Part II. The Cancer Program of the American College of Surgeons Commission on Cancer

Historical Overview

The Commission on Cancer of the American College of Surgeons (ACS) is a consortium of professional organizations dedicated to reducing the morbidity and mortality of cancer through education, setting standards, and monitoring the quality of care.

A Cancer Campaign Committee was established in the ACS in 1913, the year that the ACS was founded. The committee's initial activity was to analyze case records of patients with cancer of the uterine cervix or corpus who were considered cured 3 years after treatment to determine outcomes by treatment type and stage. A committee report in 1924 concluded that surgery and radiation therapy were equally effective for early-stage disease of the uterine cervix and that palliation and survival for advanced-stage disease were improved by radiation therapy.

In 1930 the committee was renamed the Committee on the Treatment of Malignant Disease. Standards were published that year under the title "Organization of Service for the Diagnosis and Treatment of Cancer." The standards were centered around the evaluation of cancer clinics and registries. In 1940 the committee was renamed the Committee on Cancer and, in 1947, initiated a survey of cancer detection centers with a grant from the American Cancer Society. Also in 1947, a grassroots program to identify a surgeon at the hospital level who would promote and oversee the programs of the Committee on Cancer was instituted. This cancer liaison program continues today. In 1954 the standards for cancer programs were updated to include mandates for a multidisciplinary cancer committee, tumor boards, and methods of monitoring and reporting end results. The requirements for an approved hospital cancer program were expanded in 1956 to include a cancer registry, which incorporated diagnostic, staging, treatment, and annual lifetime follow-up of all cancer patients. Since then, the Committee on Cancer has been a key supporter of hospital-based cancer registries.

In recognition of the increasingly multidisciplinary nature of cancer care, the committee was expanded in 1965 to include members from a

TABLE 1. Member organizations of the COC

American Academy of Hospice and Palliative Medicine	Association of American Cancer Institutes
American Academy of Pediatrics	Association of Cancer Executives
American Association for Cancer Education	Association of Community Cancer Centers
American Cancer Society	Canadian Society of Surgical Oncology
American College of Obstetricians and Gynecologists	Centers for Disease Control and Prevention
American College of Oncology Administrators	College of American Pathologists
American College of Physicians	Department of Defense
American College of Radiology	Department of Veterans Affairs
American Dietetic Association	National Cancer Institute; Surveillance, Epidemiology, and End Results (SEER) Program
American Head and Neck Society	
American Joint Committee on Cancer	
American Hospital Association	National Cancer Institute; Cancer Therapy Evaluation Program
American Medical Association	
American Pediatric Surgical Association	National Cancer Registrars Association
American Society for Psychosocial and Behavioral Oncology	National Surgical Adjuvant Breast and Bowel Project
American Society for Therapeutic Radiology and Oncology	North American Association of Central Cancer Registries
American Society of Clinical Oncology	Oncology Nursing Society
American Society of Colon and Rectal Surgeons	Society of Gynecologic Oncologists
American Society of Internal Medicine	Society of Surgical Oncology
American Urological Association	Society of Thoracic Surgeons

variety of professional organizations involved in the care of the cancer patient and was renamed the Commission on Cancer (COC).

Current Structure of the COC

Today the COC includes 100 members from the ACS and 37 national organizations that reflect the full spectrum of cancer care. The participating organizations are listed in Table 1. The COC has evolved to play a major role in the development of standards for cancer data collection and for cancer programs with a process for program monitoring and approval. The COC remains active in the education of surgeons and registrars, as well as in the collection of data on national patterns of cancer care. These activities are reflected in the organizational structure, which includes 5 standing committees (Figure 1). ACS members are elected to the COC for a 10-year term, and representatives from member organizations are elected for a 6-year term. Committee chairs serve for 3 years, and the chair of the entire commission serves for 2 years. The executive committee includes the commission chair, the chair-elect, and the chairs of the standing committees, as well as representatives from the American Cancer Society, the American Joint Committee on Cancer (AJCC), the Amer-

