Patient Treatment RESULTS 2017 | 2018

LENGTH OF LIFE
QUALITY OF LIFE
PATIENT EXPERIENCE
PATIENT SAFETY
QUALITY OF CARE
A Message from the Office of the CEO

Dear patients, caregivers and clinical colleagues,

We are pleased to share with you the fifth annual edition of our Patient Treatment Results. This, to our knowledge, is the most comprehensive presentation of treatment results published by any cancer care provider, and reflects the quality of clinical care we have provided to patients from around the world at our five comprehensive cancer centers in Atlanta, Chicago, Philadelphia, Phoenix and Tulsa, and our affiliated sites.

Our patients have been, and will always be, at the center of what we do. We believe all patients should have access to as much information as possible in order to make the most informed treatment choices about their care. To that end, we have included three sets of data:

- Transparent reporting of our treatment results.
- Cancer Treatment Centers of America® (CTCA) patient ratings of their experiences at CTCA® compared to other regional and national hospital benchmarks, where available.
- CTCA patient self-reported quality of life data from the commencement of treatment through return visitation.

Five-year survival rates for CTCA patients treated between 2000 and 2013 are provided for 11 cancer types and, for reference purposes, we have also provided companion data for the same cancer types as reported by the National Cancer Institute in its Surveillance, Epidemiology and End Results (SEER) Program. Additionally, we have included data on various safety and quality of care measurements during treatment, critically important results that are not reported by most other cancer providers.

The CTCA patient survival data appearing in this publication were analyzed and interpreted by Bert Spilker, MD, PhD, an independent consultant who served most recently as Senior Vice President of Scientific and Regulatory Affairs for PhRMA (Pharmaceutical Research and Manufacturers of America) based in Washington, DC, and Chengjie Xiong, PhD, a biostatistician and researcher focused on the study of novel statistical design of clinical experiments and clinical trials, and diagnostic accuracy in medicine, public health, biology, education and engineering. Neither is affiliated with or employed by CTCA. The related data sources and additional survey methodologies may be found in their respective sections throughout the publication.

We hope you find this important information valuable, and we would be pleased to respond to any feedback or questions you may have about the findings.

Thank you for your interest in Cancer Treatment Centers of America.

Sincerely,

Raj Garg, MD, JD
Our Vision
To be recognized and trusted by people living with cancer as the premier center for healing and hope.

Our Mission
CTCA® is the home of integrative and compassionate cancer care.

We never stop searching for and providing powerful and innovative therapies to heal the whole person, improve quality of life and restore hope.

Our Values
Hopeful
Compassionate
Empowering
Ethical
Responsive
Innovative
Team Spirited
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About this Report

Our Length of Life Results

Our Quality of Life Results

Our Patient Experience Results

Our Patient Safety and Quality Results

Our Clinical Leadership

Our Research Publications
“After the chemotherapy and then radiation, my care team was frustrated that they still saw some evidence of disease. So based upon genomic testing of my tumor, my doctor recommended a specific drug which he explained some studies indicated would target my cancer’s specific genetic mutation. I felt good knowing that the choice of drug for me was informed by the DNA of my tumor.”

No case is typical. You should not expect to experience these results.
About This Report

Why We Publish Our Treatment Results
At Cancer Treatment Centers of America® (CTCA), we believe in empowering patients. Patients deserve access to information – especially about health outcomes, including survival, patient self-reported data on care experience and symptom management and quality of care and patient safety. When patients have access to information about the medical professionals and centers to whom they entrust their lives, they are able to make more informed decisions about their personalized care plans.

OUR COMMITMENT TO TRANSPARENCY
At CTCA®, we believe that transparency in the publication of our treatment results is vital to upholding our promise to patients and their families. Regardless of the outcome, it holds us accountable to continually improve the care we deliver. We engage leading independent organizations, such as Bert Spilker & Associates, LLC, Press Ganey® and Healthcare Performance Improvement (HPI®) to conduct various analyses of our treatment results. We utilize valid and tested tools and participate in nationally recognized activities to further our commitment to safe, high quality care for the patients we serve.

OUR BEGINNINGS AND BELIEFS
In the early 1980s, Richard J Stephenson and his family suffered the loss of their mother, Mary Brown Stephenson, to cancer. When she died, her grieving son and his family asked, “What would it take to actually change the face of cancer?”

In 1988, CTCA® was born, founded on what is now known as the Mother Standard® of care—a patient-centered approach that combines compassion with advanced technology and treatment options.

The American International Hospital in Zion, Illinois, served as the first CTCA location. With Richard as chairman of the board, the cancer program became one of the first in the country to offer a full range of treatment services—surgery, chemotherapy and radiation therapy, as well as immunotherapy, nutrition, mind-body medicine and spiritual support.

CTCA formally opened its second hospital on May 7, 1990. The Tulsa, Oklahoma, location quickly established CTCA as a premier center of hope and healing for cancer patients. The hospital was located in the CityPlex Towers, which were constructed by Oral Roberts as part of the City of Faith hospital.

As demand grew, it became clear that the Zion facility would need to be expanded and updated. Midwestern Regional Medical Center broke ground on September 25, 1991. During the planning stages, the hospital’s patients, family members, physicians and staff were asked to describe the perfect healing environment. Their responses were incorporated into the design of the five-story, 78,886-square-foot facility.

Another banner year for CTCA came in 2005. April 29 marked the opening of the brand-new, state-of-the-art Southwestern Regional Medical Center in Tulsa. The stunning, 195,845-square-foot hospital became Oklahoma’s only major hospital completely focused on treating cancer. Later that year, Eastern Regional Medical Center opened its doors on December 19, becoming the first CTCA hospital on the East Coast.

Western Regional Medical Center, a modern, 210,000-square-foot facility located in Goodyear, Arizona, (outside of Phoenix) joined the CTCA family of hospitals on December 29, 2008. Six months later, CTCA announced plans to open a facility in Newnan, Georgia. Southeastern Regional Medical Center began welcoming patients on August 15, 2012.

Each of our facilities offers a wide spectrum of state-of-the-art cancer treatments – conventional and integrative – as part of our model of care, which treats every person differently based on their unique needs. For this reason, patients, physicians, employers and insurers can depend on CTCA to offer comprehensive, compassionate and truly personalized cancer care.

At CTCA, patients are served by a dedicated, multidisciplinary team of physicians, nurses, registered dietitians and other clinicians, all working together under one roof. These teams are comprised of individuals with extensive experience in treating cancer. Together they develop and implement an individualized treatment plan for each patient that honors the individual’s health and life goals.
Accessibility, Services and Insurance

Reducing the Stress of Cancer Care

ACCESSIBILITY

CTCA understands that speed and accessibility of care are important to patients and their caregivers, which is why we are dedicated to providing efficient, convenient cancer care for our patients while reducing their stress as much as possible.

Our hospitals are located in or near five major U.S. cities, which are geographically dispersed: Atlanta, Chicago, Philadelphia, Phoenix and Tulsa. Each city has an airport that is serviced by most major airlines. We assist many patients with travel arrangements, including lodging accommodations for themselves, their caregivers and families either on-site at our hospitals or in nearby hotels.

Some of our treatment services, such as chemotherapy, are available seven days a week for the convenience of patients and their caregivers. In fact, CTCA was among the first U.S. cancer care systems to offer weekend appointments.

HEALTH INSURANCE AND VERIFICATION

CTCA Oncology Information Specialists verify the insurance and benefits of prospective patients, including in-network and out-of-network benefits, deductibles, plan coverage percentages and co-pays. The verification process typically takes just 24 hours. CTCA financial counselors are also available to patients and caregivers should they need assistance.

CTCA maintains contracts with a number of major national and regional insurers, employers and other health care companies that have approved patient access to CTCA hospitals. We treat patients who have both in-network and out-of-network benefits with these carriers.

SPONSORS OF THIS REPORT

Maurie Markman, MD
President, Medicine & Science

A nationally-renowned medical oncologist, Dr. Markman is President of Medicine and Science at CTCA. Dr. Markman has more than 20 years of experience in cancer treatment and gynecologic research at some of the country’s most recognized facilities.

In June 2011, he received the esteemed American Society of Clinical Oncology (ASCO) Statesman Award. Presented annually, the Statesman Award recognizes individual ASCO members who have shown extraordinary volunteer service, dedication and commitment to ASCO, their hospital community and the patients they serve for at least 20 years.

Prior to joining CTCA, Dr. Markman served as the Vice President for Clinical Research and Chairman of the Department of Gynecologic Medical Oncology at MD Anderson Cancer Center in Houston, Texas, where he also served as a Professor of Medicine. Prior to that, Dr. Markman served as Chairman of the Department of Hematology/Oncology and Director of the Taussig Cancer Center at the Cleveland Clinic Foundation in Cleveland, Ohio, and as Vice Chairman of the Department of Medicine at Memorial Sloan-Kettering Cancer Center in New York, New York.

George Daneker Jr., MD
Chief Medical Officer
Medicine & Science

Dr. George Daneker brings nearly 30 years of surgical experience to his position as Chief Medical Officer at CTCA. With a career covering the breadth of surgical oncology, Dr. Daneker has had extensive experience in the management of patients with intraabdominal cancers (liver, pancreas, bile duct, stomach, intestine, colorectal, adrenal), skin and soft tissue cancers (melanoma and sarcoma) and breast cancer. Board certified, he is also skilled at advanced, high-tech procedures, such as laparoscopic surgery and robotic procedures.

Dr. Daneker first joined the CTCA team in 2011 as a staff surgical oncologist at our Philadelphia, Pennsylvania hospital and later served as Chief of Staff at the Atlanta, Georgia hospital. Prior to working with CTCA, Dr. Daneker served as the Director of Surgical Oncology, Oncology Research and Robotic-Assisted General Surgery at St. Joseph’s Hospital in Atlanta.

He has served as an adjunct faculty member of the School of Biology at Georgia Institute of Technology, adjunct professor at the Center for Cancer Research and Therapeutic Development at Clark Atlanta University, assistant professor in the Department of Surgery and Winship Cancer Center at Emory University School of Medicine and adjunct professor of biology at Georgia Tech.
CTCA Patient Demographics

New Patients **ANALYTIC AND NON-ANALYTIC**

2,395

Non-Analytic Patients

37%

4,036

Analytic Patients

63%

New Patients **BY CANCER TYPE**

Analytic Patients

Breast 1,503 23.4%

Colon 456 7.1%

Esophageal 79 1.2%

Kidney 208 3.2%

Lung 793 12.3%

Ovarian 169 2.6%

Pancreatic 398 6.2%

Prostate 613 9.5%

Rectal 256 4.0%

Stomach 173 2.7%

Other 1,783 27.7%

Cancer Types **BY STAGE**

Analytic Patients

258

N/A 3%

1,301

Stage IV 32%

643

Stage III 16%

Stage II 21%

Stage I 842 19%

Stage 0 131 3%

Unknown 54 1%

"Analytic" patients are those who are diagnosed and/or receive all or part of their first course of cancer treatment at CTCA. "Non-analytic" patients are those who receive subsequent cancer treatment at CTCA due to progressive or recurrent disease.

