

Cancer Treatment Centers of America Global, Inc.

2019-2020 Treatment Results FOR PATIENTS AND CAREGIVERS

Elaine B., Breast Cancer
CTCA Tulsa

LENGTH OF LIFE | QUALITY OF LIFE | PATIENT EXPERIENCE | PATIENT SAFETY | QUALITY OF CARE



Comprehensive Cancer Care Network
ATLANTA | CHICAGO | PHILADELPHIA | PHOENIX | TULSA



Dear Patients and Caregivers,

We believe all patients should have access to as much information as possible in order to make the most informed decisions about their care. As part of that commitment, we are pleased to share with you this seventh annual edition of our *Patient Treatment Results*. Cancer Treatment Centers of America® (CTCA) was among the first cancer care providers in the nation to make treatment results available to the general public, and, to our knowledge, this is the most comprehensive presentation of treatment results now published by any cancer care provider. It reflects the quality of clinical care we have provided to patients from around the world at our comprehensive care and research centers and outpatient care centers in Atlanta, Chicago, Philadelphia, Phoenix and Tulsa.

Five-year survival rates for CTCA® patients treated between 2000 and 2015 are provided for 11 cancer types. For reference, we have also provided companion data for the same cancer types and timeframe as reported by the National Cancer Institute in its Surveillance, Epidemiology and End Results (SEER) Program, which is undertaken in collaboration with the American College of Surgeons and American Cancer Society.

The CTCA patient survival data appearing in this publication were independently analyzed and interpreted by Bert Spilker, MD, PhD, and Chengjie Xiong, PhD. Their biographical sketches are included in this publication. Neither is affiliated with, or employed by, CTCA.

Additionally, we have included data on various safety and quality of care measurements during treatment, critically important results not commonly reported by most cancer providers, as well as patient self-reports of quality of life and the overall patient experience.

All data sources and survey methodologies are provided 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 results.

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

Sincerely,

Maurie Markman, MD
President, Medicine & Science
Cancer Treatment Centers of America



Comprehensive Cancer Care Network

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Comprehensive Cancer Care Network

About this Report

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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

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



Job L. | **ESOPHAGEAL CANCER** | CTCA Tulsa

“Throughout my treatment, I was impressed with the commitment to the Mother Standard® of care, the belief that patients are taken care of the way you would want any member of your family treated. CTCA truly cared about my patient experience, treating my whole person and actively monitoring my quality of life. Any issues were quickly addressed, and I had access to a variety of supportive care therapies that I took advantage of.”

About This Report

Why We Publish our Treatment Results

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

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 research 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

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 care?”

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, located between Chicago and Milwaukee, served as the first CTCA location. With Mr. Stephenson as chairman of the board, the cancer program

became one of the first in the country to offer a full range of integrative treatment services, including surgery, chemotherapy and radiation therapy as well as nutrition, mind-body and spiritual support.

In 1990, CTCA opened a second hospital, located in Tulsa, Oklahoma, establishing itself as a premier center of hope and healing for cancer patients.

As demand grew, the CTCA hospital in Zion was expanded twice. In 1991, CTCA broke ground on a five-story, 78,886-square-foot facility. Then in 2015, a six-story 168,078-square-foot inpatient tower became the centerpiece of a campus-wide modernization.

CTCA also expanded its presence in Tulsa by opening a state-of-the-art hospital in 2005. The stunning 195,845-square-foot center became Oklahoma’s only major hospital completely focused on treating cancer. Also in 2005, CTCA Philadelphia opened its doors, becoming the first CTCA hospital on the East Coast.

CTCA Phoenix, a modern 210,000-square-foot hospital located in Goodyear, Arizona (suburban Phoenix) joined the CTCA family in 2008. In 2012, CTCA Atlanta began welcoming patients to its location in suburban Newnan.

Building on the goal of offering patients increased access to advanced cancer therapies and personalized care in convenient, cost-effective outpatient settings, in 2018 and 2019 CTCA opened five outpatient care centers in Chicago, Phoenix and their surrounding communities.

OUR BELIEFS

The CTCA Comprehensive Cancer Care Network of hospitals and outpatient care centers offers an integrative approach to care that combines surgery, radiation, chemotherapy and immunotherapy with advancements in precision cancer treatment and supportive therapies designed to manage side effects and enhance quality of life both during and after treatment.

At CTCA, each patient is served by a multidisciplinary team of physicians, nurses, registered dietitians and other care providers. These teams include individuals with extensive experience in treating cancer. Together they develop and implement an individualized treatment plan tailored to each patient's unique diagnosis and life goals.

For these reasons, patients, physicians, employers and insurers can depend on CTCA to offer comprehensive, compassionate and truly personalized cancer care.



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.

CTCA Comprehensive Cancer Care Network hospitals and outpatient care centers are located in or near five major U.S. cities: 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.

HEALTH INSURANCE AND VERIFICATION

CTCA verifies 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 less than 24 hours. CTCA financial counselors are also available to patients and caregivers should they need assistance with the financial arrangements for their care.

CTCA maintains contracts with many major national and regional insurance companies, 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
CTCA

A nationally renowned board-certified medical oncologist, Dr. Markman

is President of Medicine and Science and serves on the National Board of Directors at CTCA. Dr. Markman has more than 20 years of experience in cancer treatment and gynecologic research.

For his remarkable achievements in clinical practice and oncology research, Dr. Markman was recently named by *OnLive*® as an inductee of the 2018 Giants of Cancer Care® recognition program. In 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. Prior to that, he served as Chair of the Department of Hematology/Oncology and Director of the Taussig Cancer Center at the Cleveland Clinic Foundation, and Vice Chair of the Department of Medicine at Memorial Sloan-Kettering Cancer Center in New York.

Dr. Markman received his MD from New York University.



Julian Schink, MD
Chief Medical Officer
CTCA

Dr. Schink brings more than 25 years of oncology experience to

his position as Chief Medical Officer at CTCA. Board-certified in gynecologic oncology as well as obstetrics and gynecology, he is dedicated to caring for patients and advancing the treatment of gynecologic malignancies.

Prior to joining CTCA, Dr. Schink held numerous academic positions, including Vice Chair of obstetrics and gynecology and professor at the University of Wisconsin Medical School, and subsequently an endowed professorship at Northwestern University Feinberg School of Medicine as the John and Ruth Brewer Chair in Gynecology and Cancer Research.

Published in numerous medical journals and more than 125 publications dedicated to oncology and women's health, Dr. Schink has also authored more than 10 chapters in oncology textbooks, focusing much of his academic work on gestational trophoblastic disease. He served as principal investigator and co-investigator for many clinical trials responsible for improving and expanding cancer treatment options.

Additionally, Dr. Schink serves as Chief of Gynecologic Oncology for CTCA, Medical Director of Gynecologic and Medical Oncology and Senior Vice President of Clinical Affairs for CTCA Chicago.

Dr. Schink received his MD from The University of Texas at San Antonio.

CTCA Patient Demographics

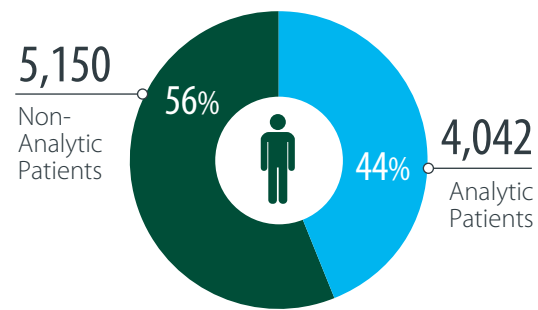
JULY 1, 2017 - JUNE 30, 2018

CTCA Patient Demographics

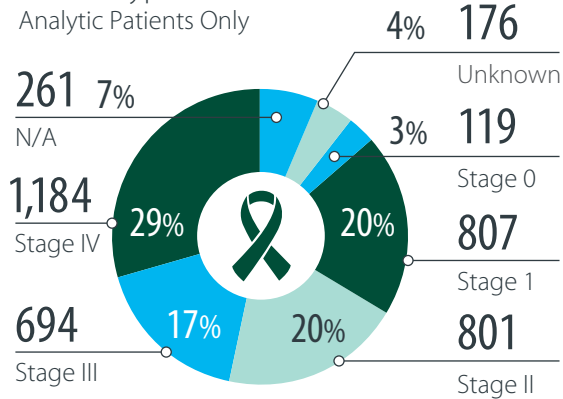
JULY 1, 2017 - JUNE 30, 2018

Patient demographics are based on data provided by the tumor registry from July 1, 2017 - June 30, 2018.

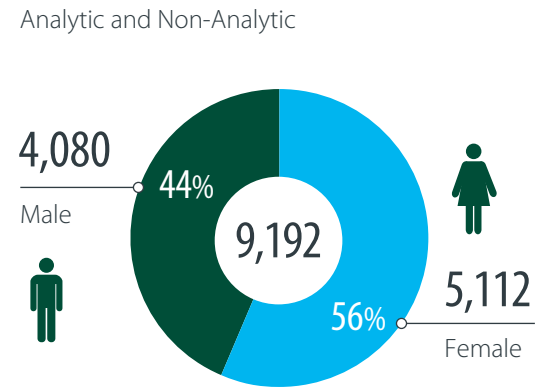
New Patients¹ ANALYTIC AND NON-ANALYTIC²



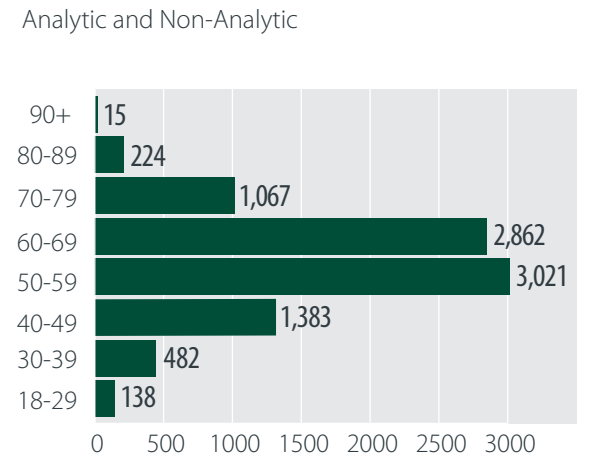
Cancer Types BY STAGE



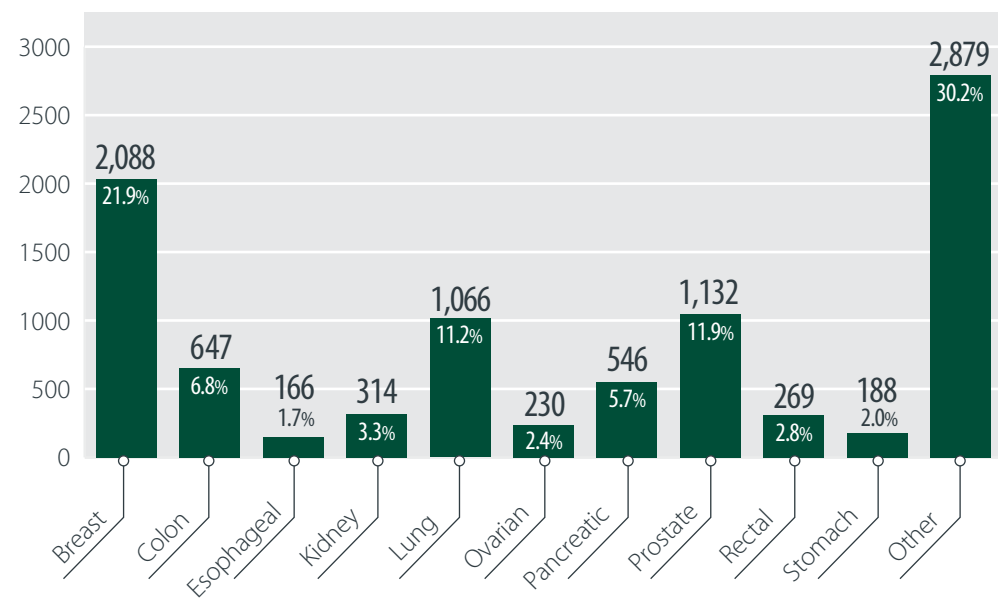
New Patients BY GENDER



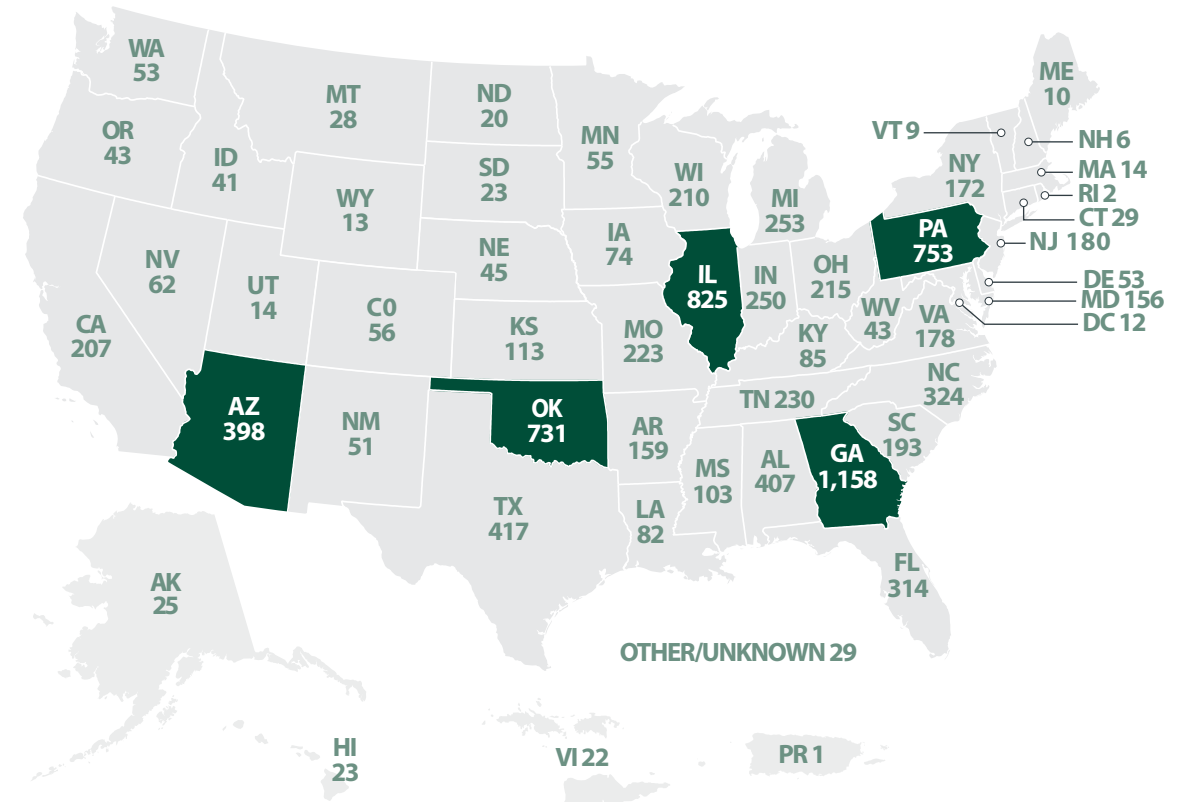
New Patients BY AGE GROUP



New Patients BY CANCER TYPE³



New Patients BY STATE OR TERRITORY



1 The overall patient population includes patients evaluated across all CTCA hospitals, including those who received non-cancer directed therapy or received palliative care only.
 2 Analytic patients are those who are diagnosed and/or received all or part of their first course of cancer treatment

at CTCA. Non-analytic patients are those who received subsequent cancer treatment at CTCA due to progressive or recurrent disease.
 3 Includes 9,192 patients of which 353 had multiple primary sites, equating to 9,525 primary cancers.