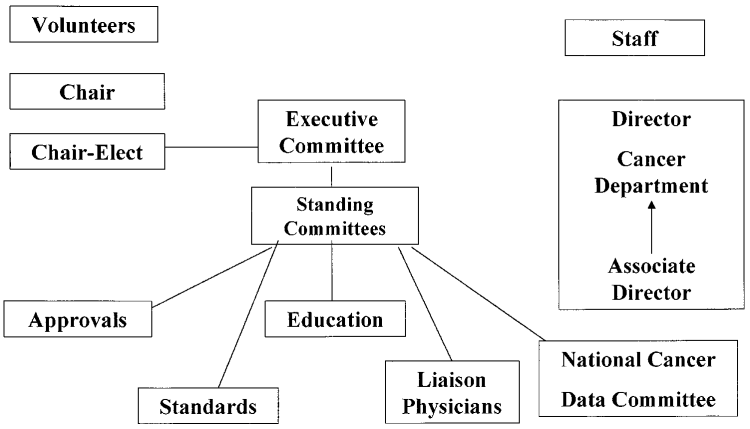

Fig 1. Structure of the COC. The COC is led by both volunteer and full-time staff. The chair of the standing committees and representatives from other major cancer organizations constitute the executive committee.

ican Society of Clinical Oncology, and either the American College of Radiology or the American Society of Therapeutic Radiation Oncology.

Approvals Committee

The Approvals Committee is responsible for oversight of the Approvals Program, which is designed to ensure that the structures and processes necessary for quality cancer care are in place. In 1996 the COC released new standards for cancer programs[1] that organized standards for approval into 10 major areas. These standards continue to promote and support the 4 historic cornerstones of the Approvals Program: multidisciplinary cancer conferences, a multidisciplinary cancer committee, a program of patient-care evaluation or quality outcome and improvement, and a cancer registry. New standards were added to reflect both the comprehensive scope of cancer programs and the changes in the health care environment that have occurred since the last major revision of standards in 1991.

The 10 areas of program evaluation include institutional and programmatic resources; program management and administration; clinical management; inpatient and outpatient care; supportive and continuing-care services; research; quality management and improvement; cancer data management; public education, prevention, and detection; and professional education and staff support. Examples of standards include a requirement for physician AJCC staging in the medical record and presentation of a minimum of 10% of the annual caseload to a multidisciplinary committee, with 75% of the presented cases requiring problem solving or development

TABLE 2. System to rate compliance with COC program standards

1 Substantial compliance
2 Significant compliance
3 Partial compliance
4 Minimal compliance
5 Noncompliance
6 Not applicable

Criteria for rating compliance were developed for each individual standard.

TABLE 3. Examples of compliance benchmarks to achieve a rating of 1

Standard	
Standard 2.2.13	Annual report content
All 4 areas need to be included: cancer program goals and activity, cancer registry activity, cancer registry data with narrative, and in-depth analysis of major site with physician narrative report.	
Standard 3.3.1	Cancer conference is multidisciplinary
All 3 of the treatment specialties (surgery, medical oncology, and radiation oncology) must be represented at 80% of cancer conferences held annually.	
Standard 3.3.5	Cancer conference frequency
11 monthly, 22 twice-monthly, or 47 weekly conferences are required annually, depending on category requirements.	
Standard 8.9.3	Physician review of analytic cases
The calculated percentage must be a minimum of 10% of analytic cases.	

of a prospective treatment strategy. Quality-management standards include a requirement for 2 quality-evaluation priorities to be defined annually by the hospital cancer committee. These may include site-specific survival studies, patient satisfaction studies, and studies of unexplained variations from established guidelines for diagnosis and treatment. Hospitals treating more than 750 cancer cases annually must demonstrate that they have a formal mechanism in place to facilitate clinical research. An important new standard also requires that these hospitals enter a minimum of 2% of their cancer patients into clinical trials. Standards for cancer registries include requirements for case finding for all eligible inpatients and outpatients and for abstracting within 6 months of diagnosis. An overall follow-up rate of 90% must be maintained, with an 80% requirement for living patients. Approved hospitals are required to submit data to the National Cancer Data Base (NCDB); this allows regular assessments of national patterns of care and creates benchmarks for outcomes comparisons.