Patient demographics are based on data provided from the tumor registry from July 1, 2015 and June 30, 2016.
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New Patients **BY GENDER**
*Analytic and Non-Analytic*

- Male: 2,794 (43%)
- Female: 3,637 (57%)

New Patients **BY AGE GROUP**
*Analytic and Non-Analytic*

- Unknown: 90+
- 90+: 4
- 80-89: 1
- 70-79: 40
- 60-69: 1,900
- 50-59: 1,550
- 40-49: 1,348
- 30-39: 477
- 0-29: 140

New Patients **BY STATE**
*Analytic and Non-Analytic*

- AZ: 299
- OK: 324
- GA: 840
- Other: 1,783

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About this Report

Our Length of Life Results

Our Quality of Life Results

Our Patient Experience Results

Our Patient Safety and Quality Results

Our Clinical Leadership

Our Research Publications
“My medical oncologist, Dr. Taha, was also incredibly caring. Once, having heard I was upset about something, he called me at home on a Friday night just before he left for a vacation. I asked him why he was calling me, and he said he just wanted to make sure I was okay before he left.”
Dear Reader:

We analyzed the data provided by Cancer Treatment Centers of America® (CTCA) and the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program database from 2000 through 2013 for the purpose of compiling survival rates for eleven (11) cancers of interest. Our efforts employed the statistical guidelines that govern these types of analyses by leading practitioners. Although the lack of direct comparability of the two data sets imposes certain limitations on the interpretation of the results as stated elsewhere in this publication, we believe the analyses provide an accurate representation of survival rates for CTCA® patients.

Sincerely,

Bert Spilker, PhD, MD       Chengjie Xiong, PhD

Bert Spilker, PhD, MD, is the founder of Bert Spilker & Associates, LLC (BS&A), a consulting company working with more than 100 health care clients and contracting with over 150 experts on a variety of research areas of specialization.

Prior to forming BS&A, Dr. Spilker served as the Senior Vice President of Scientific and Regulatory Affairs for Pharmaceutical Research and Manufacturers of America (PhRMA) based in Washington, D.C. where he represented the U.S. pharmaceutical industry both nationally and internationally. Dr. Spilker also served as President and co-founder of Orphan Medical, Inc., a pharmaceutical company that developed and marketed medical products for patients with orphan/rare diseases.

He currently serves as Clinical Professor of Pharmacy Practice at the University of Minnesota and Adjunct Professor of Medicine and Clinical Professor of Pharmacy at the University of North Carolina at Chapel Hill.

Dr. Spilker completed his medical training in pharmacology and internal medicine at Cornell Medical College, State University of New York (Downstate Medical Center), University of California at San Francisco, University of Miami Medical School (PhD to MD Program) and Brown University Medical School.

Chengjie Xiong, PhD, MS, studies novel statistical design of experiments and clinical trials, linear and nonlinear mixed models, longitudinal data analysis, survival analysis and reliability, diagnostic accuracy, advanced meta-analysis, categorical data analysis, order restricted statistical inferences, and their applications in medicine, public health, biology, education and engineering.

Dr. Xiong remains active in interdisciplinary research and has provided statistical consulting for academia, private industries and government agencies across the country, including directing the database management and statistical analyses for several National Institute of Health (NIH) funded projects.

He received a BS in Mathematics from Xiangtan University (China), an MS in Applied Mathematics from Peking University (China), and a PhD in Statistics from Kansas State University.
Statistical Methodology

DATA SELECTION

Two databases were considered for this study. The National Cancer Institute’s Surveillance, Epidemiology, and End Results (SEER) Program database, and the National Cancer Database (NCDB).

The SEER database is an authoritative data set created for use as an epidemiological tool to monitor the incidence and mortality of cancer in the United States. SEER collects patient demographics, tumor characteristics, and survival data from 17 regional registries throughout the U.S., representing 28 percent of the U.S. population.

The NCDB compiles cancer registry data from cancer programs in the U.S. and Puerto Rico, capturing approximately 75% of newly diagnosed cancers in these areas. It includes data on patient characteristics, tumor staging, tumor histology, type of first treatment, disease recurrence and survival using standardized coding definitions. It is commonly used to guide quality improvement and pursue investigator-initiated research questions. The NCDB provides insight into analytic cancer diagnoses and primary treatment. The main limitation of the data is that the cohorts are not population-based; they are identified from the hospitals at which the patients presented for diagnosis and/or treatment.

The SEER database was selected to conduct this analysis because of its comprehensive content and access to patient-level data (and because of restrictions imposed on the use of the NCDB database for comparative analysis and external reporting purposes).

The SEER comparison sample was chosen by the categories in categorical factors (e.g., cancer stages) with the CTCA cancer cohort and selecting the overlapping ranges in continuous factors (e.g., age at diagnosis) from the CTCA cancer cohort. These factors affect survival outcomes. The latest SEER Limited-Use Database (2016) was used to select the SEER comparison sample. The final survival analyses included only patients from both the CTCA and SEER databases whose following cancer characteristics were available from the two databases: SEER Summary Stages, primary tumor sites, cancer histologic types, gender and age at initial diagnosis. For example, if a specific SEER Summary Stage had only patients in one database, none of these patients were used in the analysis. To match the age at initial diagnosis, the range (i.e., minimum and maximum ages) was computed for each sample. Only patients whose age at initial diagnosis fell into the overlap of the two ranges from the CTCA and SEER samples were included in the comparative survival analyses.
METHODOLOGY

For both the CTCA and SEER samples, only cancer patients whose initial diagnosis occurred between 2000 and 2013 were analyzed. Cancer cases with missing information on either the date of initial diagnosis or date of last contact were deleted from the CTCA database because the survival time or censoring time for such patients could not be computed. Cancer patients with missing SEER Summary Stages were also excluded from the analyses. For patients with multiple cancers in the SEER and CTCA databases, only the first or primary cancer diagnosed was used for the survival comparisons. Patients with a histologic code (ICD-O-3) between 9590 and 9989 were excluded from the analyses because these histologic types are generally not included by SEER for any non-hematopoietic cancer types. Patients who did not receive treatment from CTCA were also excluded from the analyses.

The survival outcomes from the SEER database were provided by the SEER Limited-Use Data File as the number of completed months. These numbers were then converted to the number of years by dividing the number of total months by 12. Although the exact dates for the initial diagnosis and death were available in the CTCA database, the CTCA survival outcomes were computed using the same methodology as the SEER database; the number of completed months was computed by first dividing the exact days from the initial diagnosis to death, or last contact for those who remained alive, by 365.24 (as was done by SEER), then rounding down to the number of completed months, and finally dividing the result by 12. For those patients who were still alive or lost to follow-up at the time of entering the databases, survival time was treated as statistically censored at the difference between the date of last contact and the date of initial diagnosis.

The survival curve for each cancer type (defined as the probability of a cancer patient’s survival as a function of time from the initial diagnosis) was estimated by the Kaplan-Meier nonparametric product-limit estimator. Three statistical tests were then used to compare the survival curves between the CTCA database and the SEER database.

Two of these tests, the log rank test and Wilcoxon test, are nonparametric and thus, valid to compare survival curves that have any shapes. These tests are different, however, in their sensitivity (or the power) to detect survival differences. The log rank test is generally the most sensitive or powerful when the risk or the hazard of death between CTCA and SEER samples is approximately proportional, whereas the Wilcoxon test tends to be more sensitive when the ratio of hazards of death is higher at earlier times than at later ones. The third test, the likelihood ratio test, is the most restrictive of the three in the sense that it is appropriate to use only for special survival curves (called exponential distributions) whose hazards of death are constant across time.

Ninety-five percent confidence interval (95% CI) estimates for the individual survival rates, as well as the difference in survival rates between the CTCA and SEER samples at specific time points after diagnosis, were based on the estimated survival curves and the relevant asymptotic normal distributions. All these analyses were implemented using the standard SAS package of statistical tests (i.e., SAS/PROC LIFETEST). Adjusted analyses were also done (results not shown) using the stratified log rank test and the Wilcoxon test as well as Cox’s proportional hazards models to compare the survival outcomes between the CTCA and SEER samples after adjusting for the effects of age at diagnosis, gender (except for breast and prostate cancers), race, marital status at diagnosis, insurance status at diagnosis and year of initial diagnosis. The technical details of these statistical analyses are available from CTCA.

LIMITATIONS

This analysis has some limitations. First, although a large sample of patients was available from the SEER program across many geographic regions in the U.S., both samples, including the sample from CTCA, are convenience samples. This precludes the assumption of a causal interpretation of the statistical inferences. Second, although some types of matching, as described above, were implemented to select the appropriate SEER and CTCA comparison samples, the distributions of important covariates such as age at initial diagnosis, gender, race, marital status at diagnosis, insurance status at diagnosis and year of initial diagnosis were not exactly the same between the CTCA sample and SEER sample. Hence, even with the adjusted analyses, possible confounding of these factors to the analyses and results may not be ruled out. Further, many factors (e.g., household income, mobility, etc.) other than those considered in the analyses and available from the databases may have contributed to the actual survival outcomes. As a result of these factors, the possible confounding of the results of these analyses may not be ruled out. Finally, the survival analyses were based on the statistical comparisons of the rate of death from all possible causes, not solely cancer-specific death. These data are not included in the CTCA data set and, therefore, not available for statistical comparison.

Visit cancercenter.com/ctca-results for further information about the methodology used to calculate the CTCA results and read about the analysis limitations.
**Breast Cancer | Length of Life Statistics**

The chart below reflects the Cancer Treatment Centers of America® (CTCA) and SEER survival rates for breast cancer patients with distant (metastatic) disease who were diagnosed between 2000 and 2013. It includes estimates of the percentage of breast cancer patients with distant (metastatic) disease who survived for six months to five years after the initial diagnosis, as recorded in the CTCA® and SEER databases.

- This analysis included breast cancer patients from CTCA who had primary tumor sites (as coded by ICD-O-2 (1973+)) from C500 to C509, were diagnosed from 2000 to 2013 (including 2000 and 2013) and received at least part of their initial course of treatment at CTCA. All patients included in the analysis were considered analytic patients by CTCA.

- Breast cancer patients with distant (metastatic) disease from the SEER database and breast cancer patients with distant (metastatic) disease from the CTCA database were included in the analysis. In addition, the analysis excluded patients whose medical records were missing any of the following information:
  - SEER Summary Stages
  - Primary tumor sites
  - Cancer histologic types
  - Date of initial diagnosis
  - Age at initial diagnosis
  - Gender
  - Race

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**BREAST CANCER SURVIVAL RATE**

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2013 | CTCA and SEER*

*The SEER data represent national results over a large number of institutions and have been included for illustrative purposes. They are not intended to represent a controlled study and/or a perfect analysis of the CTCA data because of variability in the sample sizes of the two databases, the clinical condition(s) of the patients treated and other factors.
Colon Cancer | Length of Life Statistics

The chart below reflects the Cancer Treatment Centers of America® (CTCA) and SEER survival rates for colon cancer patients with distant (metastatic) disease who were diagnosed between 2000 and 2013. It includes estimates of the percentage of colon cancer patients with distant (metastatic) disease who survived for six months to five years after the initial diagnosis, as recorded in the CTCA® and SEER databases.

• This analysis included colon cancer patients from CTCA who had primary tumor sites (as coded by ICD-O-2 (1973+) from C180 to C189, were diagnosed from 2000 to 2013 (including 2000 and 2013) and received at least part of their initial course of treatment at CTCA. All patients included in the analysis were considered analytic patients by CTCA.

• Colon cancer patients with distant (metastatic) disease from the SEER database and colon cancer patients with distant (metastatic) disease from the CTCA database were included in the analysis. In addition, the analysis excluded patients whose medical records were missing any of the following information:
  - SEER Summary Stages
  - Primary tumor sites
  - Cancer histologic types
  - Date of initial diagnosis
  - Age at initial diagnosis
  - Gender
  - Race

*The SEER data represent national results over a large number of institutions and have been included for illustrative purposes. They are not intended to represent a controlled study and/or a perfect analysis of the CTCA data because of variability in the sample sizes of the two databases, the clinical condition(s) of the patients treated and other factors.
Esophageal Cancer | Length of Life Statistics

The chart below reflects the Cancer Treatment Centers of America® (CTCA) and SEER survival rates for esophageal cancer patients with distant (metastatic) disease who were diagnosed between 2000 and 2013. It includes estimates of the percentage of esophageal cancer patients with distant (metastatic) disease who survived for six months to five years after the initial diagnosis, as recorded in the CTCA® and SEER databases.

