Commission on Cancer

A multidisciplinary program of the American College of Surgeons

NCDB RQRS

The Rapid Quality Reporting System (RQRS)

Contents

INTRODUCTION

Improving the quality of cancer care requires useful measures of quality, the availability of data to apply these measures, defined mechanisms to use these data to change practices and improve care, and the commitment and participation of providers and institutions. Existing mechanisms to collect cancer treatment data can measure or improve quality of care prospectively. However, current reporting systems collect data retrospectively, providing information to providers eighteen to twenty-four months after treatment beings. Further, treatment information included in current data collection systems is insufficient to assess the quality of care. Particularly difficult to ascertain are data describing treatment in the ambulatory arena, where a significant proportion of cancer care is administered. Ongoing quality assessment requires an enhanced data collection system that provides information to clinical providers near or during the time of service.

The Commission on Cancer (CoC) of the American College of Surgeons (ACoS) serves in the capacity of a business associate with all CoC-accredited hospitals and has entered into a Business Associate Agreement that includes a data use agreement with each of these hospitals to assist them with health care operations, in particular quality assurance, utilization review, and accreditation in accordance with 45 CFR §164.501 and 45 CFR §164.103. This agreement permits the CoC to set standards and survey for quality of multidisciplinary cancer care. In addition, the CoC can provide aggregated analyses and reports on clinical patterns of diagnosis, treatment and outcomes of cancer patients, and to evaluate hospital performance, develop effective interventions to improve cancer care outcomes at the national and local level, providing feedback in the form of an individual facility's data benchmarked against regional and national data.

The ACoS recognizes its obligation to support each hospital's commitment to assure comprehensive quality care. The Standards for the CoC's accreditation program require hospitals to collect comprehensive cancer treatment data on patients who receive all or some portion of their care at the hospital and report these data to the National Cancer Data Base (NCDB). To date, reporting has occurred retrospectively and analyses of clinical performance have been based on past practices. In order to facilitate quality improvement that will have the ability to encourage quality, evidence-based care in a timely manner, the CoC has developed a mechanism, the Rapid Quality Reporting System (RQRS), that enables accredited cancer programs to report data on patients concurrently, provide hospitals notification of treatment expectations, and show a hospital its year-to-date concordance rate relative to the state, other similar hospitals, and hospitals at the national level.

The primary objective of the RQRS is to promote evidenced-based cancer care at the local level. RQRS does not test new interventions. Rather it simply utilizes a web-based, systematic data collection and reporting system to promote evidenced-base treatments through a web-based alert system for anticipated care in order to support the scope of care coordination required for breast and colorectal cancer patients at the local level. Utilization of the RQRS is basically an intrinsic part of the normal health care operation. Implementation of the RQRS is consistent with and honors the agreed upon uses of data submitted to the CoC as stated in its BAA with each CoC accredited cancer program.

Prior to releasing RQRS to all accredited cancer programs the CoC tested the RQRS in seven alpha and sixty five beta test sites to:

1.) Demonstrate the ability to utilize existing cancer registry operations and nationally established coding guidelines to collect a minimum necessary quantity of data elements for breast and colorectal cancer in order to support ongoing quality assurance programs using the RQRS.

2.) Identify the impact a web-based data collection and reporting system has on promoting quality of care for breast and colorectal cancer cases through assessing the change in performance rate for each of the measures at participating hospitals.

3.) Assess the acceptability of the RQRS to providers through appraising factors such as size of cancer program, location of program, impact on registry operations, and availability of electronic medical records.

4.) Expand the RQRS for participation on a voluntary basis to the all CoC accredited cancer programs across the United States.

The initial alpha test involving seven sites in Georgia (Hamilton Medical Center, Archbold Memorial Hospital, Memorial Health, Dekalb Medical, West Georgia Health Systems, the Medical Center of Central Georgia, and University Health Care System) was undertaken to test the mechanics of the system. The primary purpose of the alpha test was to ensure that the developed RQRS software manages data and reports information in a manner consistent with the design specifications and can be independently verified by external users of the system. The beta test, which included 65 CoC accredited cancer program volunteers, was performed over two-years, from July, 2009 to August, 2011. This phase focused on the scope of resources required to engage and sustain an active clinical monitoring system. Observations and recommendations from RQRS alpha and beta test participants have been used to develop enhancements to the system before its full release.