The assessment of cancer programs is carried out by staff-trained, volunteer physician surveyors and is overseen by the Cancer Department staff and the volunteers on the Approvals Committee. A quantitative rat-

TABLE 4. Approval award matrix

Mandatory standards	Full approval	3-year with contingency approval (3/C)	1-year approval (1 y)	Non-approval (NA)	Defer approval* (Def)
	No deficiencies (substantial compliance for all mandatory standards)	1-2 deficiencies	3 deficiencies	4 deficiencies	1 deficiency

*Valid only for new programs.

ing system, consistent with that used by the Joint Commission on Accreditation of Health Care Organizations (JCAHO), was implemented to ensure objectivity and consistency among reviewers (Table 2). To ensure consistent interpretation of compliance for all mandatory standards and for selected nonmandatory standards, the Guideline for Rating Standards was developed. This document specifies expectations for compliance and in many cases establishes minimal acceptable benchmarks. Table 3 provides examples. The guideline is shared with cancer programs as part of the survey application packet.

An Award Matrix, implemented in 1997, is used to assign approval awards on the basis of compliance with the 47 mandatory standards. This matrix (Table 4) was used to determine approval awards for programs surveyed in 1997 and 1998 (n = 722). At the conclusion of the 1997 and 1998 survey years, an evaluation of programs receiving less than full approval, defined as 1-year programs and 3-year programs with contingency (3/C), was conducted to identify the most common deficiencies in mandatory standards and to evaluate the impact of newly established standards on survey outcomes. The most common deficiencies for programs with both types of approval were related to cancer conferences; 56% of cases failed to meet requirements for multidisciplinary composition and conference frequency. Other common deficiencies were in physician quality control, in AJCC staging by physicians, and in the content of the annual report. Although only 9% of programs receiving 3/C approval failed to meet the standard of a formal mechanism for patient access to research, 35% of programs with 1-year approval failed this standard.

The Approvals Committee recognizes that the cancer services available at a facility will vary with the size of the facility; therefore approvals are given in different categories. Program categories include those institutions funded by the National Cancer Institute (NCI) as cancer centers,

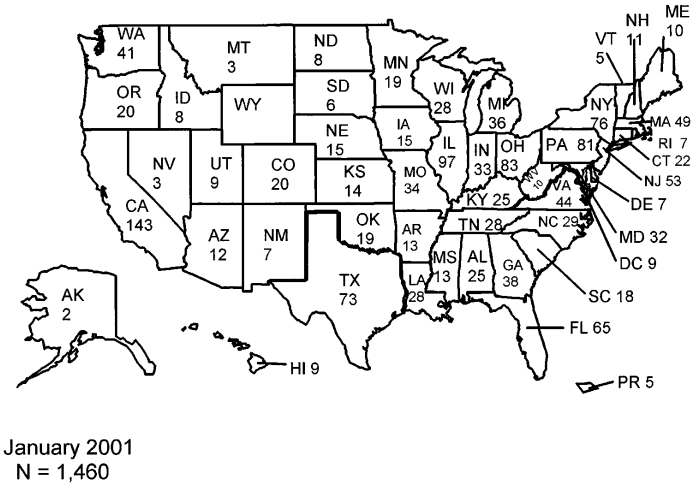

Fig 2. Distribution of hospitals with approved cancer programs by state. Coverage varies by state.

which are termed NCI-designated; teaching hospitals, defined as hospitals with at least 4 residency programs; comprehensive community, hospitals that see more than 300 analytic cancer cases annually and provide a full range of cancer services; and community hospitals, which see a smaller number of cases annually. Recently, a new category of Network Cancer Programs has been added to reflect the sharing of cancer treatment and data resources among hospitals in health care networks. Other approvals categories exist that allow organizations that provide only specialized elements of cancer care to participate in the approvals process.