- This analysis included esophageal cancer patients from CTCA who had primary tumor sites (as coded by ICD-O-2 (1973+) from C150 to C159, were diagnosed from 2000 to 2013 (including 2000 and 2013) and received at least part of their initial course of treatment at CTCA. All patients included in the analysis were considered analytic patients by CTCA.

- Esophageal cancer patients with distant (metastatic) disease from the SEER database and esophageal cancer patients with distant (metastatic) disease from the CTCA database were included in the analysis. In addition, the analysis excluded patients whose medical records were missing any of the following information:
  - SEER Summary Stages
  - Primary tumor sites
  - Cancer histologic types
  - Date of initial diagnosis
  - Age at initial diagnosis
  - Gender
  - Race

*The SEER data represent national results over a large number of institutions and have been included for illustrative purposes. They are not intended to represent a controlled study and/or a perfect analysis of the CTCA data because of variability in the sample sizes of the two databases, the clinical condition(s) of the patients treated and other factors.
**Kidney Cancer | Length of Life Statistics**

The chart below reflects the Cancer Treatment Centers of America® (CTCA) and SEER survival rates for kidney cancer patients with distant (metastatic) disease who were diagnosed between 2000 and 2013. It includes estimates of the percentage of kidney cancer patients with distant (metastatic) disease who survived for six months to five years after the initial diagnosis, as recorded in the CTCA® and SEER databases.

- This analysis included kidney cancer patients from CTCA who had primary tumor sites (as coded by ICD-O-2 (1973+) of C649, were diagnosed from 2000 to 2013 (including 2000 and 2013) and received at least part of their initial course of treatment at CTCA. All patients included in the analysis were considered analytic patients by CTCA.

- Kidney cancer patients with distant (metastatic) disease from the SEER database and kidney cancer patients with distant (metastatic) disease from the CTCA database were included in the analysis. In addition, the analysis excluded patients whose medical records were missing any of the following information:
  - SEER Summary Stages
  - Primary tumor sites
  - Cancer histologic types
  - Date of initial diagnosis
  - Age at initial diagnosis
  - Gender
  - Race

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**KIDNEY CANCER SURVIVAL RATE**

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2013 | CTCA and SEER*

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*The SEER data represent national results over a large number of institutions and have been included for illustrative purposes. They are not intended to represent a controlled study and/or a perfect analysis of the CTCA data because of variability in the sample sizes of the two databases, the clinical condition(s) of the patients treated and other factors.*
Non-Small Cell Lung Cancer | Length of Life Statistics

The chart below reflects the Cancer Treatment Centers of America® (CTCA) and SEER survival rates for non-small cell lung cancer patients with distant (metastatic) disease who were diagnosed between 2000 and 2013. It includes estimates of the percentage of non-small cell lung cancer patients with distant (metastatic) disease who survived for six months to five years after the initial diagnosis, as recorded in the CTCA® and SEER databases.

- This analysis included non-small cell lung cancer patients from CTCA who had primary tumor sites (as coded by ICD-O-2 (1973+) from C340 to C343 or from C348 to C349, were diagnosed from 2000 to 2013 (including 2000 and 2013) and received at least part of their initial course of treatment at CTCA. All patients included in the analysis were considered analytic patients by CTCA.

- Non-small cell lung cancer patients with distant (metastatic) disease from the SEER database and non-small cell lung cancer patients with distant (metastatic) disease from the CTCA database were included in the analysis. In addition, the analysis excluded patients whose medical records were missing any of the following information:
  - SEER Summary Stages
  - Primary tumor sites
  - Cancer histologic types
  - Date of initial diagnosis
  - Age at initial diagnosis
  - Gender
  - Race

*The SEER data represent national results over a large number of institutions and have been included for illustrative purposes. They are not intended to represent a controlled study and/or a perfect analysis of the CTCA data because of variability in the sample sizes of the two databases, the clinical condition(s) of the patients treated and other factors.
Small Cell Lung Cancer | Length of Life Statistics

The chart below reflects the Cancer Treatment Centers of America® (CTCA) and SEER survival rates for small cell lung cancer patients with distant (metastatic) disease who were diagnosed between 2000 and 2013. It includes estimates of the percentage of small cell lung cancer patients with distant (metastatic) disease who survived for six months to five years after the initial diagnosis, as recorded in the CTCA® and SEER databases.

- This analysis included small cell lung cancer patients from CTCA who had primary tumor sites (as coded by ICD-O-2 (1973+) from C340 to C343 or from C348 to C349, were diagnosed from 2000 to 2013 (including 2000 and 2013) and received at least part of their initial course of treatment at CTCA. All patients included in the analysis were considered analytic patients by CTCA.

- Small cell lung cancer patients with distant (metastatic) disease from the SEER database and small cell lung cancer patients with distant (metastatic) disease from the CTCA database were included in the analysis. In addition, the analysis excluded patients whose medical records were missing any of the following information:
  - SEER Summary Stages
  - Primary tumor sites
  - Cancer histologic types
  - Date of initial diagnosis
  - Age at initial diagnosis
  - Gender
  - Race

*The SEER data represent national results over a large number of institutions and have been included for illustrative purposes. They are not intended to represent a controlled study and/or a perfect analysis of the CTCA data because of variability in the sample sizes of the two databases, the clinical condition(s) of the patients treated and other factors.*
Ovarian Cancer | Length of Life Statistics

The chart below reflects the Cancer Treatment Centers of America® (CTCA) and SEER survival rates for ovarian cancer patients with distant (metastatic) disease who were diagnosed between 2000 and 2013. It includes estimates of the percentage of ovarian cancer patients with distant (metastatic) disease who survived for six months to five years after the initial diagnosis, as recorded in the CTCA® and SEER databases.

- This analysis included ovarian cancer patients from CTCA who had primary tumor sites (as coded by ICD-O-2 (1973+) of C569, were diagnosed from 2000 to 2013 (including 2000 and 2013) and received at least part of their initial course of treatment at CTCA. All patients included in the analysis were considered analytic patients by CTCA.

- Ovarian cancer patients with distant (metastatic) disease from the SEER database and ovarian cancer patients with distant (metastatic) disease from the CTCA database were included in the analysis. In addition, the analysis excluded patients whose medical records were missing any of the following information:
  - SEER Summary Stages
  - Primary tumor sites
  - Cancer histologic types
  - Date of initial diagnosis

- Age at initial diagnosis
- Gender
- Race

OVARIAN CANCER SURVIVAL RATE
Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2013 | CTCA and SEER*

*The SEER data represent national results over a large number of institutions and have been included for illustrative purposes. They are not intended to represent a controlled study and/or a perfect analysis of the CTCA data because of variability in the sample sizes of the two databases, the clinical condition(s) of the patients treated and other factors.
Pancreatic Cancer | Length of Life Statistics

The chart below reflects the Cancer Treatment Centers of America® (CTCA) and SEER survival rates for pancreatic cancer patients with distant (metastatic) disease who were diagnosed between 2000 and 2013. It includes estimates of the percentage of pancreatic cancer patients with distant (metastatic) disease who survived for six months to five years after the initial diagnosis, as recorded in the CTCA® and SEER databases.

- This analysis included pancreatic cancer patients from CTCA who had primary tumor sites (as coded by ICD-O-2 (1973+) from C250 to C254 or from C257 to C259, were diagnosed from 2000 to 2013 (including 2000 and 2013) and received at least part of their initial course of treatment at CTCA. All patients included in the analysis were considered analytic patients by CTCA.

- Pancreatic cancer patients with distant (metastatic) disease from the SEER database and pancreatic cancer patients with distant (metastatic) disease from the CTCA database were included in the analysis. In addition, the analysis excluded patients whose medical records were missing any of the following information:
  - SEER Summary Stages
  - Primary tumor sites
  - Cancer histologic types
  - Date of initial diagnosis
  - Age at initial diagnosis
  - Gender
  - Race

*The SEER data represent national results over a large number of institutions and have been included for illustrative purposes. They are not intended to represent a controlled study and/or a perfect analysis of the CTCA data because of variability in the sample sizes of the two databases, the clinical condition(s) of the patients treated and other factors.*
Prostate Cancer | Length of Life Statistics

The chart below reflects the Cancer Treatment Centers of America® (CTCA) and SEER survival rates for prostate cancer patients with distant (metastatic) disease who were diagnosed between 2000 and 2013. It includes estimates of the percentage of prostate cancer patients with distant (metastatic) disease who survived for six months to five years after the initial diagnosis, as recorded in the CTCA® and SEER databases.

- This analysis included prostate cancer patients from CTCA who had primary tumor sites (as coded by ICD-O-2 (1973+) of C619, were diagnosed from 2000 to 2013 (including 2000 and 2013) and received at least part of their initial course of treatment at CTCA. All patients included in the analysis were considered analytic patients by CTCA.

- Prostate cancer patients with distant (metastatic) disease from the SEER database and prostate cancer patients with distant (metastatic) disease from the CTCA database were included in the analysis. In addition, the analysis excluded patients whose medical records were missing any of the following information:
  - SEER Summary Stages
  - Primary tumor sites
  - Cancer histologic types
  - Date of initial diagnosis
  - Age at initial diagnosis
  - Gender
  - Race

*The SEER data represent national results over a large number of institutions and have been included for illustrative purposes. They are not intended to represent a controlled study and/or a perfect analysis of the CTCA data because of variability in the sample sizes of the two databases, the clinical condition(s) of the patients treated and other factors.*
Rectal Cancer | Length of Life Statistics

The chart below reflects the Cancer Treatment Centers of America® (CTCA) and SEER survival rates for rectal cancer patients with distant (metastatic) disease who were diagnosed between 2000 and 2013. It includes estimates of the percentage of rectal cancer patients with distant (metastatic) disease who survived for six months to five years after the initial diagnosis, as recorded in the CTCA® and SEER databases.

- This analysis included rectal cancer patients from CTCA who had primary tumor sites (as coded by ICD-O-2 (1973+) of C209, were diagnosed from 2000 to 2013 (including 2000 and 2013) and received at least part of their initial course of treatment at CTCA. All patients include in the analysis were considered analytic patients by CTCA.

- Rectal cancer patients with distant (metastatic) disease from the SEER database and rectal cancer patients with distant (metastatic) disease from the CTCA database were included in the analysis. In addition, the analysis excluded patients whose medical records were missing any of the following information:
  - SEER Summary Stages
  - Primary tumor sites
  - Cancer histologic types
  - Date of initial diagnosis
  - Age at initial diagnosis
  - Gender
  - Race

*The SEER data represent national results over a large number of institutions and have been included for illustrative purposes. They are not intended to represent a controlled study and/or a perfect analysis of the CTCA data because of variability in the sample sizes of the two databases, the clinical condition(s) of the patients treated and other factors.
Stomach Cancer | Length of Life Statistics

The chart below reflects the Cancer Treatment Centers of America® (CTCA) and SEER survival rates for stomach cancer patients with distant (metastatic) disease who were diagnosed between 2000 and 2013. It includes estimates of the percentage of stomach cancer patients with distant (metastatic) disease who survived for six months to five years after the initial diagnosis, as recorded in the CTCA® and SEER databases.

