

Quality of Cancer Care: The Role of the Urological Cancer Registry

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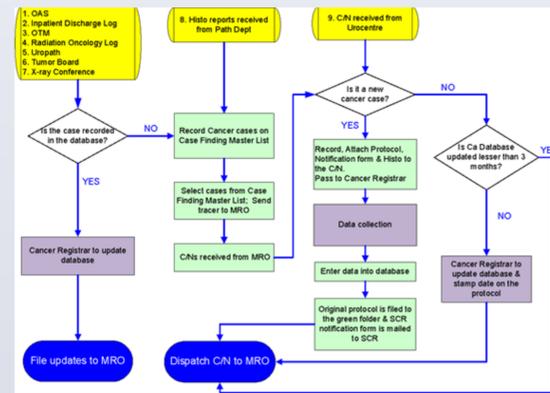
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INTRODUCTION

The Urological Cancer Registry (UCR) at the Department of Urology at the Singapore General Hospital (SGH)

- Established in 1980's
- Adopted the American College of Surgeons (ACS) Commission on Cancer (CoC) standards and tailored to the needs for the specialty of Urology in 2008
- Collected and maintained 8000 Urological cancer cases on all Urological cancers diagnosed and/or treated in the hospital
- A standardized workflow and completeness of data registration (Figure 1) illustrated in our previous paper published in 2010¹
- Data widely used for clinical audit, research publications and clinical trials

Figure 1. Standard Operating Procedure of the UCR



Legend
 OAS Outpatient Administrative System
 OTH Operating Theatre Management
 Urology Urological conference
 Urology Urology
 Path Dept Department of Pathology
 CNI Case notes
 Ca Cancer
 SCR Singapore Cancer Registry
 MRO Medical Record Office

METHODS

- The UCR team
- Head of Department
 - Director of Oncology
 - Director of Research
 - 4 Urologists responsible for prostate cancer, urothelial carcinoma, renal cell carcinoma and other urological cancers respectively
 - cancer registrars (including 1 certified tumor registrar to supervise data collection and data entry)
 - Administrator

To ensure its compliance with CoC standard

- UCR conducted half -yearly quality control exercises in areas of data timeliness, data completeness and accuracy, standard operation procedures, and outcome variables.
- Focused on achieving and demonstrating the overall high accuracy and completeness of data through supporting clinical and basic research projects in the department

Three activities of the UCR in the management of patients with urological cancers through providing information and helping to identify indicators for measures of the quality of cancer care.

1. Assessment of accuracy and completeness of data
2. Research projects supported by the UCR
3. Role of UCR in uro-oncological follow-up

RESULTS

1. Assessment of completeness and accuracy of data
- To illustrate an example of quality improvement on data completeness of the UCR (Table I)¹

- ✓ Sampled the completeness of robotic radical prostatectomy (RRP) data collected over 5 years in 2008.
- ✓ Retrospectively reviewed all records of the patients who underwent RRP from June 2003 to July 2008.
- ✓ 361 consecutive patients were identified for the evaluation
- ✓ 12.1% of RRP cases not staged by 2008
- ✓ found that majority of clinical stage or digital rectum examination (DRE) for the 12.1% patients was not recorded by the treating urologists when the UCR assessed the causes of the incompleteness. In 2010, the UCR achieved 100% of RRP cases staged when the registry re-examined RRP cases performed from 2003 to 2010.

Table I. Summary of RRP Cases from Jun 2003 to Jul 2008 at Department of Urology

Category	Number of Cases	Percentage	CoC Requirements for an academic institution
Eligible Cases Captured ^a	351	96.2%	100.0%
Cancer Cases Staged	321	87.9%	90.0%
Data Completed	317	86.7%	90.0%

^aEligible Prostate Cases are required by CoC are malignancies with an ICD-O-3 behavior code of 2 or 3, which exclude prostate PIN III)

- Quality improvement on data accuracy (Table II)

- ✓ Randomly sampled 10.9% of the 2360 prostate cancer cases collected from 1980 to 2007 in the registry database
- ✓ Capture-recapture methods
- ✓ Re-abstracted by an urologist and a certified tumor registrar who were not the original abstractors
- ✓ Majority data variables sampled exceeded 90% of accuracy rates required by the CoC
- ✓ Accuracy rate for clinical staging was 88.3%. The cause of the low accuracy rate compared with the CoC standard of 90% was due to incomplete clinical staging information in the patients' casenotes.
- ✓ Orally presented in the North American Association of Central Cancer Registries 2010 Annual Conference.

