Quality Indicators in Kidney Cancer Care

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How do we define quality?
Quality of Care

• Definition: “the degree to which health services for individuals and populations increases the likelihood of desired health outcomes and are consistent with current professional knowledge

• A multidimensional concept
Quality of Care

• Performance is often measured by establishing indicators (standards) and then evaluating whether the organization of services, patterns of care, and outcomes are consistent with those standards
What are Quality Indicators?

• “A measurable element of practice performance for which there is evidence or consensus that it can be used to assess quality and hence change the quality of care provided”

• “Tools designed to measure quality care”
Quality Indicators

• Should be:
  • Relevant
  • Practical
  • Measurable

• They are intended to enhance quality through identifying areas which need improvement
Quality Indicators

• Can be categorized according to 3 dimensions of quality
  • Structure
  • Process
  • Outcomes

• It is unclear which category is the “best” as they are all complicated by many factors
  • Some advocate for process measures
    • More easily interpretable and thus, more actionable
Why Is It Important?

• It is important on many levels to know if good quality of care is being delivered.
  • Individual patients
  • Individual physicians
  • Institutions
  • Organizations and regions
  • Nationally
  • Funding agencies, etc.
Why Is It Important?

• QIs can be used for
  • Benchmarking across institutions
  • To set organizational and regional priorities
  • Support accountability and accreditation
  • Inform and prioritize quality improvement initiatives
Quality Care Initiatives

• There are many examples in the literature
  • NICCQ – breast and colon
**Table 1. Examples of NICCQ Quality Measures**

<table>
<thead>
<tr>
<th>Diagnostic Evaluation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IF a patient has stage I to III breast cancer and had a breast tumor removed, THEN the pathology report should state the status of the margins.</td>
<td></td>
</tr>
</tbody>
</table>

Surgery

|  |
|-----------------------|---|
| IF a patient has primary rectal cancer and does not have a T4 tumor or a documented intraoperative complication that led to premature termination of the operation, THEN the surgical pathology report should document that the radial margin of the surgical specimen is free of tumor. |

Adjuvant Therapy

|  |
|-----------------------|---|
| IF a patient with a diagnosis of stage I to III breast cancer has breast-conserving surgery, THEN the patient should receive local radiation therapy. |

Management of Treatment Toxicity

|  |
|-----------------------|---|
| IF a patient ever receives highly emetogenic chemotherapy, THEN the patient should receive potent antiemetic therapy (e.g., 5-hydroxytryptamine-3 blockade). |

Post-Treatment Surveillance

|  |
|-----------------------|---|
| IF the patient has resection of a stage III or III colorectal cancer, THEN the patient should be counseled about the need to have first-degree relatives undergo colorectal cancer screening. |

Abbreviation: NICCQ, National Initiative for Cancer Care Quality.
### Table 4. Quality of Care for Initial Treatment of Breast and Colorectal Cancer: Variation Across MSAs

<table>
<thead>
<tr>
<th>Measure</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>95% CI</td>
<td>%</td>
<td>95% CI</td>
<td>%</td>
</tr>
<tr>
<td><strong>Breast cancer</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic Evaluation†</td>
<td>90</td>
<td>88 to 91</td>
<td>84</td>
<td>82 to 86</td>
<td>88</td>
</tr>
<tr>
<td>Surgery‡</td>
<td>90</td>
<td>87 to 92</td>
<td>80</td>
<td>75 to 83</td>
<td>83</td>
</tr>
<tr>
<td>Adjuvant Therapy§</td>
<td>82</td>
<td>80 to 84</td>
<td>79</td>
<td>76 to 82</td>
<td>82</td>
</tr>
<tr>
<td>Management of Treatment Toxicity</td>
<td>71</td>
<td>62 to 79</td>
<td>84</td>
<td>71 to 92</td>
<td>78</td>
</tr>
<tr>
<td>Post-Treatment Surveillance</td>
<td>95</td>
<td>92 to 97</td>
<td>90</td>
<td>85 to 94</td>
<td>94</td>
</tr>
<tr>
<td>Overall‡</td>
<td>87</td>
<td>86 to 88</td>
<td>82</td>
<td>81 to 84</td>
<td>86</td>
</tr>
<tr>
<td><strong>Colorectal cancer</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic Evaluation</td>
<td>89</td>
<td>85 to 91</td>
<td>82</td>
<td>77 to 86</td>
<td>87</td>
</tr>
<tr>
<td>Surgery</td>
<td>94</td>
<td>91 to 97</td>
<td>90</td>
<td>84 to 94</td>
<td>91</td>
</tr>
<tr>
<td>Adjuvant Therapy</td>
<td>60</td>
<td>55 to 65</td>
<td>70</td>
<td>84 to 76</td>
<td>67</td>
</tr>
<tr>
<td>Post-Treatment Surveillance</td>
<td>48</td>
<td>37 to 55</td>
<td>61</td>
<td>49 to 72</td>
<td>54</td>
</tr>
<tr>
<td>Overall</td>
<td>76</td>
<td>74 to 79</td>
<td>78</td>
<td>75 to 80</td>
<td>79</td>
</tr>
</tbody>
</table>