- This analysis included stomach cancer patients from CTCA who had primary tumor sites (as coded by ICD-O-2 (1973+) of C160 to C169, were diagnosed from 2000 to 2013 (including 2000 and 2013) and received at least part of their initial course of treatment at CTCA. All patients included in the analysis were considered analytic patients by CTCA.

- Stomach cancer patients with distant (metastatic) disease from the SEER database and stomach cancer patients with distant (metastatic) disease from the CTCA database were included in the analysis. In addition, the analysis excluded patients whose medical records were missing any of the following information:
  - SEER Summary Stages
  - Primary tumor sites
  - Cancer histologic types
  - Date of initial diagnosis
  - Age at initial diagnosis
  - Gender
  - Race

*The SEER data represent national results over a large number of institutions and have been included for illustrative purposes. They are not intended to represent a controlled study and/or a perfect analysis of the CTCA data because of variability in the sample sizes of the two databases, the clinical condition(s) of the patients treated and other factors.
“A cancer diagnosis may bring an acute sense of losing control. You may start to feel that your life is suddenly out of your hands. Because of that, it is so important to be in the care of people you trust. It is essential to find ways to regain control, to take charge where you can. CTCA fulfilled both of these needs for me. I felt confident in my medical oncologist and surgeon. I was considered an active participant in my care. My doctors were always clear that the final decision at any step of the way was mine. The numerous integrative approaches available to patients at CTCA provide an additional outlet for regaining control.”
Our Quality of Life Results

Assessment Background and Methodology

Cancer Treatment Centers of America® (CTCA), was among the first U.S. cancer hospitals to use quality of life metrics as part of its routine assessment of patient well-being and quality of care. Research demonstrates Patient Self-Reported Outcome (PRSO) data are a valuable part of a patient’s treatment plan. Several studies validate the potential of routine assessment data in improving both the precision and degree of patient-centered care – making sure the right care is delivered to the right patients at the right time. The benefits of PRSO data not only include better health-related quality of life and fewer emergency room visits, but also improvements in health service outcomes and survival.1,2,3

CTCA® patients self-report their symptoms and quality of life concerns as part of our patient evaluation process. This process includes a symptom assessment, called the Symptom Inventory Tool (SIT), that patients complete in correspondence with their treatment cycle, not more frequently than every 21 days. Upon arrival, patients complete the electronically administered SIT using a tablet computer. CTCA team members utilize these results as part of their patient assessment and evaluation process. These two complementary processes (patient self-assessment and reflection, and analyzing the data as a starting point for discussion) assure that CTCA care teams readily identify when patients may benefit from referral and/or more directed intervention to help them cope with their symptoms, side effects and quality of life concerns. This data also exists real-time within the electronic health record. Greater than 90% of patients voluntarily participate in the SIT assessments.


IN THIS SECTION

- CTCA measures and intervenes on 27 different indicators of quality of life (symptoms and activities of daily life) for treating patients.
- Between July 1, 2015 and June 30, 2017 more than 9,938 patients completed both baseline and return self-assessments.
- Graphs on pages 25-29 reflect a change in score for patients by cancer type who self-reported at least one symptom as severe at baseline in comparison to their return visit.
- Graphs on pages 30 and 31 reflect CTCA aggregate and facility patient self-reported outcome data for four (4) key areas across cancer types.
ASSESSMENT BACKGROUND AND METHODOLOGY

Continued

The SIT includes 27 items: 13 core symptom questions (box 1) and six questions related to issues that interfere with patients’ everyday functioning (box 2). These 19 questions mirror the MD Anderson Symptom Inventory (MDASI) tool used by many U.S. hospitals. MDASI, which assesses both the severity and impact of patients’ symptoms and quality of life issues, has been psychometrically validated and tested. It is also endorsed by the National Cancer Institute. CTCA has added eight (8) questions to the patient assessment process that our medical and care teams consider clinically relevant (box 3).

The graphs on the following pages illustrate CTCA patients’ self-reported symptom burden for nine (9) key areas by type of cancer for patients at their new patient evaluation (baseline) in comparison to their next return visit when scoring a particular symptom or activity area as severe at baseline. For patients with severe baseline scores (7 or greater on a 1 to 10 scale with 1 being “non-existent” and 10 being “as bad as one can imagine/greatly interfered”), a two-point change in score is clinically relevant and significant, with respect to the symptom getting better, remaining constant or getting worse. Data reflects more than 9,983 patients completing a second return assessment from baseline between July 1, 2015 and June 30, 2017, with 2,472 deemed severe.

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>CORE SYMPTOMS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pain</td>
</tr>
<tr>
<td></td>
<td>Fatigue</td>
</tr>
<tr>
<td></td>
<td>Nausea</td>
</tr>
<tr>
<td></td>
<td>Disturbed sleep</td>
</tr>
<tr>
<td></td>
<td>Distress</td>
</tr>
<tr>
<td></td>
<td>Shortness of breath</td>
</tr>
<tr>
<td></td>
<td>Memory</td>
</tr>
<tr>
<td></td>
<td>Appetite</td>
</tr>
<tr>
<td></td>
<td>Drowsy</td>
</tr>
<tr>
<td></td>
<td>Dry mouth</td>
</tr>
<tr>
<td></td>
<td>Sadness</td>
</tr>
<tr>
<td></td>
<td>Vomiting</td>
</tr>
<tr>
<td></td>
<td>Numbness</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>BOX 2</th>
<th>INTERFERENCE ISSUES</th>
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<tbody>
<tr>
<td></td>
<td>General activity</td>
</tr>
<tr>
<td></td>
<td>Mood</td>
</tr>
<tr>
<td></td>
<td>Work</td>
</tr>
<tr>
<td></td>
<td>Relationships</td>
</tr>
<tr>
<td></td>
<td>Walking</td>
</tr>
<tr>
<td></td>
<td>Enjoyment of life</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOX 3</th>
<th>ADDITIONAL AREAS OF FOCUS</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Constipation</td>
</tr>
<tr>
<td></td>
<td>Swelling</td>
</tr>
<tr>
<td></td>
<td>Mouth soreness</td>
</tr>
<tr>
<td></td>
<td>Bleeding</td>
</tr>
<tr>
<td></td>
<td>Sexual interest</td>
</tr>
<tr>
<td></td>
<td>Family response</td>
</tr>
<tr>
<td></td>
<td>Sense of hope</td>
</tr>
<tr>
<td></td>
<td>Quality of life</td>
</tr>
</tbody>
</table>
Quality of Life Results by Cancer Type

BREAST CANCER

% of Patients with Severe Symptoms on Baseline vs. Return

COLON CANCER

% of Patients with Severe Symptoms on Baseline vs. Return
<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>% of Patients with Severe Symptoms on Baseline vs. Return</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESOPHAGEAL CANCER</strong></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>Better: 6.5, No Clinical Change: 35.5, Worse: 58.1</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Better: 3.8, No Clinical Change: 46.2, Worse: 50.0</td>
</tr>
<tr>
<td>Nausea</td>
<td>Better: 0.0, No Clinical Change: 21.4, Worse: 78.6</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>Better: 7.1, No Clinical Change: 28.6, Worse: 64.3</td>
</tr>
<tr>
<td>Appetite</td>
<td>Better: 0.0, No Clinical Change: 44.4, Worse: 55.6</td>
</tr>
<tr>
<td>Mood</td>
<td>Better: 0.0, No Clinical Change: 16.7, Worse: 83.3</td>
</tr>
<tr>
<td>Enjoyment of life</td>
<td>Better: 0.0, No Clinical Change: 33.3, Worse: 66.7</td>
</tr>
</tbody>
</table>

| **KIDNEY CANCER** |                                                         |
| Pain             | Better: 37.8, No Clinical Change: 46.7, Worse: 50.8       |
| Fatigue          | Better: 5.9, No Clinical Change: 34.4, Worse: 50.8       |
| Nausea           | Better: 22.7, No Clinical Change: 25.9, Worse: 70.4       |
| Distress         | Better: 2.3, No Clinical Change: 22.7, Worse: 75.0       |
| Shortness of breath | Better: 3.7, No Clinical Change: 25.9, Worse: 70.4 |
| Appetite         | Better: 29.2, No Clinical Change: 43.3, Worse: 50.0       |
| Mood             | Better: 0.0, No Clinical Change: 29.2, Worse: 60.0       |
| Work             | Better: 5.0, No Clinical Change: 35.0, Worse: 60.0       |
| Enjoyment of life | Better: 23.1, No Clinical Change: 35.0, Worse: 60.0       |
LUNG CANCER
% of Patients with Severe Symptoms on Baseline vs. Return

OVARIAN CANCER
% of Patients with Severe Symptoms on Baseline vs. Return
Quality of Life Results by Cancer Type

**PANCREATIC CANCER**

% of Patients with Severe Symptoms on Baseline vs. Return

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Baseline</th>
<th>Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enjoyment of life</td>
<td>59.3</td>
<td>65.0</td>
</tr>
<tr>
<td>Work</td>
<td>46.0</td>
<td>46.0</td>
</tr>
<tr>
<td>Mood</td>
<td>31.1</td>
<td>23.3</td>
</tr>
<tr>
<td>Appetite</td>
<td>26.0</td>
<td>17.4</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>2.6</td>
<td>2.0</td>
</tr>
<tr>
<td>Distress</td>
<td>65.0</td>
<td>74.4</td>
</tr>
<tr>
<td>Nausea</td>
<td>65.0</td>
<td>76.1</td>
</tr>
<tr>
<td>Fatigue</td>
<td>57.4</td>
<td>57.4</td>
</tr>
<tr>
<td>Distress</td>
<td>8.3</td>
<td>10.1</td>
</tr>
<tr>
<td>Nausea</td>
<td>48.6</td>
<td>57.1</td>
</tr>
<tr>
<td>Enjoyment of life</td>
<td>32.3</td>
<td>32.3</td>
</tr>
</tbody>
</table>

**PROSTATE CANCER**

% of Patients with Severe Symptoms on Baseline vs. Return

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Baseline</th>
<th>Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enjoyment of life</td>
<td>43.1</td>
<td>46.6</td>
</tr>
<tr>
<td>Work</td>
<td>35.4</td>
<td>35.4</td>
</tr>
<tr>
<td>Mood</td>
<td>19.0</td>
<td>23.8</td>
</tr>
<tr>
<td>Appetite</td>
<td>4.9</td>
<td>23.2</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>6.1</td>
<td>24.2</td>
</tr>
<tr>
<td>Distress</td>
<td>7.3</td>
<td>26.8</td>
</tr>
<tr>
<td>Nausea</td>
<td>8.1</td>
<td>29.8</td>
</tr>
<tr>
<td>Fatigue</td>
<td>5.3</td>
<td>40.5</td>
</tr>
<tr>
<td>Distress</td>
<td>8.1</td>
<td>51.4</td>
</tr>
<tr>
<td>Nausea</td>
<td>3.1</td>
<td>35.4</td>
</tr>
</tbody>
</table>

Better | No Clinical Change | Worse
RECTAL CANCER
% of Patients with Severe Symptoms on Baseline vs. Return

STOMACH CANCER
% of Patients with Severe Symptoms on Baseline vs. Return
Quality of Life Results in Aggregate and by Facility

The following graphs reflect Cancer Treatment Centers of America® (CTCA) aggregate as well as facility patient self-reported outcomes (PSRO) data for four key areas related to our ability to treat our patients’ symptoms between July 1, 2015 and June 30, 2017.