At present, there are approximately 1460 approved programs in the United States. Of these, 43% are community hospital programs, 31% are comprehensive community programs, and 23% are either NCI-designated or teaching programs. Approved programs are widely distributed throughout the United States as illustrated in Figure 2.

Approval by the COC process is now accepted by the JCAHO for hospitals undergoing accreditation in its healthcare network category. Extension to JCAHO's hospital category is the next step. Data from the approvals process are used to generate performance reports comparable with the hospital performance reports issued by the JCAHO. These reports allow cancer programs to compare their ratings for mandatory standards with approved programs in their state and in their award category. The reports facilitate the identification of areas for program improvement.

Cancer Liaison Committee

The Cancer Liaison Program of the COC is a nationwide network of more than 1800 physician-volunteers who provide leadership for local institution-based cancer programs and support for the data-driven nationwide cancer-control objectives for 2015 set by the American Cancer Society. These physicians serve as the link between the COC and facilities with approved cancer programs or those facilities that are working toward approval. Liaison physicians are expected to be active members of cancer committees who support and promote approved cancer programs within their facilities and in their communities. For example, during 1999 these physicians were the primary point of contact for the commission's approved cancer-program promotion campaign and for the collaborative National Cancer Information Center project with the American Cancer Society. They are also expected to work with their cancer committees on collection and use of data submitted to the NCDB to identify cancer program strengths and quality improvement opportunities.

In support of the American Cancer Society's nationwide efforts to reduce the incidence and mortality of breast, colorectal, lung, and prostate cancers, the Cancer Liaison Program provides physician leadership for the Triad program. The program's goal is to develop data-driven cancer-control initiatives at regional and local levels consistent with the American Cancer Society's 2015 cancer-control goals. Other participating organizations include state cancer-registrar associations, state cancer registries, and cancer-control experts from the American Cancer Society, the Centers for Disease Control and Prevention, and the NCI. The state liaison chairs are provided with aggregate NCDB data from hospitals in their state for these cancer sites as part of this collaborative planning activity.

More specific and stringent criteria have been established to evaluate the quality and outcomes of the Cancer Liaison Program. State chair and Cancer Liaison Program physician activity will become more project specific and measurable as it relates to cancer-program involvement and cancer-control initiatives of the American Cancer Society at the national, regional, and local levels.

Education Committee

The Education Committee is responsible for oversight of COC educational activities directed toward surgeons and hospital-based cancer registrars. The committee selects content and speakers for a 3-day educational course held during the Clinical Congress of the ACS, as well as for a disease-site symposium held at the same venue. The symposia highlight

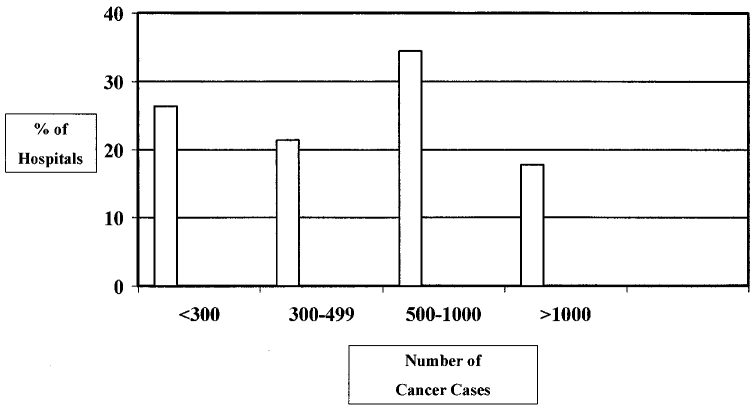

Fig 3. Distribution of number of cancer cases among 1638 hospitals reporting to the NCDB in 1996. As illustrated, the NCDB data reflect the spectrum of practice from low-volume to high-volume cancer care.

data from the NCDB patient-care evaluation studies. The COC plays a major role in the basic and continuing medical education of hospital-based cancer registrars.