Table II. Data accuracy of the Prostate Cancer Registry at Department of Urology (1980 – 2007)

Data item	UCR performance	CoC recommendations
Date of birth	99.6%	90.0%
Date of diagnosis	98.8%	90.0%
Pre-op PSA	96.5%	90.0%
Gleason score at 1st positive biopsy for prostate cancer	94.6%	90.0%
Clinical staging	88.3%	90.0%
Cancer status at last follow-up	97.3%	90.0%
Survival status	100.0%	90.0%

2. Research projects supported by the UCR

- 24, 28, 31, 23, 33 research projects supported in 2009, 2010, 2011, 2012, 2013 respectively
- From measurement of cancer care in domains of access, efficiency, efficacy, appropriateness, safety, and satisfaction to explorations of new treatment modalities
- Examples to illustrate how the UCR data plays a part in the quality of cancer care
 - ✓ Example 1 (Table III): Proved that a team-based approach to RRP helped to reduce the learning curve of the procedure for individual surgeons²
 - ✓ Example 2: The UCR data on patient bills and actual cost of each treatment from the Department of Finance used to compare the cost incurred for Robotic Radical Prostatectomy (RRP), intensity-modulated radiation therapy and Brachytherapy from May 2008 to June 2009. this additional information could be helpful in the financial counseling of patients in the outpatient setting and managing of patient expectations.

Table III. Measures of quality of care for 100 RRP cases operated between May 2005 and Dec 2006 over 100 RRP cases performed from Feb 2003 to May 2005

Feature	Mean ± Standard deviation		p value	Number of cases		p value
	May 2005 - Dec 2006	Feb 2003 - May 2005		May 2005 - Dec 2006	Feb 2003 - May 2005	
Dissection time (minutes)	136 ± 52	182 ± 52	<0.001			
Setup time (minutes)	17 ± 8	24 ± 14	<0.001			
Major complications within first 30 days after surgery						
No major complications				95	96	1.000
Cerebrovascular accident					1	
Small bowel perforation, sepsis, pulmonary pneumonia				1		
Anastigmatic urinary leakage				1	1	
Post-op ileus				3		
Transient ureteric obstruction					2	
Blood transfusion						
No				99	93	0.065
Yes				1	7	

3. The role of the UCR in uro-oncological follow-up

- Actively monitoring follow-up of the patients who underwent brachytherapy since 2009
- The treating urologists were alerted to send reminders to patients to attend follow-up
- As a result, no brachytherapy patients lost to follow up under the care of the Department of Urology

DISCUSSION

1. Monitoring completeness and accuracy of data and actively feeding back to the Urologists → improves medical documentation
2. Periodically performing audits on the clinical outcome of work through the compilation and processing of data → inspired Urologists to pursue further improvements in various parameters such as minimizing major complications and blood transfusions in RRP cases.
3. Availability on accurate information on RRP cost, waiting time for RRP, length of hospital stay, major complications rate, final pathological results and patients' satisfactions post-RRP based on the UCR data → patients further equipped to make informed decisions on treatment options that best suits their needs.
4. Initiatives in improving patient care: The UCR data directly utilized to evaluate treatments such as RRP and Brachytherapy in the areas of access, efficiency, efficacy, appropriateness, safety, and satisfaction without bias.
5. The role of the UCR does not include direct patient contact for follow-up purpose. However the UCR can contribute in patient follow-up by monitoring the dates of patient last follow-up and next follow-up from the hospital outpatient administrative system (OAS).
 - In making sure appointments are re-scheduled if a patient missed his appointment, the UCR helps ensuring no brachytherapy patients defaults follow-up in SGH.

- The UCR follows up patients medical documents in monthly to quarterly bases to record recurrences or complications post-treatment. In the case of patients who had brachytherapy, the urologist in charge will be informed if recurrences or complications occurred, or medical documents were not appropriate recorded. The treating urologist is thus able to take quick actions to better serve patients with the help from the UCR

6. Rooms for the UCR to be more actively involved in patients' follow-up. To the best of our knowledge, it is generally no role of the cancer registries being directly involved in cancer patients' follow-ups in Singapore. At present, the UCR is monitoring patients treated with brachytherapy for low-risk prostate cancer without direct contacts with patients. The involvement of cancer registries in Brachytherapy patients' follow-up benefits cancer patients in two areas:
 - No patient is lost to follow up. The SGH current clinical systems are unable to automatically and periodically generate lists of cancer patients whose next appointments are not scheduled. With helps from the UCR, those patients are identified and subsequently given follow-up dates.
 - Rapid actions are taken if any post treatment complications and recurrences occur.

CONCLUSION

1. The UCR not only provides the infrastructure for collecting data on the quality of cancer care
2. but also involves follow-ups of brachytherapy patients in our institution
3. The UCR data is well utilized in helping the improvement of quality of care for urological cancer patients in SGH

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