**EASTERN**

<table>
<thead>
<tr>
<th>% of Patients with Severe Symptoms on Baseline vs. Return</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pain</strong></td>
</tr>
<tr>
<td>Better: 54.2</td>
</tr>
<tr>
<td>No Clinical Change: 41.5</td>
</tr>
<tr>
<td>Worse: 4.2</td>
</tr>
<tr>
<td><strong>Distress</strong></td>
</tr>
<tr>
<td>Better: 68.1</td>
</tr>
<tr>
<td>No Clinical Change: 26.1</td>
</tr>
<tr>
<td>Worse: 5.9</td>
</tr>
<tr>
<td><strong>Appetite</strong></td>
</tr>
<tr>
<td>Better: 60.0</td>
</tr>
<tr>
<td>No Clinical Change: 36.3</td>
</tr>
<tr>
<td>Worse: 3.8</td>
</tr>
<tr>
<td><strong>Enjoyment of life</strong></td>
</tr>
<tr>
<td>Better: 70.7</td>
</tr>
<tr>
<td>No Clinical Change: 26.0</td>
</tr>
<tr>
<td>Worse: 3.3</td>
</tr>
</tbody>
</table>

**MIDWESTERN**

<table>
<thead>
<tr>
<th>% of Patients with Severe Symptoms on Baseline vs. Return</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pain</strong></td>
</tr>
<tr>
<td>Better: 55.3</td>
</tr>
<tr>
<td>No Clinical Change: 37.5</td>
</tr>
<tr>
<td>Worse: 7.2</td>
</tr>
<tr>
<td><strong>Distress</strong></td>
</tr>
<tr>
<td>Better: 73.6</td>
</tr>
<tr>
<td>No Clinical Change: 22.4</td>
</tr>
<tr>
<td>Worse: 3.9</td>
</tr>
<tr>
<td><strong>Appetite</strong></td>
</tr>
<tr>
<td>Better: 61.1</td>
</tr>
<tr>
<td>No Clinical Change: 32.2</td>
</tr>
<tr>
<td>Worse: 6.6</td>
</tr>
<tr>
<td><strong>Enjoyment of life</strong></td>
</tr>
<tr>
<td>Better: 68.5</td>
</tr>
<tr>
<td>No Clinical Change: 27.7</td>
</tr>
<tr>
<td>Worse: 5.8</td>
</tr>
</tbody>
</table>
OUR QUALITY OF LIFE RESULTS

SOUTHEASTERN
% of Patients with Severe Symptoms on Baseline vs. Return

<table>
<thead>
<tr>
<th></th>
<th>Better</th>
<th>No Clinical Change</th>
<th>Worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>50.8</td>
<td>31.9</td>
<td>9.2</td>
</tr>
<tr>
<td>Distress</td>
<td>67.3</td>
<td>28.3</td>
<td>4.4</td>
</tr>
<tr>
<td>Appetite</td>
<td>61.8</td>
<td>33.4</td>
<td>4.8</td>
</tr>
<tr>
<td>Enjoyment of life</td>
<td>66.2</td>
<td>29.2</td>
<td>4.6</td>
</tr>
</tbody>
</table>

SOUTHWESTERN
% of Patients with Severe Symptoms on Baseline vs. Return

<table>
<thead>
<tr>
<th></th>
<th>Better</th>
<th>No Clinical Change</th>
<th>Worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>62.3</td>
<td>31.9</td>
<td>5.8</td>
</tr>
<tr>
<td>Distress</td>
<td>68.5</td>
<td>25.9</td>
<td>5.6</td>
</tr>
<tr>
<td>Appetite</td>
<td>62.1</td>
<td>31.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Enjoyment of life</td>
<td>63.9</td>
<td>30.6</td>
<td>5.6</td>
</tr>
</tbody>
</table>

WESTERN
% of Patients with Severe Symptoms on Baseline vs. Return

<table>
<thead>
<tr>
<th></th>
<th>Better</th>
<th>No Clinical Change</th>
<th>Worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>59.7</td>
<td>33.8</td>
<td>6.5</td>
</tr>
<tr>
<td>Distress</td>
<td>71.5</td>
<td>25.5</td>
<td>2.9</td>
</tr>
<tr>
<td>Appetite</td>
<td>71.4</td>
<td>26.2</td>
<td>2.4</td>
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<tr>
<td>Enjoyment of life</td>
<td>70.0</td>
<td>26.7</td>
<td>3.3</td>
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</table>

ENTERPRISE
% of Patients with Severe Symptoms on Baseline vs. Return

<table>
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<tr>
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<th>No Clinical Change</th>
<th>Worse</th>
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<tbody>
<tr>
<td>Pain</td>
<td>54.8</td>
<td>37.7</td>
<td>7.5</td>
</tr>
<tr>
<td>Distress</td>
<td>69.9</td>
<td>25.9</td>
<td>4.3</td>
</tr>
<tr>
<td>Appetite</td>
<td>62.9</td>
<td>32.0</td>
<td>5.1</td>
</tr>
<tr>
<td>Enjoyment of life</td>
<td>67.4</td>
<td>28.4</td>
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OUR QUALITY OF LIFE RESULTS

SERMC (FY 16-17)

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<tr>
<th></th>
<th>Better</th>
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<th>Worse</th>
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<tbody>
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<td>2.4</td>
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<tr>
<td>Distress</td>
<td>44.5</td>
<td>31.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Appetite</td>
<td>48.9</td>
<td>31.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Enjoyment of life</td>
<td>46.2</td>
<td>31.5</td>
<td>5.1</td>
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SOUTHWESTERN

<table>
<thead>
<tr>
<th></th>
<th>Better</th>
<th>No Clinical Change</th>
<th>Worse</th>
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<tr>
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<td>41.5</td>
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<td>2.4</td>
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<tr>
<td>Distress</td>
<td>44.5</td>
<td>31.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Appetite</td>
<td>48.9</td>
<td>31.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Enjoyment of life</td>
<td>46.2</td>
<td>31.5</td>
<td>5.1</td>
</tr>
</tbody>
</table>

WESTERN

<table>
<thead>
<tr>
<th></th>
<th>Better</th>
<th>No Clinical Change</th>
<th>Worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
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OUR QUALITY OF LIFE RESULTS

SERMC (FY 16-17)

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About this Report

Our Length of Life Results

Our Quality of Life Results

Our Patient Experience Results

Our Patient Safety and Quality Results

Our Clinical Leadership

Our Research Publications
“On that first visit, I met with my care team to discuss treatment. They were so caring and supportive. They recommended various options for radiation therapy, and after my wife and I made our decision, we returned home and packed our bags for a longer stay. We returned to the center for five weeks, and I received radiation treatments as well as oral chemotherapy, twice a day.”
Our Patient Experience Results

Inpatient Experience Results

HCAHPS INPATIENT SURVEY
BACKGROUND AND METHODOLOGY

Cancer Treatment Centers of America® (CTCA) participates in and monitors its ratings on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, developed by the U.S. Department of Health and Human Services, and is administered by a third party, Press Ganey®. The HCAHPS survey is a national, standardized, publicly-reported survey of patients’ perspectives on their inpatient hospital care.

Until HCAHPS, many hospitals collected information on patient satisfaction for their own internal use, with no national standard for collecting and publicly reporting information about patient experience of care that allowed valid comparisons to be made across hospitals locally, regionally and nationally. Many specialty hospitals are excluded from participating in this effort. This is not the case for CTCA®.

Through the relationship that CTCA has with Press Ganey, a nationally recognized, independent third-party, surveys are administered to all eligible adult patients between 48 hours and six weeks after their discharge from a CTCA hospital. Press Ganey works with more than 26,000 healthcare organizations and is considered an industry leader. As a result of our strategic partnership with Press Ganey, CTCA has access to the largest comparative database containing real-time data from more hospitals than any other HCAHPS vendor in the nation.

Patients who reported YES, they would DEFINITELY RECOMMEND A CTCA HOSPITAL

<table>
<thead>
<tr>
<th>% of Patients</th>
<th>Total Completed Surveys (All Sites): 1,228</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCA</td>
<td>91.0%</td>
</tr>
<tr>
<td>National</td>
<td>72.5%</td>
</tr>
</tbody>
</table>

97TH PERCENTILE CTCA performance ranks in the 97th percentile among 2,198 U.S. hospitals for patients who reported YES, they would definitely recommend their hospital.

Patients who gave their CTCA HOSPITAL A RATING OF 9 OR 10 on a scale from 0 (lowest) to 10 (highest)

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<th>% of Patients</th>
<th>CTCA</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>89.9%</td>
<td>72.3%</td>
</tr>
</tbody>
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97TH PERCENTILE CTCA performance ranks in the 97th percentile among 2,198 U.S. hospitals for patients who gave their hospital a rating of 9 or 10.
Overall, when patients are asked if they would recommend a CTCA hospital to family and friends as well as whether they considered their experience with CTCA as among the best hospitals, with 1,228 completed responses, our hospitals ranked within the top 3% of hospitals across the nation using data from July 1, 2016 through June 30, 2017.

CTCA HCAHPS inpatient data are compared by Press Ganey to the respective American Hospital Association region for each of the CTCA hospitals and the national data based on the data received from within the cohort. The data reported is reflective of the most current available gathered between July 1, 2016 and June 30, 2017 based on the date patient surveys were received.\(^1\)\(^2\) The charts on the following pages show HCAHPS scores for each CTCA hospital as compared to its American Hospital Association (AHA) Region Average and the National Average. The applicable AHA regions are:

- **AHA Region 2:** CTCA at Eastern Regional Medical Center (Eastern): New Jersey, New York and Pennsylvania
- **AHA Region 4:** CTCA at Southeastern Regional Medical Center (Southeastern): Alabama, Florida, Georgia, Mississippi, Puerto Rico, South Carolina, Tennessee
- **AHA Region 5:** CTCA at Midwestern Regional Medical Center (Midwestern): Illinois, Indiana, Michigan, Ohio and Wisconsin
- **AHA Region 7:** CTCA at Southwestern Regional Medical Center (Southwestern): Arkansas, Louisiana, Oklahoma, Texas
- **AHA Region 8:** CTCA at Western Regional Medical Center (Western): Arizona, Colorado, Idaho, Montana, New Mexico, Utah and Wyoming

The information displayed in the graphs on the following pages is reported using frequency scores representing the percentage of patients rating their experience in the affirmative top box (definitely/always) in response to all care dimensions for which questions were posed. Additional details on the HCAHPS survey questions can be found in the key on page 38.

In alignment with the CTCA commitment to the Mother Standard\textsuperscript{®} of care, our hospitals’ patient experience results are consistently higher than the national and regional norms.

---

**THE MOTHER STANDARD\textsuperscript{®} OF CARE**

The Mother Standard of care is a philosophy that makes the following promise: CTCA physicians, clinicians and stakeholders will provide patients with the same warmth, unconditional support and respect that we would extend to our own mothers, fathers, sisters, brothers and loved ones.

In adhering to the Mother Standard of care, we give people fighting cancer new options, hope and an improved quality of life.

---

1. The HCAHPS survey compiles nationwide data, and the Center for Medicare and Medicaid Services (CMS) adjusts for geographic region and certain patient demographics. As such, the results appearing on the CMS website (http://www.medicare.gov/hospitalcompare/search.html) are delayed in being released to the public. Therefore, data reflected with patients surveyed in this timeframe will not appear on the CMS website for approximately one year, and may differ slightly.