National Cancer Data Committee

The National Cancer Data committee is responsible for oversight of the NCDB, which is a joint project of the ACS and the American Cancer Society. The database currently includes more than 9 million analytic cases representing 38 different cancer sites. The NCDB was established in 1990 with the goal of facilitating data-driven cancer care. Information is collected on an annual basis on patient demographics, diagnostic method, AJCC stage, treatment, and mortality; this allows for the definition of current patterns of care and changes over time. Submission of data to the NCDB became a requirement for approved cancer programs in 1996. It is estimated that two thirds of newly diagnosed cancer cases in 1996 and 1997 were submitted to the NCDB,[2] an increase from 57% during the time that data submission was voluntary.[3]

The assessment of the quality of the data submitted to the NCDB by hospital cancer registries is a priority that is addressed through several different avenues. Reabstracting studies have been conducted by the NCDB in 3 geographic regions of the United States: Southeast, Midwest,[4] and Pacific. These studies were designed to provide the NCDB with an understanding of the potential discrepancies that existed in the coding of various key data items, including tumor characteristics (site laterality, histologic characteristics, behavior, and grade), staging information (summary stage,

tumor size, lymph nodes examined and positive, clinical and pathologic AJCC stage), and treatment data (date of first course of treatment and summary treatment data for surgery, radiation, chemotherapy, hormonal therapy, and other data). A principal finding of these studies was that lack of documentation in patient records resulted in a significant number of data items being coded as unknown. For analytic purposes, uncoded cases may not affect overall case distribution, but the use of uncoded data or inconsistently applied rules may hide potentially useful information.

The COC conducted 2 special studies to evaluate the coding practices of cancer registrars. A national quality-improvement effort aimed at evaluating cancer registry data was conducted in 1992. The primary goal was to evaluate registrars' adherence to accepted, published guidelines for abstracting, staging, and coding.[5] The results suggested that improvement in the quality of data reported from cancer registries was dependent on a registrar's skills, as well as on the completeness and clarity of hospital records available to the registrar, the establishment of uniformity among standard registry references, and the standardization of the various registry software systems in use at that time.

A subsequent study, which was distributed to cancer registrars during the summer of 1999, sought to measure the reliability of key components of oncologic data recorded at the registry level and consistent with Registry Operations and Data Standards (ROADS), the second volume of standards published by the COC.[6] Abstracting and coding practices related to a core set of oncologic data items, such as disease diagnosis, staging, and treatment, were evaluated. Particular attention was given to the newly introduced surgery codes. Results suggest a need for increased use of ROADS as a reference in registries using registry software packages, for training that emphasizes the need for consistent use of standard codes, and for increased uniformity among organizations with respect to code definitions and rules.

The NCDB uses the EDITS (Centers for Disease Control and Prevention, Atlanta, Ga) software[7] to identify potentially erroneous data that are returned to the submitting institution for reevaluation and, if appropriate, for correction and resubmission. Beginning in 2000, the NCDB posted a copy of the NCDB metafile along with complete instructions for its use on the Internet (www.facs.org). The NCDB metafile follows the editing rules outlined in the third volume of standards published by the COC[8] for all COC-required data items and for some supplemental data items.

The NCDB data is used for a variety of purposes. Each participating hospital receives a customized report that characterizes age, gender, ethnicity, and therapy of patients with 38 types of cancer treated at that insti-

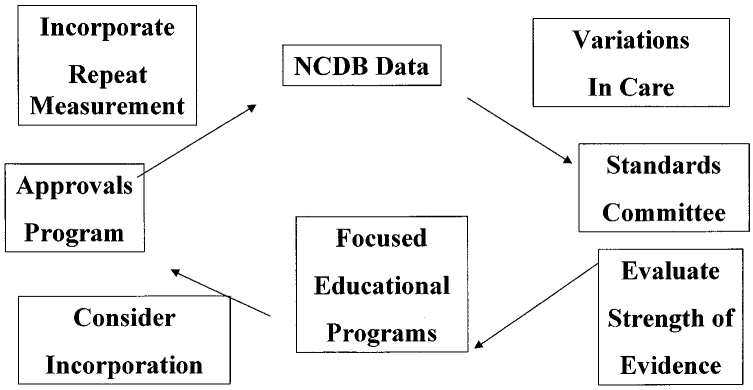

Fig 4. Schema for an integrated approach to quality improvement. NCDB data are used to identify variations in care. The Standards Committee determines whether there is compelling evidence to support a particular pattern of care. If there is, a focused educational intervention is undertaken. The Approvals Committee then determines whether this is of significant importance to be incorporated as a quality standard for cancer program approval. Changes in care as a result of this standard can be monitored with NCDB data.