Abbreviation: MSA, metropolitan statistical area; NICCQ, National Initiative for Cancer Care Quality.

*We report the results by region anonymously to maintain the confidentiality of the hospitals and providers who participated in NICCQ.

†P < .01.
‡P < .001.
§P < .05.
RCC QI Project – Why?
How often are patients with diabetes or hypertension being treated with partial nephrectomy for renal cell carcinoma? A population-based analysis

Robert Abouassaly, Antonio Finelli*, George A. Tomlinson†, David R. Urbach† and Shabbir M.H. Alibhai**

Do We Continue to Unnecessarily Perform Ipsilateral Adrenalectomy at the Time of Radical Nephrectomy? A Population Based Study

Stanley A. Yap, Shabbir M. Alibhai, Robert Abouassaly, Narhari Timilshina and Antonio Finelli*

Unintended Consequences of Laparoscopic Surgery on Partial Nephrectomy for Kidney Cancer

Robert Abouassaly, Shabbir M. H. Alibhai,* George Tomlinson, Narhari Timilshina and Antonio Finelli†

Predictors of early mortality after radical nephrectomy with renal vein or inferior vena cava thrombectomy – a population-based study

Stanley A. Yap, David Horovitz, Shabbir M.H. Alibhai, Robert Abouassaly*, Narhari Timilshina and Antonio Finelli
RCC QI Project – Why?

• Are we delivering good quality care to our patients, our institutions, our regions?
• How can we improve it?
• There is a lack of consensus about what is “best” practice
• Are there variations within and across jurisdictions?
• This project was a timely and relevant initiative given the launch of a multi-center national database of kidney cancer care (CKCIS) and hence, the ability to capture quality indicators nationally
Determining Quality of Care

• Different approaches
  • RAND methodology
    • Appropriateness of care
    • Often when there is no data
    • Expert consensus
  • Nominal Group technique
    • In person meeting with expert panel
  • Delphi or Modified Delphi
Treatment of Patients With Metastatic Renal Cell Cancer

A RAND Appropriateness Panel

Ronald J. Halbert, MD, MPH1,2 Robert A. Figlin, MD3,4 Michael B. Atkins, MD5 Myriam Bernal, MD, MPH1 Thomas E. Hutson, DO, PharmD6 Robert G. Uzzo, MD7 Ronald M. Bukowski, MD8 Khuda Dad Khan, MD, PhD9 Christopher G. Wood, MD10 Robert W. Dubois, MD, PhD1

Objective:
The goal of this study was to rate the appropriateness of the main systemic therapy options for MRCC.
Methods and Results

Methods:
- The RAND/University of California-Los Angeles Appropriateness Method was utilized to evaluate systemic therapy options and cytoreductive nephrectomy.
- Following a comprehensive literature review, an expert panel rated the appropriateness of systemic options (108 permutations) and cytoreductive nephrectomy (24 permutations) for patients with MRCC.

