Staging and Data Completeness: Essential Components to Quality of Cancer Care

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Chair, Commission on Cancer

Purpose of presentation
- Discuss the importance of staging in cancer care
- Discuss how NCDB data is used to improve cancer care and the importance of accurate and complete data
- Enlist the help of cancer programs to improve the cancer data in the NCDB

History of TNM Cancer Staging

1940s French Surgeon Pierre Denoix developed the concept of TNM staging
1958 First TNM Recommendations for breast and laryngeal cancer by the International Union Against Cancer (IUCC)
1959 AJCC Started
1977: AJCC 1st Edition
2009: AJCC 7th Edition
Importance of Cancer Staging

Stratify cancer cases to help determine:
- Treatment options
- Prognosis
- Candidates for clinical trials
- Effectiveness of treatment
- Quality improvement in cancer care

SECTION TWO: CODING INSTRUCTIONS / Stage of Disease at Diagnosis

CLINICAL STAGE GROUP
Item Number: 14
Code: AN

Description: Identifies the anatomic extent of disease based on the T, N, and M elements known prior to the start of any therapy.

Rationale:
The CoC requires that AJCC TNM staging be used in its accredited cancer programs. Effective January 1, 2008, the CoC requires that AJCC clinical TNM staging be recorded in its accredited cancer program cancer registries. The AJCC developed this staging system for evaluating trends in the treatment and control of cancer. This staging system is used by physicians to estimate prognosis, plan treatment, evaluate new types of therapy, analyze outcomes, design follow-up strategies, and to assess early detection results.

Instructions for Coding:
- Record the clinical stage group documented by the first treating physician or the managing physician in the medical record.
- If the managing physician has not recorded the clinical stage, registries will code this item based on the best available information, without necessarily contacting additional members of the medical team.
- To assign stage group when some, but not all, T, N, and/or M components can be determined, interpret missing components as "X." If the value does not fill all 4 characters, then record the value to the left and leave the remaining spaces blank.
- Convert all Roman numerals to Arabic numerals and use upper-case (capital letters) only.
- Refer to the current AJCC Cancer Staging Manual for staging rules.
CoC-accredited programs are required to submit the pretreatment TNM classifications with the corresponding stage group for class of case 10-22 patients diagnosed on or after January 1st, 2008.

FORDS: Revised for 2013 recommends pathologic TNM classifications be recorded for surgically-treated patients.

The CoC does not require that registries use information that is otherwise unavailable in the facility’s records to assign staging information.

As a consequence, the NCDB contains incomplete clinical and pathologic staging data that hinders the production of new quality measures.

Some registrars hesitant to record the clinical stage when the medical record does not contain physician staging.

Incompleteness of Clinical TN: 2010-2011

Incompleteness of Clinical Stage Group Trend 2007-2011
Incompleteness of Pathologic TN: 2010-2011

Incompleteness of Pathologic Stage Group Trend 2007-2011

TNM Staging Completeness Recommendations

Include pathologic staging information when available
Registrar should input clinical stage information based on available diagnostic testing available and physician physical examination
Registrars are encouraged to obtain information outside their facility when available to complete staging
Utilize completeness reports as a measure of adequacy of abstracting
Why are we asking you to help us improve staging?

Development of new quality measures are limited when staging information not available

Quality measures save lives!

Incomplete staging information decreases the utility of the data to determine outcomes related to treatment as well as to determine specific survival rates by stage at diagnosis.

Example of improving the quality of care through use of quality measures in CoC programs

Lymphadenectomy quality measure for colon cancer: Is it working?

Jennifer Leigh Parkh, Jennifer Chung, Kellee Learnin Halid, David Porter Hitchcock, E. Green Gay, Samuel B. McKale, David W. Larson, West Nelson, Division of Research and Optimal Patient Care, American College of Surgeons, Chicago, IL; Northwestern University, Chicago, IL; Mayo Clinic, Rochester, MN; NorthShore University HealthSystem, Evanston, IL; Commission on Cancer, National Cancer Data Base, Chicago, IL; Wayne HealthCare, Greenville, OH

Abstract Text:

Background: Endorsement of the 12 lymph node colon cancer quality measure has led to improvements in national performance. It needs to be determined whether hospital performance on this measure is associated with improved outcomes. The objectives of this study were to determine whether improvement on this measure impacts stage migration or survival. Methods: Patients in the National Cancer Data Base undergoing resection for stage I colon cancer (1995-2011) were identified. Three hospital improvement groups were created using change in median node count over time (6: 6.10.10). Changes in the rate of stage II patients over time were compared between groups. A historical Cox model was used to assess the relationship between hospital improvement and 5-year survival for stage II patients. Results: A total of 40,103 patients from 1,987 hospitals were identified. Median hospital lymph node counts increased from 10 [IQR 6-10] to 17 [IQR 10-15] over the study period (p<0.001). In stage I patients, median survival increased from 10.2 months to 11.6 months (p<0.001). Improvement in hospital survival for stage II patients was significantly associated with 5-year overall survival (measured as improvement in 5: 10.15: 20) (3.9: 1.0). Conclusions: Stage migration and improved survival were related to degree of hospital improvement in median node count. Implementation of this quality measure at Commission on Cancer accredited facilities may have greatest impact on outcomes at centers with most improvement.