In September 2011, the RQRS was rolled out on a voluntary basis to all CoC approved cancer programs which meet the minimum requirements for participation. As with the prior phases, the CoC has

monitored and analyzed acceptance and use of the system. Beginning in January 2014, the CoC updated their standards to include participation in RQRS for commendation with Standard 5.2.

BACKGROUND

The Quality Problem

The quality of cancer care in America varies widely. Variation in care affects outcomes of cancer care ranging from quality of life and resource utilization, to cancer recurrence and long term survival. Addressing variation and quality of cancer care has become a national priority since the 1999 report National Cancer Policy Board of the Institute of Medicine outlined the scope of the problem and broad recommendations for quality improvement.

The organization of cancer care makes quality evaluation in cancer a different challenge than, for example, cardiac care. Quality initiatives in cardiac care can focus primarily on single episodes of inpatient care (e.g. cardiac surgery outcome and treatment of acute myocardial infarction). Quality evaluation in cancer care cannot be limited to the inpatient setting. Cancer care is the sum of multiple episodes of care, often spread over weeks or months, administered by a number of providers across different specialties in a combination of inpatient and ambulatory settings. A significant proportion of cancer care for common malignancies is now administered in the ambulatory setting.

Quality Measure Development

Quality improvement requires evidenced-based measures that can be applied with available data and are relevant to providers, institutions, and consumers. Using cancer registries, the RQRS prospectively collects data on patients diagnosed and treated for breast and colorectal cancers and reports back to participating CoC accredited cancer programs comparative concordance rates for six quality measures. Cancer registries at CoC accredited cancer programs use nationally established and open source data standards to routinely report cancer diagnosis and treatment to the ACoS's National Cancer Data Base (NCDB) on an annual basis. Utilizing these data, the CoC of the ACoS submitted quality of care measures for three breast and three colorectal cancers to the National Quality Forum (NQF) in response to its call for proposed breast measures in late 2004 and colorectal measures in early 2005. Each of these measures was developed by the CoC with the expectation that cancer registries would be used to collect the data necessary to assess and monitor concordance with the measures. Extensive assessment and validation of the measures was performed using cancer registry data reported to the NCDB in collaboration with senior scientists at the NQF and National Cancer Institute (NCI). Measures were reviewed by the CoC's breast and colorectal disease site teams prior to their submission to the NQF for consideration. These disease site teams were formed to better meet the national demand for ongoing assessment of the quality of cancer care and were composed of surgical oncologists, medical oncologists, radiation oncologists, and pathologists actively involved in cancer care.

A NQF Steering Committee for quality of cancer care measures was charged with assuring that pertinent stakeholders had appropriate opportunity to review and provide input on the measures under consideration. Two Technical Panels assembled by the NQF made up of breast and colorectal experts in the areas of surgery, radiotherapy, medical oncology, health care consumers, and health services research provided technical evaluation of the proposed measures. The NQF Steering Committee and Technical panels reviewed measures using four criteria:

- *importance*: the extent to which a measure reflects variation that has the potential for improvement;

- *scientific acceptability*: that a measure is reliable, valid, precise, and adaptable to patient preference;
- *usability*: information produced as part of the measure could be used to make decisions and/or take actions, and that reported performance levels were statistically, and clinically meaningful;
- *feasibility*: that data can be obtained within the normal flow of clinical care and that implementation of the measure was achievable.

Through a parallel process, the American Society for Clinical Oncology (ASCO) and the National Comprehensive Cancer Network (NCCN) developed a similar set of measures for breast and colorectal cancer. Facilitated by the NQF, the CoC, ASCO, and NCCN agreed to synchronize their developed measures to ensure that a unified set were put forth to the public. The full specifications of the final set of harmonized measures for breast and colorectal cancer care are listed in on the CoC Quality Measures website(www.facs.org/cancer/qualitymeasures.html). Desch and colleagues have published a summary the measure development process undertaken by ASCO and NCCN.[1,2]

Four measures were endorsed by the NQF as accountability measures, meaning that these measures can be used for purposes such as public reporting, payment incentive programs, and the selection of providers by consumers, health plans, or purchasers. These measures are:

- Radiation therapy is administered within 1 year (365 days) of diagnosis for women under age 70 receiving breast conserving surgery for breast cancer.
- Combination chemotherapy is considered or administered within 4 months (120 days) of diagnosis for women under 70 with AJCC T1cN0M0, or Stage II or III hormone receptor negative breast cancer.
- Tamoxifen *or* third generation aromatase inhibitor is considered or administered within 1 year (365 days) of diagnosis for women with AJCC T1cN0M0, or Stage II or III hormone receptor positive breast cancer.
- Adjuvant chemotherapy is considered or administered within 4 months (120 days) of diagnosis for patients under the age of 80 with AJCC Stage III (lymph node positive) colon cancer.