Results:
- 27.3% of permutations were rated “appropriate,” 46.9% were rated “inappropriate,” and 25.8% were rated “uncertain.” High rate of agreement (95%).
- Sunitinib and sorafenib were rated appropriate for patients with low-to-moderate risk regardless of prior treatment.
- Temsirolimus was rated appropriate for first-line therapy for higher risk patients.
- Interferon-a and low-dose interleukin-2 were rated inappropriate or uncertain.
- In patients who received prior immunotherapy, cytokines were rated inappropriate.
**Results**

Results:

- In all permutations for evaluating systemic therapy, enrollment into an investigational trial was considered appropriate, treatment with bevacizumab was uncertain, and thalidomide was inappropriate regardless of risk status or prior therapy.
- For good surgical risk patients with planned immunotherapy, nephrectomy was rated appropriate in patients who had limited metastatic burden regardless of tumor-related symptoms and in symptomatic patients regardless of metastatic burden.
- Only the most favorable combination of surgical risk, metastatic burden, and symptoms generated an “appropriate” rating for patients with planned targeted therapy.
FIGURE 3. Appropriateness ratings are shown for cytoreductive nephrectomy in patients with metastatic renal cell carcinoma with primary tumor in situ who did not receive prior immunotherapy. Green represents “appropriate” ratings, yellow represents an “uncertain” rating or disagreement among the panelists, and red represents an “inappropriate” rating.
Modified Delphi Technique

• Systematic and consensus-based approach for thoughtfully translating available evidence into objective performance measures

• Use of questionnaires to elicit anonymous responses over a number of rounds with controlled feedback

• “modified” involves an “in-person” meeting
Using the Delphi Technique to Improve Clinical Outcomes Through the Development of Quality Indicators in Renal Cell Carcinoma

By Lori Wood, MD, MSc (Epi), FRCP, Georg A. Bjarnason, MD, FRCP(C), Peter C. Black, MD, MSc, FRCS, FACS, Ilias Cagiannos, MD, FRCS, Daniel Yick Chin Heng, MD, MSc, FRCP, Anil Kapoor, MD, FRCS, Christian K. Kollmannsberger, MD, FRCP, Forough Mohammadzadeh, PhD, Ronald B. Moore, MD, PhD, FRCS, FACS, Ricardo A. Rendon, MD, FRCS, Denis Soulières, MD, MSc, FRCP, Simon Tanguay, MD, FRCS, Peter Venner, MD, FRCS, Michael Jewett, MD, FRCS, and Antonio Finelli, MD, MSc, FRCS

Queen Elizabeth II Health Sciences Centre; Victoria General Hospital, Dalhousie University, Halifax, Nova Scotia; Sunnybrook Health Sciences Centre; St Michael's Hospital; Princess Margaret Hospital, University of Toronto, Toronto; University of Ottawa, Ottawa; St Joseph's Hospital, McMaster University, Hamilton, Ontario; Vancouver Prostate Centre, University of British Columbia; Vancouver Cancer Centre, University of British Columbia, Vancouver, British Columbia; Tom Baker Cancer Centre, Calgary; University of Alberta; Cross Cancer Institute, University of Alberta, Edmonton, Alberta; Centre Hospitalier de L'Université de Montréal, University of Montreal; and Montreal General Hospital, McGill University, Montreal, Quebec, Canada
Methods

1. Review kidney cancer literature

   • Articles had to define, describe or recommend appropriate care of adult patients with kidney cancer, both localized and metastatic, across the management continuum

   • Publications had to be
     • Professional consensus statements
     • Meta-analysis
     • Systematic reviews
     • Clinical practice guidelines
     • Studies in which quality indicators/performance measures were generated by reviewing the literature and/or using some form of consensus process.

2. Extract and review the indicators
Methods

3. Tabulate and Categorize potential indicators
   • Screening, Diagnosis/Prognosis, Surveillance, Management of Localized/Advanced Disease, Systemic Therapy, Follow-Up, Palliative Care, Clinical Trials, Outcomes

4. Round 1 questionnaire (email to expert panel)

5. Analyze Round 1 results

6. In person meeting:
   • discuss the results and to accept/reject/modify/and suggest new indicators
   • Round 2 questionnaire

7. Analyze Round 2 results

8. Round 3 prioritization the indicators (email to expert panel)

9. Analyze Round 3 results and finalize the summary report
Establish panel

Confirm which should be discarded or retained. Indicators with no consensus will be re-rated, in addition to those newly suggested that are accepted by the panel.