Comprehensive Cancer Care Network

About this Report

Our Length of Life Results 2

Our Quality of Life Results

Our Patient Experience Results

Our Patient Safety and Quality Results

Our Clinical Leadership

Our Research Publications

Stacy F.
LUNG CANCER
CTCA Chicago

“My medical oncologist talked to me about immunotherapy. I hadn’t heard of this option before. I soon found out that immunotherapy uses the body’s immune system to fight cancer cells. I did about six weeks of immunotherapy, and I immediately knew it was working. It’s amazing to me that my own body can be used to identify and fight the bad cells. I am still in active treatment and continuing immunotherapy.”

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



Our Length of Life Results

SECTION 2 SPOTLIGHT

2

Independent Researchers’ Letter

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 2015 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

Bert Spilker, PhD, MD, is the founder of Bert Spilker & Associates, LLC (BS&A), a health care 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

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 Institutes 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 treatments. 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 these analyses 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 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 was used in the analyses. 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 2015 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.¹

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.¹ 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.¹ These tests are different, however, in their sensitivity (or the power) to detect survival differences. The log rank test is considered 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.²

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).³ 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.

1 Kalbfleisch JD, Prentice RL. The Statistical Analysis of Failure Time Data. New York: John Wiley, 1980.

2 Lawless JF. Statistical Methods and Methods for Lifetime Data, New York: John Wiley & Sons, Inc., 1982.

3 SAS Institute Inc., SAS/STAT User's Guide, Volume 2, Version 6, 1990. Cary, NC, USA.



Length of Life Results

BREAST CANCER

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 2015. 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 2015 (including 2000 and 2015) 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
 - Date of initial diagnosis
 - Primary tumor sites
 - Age at initial diagnosis
 - Cancer histologic types
 - Gender & Race

LIMITATIONS

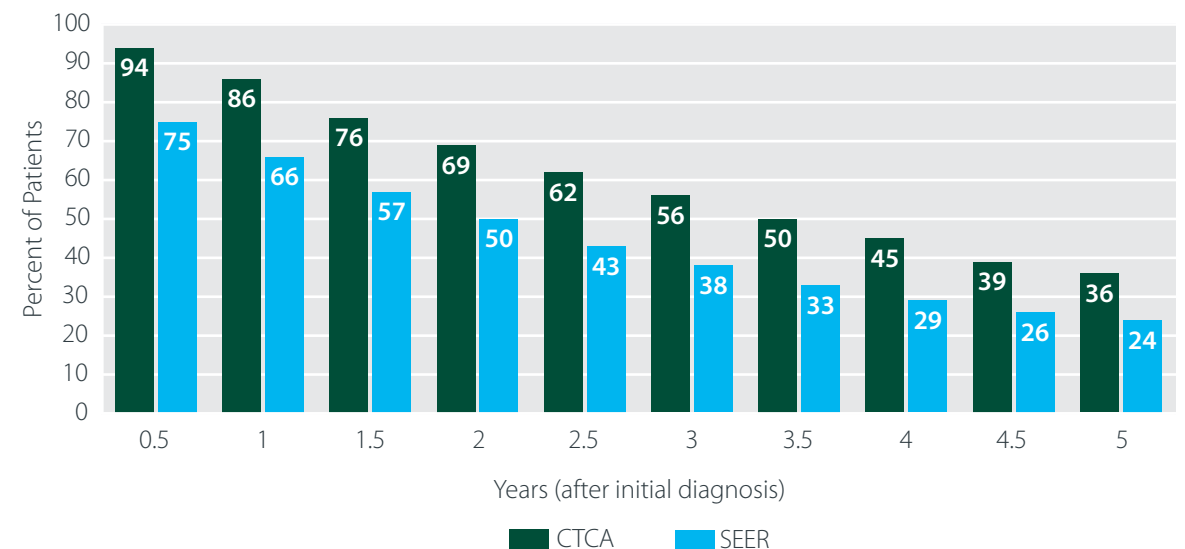
Direct statistical comparisons of survival outcomes between groups of cancer patients have limitations because of the possible confounding effects of other factors cited below and elsewhere in this report. Accordingly, the data appearing in this report should be considered directional, not definitive.

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 earlier, 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 SURVIVAL RATE

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2015
CTCA (n=632) and SEER* (n=38,935)



*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.

Length of Life Results

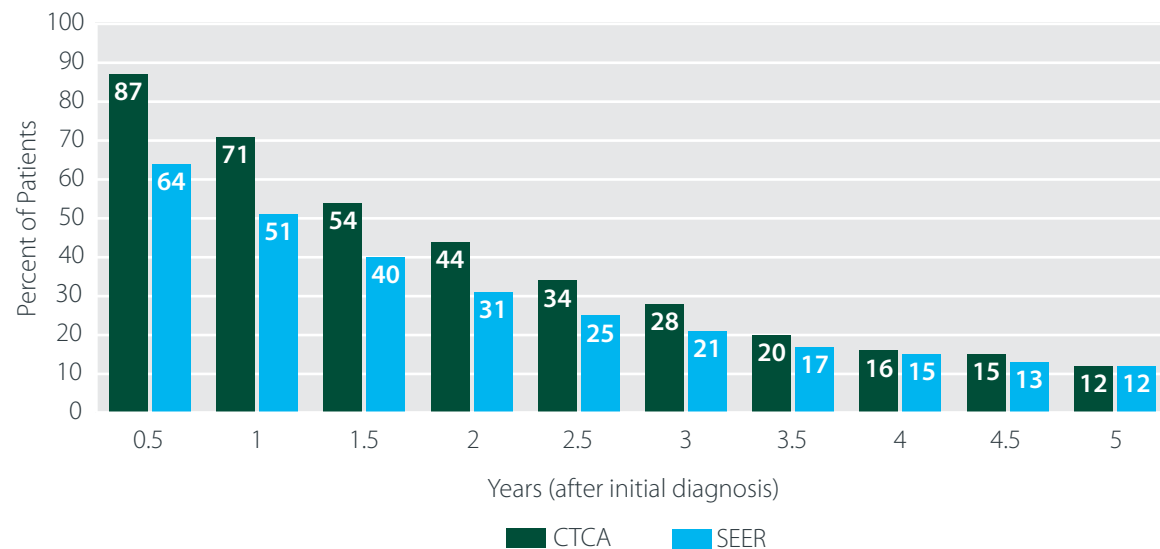
COLON CANCER

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 2015. 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 2015 (including 2000 and 2015) 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

COLON CANCER SURVIVAL RATE

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2015
CTCA (n=788) and SEER* (n=64,690)



*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.

Length of Life Results

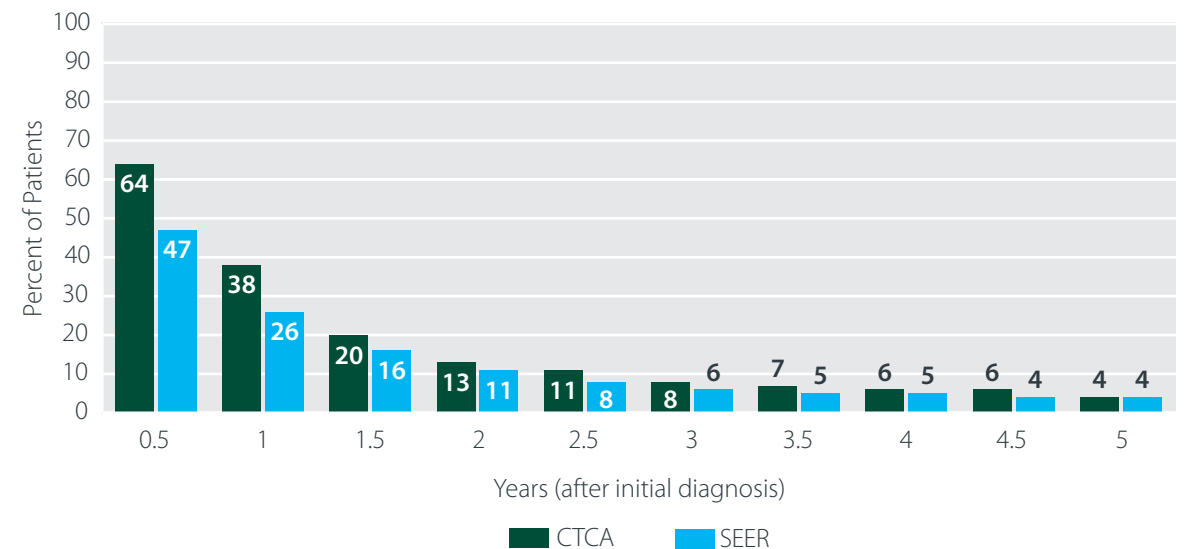
ESOPHAGEAL CANCER

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 2015. 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 2015 (including 2000 and 2015) 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

ESOPHAGEAL CANCER SURVIVAL RATE

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2015
CTCA (n=291) and SEER* (n=15,311)



*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.

Length of Life Results

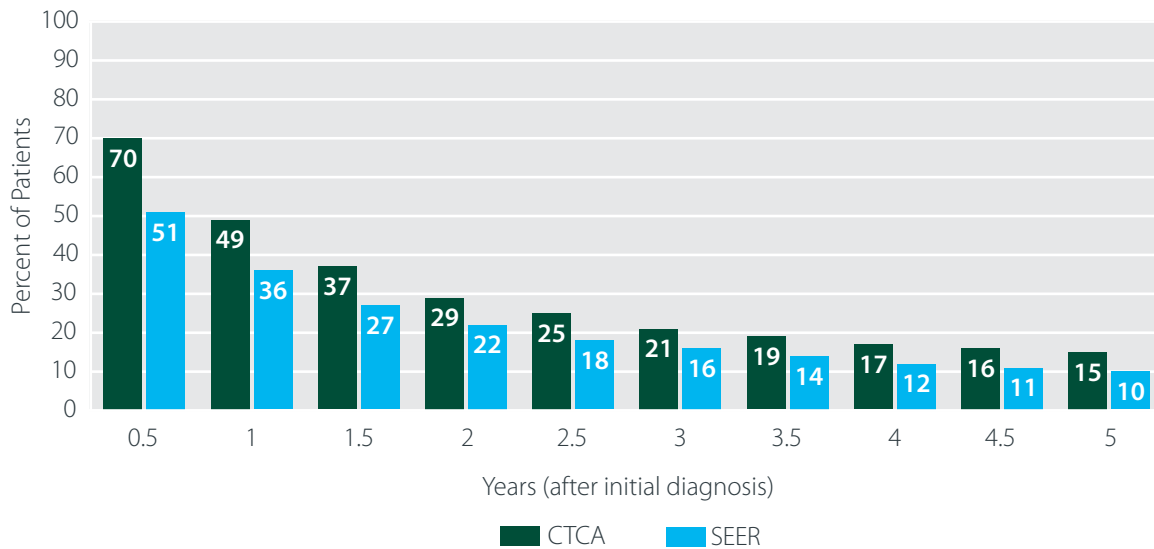
KIDNEY CANCER

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 2015. 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 site (as coded by ICD-O-2 (1973+)) of C649, were diagnosed from 2000 to 2015 (including 2000 and 2015) 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

KIDNEY CANCER SURVIVAL RATE

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2015
CTCA (n=228) and SEER* (n=20,824)



*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.

Length of Life Results

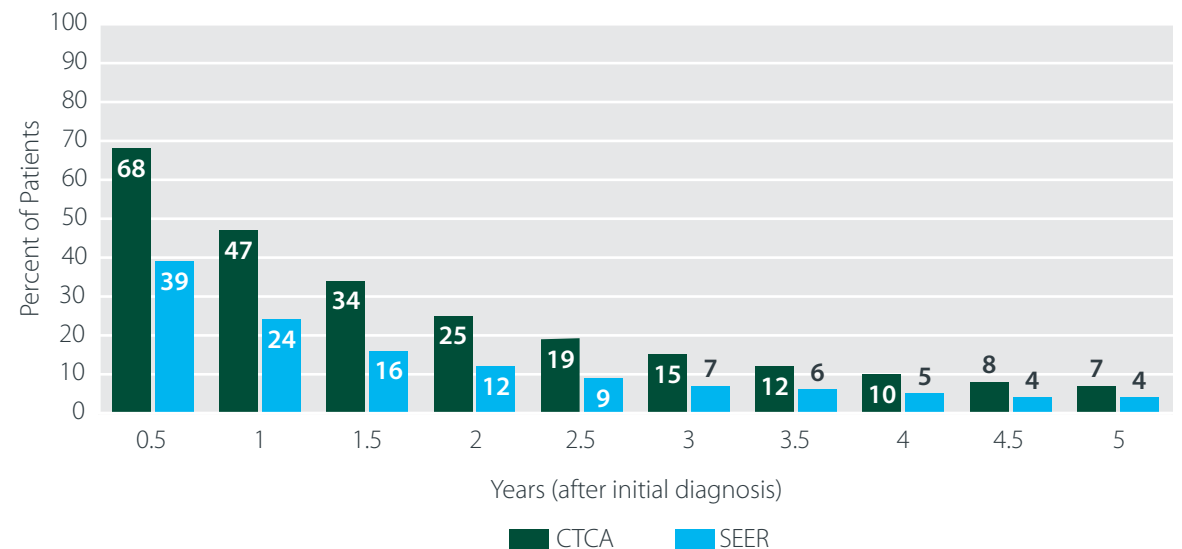
NON-SMALL CELL LUNG CANCER

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 2015. 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 2015 (including 2000 and 2015) 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

NON-SMALL CELL LUNG CANCER SURVIVAL RATE

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2015
CTCA (n=2,336) and SEER* (n=283,704)



*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.