The following measure was selected by the NQF as a quality improvement measure:

- At least 12 regional lymph nodes are removed and pathologically examined for resected colon cancer.

Quality improvement measures are intended to be used for internal monitoring of performance within an organization or group so that analyses and subsequent remedial actions can be taken, as appropriate.

Selection of quality measures

The quality measures for breast and colorectal cancer care reported through the RQRS are the same measures that have been endorsed by the National Quality Forum or identified though collaboration with other national medical and oncology organizations and societies. These measures are already reported to the CoC accredited hospitals using retrospective data. Measure specifications for the quality indicators for breast cancer and colorectal cancer are listed in on the CoC Quality Measures website.

ENROLLMENT

[1] Desch CE *et al*. American Society of Clinical Oncology/National Comprehensive Cancer Network Quality Measures. *JCO*, vol 26, num 21, 2008

[2] American Society of Clinical Oncology/National Comprehensive Cancer Network Quality Measures. *JCO*, vol 26, num 21, 2008).

RQRS registration is voluntary. Enrollment began in September 19, 2011. Anytime after this interested cancer programs may begin their RQRS registration. Before initiating RQRS enrollment the Cancer Committee Chair (CCC), Cancer Liaison Physician (CLP), Cancer Program Administrator (CPA) and the Hospital Registrar (HR) should all agree to participate in RQRS. Separate enrollment by each of these individuals is required for a cancer program to be registered to use RQRS, this is necessary to ensure all members of the cancer program understand the responsibilities and value of RQRS participation. The RQRS requires support from the entire cancer program to achieve the greatest possible impact on quality improvement and patient care.

RQRS Eligibility

1) Cancer program is currently CoC accredited.
2) All CoC programs wishing to participate in RQRS must have a Hospital registrar (HR), Cancer Program Administrator (CPA), Cancer Liaison Physician (CLP) and Cancer committee chair (CCC) with CoC Datalinks access and up-to-date unique contact (e-mail) information. Where the CLP and the CCC are the same individual, this requirement is waived.

Updating contact information

If contact information is out of date or if current CCC, CLP, CPA or HR do not have CoC Datalinks access, update this information through the Manage Contacts portion of CoC Datalinks. To update information for CLPs, please e-mail CLP@facs.org.

RQRS Enrollment Steps

1) Any of the following individuals in your cancer program; the CCC, CLP, CPA or HR; may initiate RQRS program registration by logging into CoC Datalinks & clicking on the '*RQRS*' link appearing in the Activity Menu.
2) The individual that initiates RQRS registration must confirm contact information for the CCC, CLP, CPA and HR, confirming RQRS eligibility for your cancer program, and completes their registration by reviewing and accepting the Terms and Conditions for RQRS participation.
3) The remaining required cancer program positions (CCC, CLP, CPA and/or HR) will receive an e-mail indicating that enrollment has been initiated and prompting them to complete their individual enrollment for RQRS within 8 weeks.
    - Individual enrollment by the CCC, CLP, CPA and HR is required to ensure all members of the cancer program understand the responsibilities and value of RQRS participation. RQRS requires support from the entire cancer program to achieve the greatest possible impact on quality improvement and patient care.
4) Once a cancer program has been notified that all registration steps are complete for RQRS it may begin submitting cases to RQRS on the following business day.
    - RQRS eligible 2012 through the most recent in the cancer registry breast and colon cancer diagnoses must be submitted within 3 months of registration completion.
5) All members of the cancer program with CoC Datalinks access will have access to the RQRS reporting tool.

Enrollment for multiple cancer programs

All persons affiliated with more than one CoC accredited cancer program will need to register for RQRS independently for each institution. When enrollment is initiated you will be directed to choose one cancer program before entering the RQRS system.

Enrollment within Networks

Networks accredited through the CoC enroll in RQRS in the same way as an individual cancer program. The Cancer Committee Chair, Cancer Program Administrator, Hospital Registrar and at least one Cancer Liaison Physician must individually enroll in RQRS for the network to be registered for the system.