tution. Stage and site-specific survival data are also provided. This information can be compared with the national benchmark report that provides aggregate information on these data items for all cases in the NCDB.

The NCDB data are also used for scientific publications exploring patterns of cancer care. However, because the NCDB is not a population-based registry, it is not an appropriate vehicle for examining changes in cancer incidence. In the past, the representativeness of the NCDB data has been challenged because it is institution based. However, a comparison of the geographic distribution of the US population with the distribution of cases in the NCDB and the Surveillance, Epidemiology, and End Results (SEER) Program[9] suggested that the geographic distribution of cases in the NCDB accurately reflects that of the US population. A comparison of treatment data elements in this study indicated a high rate of concordance between the NCDB and SEER.

In 1996, 1638 hospital cancer registries reported 872,722 cases to the NCDB. The mean number of cases reported per hospital was 646. The case distribution of hospitals reporting to the NCDB is shown in Figure 3. More than half of these hospitals are comprehensive community or community hospital cancer programs. From its inception to 1996, the NCDB has collected almost 6.5 million cancer cases. These include 1,014,364 cases of breast cancer, 949,882 cases of lung cancer, and 792,434 cases of prostate cancer. The scope of the database allows large numbers of less common cancers to be identified. For example, the NCDB includes 10,756 pleural

malignancies and 17,195 primary tumors of the small intestine.[2] Recent NCDB studies have included a comparison of gastric carcinoma in Japanese Americans with gastric carcinoma in those of other ethnic backgrounds[10]; the largest published series on the outcome of treatment of acinic cell carcinoma of the salivary glands, which includes 1353 cases[11]; a patterns-of-care study examining changes in the therapy of hepatocellular carcinoma between 1985 and 1996[12]; and a study examining factors that influence the use of immediate breast reconstruction.[13]

In addition to publications from the standard NCDB data set, the COC performs 2 special patient care evaluation studies annually. The patient care evaluations are designed by a multidisciplinary team and allow additional data items beyond the core data set to be collected to address pertinent clinical questions. A format similar to the patient care evaluation format is also used to carry out special studies with other collaborators. In conjunction with the American College of Radiology, a study examining factors influencing the use of breast-conserving therapy in 16,643 patients with stage I and II breast cancer was carried out,[14] and a collaborative study of the use of postmastectomy radiotherapy is under way.

In 1999 the NCDB underwent an extensive internal and external review process to identify the strengths and weaknesses of the program and its future direction. As a result of this process, new leadership with credentials in health service research and staff with expertise in study design and grant writing were recruited. Through grant support from the American Cancer Society, a new process to facilitate electronic data transfer, to allow more widespread access to data, and to decrease the time between data submission and availability to users is under development.

Standards Committee

The Standards Committee is responsible for oversight of the COC data standards, for identification of areas of practice uncertainty in which the COC might choose to take an active role in the development of standards or practice guidelines, and for review of practice guidelines submitted by other organizations for inclusion on the COC Web site.