Length of Life Results

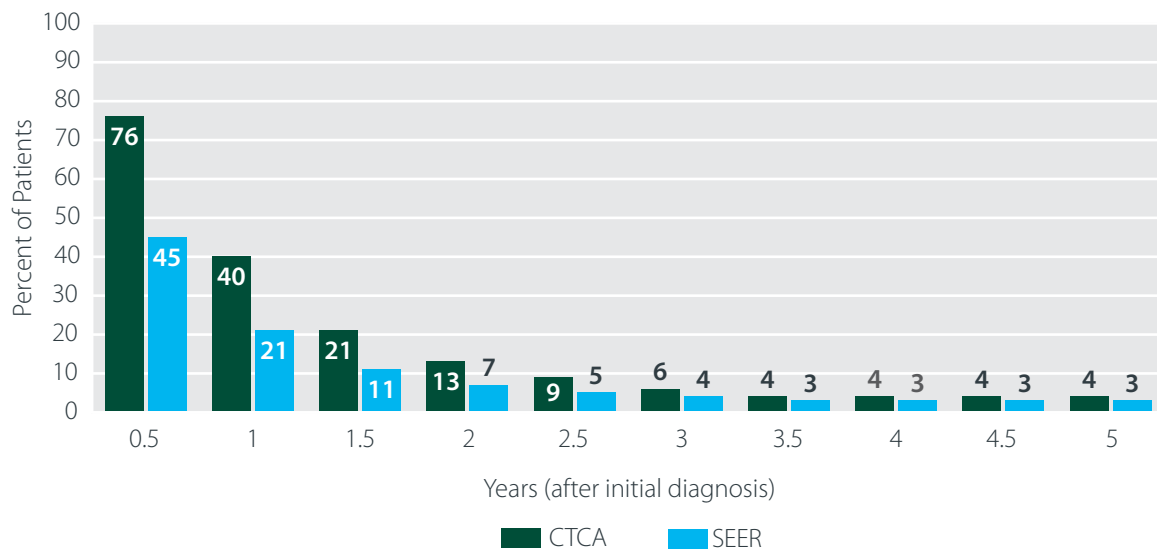
SMALL CELL LUNG CANCER

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 2015. 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 2015 (including 2000 and 2015) 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

SMALL CELL LUNG CANCER SURVIVAL RATE

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2015
CTCA (n=349) and SEER* (n=56,817)



*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.

Length of Life Results

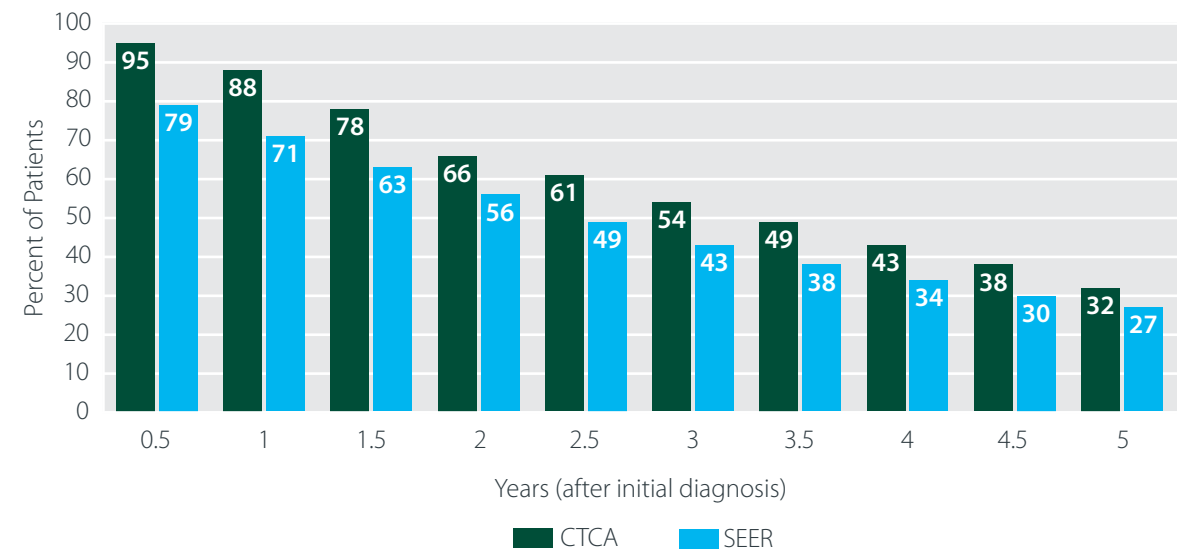
OVARIAN CANCER

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 2015. 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 site (as coded by ICD-O-2 (1973+)) of C569, were diagnosed from 2000 to 2015 (including 2000 and 2015) 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 2000-2015
CTCA (n=237) and SEER* (n=40,893)



*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.

Length of Life Results

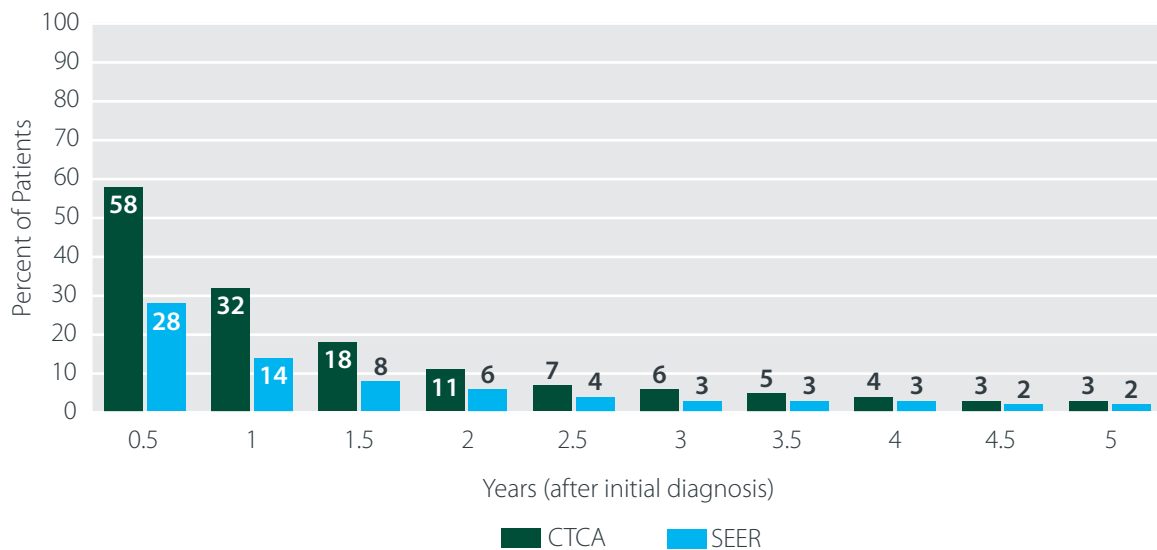
PANCREATIC CANCER

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 2015. 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 2015 (including 2000 and 2015) 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

PANCREATIC CANCER SURVIVAL RATE

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2015
CTCA (n=1,555) and SEER* (n=64,946)



*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.

Length of Life Results

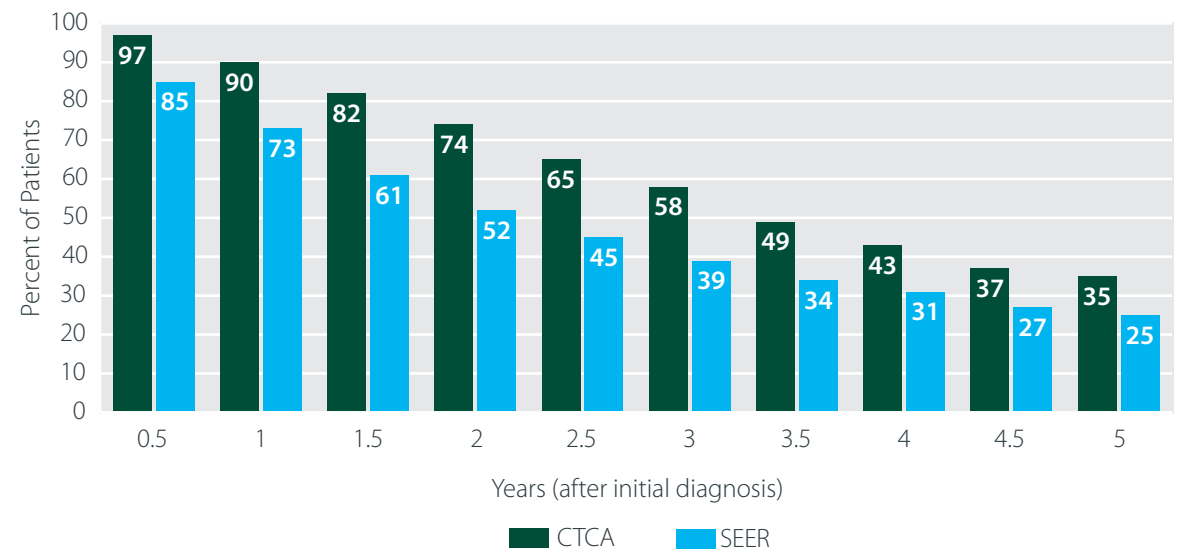
PROSTATE CANCER

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 2015. 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 site (as coded by ICD-O-2 (1973+)) of C619, were diagnosed from 2000 to 2015 (including 2000 and 2015) 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

PROSTATE CANCER SURVIVAL RATE

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2015
CTCA (n=321) and SEER* (n=34,487)



*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.

Length of Life Results

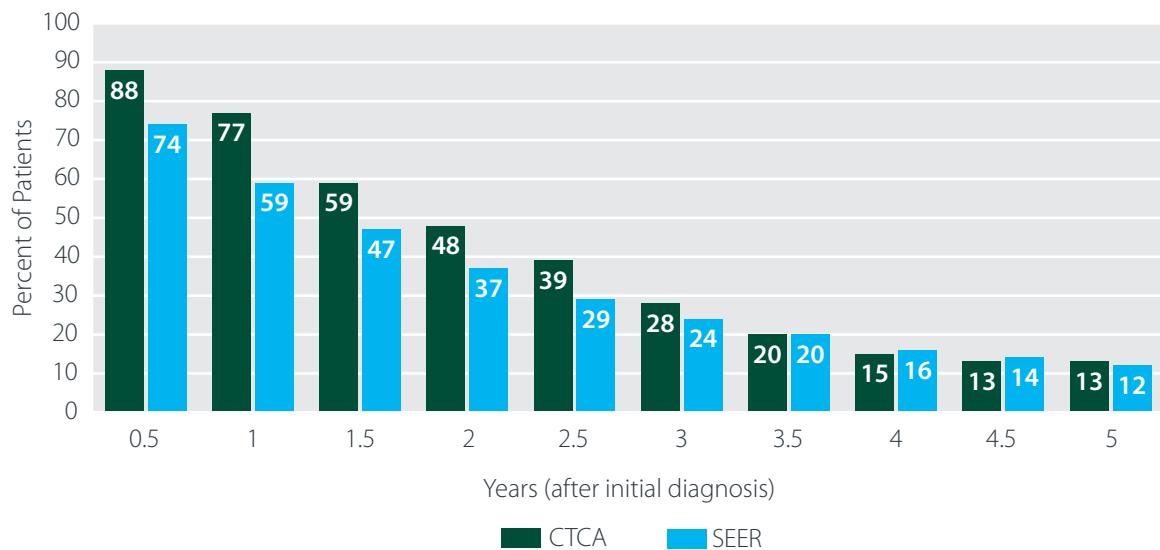
RECTAL CANCER

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 2015. 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 site (as coded by ICD-O-2 (1973+)) of C209, were diagnosed from 2000 to 2015 (including 2000 and 2015) 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.
- 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

RECTAL CANCER SURVIVAL RATE

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2015
CTCA (n=243) and SEER* (n=15,179)



*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.

Length of Life Results

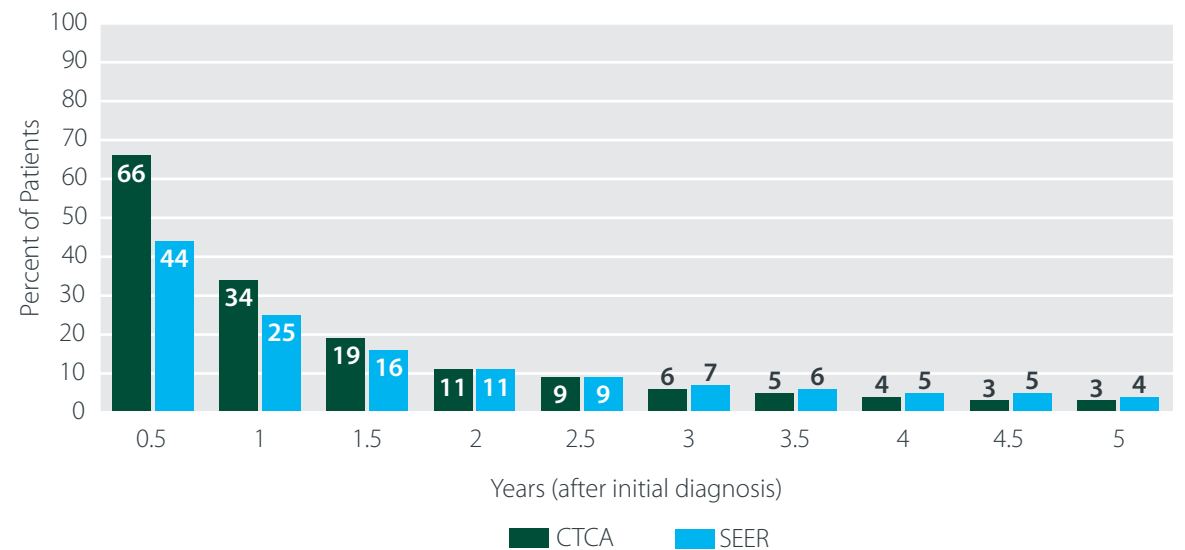
STOMACH CANCER

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 2015. 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+)) from C160 to C169, were diagnosed from 2000 to 2015 (including 2000 and 2015) 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

STOMACH CANCER SURVIVAL RATE

Patients Diagnosed with Distant (Metastatic) Cancer Between 2000-2015
CTCA (n=372) and SEER* (n=22,990)



*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.



Comprehensive Cancer Care Network

About this Report

Our Length of Life Results

Our Quality of Life Results 3

Our Patient Experience Results

Our Patient Safety and Quality Results

Our Clinical Leadership

Our Research Publications

Scott D.
COLORECTAL CANCER
CTCA Atlanta

“My oncologist was caring and passionate about us working as a team to treat and fight my cancer. Most importantly, he listened to me. I learned that cancer affects the whole person, not just the organ(s), and CTCA has offerings to help. I took advantage of nutrition, emotional and psychological support, and acupuncture.”



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 (PSRO) 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 PSRO 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) help 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. The data also exist real-time within the electronic health record. More than 94 percent of patients voluntarily participate in the SIT assessments.

1 Basch E, Deal AM, Kris MG, et al: Symptom monitoring with patient-reported outcomes during routine cancer treatment: A randomized controlled trial. *J Clin Oncol* 10.1200/JCO.2015.63.0830.