Enrollment Timelines

Individual enrollment must be completed for each of the required CoC defined positions within 8 weeks of the completion of the first person's individual enrollment. If the cancer program's registration is not completed within this timeframe it will be cancelled, and the registration process will have re-started. Cancer program registration status will be available at all times in CoC Datalinks. If you have any problems with your enrollment contact NCDB staff at *NCDB_RQRS@facs.org*.

CASE REPORTING

Methodologies for rapid case identification and data collection

Currently, hospital cancer registries collect information documenting the diagnosis, histo-pathologic evaluation, and treatment of cancer cases between 4 and 6 months following diagnosis. Each registry has established local mechanisms to identify newly diagnosed cancer cases; ascertain whether, and what type, of treatment was administered; and determine vital status outcomes of cancer patients diagnosed and/or treated at their facility. Case identification generally includes systematic reviews of pathology records from affiliated laboratories as well as hospital discharge records. Where necessary, data are requested from affiliated physicians who may have provided care in the ambulatory arena outside hospital. Patient charts and records for identified cases are typically reviewed and data are abstracted and coded into registry databases using a standardized manual of data elements and collection rules documented in the Facilities Oncology Registry Data Standards (FORDS) manual. Elements include demographics, histologic tumor type, cancer staging, data diagnosis, surgical treatment, and radiation and systemic therapies (http://www.facs.org/cancer/coc/fordsmanual.html). Upon completion, case records are rigorously tested for coding accuracy and inter-item consistency using nationally standardized electronic data editing software supported by the Centers for Disease Control and Prevention (www.cdc.gov/cancer/npcr/tools/edits/). Annually, all analytic cases entered into the cancer registry at each CoC accredited cancer program are transmitted over a secure web site to the National Cancer Data Base.

The system of retrospective data collection and reporting by cancer registries was developed to support a cancer surveillance information system that can routinely report on the incidence, treatment, and mortality of cancer in the United States. Clinical surveillance, quality assurance, and near-real-time data collection were not contributing factors to the establishment of the cancer registry systems in North America. As a consequence of its interest in the clinical management of cancer patients, the ACoS's CoC has successfully integrated aspects of clinical data collection and reporting into cancer registry operations.

Efforts to evaluate quality and impact on care early in its course require establishing rapid case identification systems and data collection and reporting mechanisms that allow evaluation of specific events in cancer care. These data collection efforts can be coordinated within the overall operations of cancer registries. The strategy adopted through the RQRS is to utilize existing cancer registry operations and universally adopted coding guidelines to collect the minimum necessary quantity of data elements for breast and colorectal cancer in order to support ongoing quality assurance programs. The limited resources available for cancer registry operations are broadly recognized and in some instances, it may be necessary to delay the collection of cancer treatment data until complete data are available. One of the objectives of the beta test phase of the RQRS was to evaluate such data collection strategies to provide information for ongoing quality evaluation and cancer registry operations.

Data dictionary

A complete list of standardized cancer registry data items is available in NAACCR vol. II (http://www.naaccr.org/StandardsandRegistryOperations/VolumeII.aspx). The NCDB routinely collects a select sub-set of these items as part of its annual call for data cycle. All items are documented and defined in the CoC's FORDS. The RQRS requires that, at minimum, the following items be reported for each case:

Item	NAACCR Item #	Definition
Facility Identification Number	540	Identifies the facility reporting the case
Accession Number	550	Provides a unique identifier for the patient consisting of the year in which the patient was first seen at the reporting facility and the consecutive order in which the patient was abstracted.
Sequence Number	560	Indicates the sequence of malignant and non-malignant reportable neoplasms over the lifetime of the patient.
Class of Case	610	Identifies whether the cancer program diagnosed and/or treated the reported case.
Sex	220	Identifies the sex of the patient.
Birth Date	240	Identifies the date of birth of the patient.
Age	230	Records the age of the patient at his or her last birthday before diagnosis.
Race	160	Identifies the primary race of the person.
Spanish Origin	190	Identifies persons of Spanish or Hispanic origin.
Primary Payor	630	Identifies the patient's primary payer/insurance carrier at the time of initial diagnosis and/or treatment
Patient Zip Code at Dx	100	Identifies the postal code of the patient's address at diagnosis.
Date of Diagnosis	390	Records the date of initial diagnosis by a physician for the tumor being reported.
Primary Site	400	Identifies the primary site.
Tumor Histology	522	Identifies the microscopic anatomy of cells.
Tumor Behavior	523	Records the behavior of the tumor being reported. The fifth digit of the morphology code is the behavior code.
Tumor Size	2800	Records the largest dimension or diameter of the primary tumor.
Regional LN Examined	830	Records the total number of regional lymph nodes that were removed and examined by the pathologist.
Regional LN Positive	820	Records the exact number of regional lymph nodes examined by the pathologist and found to contain metastases.
Clinical T	940	Evaluates the primary tumor (T) and reflects the tumor size and/or extension as recorded by the physician.
Clinical N	950	Identifies the absence or presence of regional lymph node (N) metastasis and describes the extent of regional lymph node metastasis as recorded by the physician.
Clinical M	960	Identifies the presence or absence of distant metastasis (M) as recorded by the physician.
Clinical Stage Group	970	Identifies the anatomic extent of disease based on the T, N, and M elements as recorded by the physician.
Pathologic T	880	Evaluates the primary tumor (T) and reflects the tumor size and/or extension as recorded by the physician.
Pathologic N	890	Identifies the absence or presence of regional lymph node