2. The scores included for CTCA at Western Regional Medical Center (Western) are not reported to CMS because Western did not participate in Medicare/Medicaid programs during this time period; however, Press Ganey (at our request) administers the HCAHPS survey to discharged Western patients and then reports the results to CTCA.
Our Patient Experience Results | Inpatient

**EASTERN | HCAHPS Survey on Inpatient Satisfaction**

<table>
<thead>
<tr>
<th>Service</th>
<th>Eastern</th>
<th>National</th>
<th>Regional</th>
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<tbody>
<tr>
<td>Recommend (1)</td>
<td>88.3</td>
<td>72.5</td>
<td>67.3</td>
</tr>
<tr>
<td>Nurses (2)</td>
<td>88.4</td>
<td>72.3</td>
<td>67.9</td>
</tr>
<tr>
<td>Doctors (3)</td>
<td>84.2</td>
<td>78.5</td>
<td>72.6</td>
</tr>
<tr>
<td>Received help (4)</td>
<td>79.3</td>
<td>70.7</td>
<td>63.5</td>
</tr>
<tr>
<td>Pain (5)</td>
<td>64.4</td>
<td>68.4</td>
<td>61.0</td>
</tr>
<tr>
<td>Medicine (6)</td>
<td>63.3</td>
<td>74.4</td>
<td>63.8</td>
</tr>
<tr>
<td>Environment (7)</td>
<td>74.4</td>
<td>77.6</td>
<td>71.0</td>
</tr>
<tr>
<td>Quiet (8)</td>
<td>64.9</td>
<td>91.3</td>
<td>51.6</td>
</tr>
<tr>
<td>Discharge (9)</td>
<td>92.2</td>
<td>87.4</td>
<td>59.2</td>
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<tr>
<td>Care transitions (10)</td>
<td>92.2</td>
<td>84.2</td>
<td>49.7</td>
</tr>
<tr>
<td>Overall (11)</td>
<td>92.2</td>
<td>83.6</td>
<td>67.3</td>
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**MIDWESTERN | HCAHPS Survey on Inpatient Satisfaction**

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<tr>
<th>Service</th>
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<th>National</th>
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<tbody>
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<tr>
<td>Doctors (3)</td>
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<td>78.0</td>
<td>71.4</td>
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<tr>
<td>Received help (4)</td>
<td>81.3</td>
<td>79.9</td>
<td>75.9</td>
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<tr>
<td>Pain (5)</td>
<td>74.0</td>
<td>70.7</td>
<td>62.8</td>
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<tr>
<td>Medicine (6)</td>
<td>68.9</td>
<td>73.4</td>
<td>64.7</td>
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<tr>
<td>Environment (7)</td>
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<td>75.9</td>
<td>64.1</td>
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Our Patient Experience Results | **Inpatient**

**SOUTHEASTERN** | HCAHPS Survey on Inpatient Satisfaction

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<tr>
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<tr>
<td>Doctors</td>
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<td>GRAPH LABELS</td>
<td>HCAHPS SURVEY QUESTIONS (AND GROUPINGS)</td>
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<td>--------------</td>
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<tr>
<td>(1) Recommend</td>
<td>Patients who would definitely recommend the hospital</td>
<td></td>
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</tbody>
</table>
| (2) Nurses | Nurses treated you with courtesy and respect  
Nurses listened carefully to you  
Nurses explained in a way you understand |
| (3) Doctors | Doctors treated you with courtesy and respect  
Doctors listened carefully to you  
Doctors explained in a way you understand |
| (4) Received help | After using call button, received help as soon as you wanted it  
Received help with toileting as soon as you wanted it |
| (5) Pain | Pain well controlled  
Staff did everything to help with pain |
| (6) Medicine | Told you what new medicine was for  
Staff described medication’s side effects |
| (7) Environment | Cleanliness of hospital environment |
| (8) Quiet | Quietness of hospital environment |
| (9) Discharge | Staff talked about whether you had the help you needed  
Information regarding symptoms or problems to look for |
| (10) Care transitions | Hospital staff took preferences into account  
Good understanding of managing own health  
Understood purpose of taking medications |
| (11) Overall | Patients who rated the hospital 9-10 |
Outpatient Survey Background & Methodology

Cancer Treatment Centers of America® (CTCA) voluntarily collects data on the quality of our outpatients’ experiences with their care using a survey customized to the oncology patients’ needs and administered by a third party to ensure the validity and reliability of these findings. Press Ganey administers the outpatient survey to all eligible patients within one week of the completion of any CTCA® appointment for service. On average, over 100 completed surveys are returned per month, providing CTCA hospitals with valuable feedback; Between July 1, 2016 and June 30, 2017 (FY17), CTCA patients completed more than 9,900 outpatient oncology surveys.

Likelihood to Definitely Recommend a CTCA HOSPITAL

Total Completed Surveys (All Sites) FY17: 9,900
National (All Facilities) Cohort: 361 Hospitals

Overall Rating of CTCA HOSPITALS

Total Completed Surveys (All Sites) FY17: 9,900
National (All Facilities) Cohort: 361 Hospitals
Our Patient Experience Results | Outpatient

The data presented in the charts below and through page 43, are “on average” scores using a 5-point Likert scale, in which an individual response is converted from very poor (0) to very good (100) and averaged. Comprehensive data is presented by cancer type for each key dimension of care, based on what we know to be important to our patients.

**BREAST CANCER | Outpatient Oncology Satisfaction**

- **Average Score**
  - Recommend (1): 96.1
  - Scheduling (2): 89.7
  - Registration (3): 92.5
  - Facility (4): 94.1
  - Chemotherapy (5): 92.8
  - Radiation (6): 93.1
  - Surgery (7): 94.7
  - Nursing (8): 94.8
  - Personal care (9): 92.8
  - Overall (10): 95.5

**COLON CANCER | Outpatient Oncology Satisfaction**

- **Average Score**
  - Recommend (1): 96.1
  - Scheduling (2): 89.0
  - Registration (3): 92.3
  - Facility (4): 93.8
  - Chemotherapy (5): 92.4
  - Radiation (6): 93.1
  - Surgery (7): 94.1
  - Nursing (8): 94.9
  - Personal care (9): 92.4
  - Overall (10): 95.5
JULY 1, 2016 - JUNE 30, 2017

ESOPHAGEAL CANCER | Outpatient Oncology Satisfaction

KIDNEY CANCER | Outpatient Oncology Satisfaction

LUNG CANCER | Outpatient Oncology Satisfaction
Our Patient Experience Results | **Outpatient**

### OVARIAN CANCER | Outpatient Oncology Satisfaction

![Bar chart showing OVARIAN CANCER satisfaction scores](image)

### PANCREATIC CANCER | Outpatient Oncology Satisfaction

![Bar chart showing PANCREATIC CANCER satisfaction scores](image)

### PROSTATE CANCER | Outpatient Oncology Satisfaction

![Bar chart showing PROSTATE CANCER satisfaction scores](image)
The CTCA data presented in aggregate at right represents the quality of patients’ experiences with our medical, radiation and surgical oncologists.
<table>
<thead>
<tr>
<th>GRAPH LABELS</th>
<th>OUTPATIENT SURVEY QUESTIONS (AND GROUPINGS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Recommend</td>
<td>Likelihood of recommending services</td>
</tr>
</tbody>
</table>
| (2) Scheduling | Reached office staff on phone with ease  
Wait time between calling and first scheduled appointment  
Courtesy and concern shown by staff who made appointment |
| (3) Registration | Registration process ease  
Wait in registration area |
| (4) Facility | Facility cleanliness  
Found way around facility with ease  
Waiting area comfort  
Changing room privacy |
| (5) Chemotherapy | Wait time in chemo area  
Explained what to expect during chemo  
Chemo staff’s concern for comfort  
Chemo staff’s courtesy  
Explained how to manage chemo side effects  
Comfort of the chemo treatment area |
| (6) Radiation | Wait time in radiation therapy area  
Explained what to expect during radiation therapy  
Radiation therapy staff’s concern for comfort  
Radiation therapy staff’s courtesy  
Explained how to manage radiation therapy side effects |
| (7) Surgery | Surgeon explained surgery  
Explained how to manage side effects of surgery  
Concern for privacy (in operating room and recovery room)  
Waiting time in surgeon’s office  
Staff’s concern for your comfort  
Likelihood of recommending surgeons to others  
Confidence in surgeon’s ability |
| (8) Nursing | Nurses’ concern for questions and worries  
Skill and knowledge of nurse(s)  
Quality of care received from nurse(s)  
Attention to pain control  
Caring manner of the nurses  
Nurses answered your questions |
| (9) Personal care | Emotional needs were addressed  
Kept family informed about what to expect  
Sensitivity to difficulties and inconvenience  
Inclusion in treatment decisions  
Home care instructions  
Concern for privacy |
| (10) Overall | Care given at this facility |
About this Report

Our Length of Life Results

Our Quality of Life Results

Our Patient Experience Results

Our Patient Safety and Quality Results

Our Clinical Leadership

Our Research Publications
“After about a year of traveling to the hospital for chemotherapy, I completed another PET scan. The results showed no signs of cancer on my liver or lungs and only a suspicious area on a lymph node. So I began oral chemotherapy and started seven radiation therapy sessions in July 2017. I believe I am on my way to recovery.”

No case is typical. You should not expect to experience these results.
Safe Care, Quality Care

Our Philosophy and Methodology

COLLABORATIVE, RELIABLE PROCESSES AND SYSTEMS

At Cancer Treatment Centers of America® (CTCA), quality care does not simply happen, it is built and nurtured. Quality is the outcome of a set of consciously designed, reliable procedures and systems that connect people, processes, knowledge and technology in the delivery of high quality, safe care. The CTCA® quality program is grounded in the following principles:

• Collaborative partnerships across CTCA are essential to individual and collective improvement.

• Improvement and clinical innovation is achieved through the conscious deployment of methodologies, technologies and tools.

• Evidence-informed practice, guidelines and/or expert opinion are central to learning and transferring knowledge.

• Providers and patients alike are empowered to serve as champions for improvement.

CTCA utilizes the six aims of the Institute of Medicine (IOM) as a framework for our definition of quality care. According to these aims, health care should be:

1. Safe: Avoid injuries to patients from the care intended to help them.

2. Effective: Base patient services on scientific, evidence-informed knowledge of the benefits.

3. Patient Centered: Provide care in a respectful manner that is responsive to individual preferences, needs and values.

4. Timely: Reduce waits and delays for both those who receive and those who give care.

5. Efficient: Avoid waste, including waste of equipment, supplies, ideas and energy.

6. Equitable: Be consistent in the quality of care, which should not vary due to individual differences such as gender, age, race/ethnicity, geographic location or socio-economic status.
Safety, Our First Commitment

The We ARE (Accountable, Reliable, and Empowered) Safe initiative establishes a framework to create a culture of safety for CTCA patients. As an organization committed to eliminating preventable harm through the detection and correction of system weaknesses, we have implemented high reliability strategies such as self-checking (Stop-Think-Act-Review), peer checking, communication tools (Situation-Background-Assessment-Recommendation), Leader Rounding and Daily Safety Check-ins. In this effort, CTCA has engaged Healthcare Performance Improvement (HPI), a national leader in patient safety, which works with over 600 hospitals across the U.S. Further, CTCA is committed to the National Patient Safety Goals established by The Joint Commission, which accredits more than 19,000 health care organizations and programs nationally.

To assess our success in establishing a culture committed to patient safety, CTCA hospitals utilize the Agency for Healthcare Research and Quality (AHRQ) Hospital Survey on the Culture of Patient Safety, a validated staff survey considered among the top-cited and most well-respected instruments in the country. On average, over 700 hospitals utilize the instrument annually, constituting a comparative data set of over 447,000 responses. Conducting the survey every 18 to 24 months and contributing to the national database, CTCA hospitals’ most recent Patient Safety Grade is presented below in comparison to the AHRQ 2016 national norm.