2 Jensen R, Snyder CF: PRO-cision Medicine: Personalizing Patient Care Using Patient-Reported Outcomes. *J Clin Oncol* 10.1200/JCO.2015.63.0830.

3 Snyder CF, Herman JM, White SM, et al: When using patient-reported outcomes in clinical practice, the measure matters: A randomized controlled trial. *J Oncol Pract* 10:e299-e306, 2014.

SECTION 3 SPOTLIGHT

3

- CTCA measures and intervenes on 27 different indicators of quality of life (symptoms and activities of daily life) for treating patients.
- Between July 1, 2017 and June 30, 2019, more than 8,692 patients completed both baseline and return self-assessments.
- Graphs on pages 27-31 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 32 and 33 reflect CTCA aggregate and facility patient self-reported outcome data for five (5) key areas across cancer types.





Our Quality of Life Results

BY CANCER TYPE | JULY 1, 2017 - JUNE 30, 2019

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 0 to 10 scale with 0 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. The data reflect more than 8,692 patients completing a second return assessment from baseline between July 1, 2017 and June 30, 2019, with 2,272 deemed severe.

BOX 1: CORE SYMPTOMS

- Pain
- Fatigue (tiredness)
- Nausea
- Disturbed sleep
- Distressed (upset)
- Shortness of breath
- Remembering things (memory)
- Lack of appetite
- Drowsy (sleepy)
- Dry mouth
- Feeling sad
- Vomiting
- Numbness or tingling

BOX 2: INTERFERENCE ISSUES

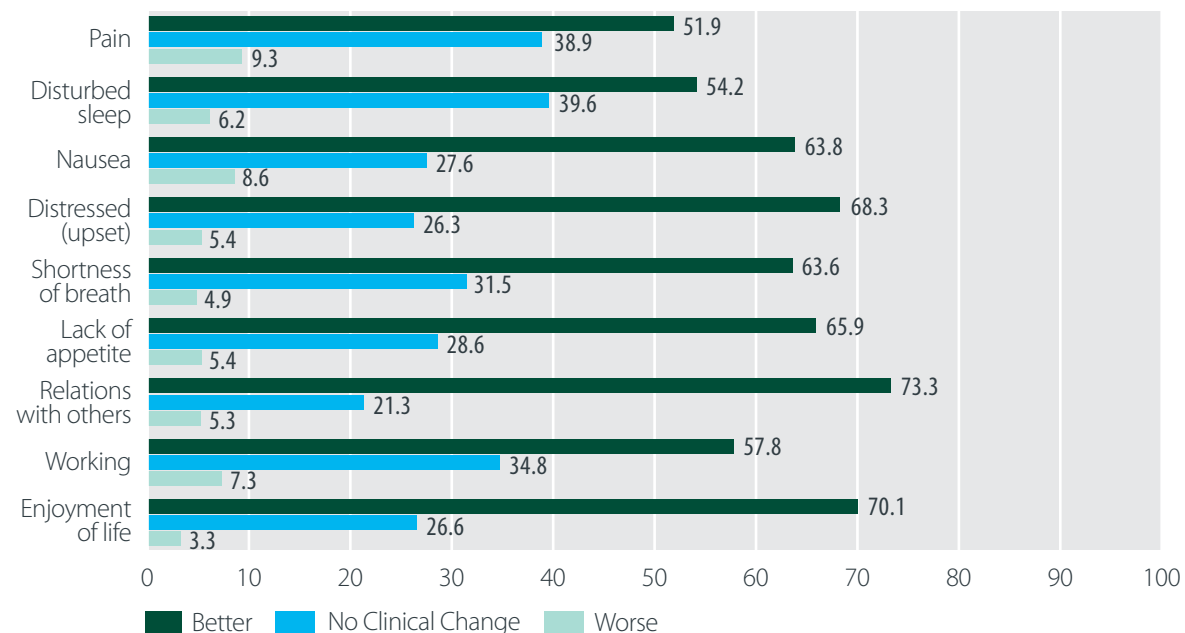
- General activity
- Mood
- Working (including around the house)
- Relations with others
- Walking
- Enjoyment of life

BOX 3: ADDITIONAL AREAS OF FOCUS

- Constipation/diarrhea
- Swelling (fluid retention)
- Mouth soreness
- Problems with bleeding
- Sexual interest
- Family response
- Sense of hope
- Overall quality of life