		(N) metastasis and describes the extent of regional lymph node metastasis as recorded by the physician.
Pathologic M	900	Identifies the presence or absence of distant metastasis (M) as recorded by the physician.
Pathologic Stage Group	910	Identifies the anatomic extent of disease based on the T, N, and M elements as recorded by the physician.
ERA	2880	Estrogen Receptor Assay
PRA	2890	Progesterone Receptor Assay
Primary Site Surgery - Summary	1290	Records the surgical procedure(s) performed to the primary site.
Primary Site Surgery - Facility	670	Records the surgical procedure(s) performed to the primary site at this facility.
Cancer Directed Surgery Date	3170	Records the date of the most definitive surgical resection of the primary site performed as part of the first course of treatment.
Chemotherapy	1390	Records the type of chemotherapy administered as first course treatment at this and all other facilities. If chemotherapy was not administered, then this item records the reason it was not administered to the patient. Chemotherapy consists of a group of anticancer drugs that inhibit the reproduction of cancer cells by interfering with DNA synthesis and mitosis.
Chemotherapy Date	1220	Date of initiation of chemotherapy that is part of the first course of treatment.
Hormone Therapy	1400	Records the type of hormone therapy administered as first course treatment at this and all other facilities. If hormone therapy was not administered, then this item records the reason it was not administered to the patient. Hormone therapy consists of a group of drugs that may affect the long-term control of a cancer's growth. It is not usually used as a curative measure.
Hormone Therapy Date	1230	Date of initiation for hormone therapy that is part of the first course of treatment.
Radiation Regional Rx Modality	1570	Records the dominant modality of radiation therapy used to deliver the most clinically significant regional dose to the primary volume of interest during the first course of treatment.
Radiation Date	1210	Records the surgical procedure(s) performed to the primary site at this facility.
Reason for no radiation	1430	Records the reason that no regional radiation therapy was administered to the primary site.
Last Contact Date	1750	Records the date of last contact with the patient or the date of death.
Vital Status	1760	Records the vital status of the patient as of the date entered in *Date of Last Contact or Death*

While the RQRS is designed to function using a limited set of data items, transmitted records should not be limited either to the minimum reporting requirements shown above, or the items listed in the complete RQRS data dictionary above.

Case Reporting – Registry Operations

Data are collected by cancer registries at the participating hospitals and entered into their cancer registry data base. On a locally-determined schedule, breast and colorectal cases are extracted from the cancer registry and transmitted to the RQRS using nationally standardized data transmission specifications established by the North American Association of Central Cancer Registries (NAACCR). Transmission of cases to the RQRS will utilize established secure electronic data transmission protocols utilized by the NCDB since 2001. Modifications or changes to case records can only occur at the cancer registry. Quality reports available through the RQRS are based exclusively on the case records reported from the participating programs' cancer registry. Participating programs are responsible for monitoring and updating case records, and may use the alerts and case listing features (see below) of the RQRS to manage and facilitate any necessary updates.

The RQRS is designed to complement the continuing large-scale retrospective collection by the NCDB while allowing real-time quality of cancer care assessment to emerge as a critically important component of the services it provides to CoC-Accredited cancer programs. The conceptual framework for the RQRS uses data collection and management procedures that are almost identical to those utilized in the NCDB's traditional Call for Data while incorporating additional processes to accommodate extra levels of communication and transparency necessary to support a standardized reporting format using the NQF endorsed measures.