Example of improving the quality of care through use of quality measures in CoC programs

Median node counts increased from 10 to 17

Significant increase in stage III patients (Stage shift)

Improvement in survival for stage II patients
Importance of Data Completeness and Accuracy

NCDB data is used for many very important purposes:

Administrative reports

- Utilization of resources
- Expanding patient access to care
- Identifying disparities in care
- Expanding/decreasing personnel in cancer program

Quality Improvement

- Cancer Quality Improvement Program (CQIP)
- Cancer Practice Profile Reports (CP3R)
- Rapid Quality Reporting System (RQRS)
- Survival Reports
- NCDB Benchmark Reports

Cancer Research

- Many important advances in cancer care have come from NCDB data
- Participant user files provided to researchers from CoC programs – numerous publications and presentations
- Clinical Scholars study NCDB data
- American Cancer Society utilizes NCDB data for important patient care initiatives
- Identify potential focus for clinical trials

How can we improve the accuracy and completeness of NCDB Data?

NCDB Completeness Reports have been designed to help cancer programs identify opportunities for improvement in reporting NCDB data

Currently the use of the report is voluntary

All CoC accredited programs are requested to access and utilize the reports to focus efforts to improve data

New reports examining data from 2012 now available
Why is this important to your cancer program?

The data submitted to NCDB is the data we use to generate reports contained in NCDB tools
CP^R
CQIP
RQRS Dashboards
Survival Reports
Benchmark Reports

Complete data submission the NCDB is required by standard 5.5?

STANDARD 5.5
Data Submission
Each year, complete data for all requested analytic cases are submitted to the National Cancer Data Base (NCDB) in accordance with the annual Call for Data.

Submission of accurate data to the NCDB is required by standard 5.6?

STANDARD 5.6
Accuracy of Data
Annually, cases submitted to the National Cancer Data Base (NCDB) that were diagnosed on January 1, 2003, or later meet the established quality criteria and resubmission deadline specified in the annual Call for Data.
How to access the completeness report

Log on to Datalinks

National Cancer Data Base (NCDB) Reporting Tools

- NCDB: Hospital Comparison Benchmark Reports
- NCDB: Survival Reports
- NCDB: Cancer Program Practice Profile Reports (CPPR) (v3)
- NCDB (v3.13)
- Cancer Quality Improvement Program (CQIP) Report

National Cancer Data Base (NCDB) Data Transmission

- NCDB: Data Submission History and Sites
- NCDB Completeness and Default Overview Reports for 2012 Diagnoses Submitted in 2014
- Layout
- Cancer Programs Web Page

Access your report here

What do the reports look like?

What do the reports look like?
Six Primary Sites Adopted to date

- Breast
- Colon
- Rectum
- Stomach
- Esophagus and Esophageal Junction
- Lung

What do the reports look like?

<table>
<thead>
<tr>
<th>Registry Item</th>
<th>Subset (denominator is in range described below)</th>
<th>Subset Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequence Number</td>
<td>Class of Case = 00-12</td>
<td>All analytic diagnoses</td>
</tr>
<tr>
<td>Date of First Contact</td>
<td>Class of Case = 00-12</td>
<td>All analytic diagnoses</td>
</tr>
<tr>
<td>Primary Payor at Diagnosis</td>
<td>Class of Case = 00-12</td>
<td>All analytic diagnoses</td>
</tr>
<tr>
<td>NPI - Primary Surgeon</td>
<td>Surgical Procedure of the Primary Site at This Facility (NPI) = 1</td>
<td>Surgery performed at facility</td>
</tr>
<tr>
<td>NPI - Physician #3 (Radiation Oncologist)</td>
<td>Location of Radiation Treatment (NPI) = 1</td>
<td>All radiation performed at facility</td>
</tr>
<tr>
<td>NPI - Physician #4 (Medical Oncologist)</td>
<td>Chemotherapy at This Facility (NPI) = 1</td>
<td>Known chemotherapy given at facility</td>
</tr>
<tr>
<td>Disease Status</td>
<td>Subset (denominator is in range described below)</td>
<td>Subset Description</td>
</tr>
<tr>
<td>SEER Site Classification</td>
<td>Class of Case (SEER) = 00-12</td>
<td>All analytic diagnoses</td>
</tr>
<tr>
<td>Vendor Name</td>
<td>Class of Case (SEER) = 00-12</td>
<td>All analytic diagnoses</td>
</tr>
</tbody>
</table>