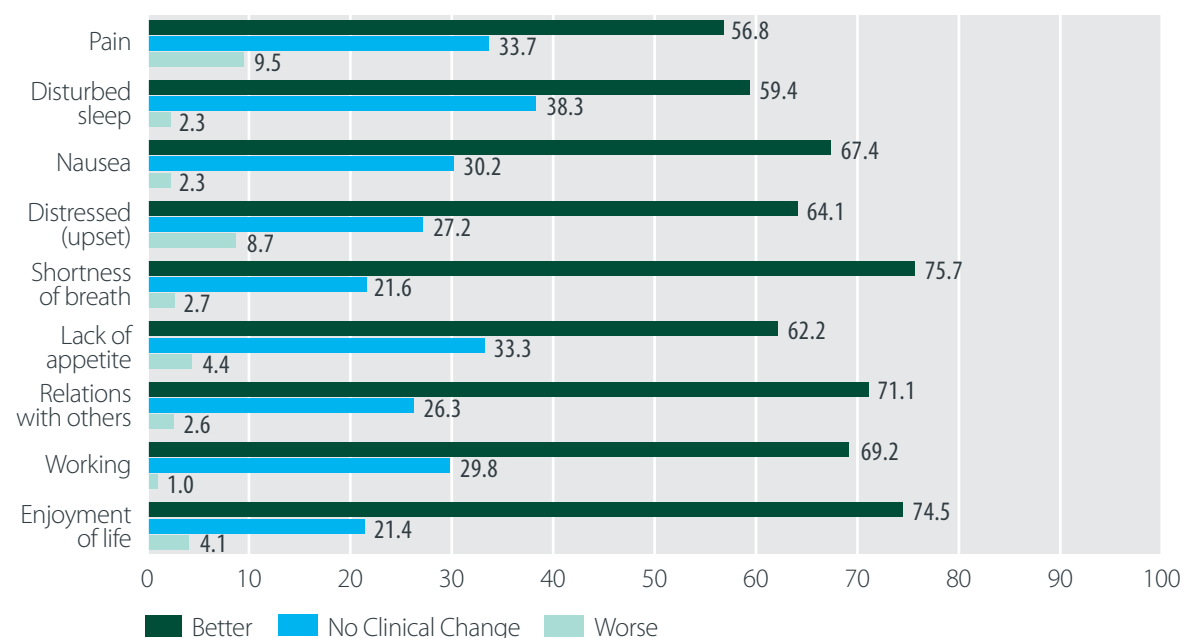
BREAST CANCER

% of Patients with Severe Symptoms on Baseline vs. Return



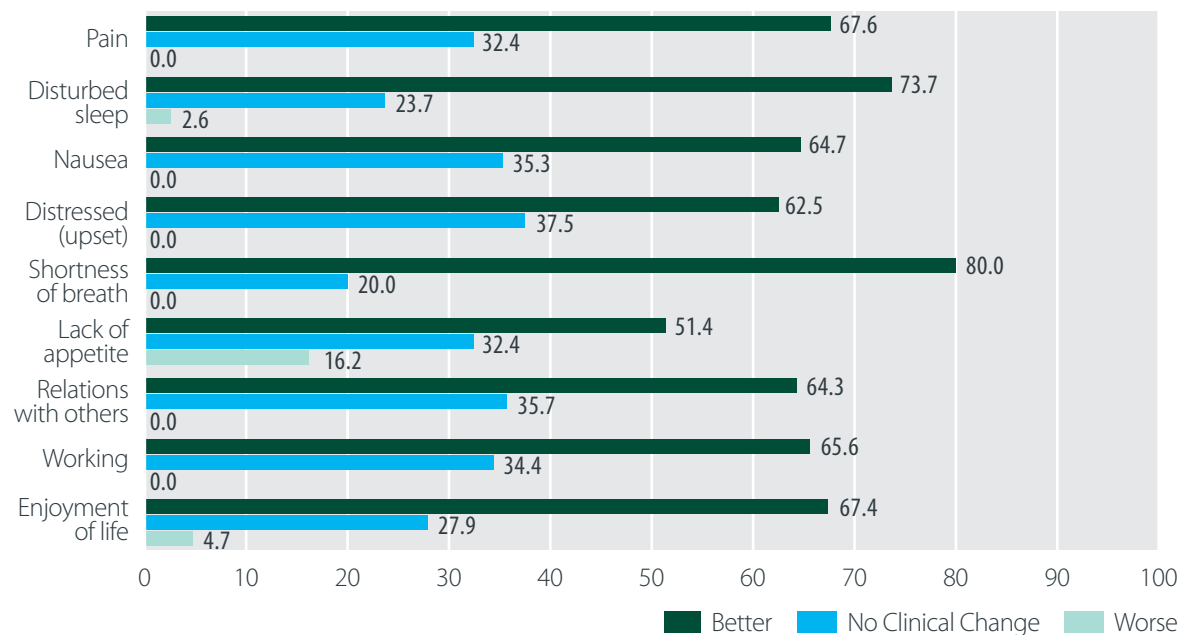
COLON CANCER

% of Patients with Severe Symptoms on Baseline vs. Return



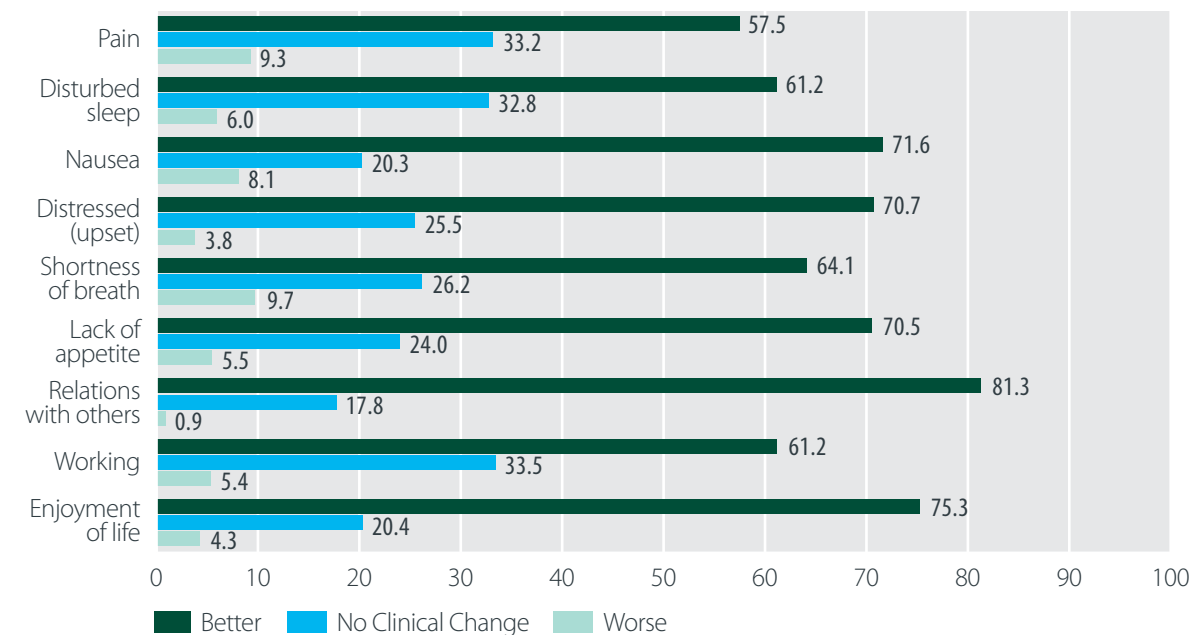
ESOPHAGEAL CANCER

% of Patients with Severe Symptoms on Baseline vs. Return



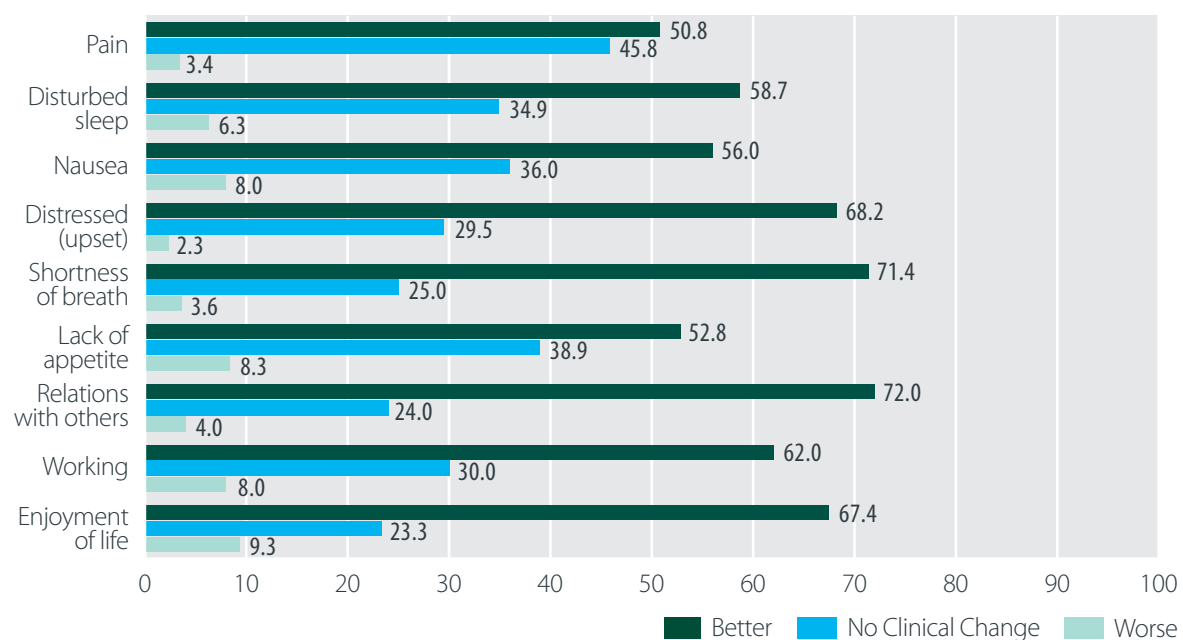
LUNG CANCER

% of Patients with Severe Symptoms on Baseline vs. Return



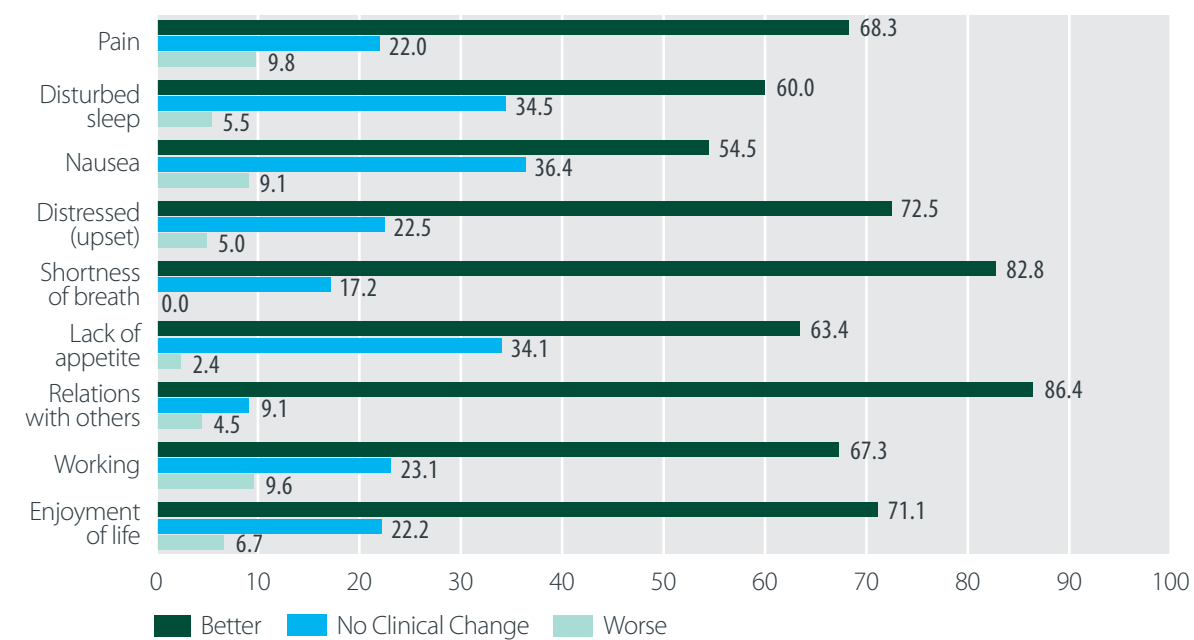
KIDNEY CANCER

% of Patients with Severe Symptoms on Baseline vs. Return



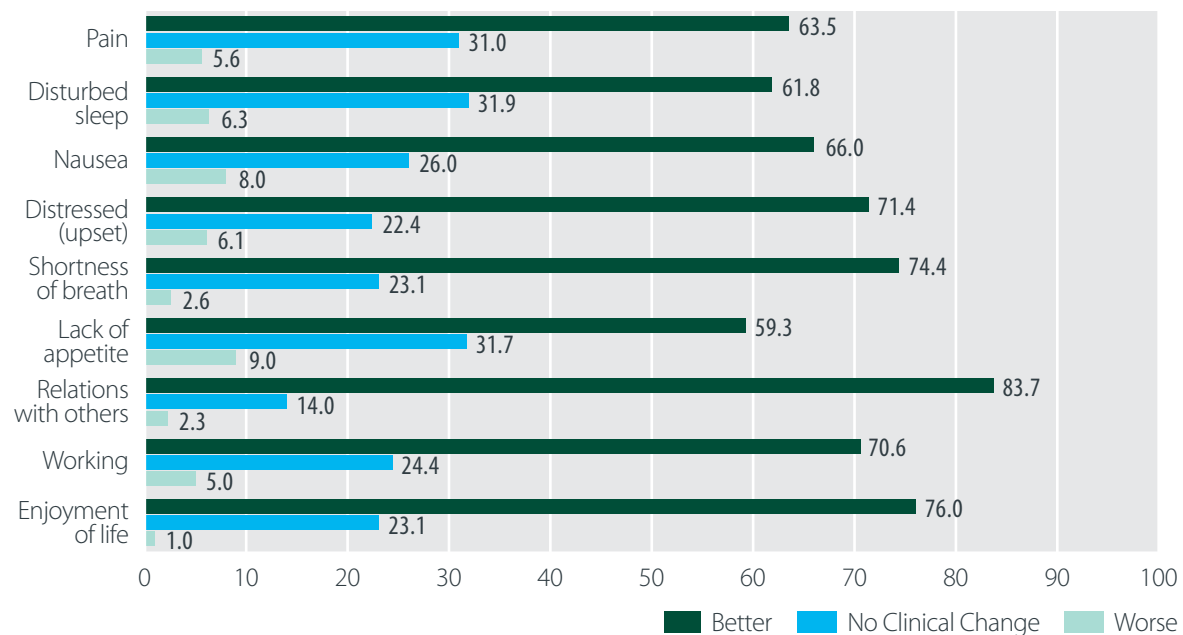
OVARIAN CANCER

% of Patients with Severe Symptoms on Baseline vs. Return



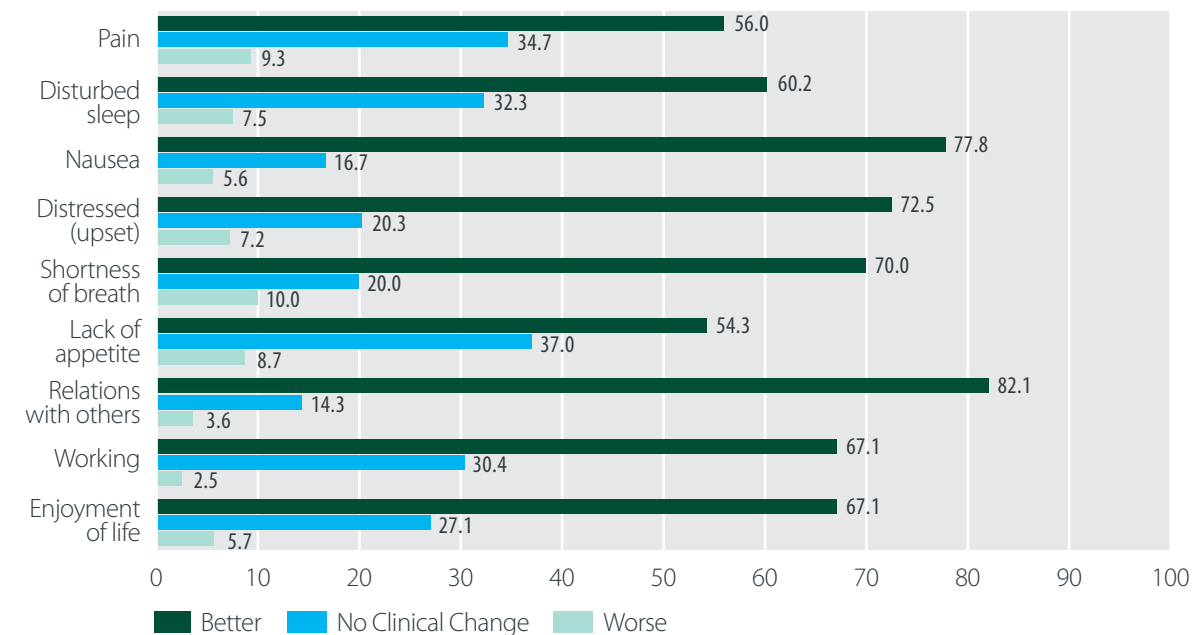
PANCREATIC CANCER

% of Patients with Severe Symptoms on Baseline vs. Return



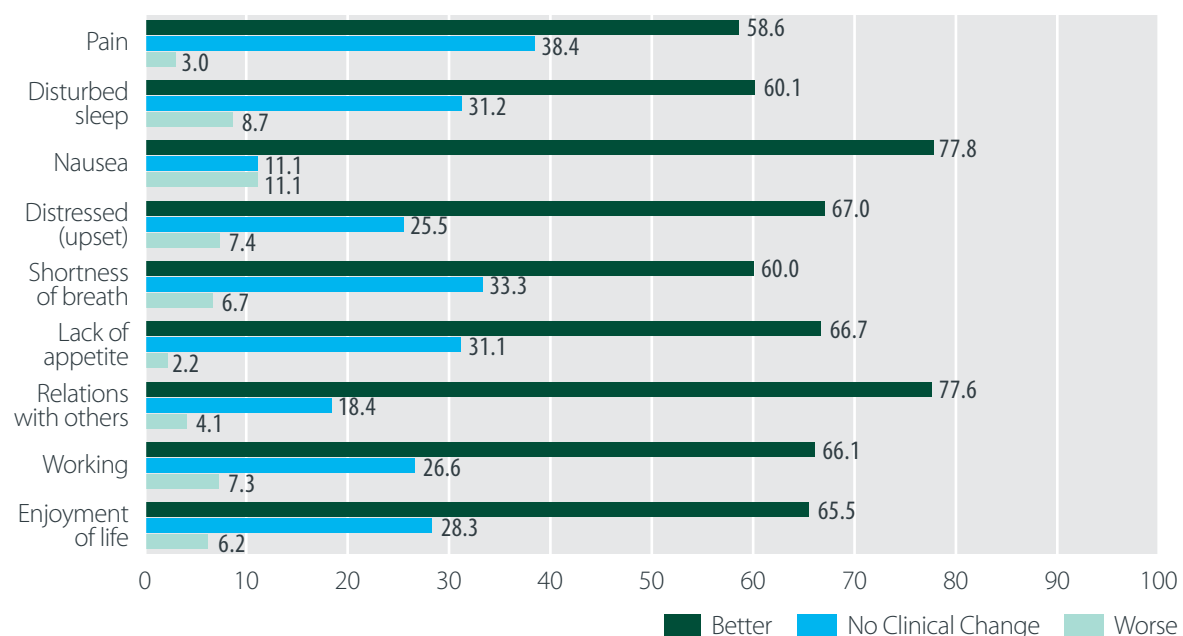
RECTAL CANCER

% of Patients with Severe Symptoms on Baseline vs. Return



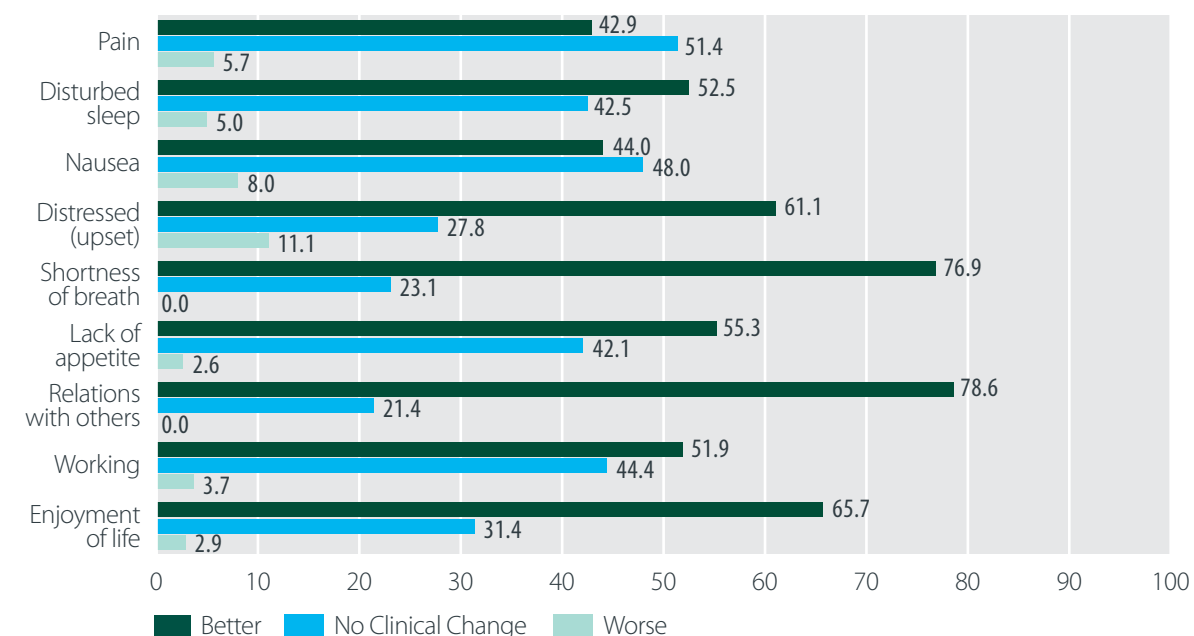
PROSTATE CANCER

% of Patients with Severe Symptoms on Baseline vs. Return



STOMACH CANCER

% of Patients with Severe Symptoms on Baseline vs. Return



Our Quality of Life Results

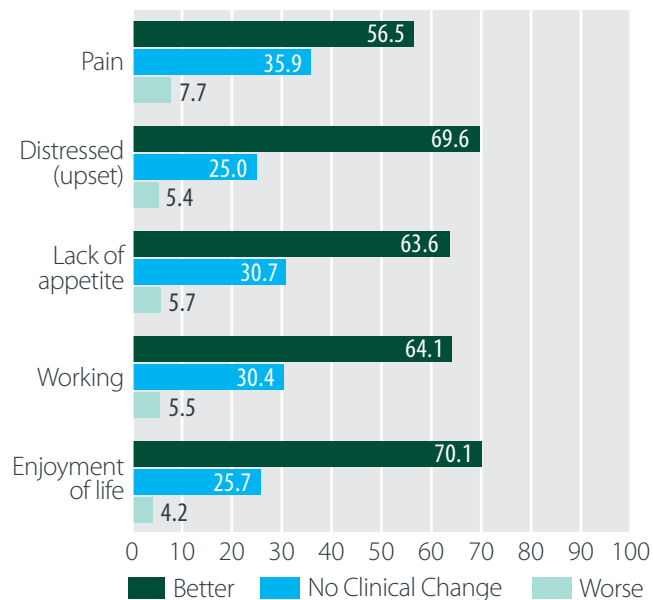
IN AGGREGATE AND BY FACILITY | JULY 1, 2017 - JUNE 30, 2019

Our Quality of Life Results

IN AGGREGATE AND BY FACILITY | JULY 1, 2017 - JUNE 30, 2019

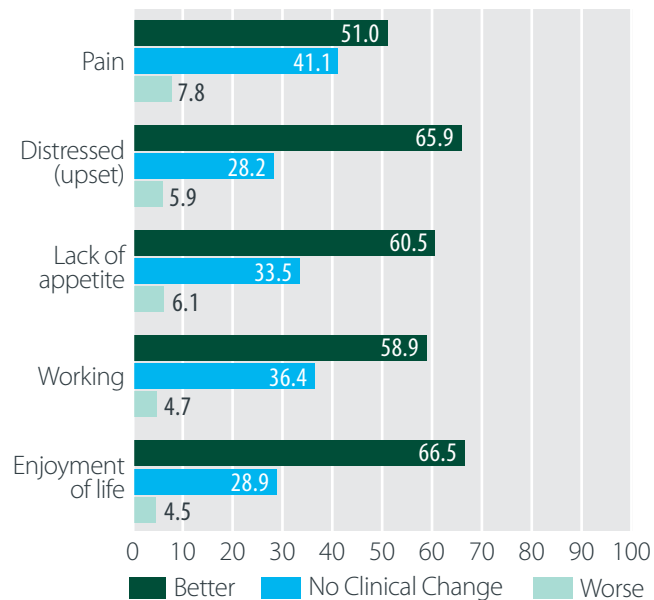
CTCA ALL HOSPITALS

% of Patients with Severe Symptoms on Baseline vs. Return



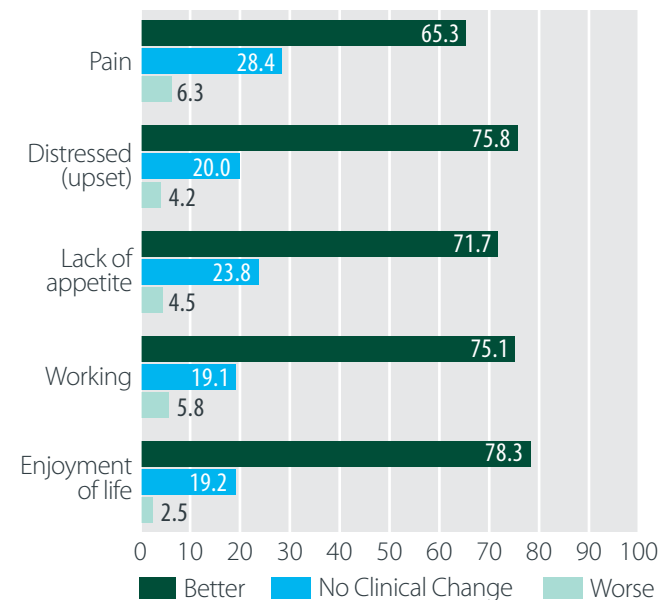
CTCA ATLANTA

% of Patients with Severe Symptoms on Baseline vs. Return



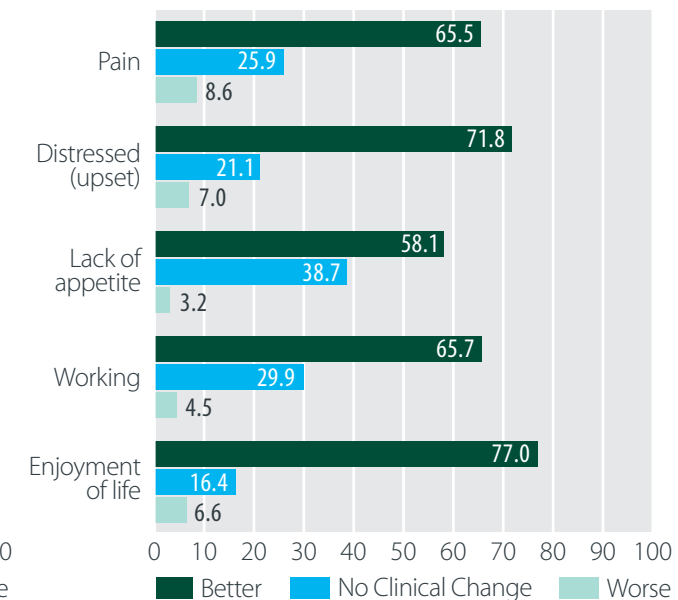
CTCA CHICAGO

% of Patients with Severe Symptoms on Baseline vs. Return



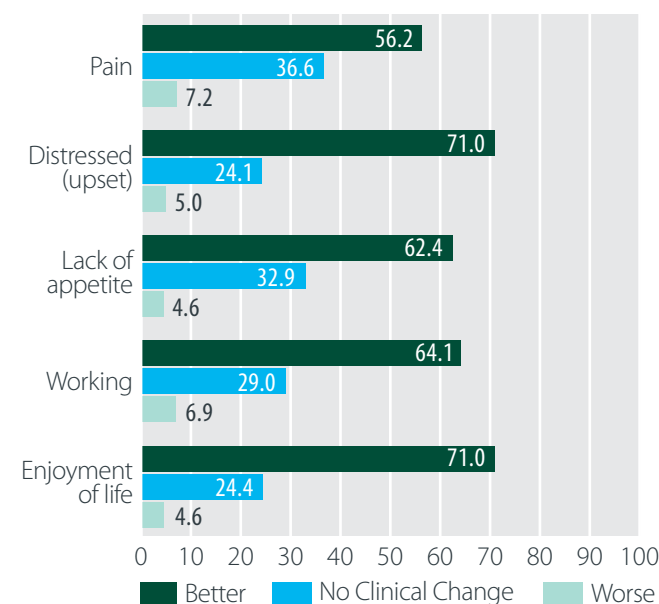
CTCA PHILADELPHIA

% of Patients with Severe Symptoms on Baseline vs. Return



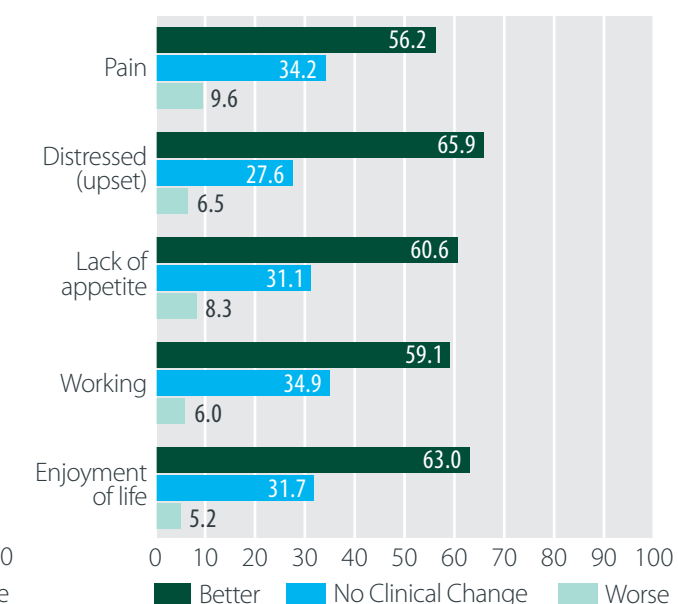
CTCA PHOENIX

% of Patients with Severe Symptoms on Baseline vs. Return



CTCA TULSA

% of Patients with Severe Symptoms on Baseline vs. Return



The graphs above and on the following page reflect CTCA aggregate as well as by facility patient self-reported outcomes (PSRO) data for five (5) key areas related to our ability to treat our patients' symptoms between July 1, 2017 and June 30, 2019.



About this Report

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Our Patient Experience Results

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Our Patient Safety and Quality Results

Our Clinical Leadership

Our Research Publications



Ninette R. | **OVARIAN CANCER** | CTCA Atlanta

"I worked with my doctor to decide on a personalized cancer treatment plan. The doctor took time to explain my options to me. She was honest, caring and very detailed, which is exactly what I needed. I experienced some side effects [from chemotherapy], such as nausea, constipation and fatigue. But any issue I was concerned about was addressed. I also had acupuncture and chiropractic care to help ease my pain."

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

Our Patient 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.

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 relationship 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.

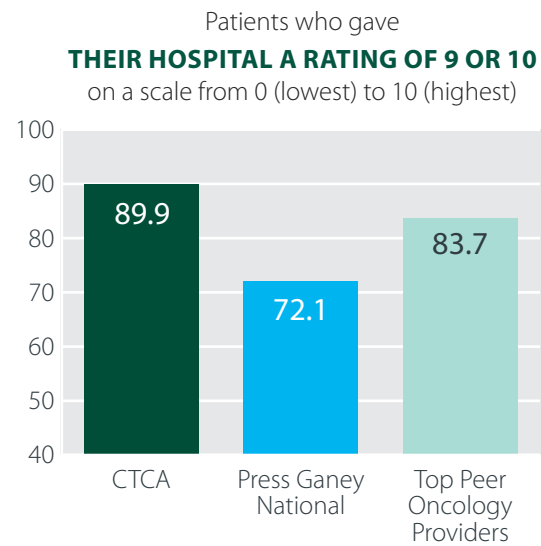
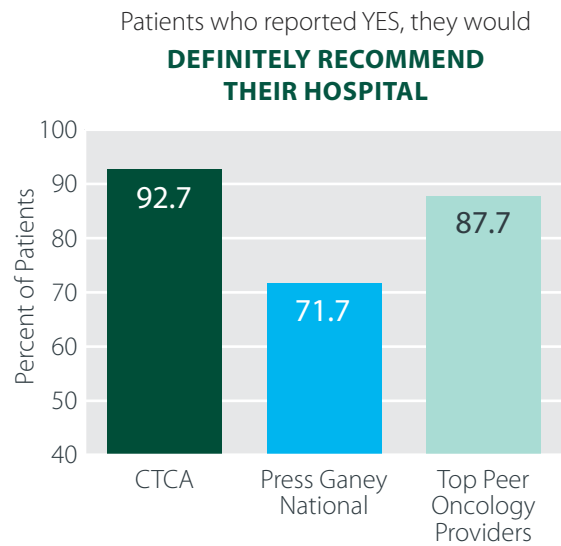
SECTION 4 SPOTLIGHT

4

- CTCA engages independent third parties Press Ganey and Binary Fountain® to administer and analyze patient experience surveys, gathering feedback from eligible patients using validated, and in some cases, federally-mandated survey instruments.