The new cancer program and data standards issued in 1996, coupled with the use of new surgery codes and the publication of the fifth edition of the AJCC *Cancer Staging Manual*, resulted in an increase of "how-to" inquiries and questions about interpretation of the standards and new staging systems. To provide uniform and consistent interpretation and to promote quality data abstracting, the COC launched a Web-enabled program known as the Inquiry and Response System (I&R). Users can access the database online and search by category (AJCC; volume I: Cancer Program Standards; vol-

ume II: ROADS, Patient Care Evaluations) and by word (eg, breast, physician staging). They can submit a new question at any time during the search. Users can also fax or e-mail questions to the COC. Members of the I&R staff team, composed of certified tumor registrars, are randomly assigned questions to review, research, and answer. Answers that can be supported by reference to COC publications or other standard sources are entered into the database. More difficult queries and proposed answers are presented at weekly I&R team meetings for discussion and consensus answers. When necessary, questions are referred to external sources. For example, questions regarding histology are referred to the National Cancer Institute/SEER Program professionals, and questions regarding AJCC staging are referred to physicians who serve as AJCC curators for individual cancer sites. All queries and responses entered into the database are reviewed for quality before being transferred to the I&R database on the ACS Web site (www.facs.org). A communication from the I&R team is sent to each user.

From March through December 1999, more than 1400 questions were submitted to the I&R team. Half of the questions (52.5%) were about Volume II: ROADS and surgery codes, followed by AJCC staging (20.3%) and Volume I: Cancer Program Standards (13.1%). Data from the I&R system will be incorporated in future revisions of the COC standards manual and the AJCC staging manual by identifying standards or staging rubrics that lack clarity or consistency.

After a review of its potential role in guideline development, the Standards Committee concluded that the COC lacks the resources to address guideline development across the spectrum of cancer care and cancer sites. Instead, it recommended that the COC initiate guidelines for selected cancer sites for which major changes in practice or deviations from best practice are identified. In addition, the Standards Committee suggested that NCDB data be used to measure guideline impact over time. To date, guidelines on breast conservation in invasive cancer,[15] stereotactic breast biopsy,[16] and breast conservation in ductal carcinoma in situ[16] have been developed in conjunction with the American College of Radiology and the College of American Pathologists. Both sets of guidelines for breast conservation are currently being updated. In addition to guidelines developed by the COC, the Committee on Standards solicited guidelines from COC member organizations for listing on the COC Web site to allow access by a broader audience. A review of submitted guidelines is undertaken to ensure that the type of guideline development process (ie, evidence based, expert consensus) is clearly identified, that development was undertaken by a multidisciplinary group when appropriate, and that there is evidence of a plan for updating the material. Approved guidelines are listed on the

COC Web site according to tumor site and the developing organization. Hot links to the actual guidelines are provided.

Future Directions

The Cancer Department of the ACS has played an active role in assessing cancer outcomes and certifying cancer programs for many years. However, a growing awareness on the part of the public, health care providers, and the government that not all Americans receive quality cancer care has resulted in demands for more detailed scrutiny and reporting of quality of care than was considered acceptable in the past. This was emphasized in the Institute of Medicine report "Ensuring Quality Cancer Care."[17] Major deficiencies identified in this report included the lack of a data system to provide quality benchmarks for care and the lack of an ongoing quality-monitoring system. A subsequent Institute of Medicine report on cancer data systems[18] identified the NCDB as the only data source that was designed to monitor the quality of cancer care. In response to these changes in the health care environment, the COC has undertaken a variety of initiatives. The data set collected for the NCDB is undergoing a complete review to ensure that data items are relevant to modern cancer care and are appropriately inclusive. A new format for reporting data back to hospitals is being developed. These reports will incorporate basic quality measurements, such as histologic grade and margin status in pathology reports for breast cancer and use of adjuvant chemotherapy in stage III colon cancer, into the report format and provide comparisons with regional and national benchmarks. Repeated measurement over time will allow a determination of the effectiveness of this approach. In addition, the standards for cancer program approval are being revised to incorporate both measures of process and actual quality measures. The NCDB will be used to assess compliance with these standards through this process. The COC hopes to raise awareness among patients, physicians, and health plans of the quality standards for a COC-approved cancer program. This approach of measuring quality outcomes will focus our educational efforts on areas in which clinical practice is not compatible with the best available evidence. Physician liaisons will be key advocates of this program by helping to initiate change at the local level.

This integrated quality improvement approach is illustrated in Figure 4. It builds upon the established strengths and infrastructure of the COC and is responsive to the demands for measurement of the quality of cancer care.

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