**Patient Safety Grade**

<table>
<thead>
<tr>
<th>Grade</th>
<th>CTCA 2016</th>
<th>AHRQ 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Excellent</td>
<td>43</td>
<td>34</td>
</tr>
<tr>
<td>B - Very Good</td>
<td>41</td>
<td>42</td>
</tr>
<tr>
<td>C - Acceptable</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>D - Poor</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>E - Failing</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**CTCA Patient Treatment Results 2017 | 2018**
Ongoing Measurement Through a Quality Dashboard

Using robust data from various external and internal sources, information is leveraged across CTCA hospitals to drive performance. Although not an exact match to publicly reported data, more timely internal data creates transparency at all organizational levels and supports real-time improvement. Through a dashboard approach, CTCA continuously monitors and assesses a variety of metrics related to the IOM aims with respect to care outcomes, processes and structures. The list of metrics changes constantly as CTCA views the metrics of interest from multiple angles, including those of our clinicians, the boards of directors of the CTCA hospitals, the employer and payer communities and patients. The following measures are examples of our current focus areas.

INFECTION PREVENTION

The prevention of hospital-acquired infections is a national priority. CTCA conducts Central Line Associated Bloodstream Infection (CLABSI) and Catheter Associated Urinary Tract Infection (CAUTI) surveillance in all inpatient care areas utilizing surveillance definitions from the Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (NHSN). CTCA has implemented a number of CLABSI and CAUTI prevention efforts to reduce the number of infections and sustain evidence-informed practices for central line and urinary catheter insertion and maintenance as evidenced by our performance.
INPATIENT COMPLICATIONS, LENGTH OF STAY AND SAFETY

CTCA hospitals utilize Crimson Continuum of Care (CCC) software, an industry-leading solution, to aggregate our source system data to produce meaningful metrics, providing visibility into our coded data for purposes of benchmarking and supporting improvement. The CCC database has over 1,000 hospital members and represents approximately one-third of all inpatient admissions in the U.S. The tool uses a severity-adjusted methodology based on the 3M™ All Patients Refined Diagnosis Related Groups (APR DRG) grouper to compare only clinically-relevant cases. The CCC cohort benchmark displayed on the graphs is static to reflect the most recent 27 months of data in the global CCC system.

The inpatient complications of care rate depicts the percentage of inpatient cases with a complication code, excluding complications that were already present on admission (POA) or related to pre-existing conditions upon admission to the hospital. By excluding complications that were POA, this measure provides results that more directly reflect quality of care. These codes are useful for screening for adverse events that patients experience as a result of exposure to the health care system, which are likely amenable to prevention by changes at the system or provider level. CTCA continues to take appropriate action to ensure our patients are provided safe and high quality care at all times.

The average length of stay displays the average length of stay for an inpatient admission. Monitoring trends and improving processes related to management of patients have reduced the number of days our patients stay in the hospital without sacrificing quality or patient safety.
The Patient Safety and Adverse Events Composite, known as PSI 90, is an updated and modified version of the Patient Safety Indicator for Selected Indicators Quality Indicator Composite. This composite score provides an overview of hospital-level quality as it relates to a set of potentially preventable hospital-related events associated with harmful outcomes for patients. Included in this measure are events such as developing a stage 3-4 pressure ulcer, postoperative hemorrhage and postoperative sepsis. Our commitment to safety and eliminating patient harm has led to an overall reduction in our composite score exceeding the external benchmark with a lower score preferred.

**MEDICATION SAFETY**

Medication management technologies, if implemented effectively, can greatly reduce the likelihood of errors in the prescribing and administering process. Two such methodologies used by CTCA hospitals include Computerized Provider Order Entry (CPOE) and Bar Code Medication Administration (BCMA). The use of a CPOE system can significantly reduce errors related to handwriting or transcription. BCMA by nursing at the point-of-care ensures that patients are receiving the correct medications at the correct time by electronically validating and documenting medications using scanning technology. CTCA monitoring of BCMA includes all locations where medications are administered, with the exception of surgery and interventional radiology, where sterile fields may be in place.
INTEGRATIVE MEDICINE

CTCA has established several custom quality metrics reflective of our model of care. Two such metrics focus on nutrition and the appropriate use of probiotics. Malnutrition in cancer patients may go undetected and, if left untreated, may have serious health consequences. Studies demonstrate that the appropriate use of probiotics protects against both antibiotic-associated diarrhea and C. difficile infections.
QUALITY ONCOLOGY PRACTICE INITIATIVE (QOPI)

In response to the IOM report that identified major gaps in both quality and safety of patient care, the American Society of Clinical Oncology (ASCO) created the Quality Oncology Practice Initiative (QOPI) launched in 2006. Developed under the guidance of an expert panel of oncologists, the program provides a process for standardized assessment of care and reliable information to help focus improvement activities. Currently, 1,008 U.S.-based oncology practices are registered in QOPI and 291 are certified. All five CTCA® hospitals have achieved and now maintain QOPI certification.

Oncology practices that wish to achieve a three-year certification from QOPI must meet stringent criteria. This begins with an assessment of performance against 26 quality metrics calculating a composite overall score and by submitting data on 190+ measures. To achieve QOPI certification, a practice must achieve an overall quality score of 75% or higher and comply with 20 safety standards. QOPI measures fall into the following categories: core, disease-specific and domain-specific. Core measures include areas such as staging, pathology testing and pain. Domain-specific measures include symptom management and care at the end of life. Disease-specific modules include breast, colorectal and non-small cell lung cancer.
The following select key quality metrics shared below reflect the performance of CTCA hospitals in aggregate.

**QOPI Measures: Core | Symptom | Toxicity | All Cancers**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Plan of care for pain documented</td>
<td>87.7</td>
</tr>
<tr>
<td>b. Anti-emetics prescribed or administered</td>
<td>100</td>
</tr>
<tr>
<td>c. Action taken to address emotional well-being</td>
<td>99.4</td>
</tr>
</tbody>
</table>

**QOPI Measures: Disease Specific**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>d. NSCLC: Adjuvant chemotherapy recommended</td>
<td>100.0</td>
</tr>
<tr>
<td>e. NSCLC: Platinum doublet or EGFR-TKI</td>
<td>91.1</td>
</tr>
<tr>
<td>f. NSCLC: Performance status documented</td>
<td>94.4</td>
</tr>
<tr>
<td>g. Colorectal: Anti-EGFR MoAb not received</td>
<td>97.8</td>
</tr>
<tr>
<td>h. Colorectal: Adjuvant chemotherapy</td>
<td>100.0</td>
</tr>
<tr>
<td>i. Colorectal: Adjuvant chemotherapy</td>
<td>93.3</td>
</tr>
<tr>
<td>j. Colorectal: CEA within 4 months of resection</td>
<td>90.5</td>
</tr>
<tr>
<td>k. Breast: Trastuzumab recommended</td>
<td>96.0</td>
</tr>
<tr>
<td>l. Breast: Combination chemotherapy recommended</td>
<td>100.0</td>
</tr>
<tr>
<td>m. Breast: Tamoxifen or AI recommended</td>
<td>97.6</td>
</tr>
<tr>
<td>n. Breast: Test for Her-2/neu positive</td>
<td>100.0</td>
</tr>
<tr>
<td>o. Breast: Complete staging</td>
<td>94.2</td>
</tr>
</tbody>
</table>

**Key**

a. Plan of care for moderate/severe pain documented on either of the two most recent office visits

b. Anti-emetics prescribed or administered appropriately with moderate/high emetic risk antineoplastic treatment (defect-free measure)

c. Action taken to address problems with emotional well-being by the second office visit

d. Adjuvant chemotherapy recommended for patients with AJCC Stage II or IIIA NSCLC

e. Platinum doublet first-line antineoplastic treatment or EGFR-TKI (or other targeted therapy with documented DNA mutation) received by patients with initial AJCC stage IV or distant metastatic NSCLC with performance status of 0-1 without prior history of antineoplastic treatment

f. Performance status documented for patients with initial AJCC stage IV or distant metastatic NSCLC

g. Anti-EGFR MoAb therapy not received by patients with KRAS and NRAS mutation

h. Adjuvant antineoplastic treatment recommended within nine months of diagnosis for patients with AJCC stage II or III rectal cancer

i. Adjuvant antineoplastic treatment recommended within four months of diagnosis for patients with AJCC stage III colon cancer

j. CEA within four months of curative resection for colorectal cancer

k. Trastuzumab recommended for patients with AJCC stage I (T1c) to III Her-2/neu positive breast cancer

l. Combination chemotherapy recommended within four months of diagnosis for women under 70 with AJCC Stage IA (T1c) and IB-III ER/PR negative breast cancer

m. Tamoxifen or AI recommended within one year of diagnosis for patients with AJCC stage IA (T1c) and IB - III ER or PR positive breast cancer

n. Test for Her-2/neu overexpression or gene amplification

o. Complete staging for women with invasive breast cancer (Cancer stage, HER2, and ER/PR status)
Project-specific Metrics

This measure is intended to capture that all patients prescribed chemotherapy via any route understand the intent of that therapy and that curative, adjuvant or disease control is documented.

As the use of oral chemotherapy increases so does the need to routinely assess patient adherence following the start of therapy and toxicity. This includes clear documentation of the review of the regimen drug, dose, schedule and tolerance with the patient.

For those patients of child-bearing potential and who have not undergone treatment previously, it is important to discuss the effects of chemotherapy on fertility prior to the administration. Related conversation regarding preservation options should also occur.
Patients who are in end-stage of their disease should be counseled, recognizing it can be extremely emotional and overwhelming. When appropriate, there may come a time for referral into hospice. This measure is intended to ensure appropriate discussion occurs on a timely basis to maximize the benefits of such enrollment.

Including all forms of chemotherapy, this measure is intended to address quality of life concerns for patients at the end of life when aggressive treatment is no longer appropriate.
“My oncologist, Dr. Patricia Rich, recommended another surgery to remove any remaining malignant tissue in the area, followed by 25 rounds of radiation. I decided to proceed with this plan. During the radiation treatment, I continued working in my maintenance job, driving to CTCA each day afterwards. Occasionally my fiancée would drive me, but mostly I was able to do this on my own.”