- The inpatient survey data reported in this section were gathered between July 1, 2018 and June 30, 2019 and represent a total of 1,045 completed HCAHPS surveys across all CTCA locations. The Press Ganey National Cohort includes 2,790 acute care hospitals and the Top Peer Oncology Provider cohort includes 11 cancer specialty hospitals.
- The outpatient ambulatory surgery survey data reported in this section were gathered between July 1, 2018 and June 30, 2019. CTCA patients completed 1,595 Outpatient and Ambulatory Surgery Consumer Assessment of Healthcare Providers and Systems (OAS CAHPS) surveys over the course of 12 months. The Press Ganey National Cohort includes 2,938 hospital outpatient surgery departments and ambulatory surgery centers.
- The outpatient survey data reported in this section were gathered between July 1, 2018 and June 30, 2019 and represent a total of 11,463 completed outpatient oncology surveys across all CTCA locations. The Press Ganey National Cohort includes 379 oncology centers and the Top Peer Oncology Provider cohort includes 16 cancer specialty hospitals.
- CTCA employs a Physician Transparency Star Rating program to provide greater insight into the quality of patients' experiences with our medical oncologists, radiation oncologists and gynecologic oncologists. The data, collected between July 1, 2018 and June 30, 2019, are an aggregation of two questions specific to physicians' patient care using the outpatient satisfaction survey.

CTCA Inpatient Satisfaction Results

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 1,045 completed responses, our hospitals ranked within the top 3% of hospitals across the nation using data from July 1, 2018 through June 30, 2019.



98th Percentile
CTCA ranks in the 98th percentile among the 2,790 hospitals in the Press Ganey National cohort.¹ CTCA ranks at the top among the Top 11 Peer Oncology Providers. This performance is based upon the completion of 1,045 surveys across CTCA.²

97th Percentile
CTCA ranks in the 97th percentile among the 2,790 hospitals in the Press Ganey National cohort.¹ CTCA ranks at the top among the Top 11 Peer Oncology Providers. This performance is based upon the completion of 1,045 surveys across CTCA.²

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 from patients surveyed in this timeframe will not appear on the CMS website for approximately one year, and may differ slightly.

² The Top 11 Peer Oncology Providers include: City of Hope Comprehensive Cancer Center, Dana-Farber Cancer Institute, Fox Chase Cancer Center, Moffitt Cancer Center, James Cancer Hospital and Solove Research Institute, MD Anderson Cancer Center, Memorial Sloan Kettering Cancer Institute, Roswell Park Comprehensive Cancer Center, Seattle Cancer Care Alliance, University of Miami Hospital and USC Norris Comprehensive Cancer Center.

CTCA HCAHPS inpatient data are compared to the respective American Hospital Association region and the national data cohort. The data reported are reflective of the most current available and based on the date patient surveys were received. The applicable AHA regions are:

- **AHA Region 2: CTCA Philadelphia**
New Jersey, New York and Pennsylvania
- **AHA Region 4: CTCA Atlanta**
Alabama, Florida, Georgia, Mississippi, Puerto Rico, South Carolina and Tennessee
- **AHA Region 5: CTCA Chicago**
Illinois, Indiana, Michigan, Ohio and Wisconsin
- **AHA Region 7: CTCA Tulsa**
Arkansas, Louisiana, Oklahoma and Texas
- **AHA Region 8: CTCA Phoenix**
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 inpatient survey questions can be found in the key on page 41.

In alignment with the CTCA commitment to the Mother Standard[®] of care, our hospitals' patient experience results are consistently higher than the national and regional norms.



THE MOTHER STANDARD[®] 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.

