Cost

- Review of current surgical oncology volumes and distribution across RCN
- Redefine appropriate targets for timely access per disease-site
- NSQiP Program
- Disease-site team-based surgical outcomes
Creating a Map of Surgical Oncology Across RCN
OPERA Data Analysis Methodology

Data extraction of all procedures in OPERA (bloc + hors-bloc)
~5 000 for MUHC (unique procedure definitions)

Exclusions:
Vascular, cardio, biopsy, ortho, interventional radiology, plastic sx, revisions, anesthesiology (ex. for pain relief)

~3500 unique procedure definitions
* There is no standard nomenclature for OPERA so MUHC/JGH/SMHC differs in procedure names

Data for analysis
Surgeries grouped by body system with potential to be an oncology surgery

Flagged in OPERA as oncology procedure
3822 (~51%)
* Likely underrepresented, as not flagged as suspected onco sx

All others not Flagged
3755 (~49%)

RCN surgical volume (2014-15)
7577

* Likely underrepresented, as not flagged as suspected onco sx
American College of Surgeons
National Surgical Quality Improvement Program

Semiannual Report, July 2016

Dates of Surgery: January 1, 2015 – December 31, 2015
McGill University Health Centre
Program Overview

• ACS NSQIP is a data-driven, risk-adjusted, outcomes-based program to measure and improve the quality of surgical care.

• Benefits of participation include:
  • Identifying quality improvement targets
  • Improving patient care and outcomes
  • Decreasing institutional healthcare costs
Participating Hospitals

Number of Sites by State, Region, and Country Included in the July 2016 SAR (615)

- CANADA 49
- MIDWEST 149
- NORTHEAST 128
- USA 550
- WEST 107
- SOUTH 166

- AUSTRIA 1
- AUSTRALIA 5
- LEBANON 1
- JORDAN 1
- PHILIPPINES 1
- SAUDI ARABIA 4
- UNITED ARAB EMIRATES 2
- UNITED KINGDOM 1
Outcomes

Wound Occurrences
- SSI (superficial, deep, organ/space)
- Wound disruption

Cardiac
- MI
- Cardiac arrest requiring CPR

Pulmonary
- PNA
- On ventilator >48 hrs.
- Re-intubation
- PE

Other
- PRBC Transfusion up to 72 hrs, post-op
- DVT
- Sepsis/Septic Shock

Urinary
- UTI
- Progressive renal insufficiency
- ARF

Re-admission

Unplanned return to OR

Mortality
RCN and NSQiP

- Capitalize on existing expertise and program across MUHC and JGH
- Expand NSQiP to SMH
- Established a NSQiP RCN Committee (Chaudhury, Chaytor, Tataryn)
- Analyze and compare existing NSQiP data across RCN
- Expand data collection to ALL surgical oncology cases
- Expand data collection of cancer-specific outcomes
NSQIP program expansion across RCN

- Identifying procedures with higher oncologic incidence
- Harmonizing the selected oncology procedures across the 3 partners
- 10 RCN selected procedures
- $ 750 000 over 3 years

<table>
<thead>
<tr>
<th>NSQIP Specialty</th>
<th>RCN selected procedures</th>
<th>Program expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Surgery</td>
<td>Pancreatectomy, Colectomy, Proctectomy, Esophagectomy, Hepatectomy, Thyroidectomy</td>
<td>New procedures added (JGH: Thyroidectomy, Hysterectomy) - MUHC: procedures for gynecology, thoracic and urology - SMH: New program implementation</td>
</tr>
<tr>
<td>Gynecology</td>
<td>Hysterectomy</td>
<td></td>
</tr>
<tr>
<td>Thoracic</td>
<td>Lung Resection</td>
<td>Additional optional variables for: - Colectomy - Oesophagectomy - Pancreatectomy - Proctectomy - Thyroidectomy</td>
</tr>
<tr>
<td>Urology</td>
<td>Cystectomy, Nephrectomy, Prostatectomy</td>
<td>Increase sampling size for 2 institutions</td>
</tr>
</tbody>
</table>
Moving Towards Surgeon-Specific Scorecard

- Access (delays)
- Volume
- Post-operative mortality
- Morbidity
- Pathology
- Disease-specific mortality
- Overall survival
- Cost
Thank you!