No case is typical. You should not expect to experience these results.
Our Clinical Leadership

Medicine & Science Clinical Leadership

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Enterprise Clinical Leadership Team | Continued

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Cancer Institutes Leadership | Breast Cancer Institute

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Cancer Institutes Leadership | Gastrointestinal Malignancies Institute

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- Certification(s): American Board of Internal Medicine; American Board of Critical Care Medicine; Fellow, American College of Chest Physicians
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Peter Baik, DO
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- Certification(s): General Surgery—American Osteopathic Board of Surgery; Cardiothoracic Surgery—American Osteopathic Board of Surgery
- Adjunct Clinical Assistant Professor, Oklahoma State University

Kamal Patel, MD
- MD—Chicago Medical School
- MS—Applied Physiology—Chicago Medical School
- Internship/Residency: Family Practice — Mount Sinai Hospital, Chicago, IL; Radiation Oncology—Oregon Health & Science University Hospitals, Portland, OR
- Certification(s): American Board of Radiology
- Clinical Assistant Professor, Department of Radiology, The Chicago Medical School

Patricia Rich, MD
- MD—University of Miami
- Internship/Residency: Internal Medicine—University of Miami/Jackson Memorial Hospital
- Fellowship: Hematology-Oncology—University of South Florida, H. Lee Moffitt Cancer Center and Research Institute, Tampa, FL
- Certification(s): Internal Medicine—American Board of Internal Medicine; Medical Oncology—American Board of Internal Medicine
- Adjunct Clinical Assistant Professor, Morehouse School of Medicine
CTCA Physicians by the Numbers

47
Medical Oncologists & Hematologists

31
Surgical Oncologists

19
Radiation Oncologists

68
Radiology (Diagnostic; Therapeutic; Vascular & Interventional)

1,014
Total active medical staff and allied health

52
Number of Specialties (Listed below)

- Allergy & Immunology
- Anesthesiology
- Cardiology
- Cardiovascular Disease
- Chiropractor
- Colon & Rectal Surgery
- Critical Care Medicine
- Dermatology
- Emergency Medicine
- Endocrinology
- Family Medicine
- Gastroenterology
- General Surgery
- Genetics
- Gynecological Oncology
- Gynecology
- Hematology
- Hospice & Palliative Medicine
- Hospitalist
- Infectious Diseases
- Internal Medicine
- Interventional Pulmonology
- Medical Oncology
- Naturopathic Medicine
- Nephrology
- Neurological Surgery
- Neurology
- Neuropsychology
- Ophthalmology
- Orthopedic Surgery
- Otolaryngology
- Pain Management
- Pathology
- Plastic Surgery
- Podiatry
- Psychiatry
- Psychology
- Pulmonary Disease
- Pulmonary/Critical Care
- Radiation Oncology
- Radiology, Diagnostic
- Radiology, Therapeutic
- Radiology, Vascular & Interventional
- Rehabilitation & Physical Medicine
- Rheumatology
- Sleep Medicine
- Surgical Oncology
- Teleradiology
- Thoracic & Cardiac Surgery
- Thoracic Surgery
- Urology
- Vascular Surgery
About this Report

Our Length of Life Results

Our Quality of Life Results

Our Patient Experience Results

Our Patient Safety and Quality Results

Our Clinical Leadership
“During my three-day initial consultation at CTCA, the people I met with talked about what I could expect with chemotherapy. I needed the standard chemotherapy regimen for colon cancer. I might experience neuropathy, or numbness, as a result of the treatment. We discussed ways to reduce the numbness, including using an electrical impulse device called Rebuilder and a supplement called L-glutamine.”
ADVANCES IN TREATMENT OPTIONS

Toufic Kachaamy. Safety of Endoscopy in Cancer Patients on Antiangiogenic Agents: A Retrospective Multicenter Outcomes Study. PLOS ONE. May 2017. [Published case report and manuscript of original research]


Pankaj Vashi, Elham Abboud, Carol Bier-Laning. Adult-Onset Kaposiform Hemangioendothelioma of the Tongue: Case Report and Review of the Literature. Current Oncology. October 2016. [Published case report and manuscript of original research]

Shayma Kazmi. Evaluation of Novel Blood-Based Biomarkers with Atezolizumab Monotherapy in 1L Advanced or Metastatic NSCLC (B-F1RST). International Association for the Study of Lung Cancer (IASLC) Multidisciplinary Hands-On Live Learning: Molecular Testing and Personalized Therapy in Lung Cancer. October 2016. [Published case report and manuscript of original research]


Bruce Gershenhorn. BRAFV600E Mutations in High Grade Colorectal Neuroendocrine Tumors May Predict Responsiveness to BRAF-MEK Combination Therapy. Cancer Discovery. April 2016. [Published case report and manuscript of original research]


ADVANCES IN THE MANAGEMENT OF DISEASE COMPLICATIONS


Arturo Loaiza-Bonilla. Cardio-Oncology: Cancer Therapy-Related Cardiovascular Complications in a Molecular Targeted Era: New Concepts and Perspectives. Cureus. May 2017. [Published case report and manuscript of original research]

Justin Chura, Maurie Markman. Comprehensive Genomic Profiling (CGP) of Ovarian Clear Cell Carcinomas (OCCC) Identifies Clinically Relevant Genomic Alterations (CRGA) and Targeted Therapy Options. Gynecologic Oncology Reports. May 2017. [Published case report and manuscript of original research]


Ravi Prakash, Pankaj Vashi. Large Bowel Obstruction Following Endoscopic Spray Cryotherapy for Palliation of Rectal Cancer Bleeding. American College of Gastroenterology (ACG) Case Reports Journal. May 2017 / October 2016. [Published case report and manuscript of original research]


Ioana Bonta, Christopher Parks, Rabih Bechara, Patricia Rich. Pleural Effusion Characteristics and Relationship with Outcomes in Cancer Patients. International Association for the Study of Lung Cancer (IASLC). December 2016. [Poster]

Trisha Patel, Mark Lewis, Michelle Niesley, Mashiul Chowdhury. Postneurosurgical Central Nervous System Infection Due to Enterococcus Faecalis Successfully Treated With Intraventricular Vancomycin. Infectious Diseases in Clinical Practice. May 2016. [Published case report and manuscript of original research]

Toufic Kachaamy, Jeffrey Weber, David Weitz, Pankaj Vashi, Madappa Kundranda. Successful Endoscopic Management of a Malignant Ileovesicular Fistula. Gastrointestinal Endoscopy. March 2016. [Published case report and manuscript of original research]


Pankaj Vashi, Persis Edwin, Brenten Popiel, Carolyn Lammersfeld, Digant Gupta. Methylmalonic Acid and Homocysteine as Indicators of Vitamin B-12 Deficiency in Cancer. PLOS ONE. January 2016. [Published case reports and manuscripts of original research]

ADVANCES IN DIAGNOSTIC OPTIONS


Justin Chura, Maurie Markman. Comprehensive Genomic Profiling (CGP) of Ovarian Clear Cell Carcinomas (OCCC) Identifies Clinically Relevant Genomic Alterations (CRGA) and Targeted Therapy Options. Gynecologic Oncology Reports. May 2017. [Published case report and manuscript of original research]

Patricia Rich, Ioana Bonta, Christopher Parks, Rabih Bechara. Incidence of Non-Caseating Granulomas Diagnosed in PET Avid Mediastinal/Hilar Nodes in Patients with Known Breast Cancer. International Association for the Study of Lung Cancer (IASLC). December 2016. [Published case report and manuscript of original research]

Ricardo Alvarez. New Mechanism of Action Results Renew Interest in Eribulin. OncLive. December 2016. [Published case report and manuscript of original research]


Revathi Suppiah, Bruce Gershenhorn, Maurie Markman. A Case Report Demonstrating the Potential Clinical Relevance of Liquid Tumor Biopsies in Lung Cancer. Case Reports in Oncology. November 2016. [Published case report and manuscript of original research]


PATIENT SAFETY AND QUALITY IMPROVEMENT


Pankaj Vashi. Incidence of and Factors Associated with Catheter-Related Bloodstream Infection in Patients with Advanced Solid Tumors on Home Parenteral Nutrition Managed Using a Standardized Catheter Care Protocol. BMC Infectious Diseases. May 2017. [Published case report and manuscript of original research]

Kayla McGahey. Reviewing Concomitant Medications for Participants in Oncology Clinical Trials. American Journal of Health System Pharmacy. April 2017. [Published case report and manuscript of original research]

Raman Battish, Barbara Dehel, Michelle Niesley, Pankaj Vashi. Efficacy and Safety of Endoscopic Retrograde Cholangio-Pancreatography (ERCP) – Guided Biliary Radiofrequency Ablation (RFA). Digestive Disease Week. May 2016. [Poster]

Deborah Baldassarre, Gerry Finkelston. Driving Nursing Professionalism While Achieving Clinical Excellence in Oncology. Oncology Nursing Society (ONS). April 2016. [Oral presentation of original research]


Our Research Publications

AND American Society of Clinical Oncology (ASCO)
Quality Symposium. February 2016. [Poster]

Joe Rudolph, Stephanie Terry. Evolution of a Skin Wound Ostomy Team (SWOT) Program to Meet the Challenges of Oncology Patients. Oncology Nursing Society (ONS). April 2016. [Oral presentation of original research]

Kerri Slavin, Joanne McGovern. Taking HAP off the Map with a Routine Screen. Oncology Nursing Society (ONS). April 2016/ February 2016. [Oral presentation of original research]

Inna Tsuker, Tahitia Timmons. Pharmacy Falls Prevention Initiative in a Community Cancer Hospital. Oncology Nursing Society (ONS). April 2016. [Poster]


QUALITY OF LIFE, SYMPTOM MANAGEMENT AND SUPPORTIVE CARE


Grace Bendinger, Summer Baptist, Eva McGuire, Karen Rados , Rebecca Rollins, Daniel Nixon, Kimberly Randolph, Nathan Neufeld, John McKnight, Haritha Pabbathi, Anita Johnson, John Geisler, Kelly Manahan,


Shauna Birdsall, Tim Birdsall, Lucas Tims. The Use of Medical Marijuana in Cancer. Current Oncology Reports. May 2016. [Published case report and manuscript of original research]

Dana Bullick, Jeffrey Hoag, Sharon Barniak, Michele Kennedy, Joanne McGovern, Trisha Patel. Reducing Pain, Agitation and Delirium to Optimize Outcomes in Mechanically Ventilated Critically Ill Oncology Patients. Oncology Nursing Society (ONS). April 2016. [Poster]


Our Research Publications

TECHNOLOGY AND INNOVATION


Irshad Ali, Donald Braun. Wnt9A Induction Linked to Suppression of Human Colorectal Cancer Cell Proliferation. International Journal of Molecular Sciences. April 2016. [Published case report and manuscript of original research]


Daniel Liu. #PlasticSurgery. Plastic and Reconstructive Surgery (Journal of the American Society of Plastic Surgeons. December 2016. [Published case report and manuscript of original research]


Bruce Gershenhorn. BRAFV600E Mutations in High Grade Colorectal Neuroendocrine Tumors May Predict Responsiveness to BRAF-MEK Combination Therapy. Cancer Discovery. April 2016. [Published case report and manuscript of original research]


Accreditations and Certifications

All CTCA hospitals have earned the following accreditations and certifications:

Additional accreditations and certifications by center include:

**Eastern Regional Medical Center (Eastern) – Philadelphia, PA**
- Foundation for the Accreditation of Cellular Therapy

**Midwestern Regional Medical Center (Midwestern) – Chicago, IL**
- American Nurses Credentialing Center Magnet Recognition
- National Quality Measures for Breast Center Programs: Certified Quality Breast Center of Excellence
- American College of Radiology Breast Ultrasound Accreditation
- American College of Radiology Gynecologic Ultrasound Accreditation
- American College of Radiology Stereotactic Breast Biopsy Accreditation
- Foundation for the Accreditation of Cellular Therapy
- American Association of Blood Banks
- College of American Pathologists Biorepository Accreditation
- Intersocietal Accreditation Commission – Echocardiograph and Vascular Testing

**Southeastern Regional Medical Center (Southeastern) – Atlanta, GA**
- American College of Radiology Breast Magnetic Resonance Imaging Accreditation
- American College of Radiology Breast Ultrasound Accreditation
- American College of Radiology Stereotactic Breast Biopsy Accreditation
- American College of Radiology Ultrasound-Guided Breast Biopsy Accreditation

**Southwestern Regional Medical Center (Southwestern) – Tulsa, OK**
- American Association of Blood Banks
- The Joint Commission Disease Specific Certification for Lung Cancer

**Western Regional Medical Center (Western) – Phoenix, AZ**
- National Quality Measures for Breast Center Programs: Certified Participant
- American College of Radiology Breast Ultrasound Accreditation

Clinical Contributors

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To reorder additional copies of the 2017/2018 Patient Treatment Results book, contact Michele Ferraro.

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