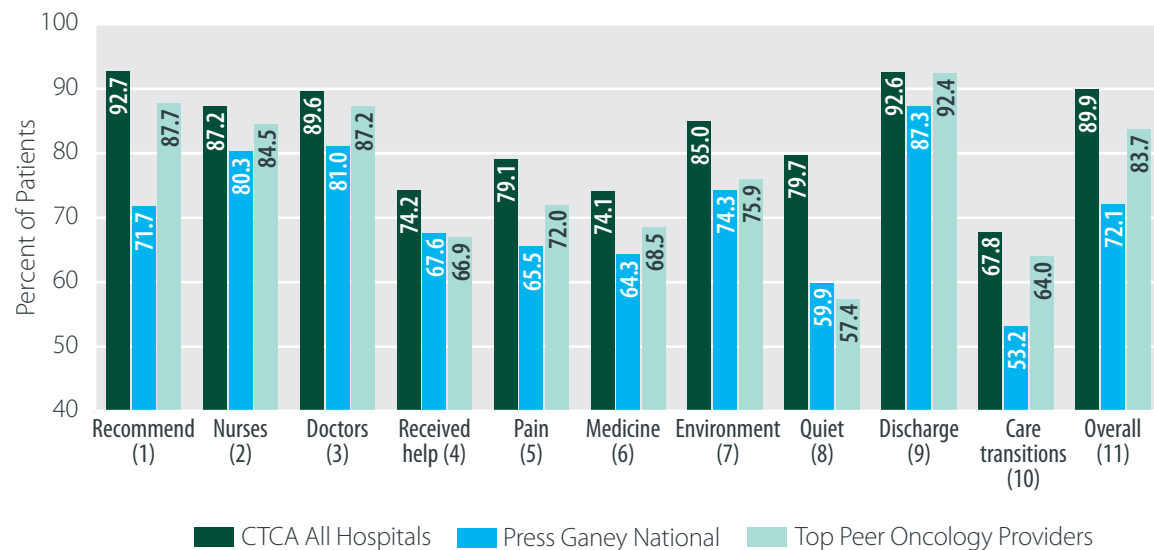
Our Patient Experience Results

INPATIENT | JULY 1, 2018 - JUNE 30, 2019

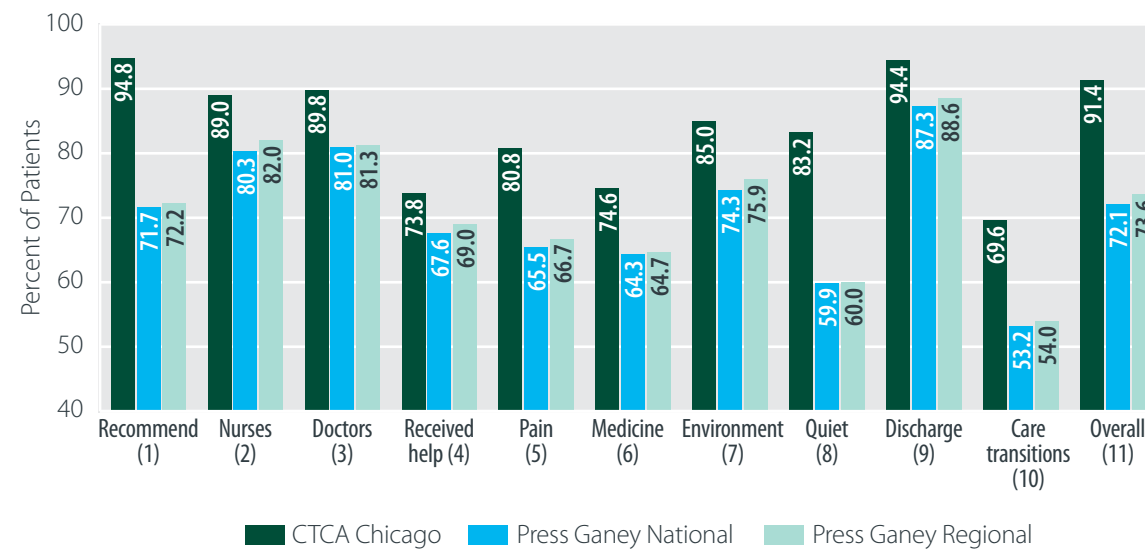
Our Patient Experience Results

INPATIENT | JULY 1, 2018 - JUNE 30, 2019

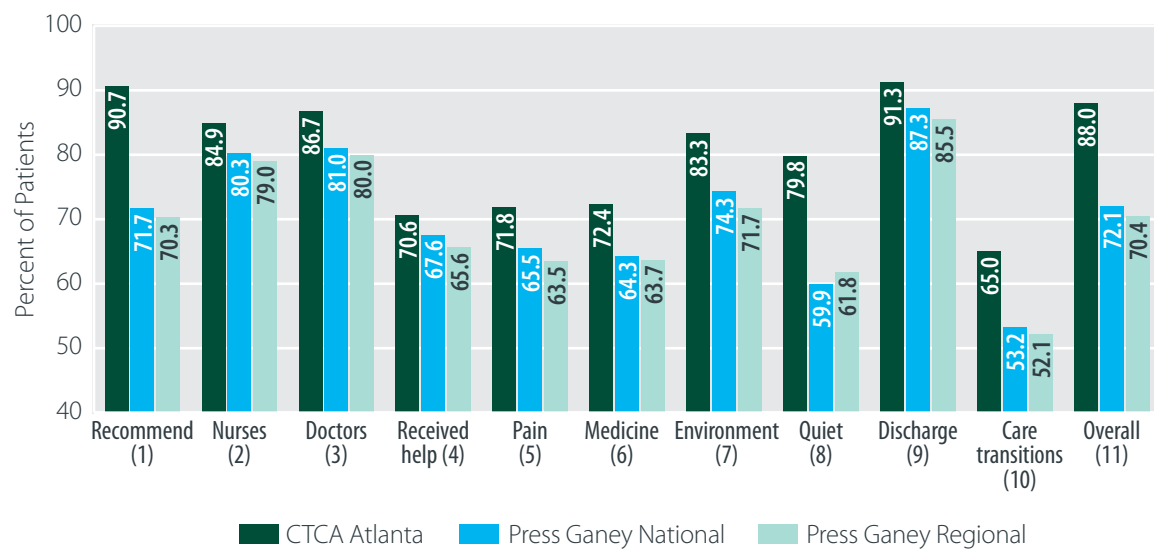
CTCA ALL HOSPITALS | HCAHPS Survey on Inpatient Satisfaction | 1,045 Completed Surveys



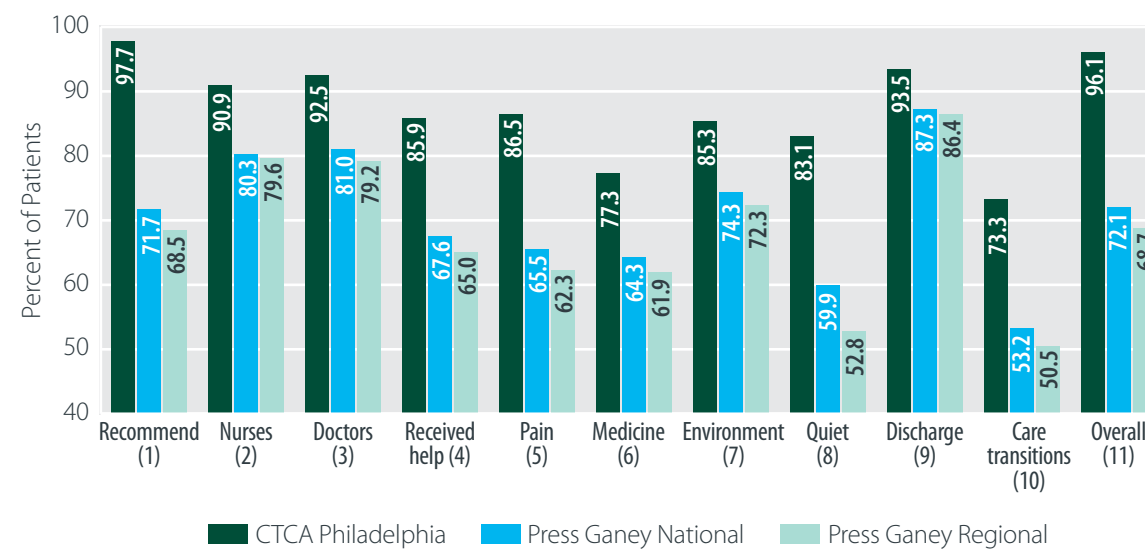
CTCA CHICAGO | HCAHPS Survey on Inpatient Satisfaction | 328 Completed Surveys



CTCA ATLANTA | HCAHPS Survey on Inpatient Satisfaction | 321 Completed Surveys



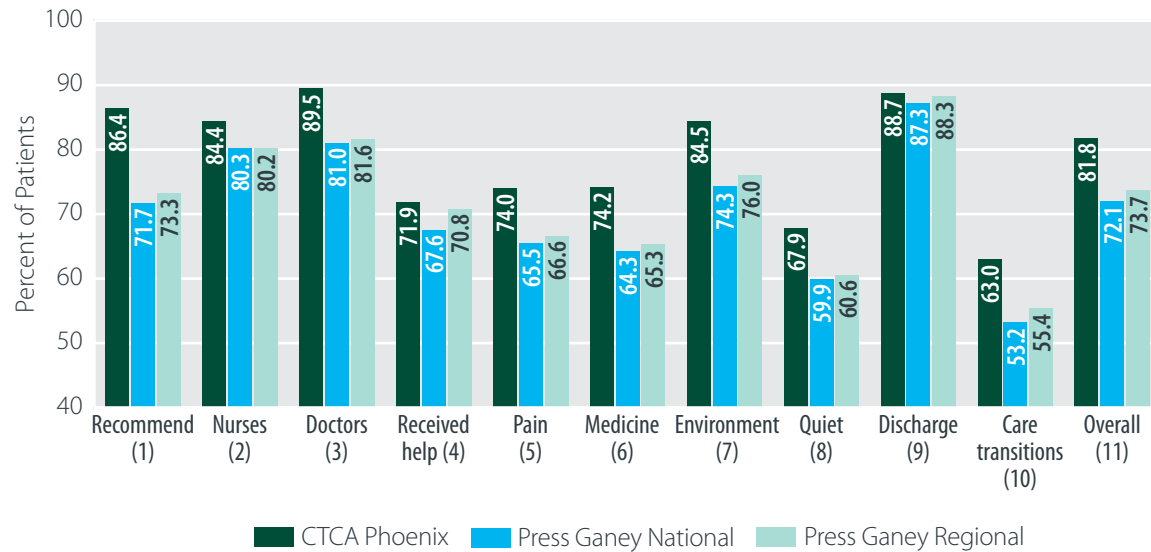
CTCA PHILADELPHIA | HCAHPS Survey on Inpatient Satisfaction | 128 Completed Surveys



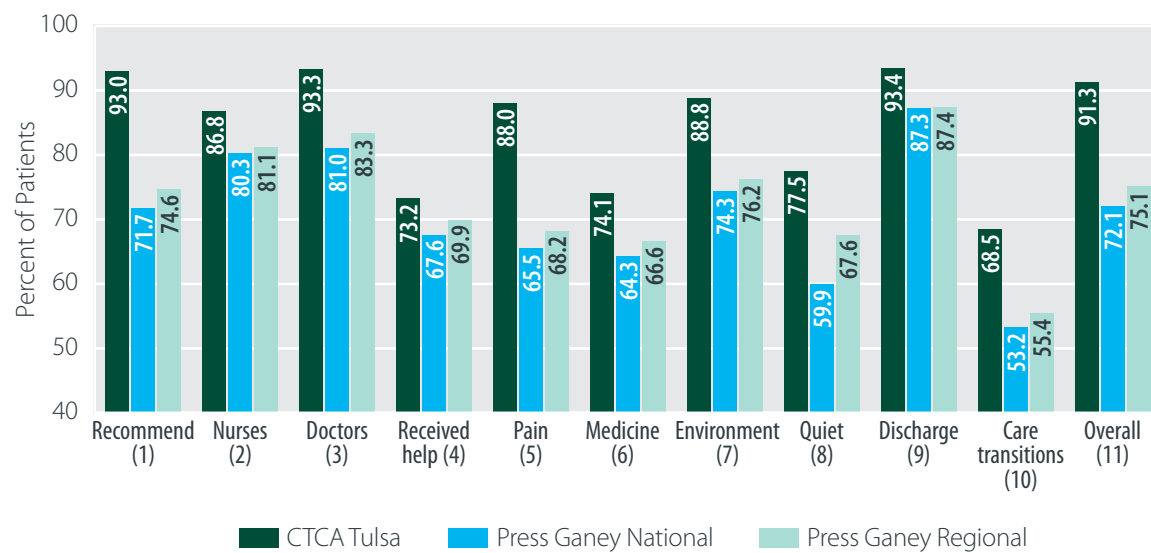
Our Patient Experience Results

INPATIENT | JULY 1, 2018 - JUNE 30, 2019

CTCA PHOENIX | HCAHPS Survey on Inpatient Satisfaction | 110 Completed Surveys



CTCA TULSA | HCAHPS Survey on Inpatient Satisfaction | 158 Completed Surveys



HCAHPS SURVEY KEY

GRAPH LABELS	SURVEY QUESTIONS (AND DOMAINS)
(1) Recommend	<ul style="list-style-type: none"> Patients who would definitely recommend their hospital to friends and family
(2) Nurses	<ul style="list-style-type: none"> Nurses treated you with courtesy and respect Nurses listened carefully to you Nurses explained in a way you understood
(3) Doctors	<ul style="list-style-type: none"> Doctors treated you with courtesy and respect Doctors listened carefully to you Doctors explained in a way you understood
(4) Received help	<ul style="list-style-type: none"> After using call button, received help as soon as you wanted it Received help with toileting as soon as you wanted it
(5) Pain	<ul style="list-style-type: none"> Staff talked about how much pain you had Staff talked about how to treat your pain
(6) Medicine	<ul style="list-style-type: none"> Told you what new medicine was for Staff described medicine side effects
(7) Environment	<ul style="list-style-type: none"> Cleanliness of hospital environment
(8) Quiet	<ul style="list-style-type: none"> Quietness of hospital environment
(9) Discharge	<ul style="list-style-type: none"> Staff talked about whether you had help when you left Staff provided Information regarding symptoms or problems to look for
(10) Care transitions	<ul style="list-style-type: none"> Hospital staff took preferences into account Good understanding of managing own health Understood purpose of taking medicine
(11) Overall	<ul style="list-style-type: none"> Patients who rated their hospital 9 or 10 on a scale from 0 (lowest) to 10 (highest)

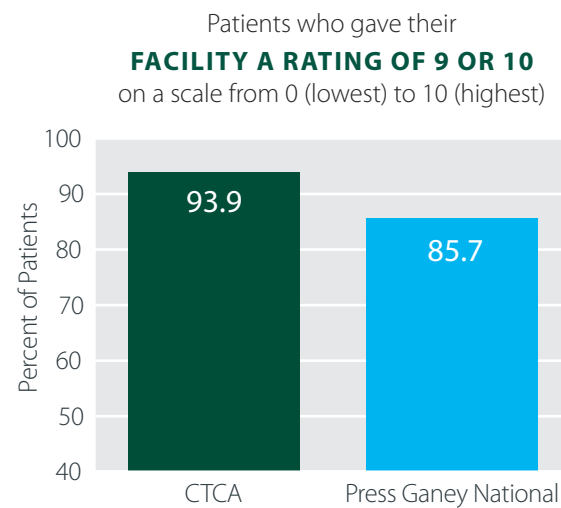
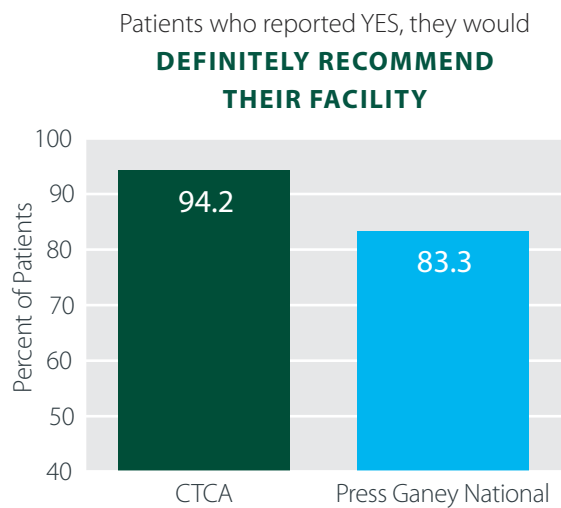
OAS CAHPS Survey Background and Methodology

Cancer Treatment Centers of America® (CTCA) voluntarily collects data on the quality of our ambulatory surgical outpatients' experiences using a nationally standardized and validated instrument. The Outpatient and Ambulatory Surgery Consumer Assessment of Healthcare Providers and Systems (OAS CAHPS) survey measures the patient experience with surgeries performed at hospital-based outpatient surgery departments. The survey is administered to all patients on behalf of CTCA by Press Ganey, an independent federally-certified research organization, within two weeks following their outpatient surgery or procedure.

Similar to the inpatient instrument, this survey contains questions that cover topics such as access to care, communications, experience with the facility and interactions with facility staff.

CTCA OUTPATIENT AND AMBULATORY SURGERY PATIENT SATISFACTION RESULTS

The information displayed 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 OAS CAHPS survey questions can be found in the key on page 45.