The RQRS has been designed to assist cancer programs to ensure that submitted data are an accurate reflection patient care. RQRS provides the opportunity for hospital registries to examine data at the local level and verify that these performance rates are representative of the care provided at their institution. Each participating hospital may use the RQRS to examine data completeness of tumor characteristics, surgery, stage, and treatment.

The RQRS process of data transmission and flow is cyclical in design. Every data submission or resubmission by the participating cancer program registry invokes specific actions by the RQRS. Feedback in the form of reports are generated by the RQRS and returned to the reporting registry.

Case Reporting – Technical Specifications

Case records are abstracted following nationally standardized cancer registration coding rules. Participating cancer programs utilize existing commercial registry software programs to submit case records to the RQRS in standard NAACCR record format. Records may be submitted as they are abstracted, and may be in varying states of completeness. Data submission schedules can be led by local requirements, and are sensitive to availability of information and knowledge of clinical events. However, the CoC requires all RQRS participants to make RQRS submissions at least every three months to ensure the validity of RQRS performance rates and reliability of comparison rates. Registries submit their breast and colorectal cancer records via the password protected CoC DataLinks web portal supported by the ACoS. Submission files and individual case reports are validated and an initial data quality report utilizing nationally standardized cancer registry edits software are immediately made available to participating program registries. Records that have passed these preliminary levels of validation and review are written to the RQRS database. Records failing these initial assessments are identified for the participating programs to review and resubmit.

Registry Software Providers should allow RQRS users to adhere to the following expectations:

- CoC Accredited cancer program registries transmitting case records to the RQRS should have the option to select cases to be included in the transmission file. Cases ought to be selected on the basis of:
    1) A range of diagnosis dates selected by the participating registry; and
    2) A specific range of primary site, for example breast (C50.0 – C50.9), colon (C18.0, C18.2 – C18.9), or rectum (C20.9), or any combination thereof.

  These selection criteria are different than those established for the annual NCDB Call for Data. The RQRS is designed to identify non-applicable cases based on a broad set of criteria, including primary site, histology, behavior, stage, class of case, and type of reported surgical therapy.
- The RQRS will only accept NAACCR incidence records, record type I – incidence only record type (non confidential coded data). This transmission requirement is consistent with NCDB Annual Call for Data reporting guidelines.
- All cases must be transmitted to the RQRS in the current standard NAACCR form

Database Administration and Validation

Cancer registries in the United States adhere to data transmission standards set by the North American Central Cancer Registry (NAACCR). These standards encourage consistency in both coding procedures and data transmission formats among registries. The RQRS has been designed to use these data standards for all transactions. The CoC works closely with federal, state and other medical organizations to develop shared coding instructions and code definitions for registry data. The RQRS data assessment and processing actions presume these code definitions and instructions are followed. All data submission files are confirmed to be in valid NAACCR form in advance of any further quality review. Each submission generates a summary report of database eligibility for review by the reporting hospital registry.

Data submissions not received in standard NAACCR form will be rejected and the participating program registry notified that a review of the transmission file format is required. Current NCDB batch processing for its Annual Call for Data are operationalized in exactly the same manner.

RQRS REPORTING FEATURES

Year-To-Date Rates

Estimated year-to-date performance rates reflect the proportion of cases for which adjuvant therapy was expected to have started within the previous 365 days. The rate shown for the removal of 12 regional lymph nodes in the colon cancer measure reflect cases diagnosed within the previous 365 days. These rates are re-computed and re-posted every day, and allow the participating programs an opportunity to quickly gauge their approximate performance.

If a review by the registry results in a subsequent/delayed re-submission of cases that provide updated treatment information that satisfies the concordance criteria of the measure, the status of each effected case will change and be reflected in the displayed year-to-date rates by the following business day of the re-submission. Such re-submissions can resulted in a "suspense" case to become "concordant" and "non-concordant" case to become "concordant".

The information displayed in the Year-To-Date section of the RQRS is sensitive to cancer program specific transactions of new or re-submitted case reports as well as the passage of time. As a result, this section of the reports has the potential to be highly dynamic. Participating programs will necessarily have to establish monitoring practices to ensure that reported cases are followed and re-submitted, as necessary, in a timely manner.