Identifying the Denominator

Subsets define the cases used for evaluation
- “Subset”: Technical definition of the measure
- “Subset Description”: Verbal definition of same content

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<tr>
<td>NPI - Primary Surgeon</td>
<td>Surgical Procedure of the Primary Site at This Facility (NPI) = 1</td>
<td>Surgery performed at facility</td>
</tr>
<tr>
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<td>Location of Radiation Treatment (NPI) = 1</td>
<td>All radiation performed at facility</td>
</tr>
<tr>
<td>NPI - Physician #4 (Medical Oncologist)</td>
<td>Chemotherapy at This Facility (NPI) = 1</td>
<td>Known chemotherapy given at facility</td>
</tr>
<tr>
<td>Tumor Site</td>
<td>Subset (denominator is in range described below)</td>
<td>Subset Description</td>
</tr>
<tr>
<td>SEER Site Classification</td>
<td>Class of Tumor (SEER) = 00-12</td>
<td>All analytic diagnoses</td>
</tr>
<tr>
<td>Vendor Name</td>
<td>Class of Tumor (SEER) = 00-12</td>
<td>All analytic diagnoses</td>
</tr>
</tbody>
</table>
**What Codes Are Looked At?**

Items are evaluated for indications of incomplete coding or evidence of over-reliance on default coding.

<table>
<thead>
<tr>
<th>Registry Item</th>
<th>Subitem Description or Range (as defined below)</th>
<th>Subitem Description</th>
<th>Message</th>
<th>Code Evaluated</th>
<th>Benchmark High/Low (%)</th>
<th>Hospital Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of First Course of Treatment</td>
<td>As least some treatment was provided at the facility</td>
<td>All analytic diagnosis</td>
<td>All dates of first course or treatment not to treated or previously recorded</td>
<td>High portion of cases with treatment not reported</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**What Does a Clean Report Look Like?**

Example: Long-Term Follow-Up (No Highlights)

In each instance, "Hospital Percent" is lower than "Benchmark"

Long-Term follow-up is cases diagnosed in 2007 and submitted in 2014

<table>
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<tr>
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<th>Message</th>
<th>Code Evaluated</th>
<th>Benchmark High/Low (%)</th>
<th>Hospital Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Last Contact or Event</td>
<td>Class of Case (∀ Y) = 13</td>
<td>At least some treatment was provided at the facility</td>
<td>Mark day</td>
<td>1753</td>
<td>5% None</td>
<td>6.35%</td>
</tr>
<tr>
<td>Currently Status</td>
<td>Class of Case (∀ Y) = 13</td>
<td>At least some treatment was provided at the facility</td>
<td>1775</td>
<td>9</td>
<td>25% 1.09%</td>
<td>3.93%</td>
</tr>
<tr>
<td>Date of First Recurrence</td>
<td>Class of Case (∀ Y) = 13</td>
<td>At least some treatment was provided at the facility</td>
<td>Mark day</td>
<td>1880</td>
<td>50% 25%</td>
<td>6.24%</td>
</tr>
<tr>
<td>Type of First Recurrence</td>
<td>Class of Case (∀ Y) = 13</td>
<td>At least some treatment was provided at the facility</td>
<td>Mark day</td>
<td>1880</td>
<td>50% 25%</td>
<td>6.24%</td>
</tr>
</tbody>
</table>

**How Do I Know There Is a Problem?**

Long-Term Follow-Up: diagnosed in 2007 and submitted in 2014

- Type of First Recurrence
  - First: cases appear to be updated after initial discharge
  - Second: defaulting to 88 (type not specified) or 99 (unknown if recurred)
How can we use the reports to improve NCDB data completeness and accuracy?

NCDB Completeness Reports have been designed to help cancer programs identify opportunities for improvement in reporting NCDB data.

Review a portion of the report at each cancer committee meeting.

Discuss mechanisms to improve data completeness. Cancer committee has a responsibility to evaluate the quality of abstracting and ensure accuracy.

Why do we all need to work together to ensure the highest quality cancer care?

“Knowing is not enough; we must apply. Willing is not enough; we must do.”
—Goethe