Prior to one-day meeting

Extract indicators from literature

Review round 1 results

At one-day meeting

Round 1 questionnaire

Round 2 questionnaire

Review round 2 results

Prioritize indicators retained from both Round 1 and Round 2

Post one-day meeting

Round 3 prioritization

no consensus and newly suggested indicators

retained indicators

discarded indicators

Discarded indicators

Retained indicators

Discarded indicators

Retained indicators
Potential Quality Indicators

• Rated by
  • **Validity**: associated with Quality

• **Actionable**: the organization or delivery of care could be modified if found lacking

• **Relevance/Useful**: majority of providers would find comparative data on this indicator of value for benchmarking
## Results – Round 1

<table>
<thead>
<tr>
<th>Description</th>
<th>Count/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articles selected for review</td>
<td>269</td>
</tr>
<tr>
<td>Number of citations from literature search</td>
<td>250</td>
</tr>
<tr>
<td>Articles from which indicators were selected</td>
<td>23</td>
</tr>
<tr>
<td>Indicators included in round 1 survey</td>
<td>34 (24 accepted, 8 unclear, 2 excluded)</td>
</tr>
<tr>
<td>Newly suggested indicators</td>
<td>25 (3 were redundant)</td>
</tr>
</tbody>
</table>
Results

• 23 Indicators
  • Screening (1)
  • Diagnosis/Prognosis (3)
  • Surgical Management of Localized Disease (6)
  • Surgical Management of Advanced Disease (3)
  • Management of Metastatic Disease (6)
  • Follow Up (2)
  • Outcomes (2)
Screening

• All patients with RCC have had a personal history, family history, and physical assessment to screen and evaluate for hereditary RCC
Diagnosis/Prognosis

• Proportion of patients undergoing appropriate risk-specific staging

• Proportion of patients with data collected on the performance status/co-morbidities pre-operatively

• Proportion of patients with advanced/metastatic RCC who have appropriate data collected to help determine their prognosis
Surgical Management of Localized Disease

• Proportion of appropriate patients undergoing partial nephrectomy (PN) for renal tumours < 4cm

• Proportion of patients with clinically localized RCC (T2aN0Mx) (7.1-10 cm) undergoing laparoscopic radical nephrectomy (RN)

• Proportion of patients with chronic kidney disease or disorders threatening renal function being offered partial nephrectomy
Surgical Management of Localized Disease

• Proportion of patients with positive margins post-partial nephrectomy

• Proportion of patients who have partial nephrectomy surgical complication such as: urinary leak, hemorrhage

• Average warm ischemia time for patients who have partial nephrectomy
Surgical Management of Advanced Disease

• Proportion of patients with synchronous or metachronous metastatic RCC and surgically resectable metastatic lesions having metastasectomy performed to render the patient NED

• Proportion of patients with metastatic RCC undergoing cytoreductive nephrectomy

• Proportion of patients with radiological evidence of retroperitoneal lymph node disease but no other distant metastases who have RPLND at the time of nephrectomy to render the patient NED
Management of Metastatic Disease

• Proportion of patients receiving targeted therapy after cytoreductive nephrectomy

• Proportion of patients with metastatic/advanced RCC disease undergoing first-line systemic therapy that is based on level I evidence

• Proportion of patients with advanced/metastatic RCC who start on full dose targeted therapy
Management of Metastatic Disease

• Proportion of patients on first-line targeted therapy with advanced/metastatic RCC with progression who switch to another targeted therapy

• Proportion of patients with metastatic RCC who enter a clinical trial

• Proportion of metastatic RCC patients who are assessed by members of multidisciplinary genitourinary cancer team (urologists, medical oncologist, specialized nursing team, etc.)
Follow Up

• Proportion of patients who had curative surgery and are being followed by accepted follow-up guidelines

• Proportion of patients with metastatic RCC who had been referred to a palliative care team prior to death
Outcomes

• Five-year overall survival, cancer specific survival, and disease-free survival rate for resected RCC from date of surgery for: Stage I disease, Stage II disease, Stage III disease

• Progression-free survival and overall survival for advanced/metastatic RCC on targeted therapy
Next Steps

• Benchmarking
  • Determining an appropriate range or value for the measures of interest
  • Challenges
Conclusions

• Quality of care is becoming more topical

• Performance is tied to achieving quality and ultimately could impact resource allocation

• We have developed indicators for kidney cancer care and plan to set benchmarks based on administrative and collaborative data

• Ultimately we aim to improve the quality of care that our kidney cancer patients receive
Acknowledgements

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  • Ilias Cagiannos
  • Ricardo Rendon