Alerts

A critical and unique feature of the RQRS is its alerts system. With the exception of the colon measure related to the extent of pathological examination of dissected regional lymph nodes, each measure calls for either medical or radiation oncology care within some number of days following the date of diagnosis. Using the daily re-computed rates described above, the number of days remaining until expected non-surgical treatment for any case in "suspense" is determined and communicated to the participating programs in time for the provider to monitor the timeliness of a patient's care with respect to evidenced-base clinical guidelines. For all cases where data describing expected non-surgical treatment is pending the RQRS will assign a color alert ranging from white (very recent diagnosis) to yellow, to orange, to red (extremely delayed initiation of expected adjuvant treatment), to dark red (adjuvant treatment past due). Case reports that fail to have expected treatment reported with seven days following the specified measure time-frame are relegated to "non-concordant" status; these cases will remain on the alerts case for 120 days to serve as a reminder that treatment status is unknown for these cases. The relationship between the alert color and the number of elapsed days is sensitive to each measure and is based on a combination of the measure specifications and data analysis from the NCDB:

Case Alert Color Status by Measure				
Measure	Alert Color - Based on the # of Days Until Expected Administration of non-Surgical Therapy			
	White	Yellow	Orange	Red
Radiation therapy is administered within 1 year (365 days) of diagnosis for women under age 70 receiving breast conserving surgery for breast cancer	≥241	240-181	180-91	≤90
Combination chemotherapy is considered or administered within 4 months (120 days) of diagnosis for women under 70 with AJCC T1cN0M0, or Stage IB - III hormone receptor negative breast cancer.	≥91	90-61	60-31	≤30
Tamoxifen *or* third generation aromatase inhibitor is considered or administered within 1 year (365 days) of diagnosis for women with AJCC T1cN0M0, or Stage IB - III hormone receptor positive breast cancer.	≥211	210-151	150-76	≤75
Adjuvant chemotherapy is considered or administered within 4 months (120 days) of diagnosis for patients under the age of 80 with AJCC Stage III (lymph node positive) colon cancer.	≥91	90-61	60-31	≤30

Case specific "alert" status/color in the RQRS is sensitive to cancer program specific transactions of new or re-submitted case reports as well as the passage of time. As a result, this section of the reports has the potential to be highly dynamic. Each individual program will determine what works best at their facility. Inevitably, participating programs will have to establish monitoring practices to ensure that reported cases are followed, referred to the appropriate provider, and re-submitted as care decisions are determined.

Monthly Alerts Reports

An additional feature of the alerts section of the RQRS involves monthly e-mail notifications to participating cancer program staff - including the cancer registry, cancer program administrator, Chair of the cancer committee, and the CoC's cancer liaison physician. This notification provides a summary report for each of the five measures highlighting the number of cases with un-resolved or incomplete non-surgical treatment information, and an indication of the relative urgency of this information, depending upon the alert status/color of these cases. A summary of the number of cases marked with dark red (treatment past due), red (extremely delayed initiation of expected adjuvant treatment), or orange (moderately delayed initiation of expected adjuvant treatment) will be included

in this report. No specific patient information is included within these reports, to review case-specific information user must log-in to CoC Datalinks.

The purpose of these case alerts is informational and merely notifies participating programs of specific cancer cases treated at their facility that: a) may have treatment pending, or b) in some instances, treatment may have already been provided but this information has not yet been updated and submitted to the RQRS. These alerts are primarily a tool to assist programs with quality improvement as reflected by each program's measure-specific performance rates. The way programs choose to use them should be determined by the Cancer Program.

Case Lists:

RQRS may identify any case record submitted to the RQRS. Access to individual case records is based on organ site (breast or colon), associated measure, and case status (concordant, considered-not-administered, suspense, non-concordant, incomplete, not applicable). As in the alerts section of the RQRS, data elements made available for case review include; administrative, demographic, and treatment information appropriate to the measure. Complete transparency is critical if participating programs are going to make full use of the reporting system and ensure that information is being correctly managed and reported. As with the alerts section of the RQRS, the case lists provide the opportunity for precise comparisons with potentially more current or complete information existing in the local cancer registry and re-submission of cases, as necessary, can be completed.

RQRS Notes

RQRS users are able to leave encrypted notes with information about a case or treatment information which is not included in the standard NAACCR record. These notes are meant to allow cancer program staff to leave information about cases and limit or stream-line the amount of time spent looking for and abstracting treatment information.

To ensure the information stored in the RQRS notes is secure and only able to be viewed by eligible institutional users a KEYRING, a program-specific password, and must be established and can be shared with other RQRS users within the cancer program. Only KEYRING per RQRS participating program is allowed. A KEYRING is stored in each work-station's Adobe Cache, and will only need to be re-set if the cache is cleared or a new work-station is used. The CoC has no access a cancer program's KEYRING or the information submitted through the RQRS Notes; this information is only available for RQRS users within the cancer program.

Treatment Summaries

A treatment summary document, in the form of a modifiable PDF, can be generated from both the RQRS Alerts and Case Lists. The information provided in the RQRS Treatment Summary PDF is based on the most recent RQRS data submission from your cancer registry. The most recent date the case was submitted appears at the bottom of the document, as well as the initials of the case abstractor. The information presented in the RQRS Treatment Summary PDF is meant to serve as a guide for RQRS participating institutions. All treatment decisions remain the responsibility of the physician. This document may contain confidential information. It is the responsibility of the RQRS participating program to determine how best to use and share this information.

Performance Rates

Performance rates for each of the NQF endorsed measures specific to each participating program can be compared to aggregated comparison rates across other participating programs. Aggregated comparisons are provided based on geographical proximity (state, census division, American Cancer Society division, and nationally); structural type, based on CoC accreditation category (community cancer centers,

comprehensive community cancer centers, teaching/research centers); business or institutional affiliations such as corporations (HCA, Tenet) or other systems (VA, NCI designated cancer centers, NCCN members, NCCCP pilot sites); and for all RQRS participating CoC accredited programs taken together. In addition to the computed performance rate, the total number of cases reviewed for the specific cancer program and the aggregated comparison groups are provided along with 95% Confidence Intervals (CI) for each computed performance rate. This feature enables each program to compare their performance with groups relevant to their organization.

Measure performance rates can be examined by select strata – patient age, sex, race, insurance coverage, and area-based income and levels of education. These layers of stratification are useful in identifying potentially underserved populations within the case-mix of a particular hospital and can facilitate the examination and reduction of disparities in care – whether these are observed by age, race, insurance status, or broad measures of socio-economic status (SES).

For each measure users can generate specific types of comparative figures, including, but not limited to the following images:

- Track trends in performance rates over time for each of the measures within your cancer program and compare to other institutions.
- Displays in rank order performance rates with 95% CIs, contrasting the relative position of their program with that of other programs in the selected comparison group.
- Stratify and compare cancer programs performance rates by patient demographic information to assess trends in cancer care at the local level.

All displayed rates and graphical images can be controlled for time, allowing for historical trends at the cancer program and permit comparative group levels to be reviewed over specified time periods.

DATA SECURITY

Access:

Written access and security protocols are maintained by the American College of Surgeons to ensure that only authorized users of the ACoS CoC DataLinks web-portal have access to the RQRS. Project Managers designate to the Database Administrator the requirements and necessary permissions for all users within the project. The Database Administrator has the ability to control the level of permissions for CoC/NCDB staff, including analysts, developers, and recognized users associated with project participants. All CoC/NCDB applications track user traffic, and can identify which user initiates a session within a reporting application, allowing any problems to be easily tracked. Only CoC/NCDB staff assigned to this project will have access to the limited data set that supports the RQRS.

Transmission and Maintenance:

Case reports transmitted to the RQRS from CoC accredited cancer registries are securely submitted through the password protected DataLinks web portal maintained by the ACoS. This is the same entry point for standard NCDB case submissions that has been in place since 2001, with no record of security breach. The ACoS uses Secure Server and Secure Sockets Layer (SSL) technology. This technology encrypts data during the transfer of data between a Web Browser and a Server. A secure server prevents network transactions from being decoded, thus preserving the privacy of the data submitted to the NCDB. A Secure Server encrypts confidential information in order to send data safely over the Internet.

Security risks involve non-authorized personnel or organizations gaining access to hospital and case identifiable information. The RQRS utilizes a limited data set, which is permitted under the BAA and the HIPAA privacy rules, and relies on indirect identifiers for administrative purposes. The RQRS is

maintained in a secure environment at the ACoS, which has invested heavily in establishing a secure data environment for protected health information provided to the CoC from 1,500 hospitals nationwide on over 26,000,000 case reports. The current network utilizes five major firewalls which govern seventy servers all of which have dual redundant fail-over power supplies. RQRS Oracle databases reside on a Local Area Network (intranet) that is not physically attached to the Wide Area Network (internet) In addition, the RQRS web-server resides on a separate gigabyte local net, physically separate from other departments to ensure the highest quality of speed and security.