97th Percentile

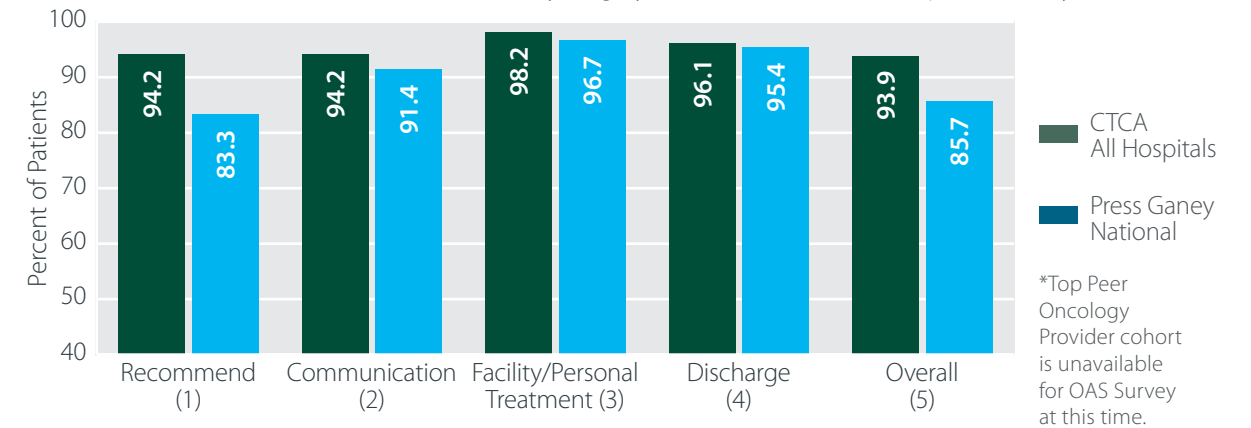
CTCA ranks in the **97th percentile** among the 2,938 hospitals in the Press Ganey National cohort. Performance is based upon the completion of 1,595 surveys across CTCA.³

94th Percentile

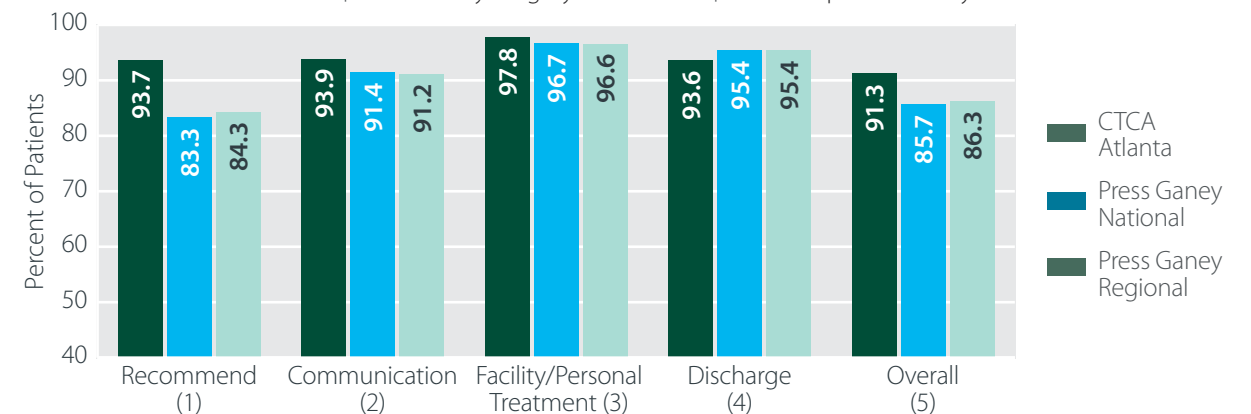
CTCA ranks in the **94th percentile** among the 2,938 hospitals in the Press Ganey National cohort. Performance is based upon the completion of 1,595 surveys across CTCA.³

³ Top Peer Oncology Provider cohort is unavailable for OAS Survey at this time.

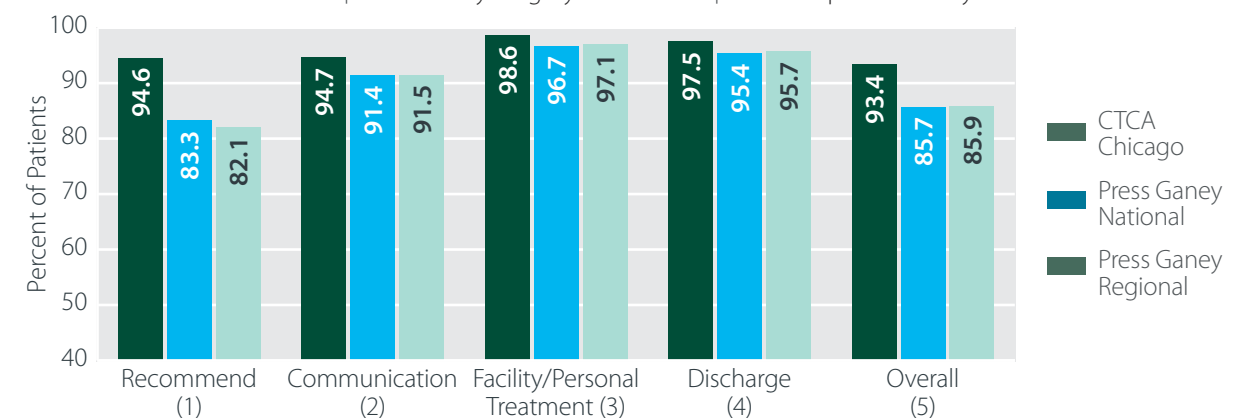
CTCA ALL HOSPITALS | Ambulatory Surgery Satisfaction* | 1,595 Completed Surveys



CTCA ATLANTA | Ambulatory Surgery Satisfaction | 331 Completed Surveys

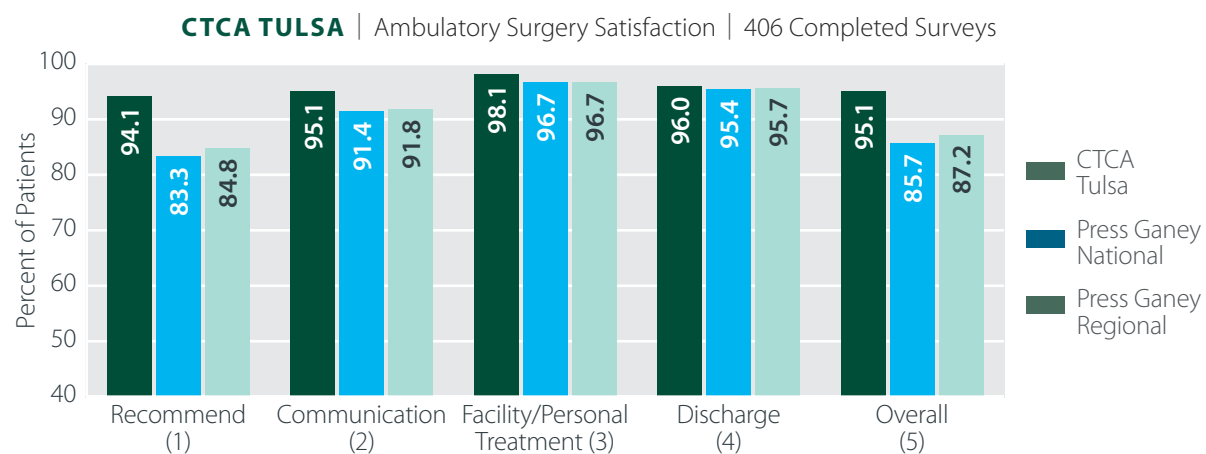
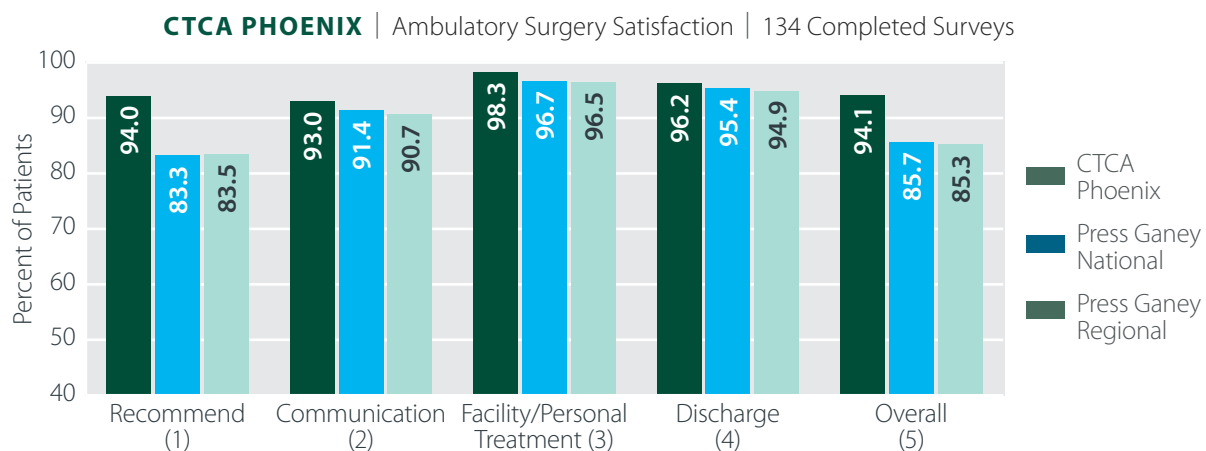
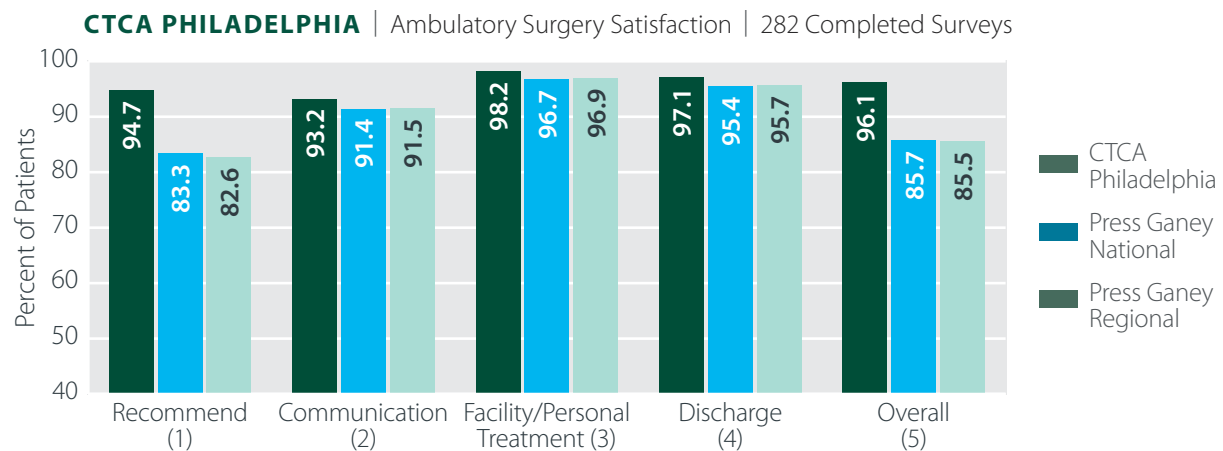


CTCA CHICAGO | Ambulatory Surgery Satisfaction | 442 Completed Surveys



Our Patient Experience Results

OUTPATIENT AND AMBULATORY SURGERY | JULY 1, 2018 - JUNE 30, 2019



OAS CAHPS SURVEY KEY

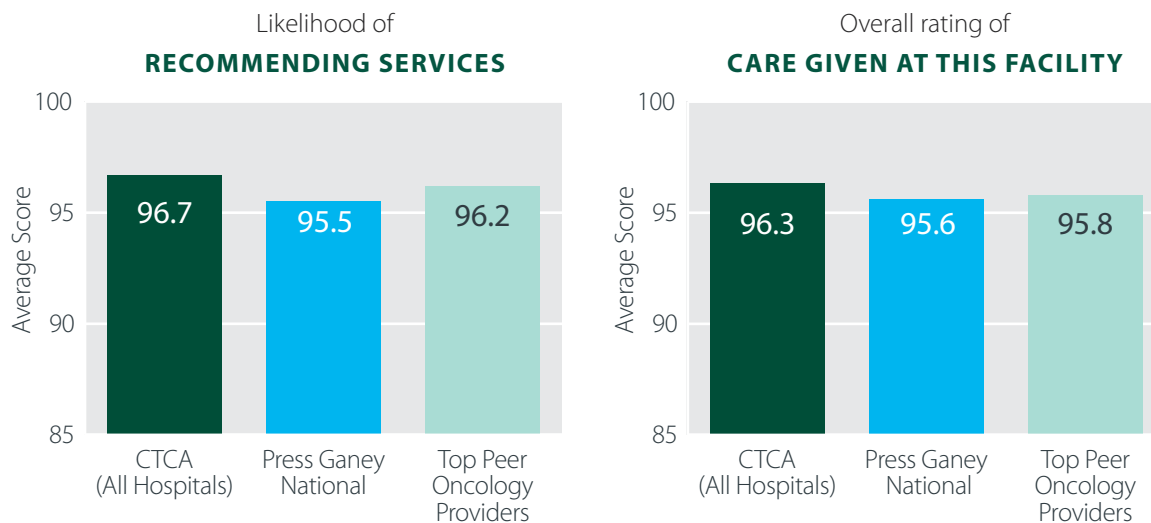
GRAPH LABELS	SURVEY QUESTIONS (AND DOMAINS)
(1) Recommend	<ul style="list-style-type: none"> Patients who would definitely recommend their facility to friends and family
(2) Communication	<ul style="list-style-type: none"> Provided all needed information about procedure Instructions to prepare for procedure were easy to understand Staff explained procedure in way that was easy to understand Information on anesthesia and its side effects were easy to understand
(3) Facility/Personal treatment	<ul style="list-style-type: none"> Check-in process ran smoothly Facility cleanliness Clerks and receptionists were helpful Clerks and receptionists treated you with courtesy and respect Staff treated you with courtesy and respect Staff ensured you were comfortable
(4) Discharge	<ul style="list-style-type: none"> Received written discharge instructions Prepared for what to expect during recovery Received information on: <ul style="list-style-type: none"> subsequent pain subsequent nausea subsequent bleeding what to do if there are signs of infection
(5) Overall	<ul style="list-style-type: none"> Patients who rated their facility 9 or 10 on a scale from 0 (lowest) to 10 (highest)

Outpatient Survey Background and 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 patient's needs and administered by a third party to ensure the validity and reliability of the 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 950 completed surveys are returned per month, providing CTCA hospitals with valuable feedback. Between July 1, 2018 and June 30, 2019, CTCA patients completed 11,463 outpatient oncology surveys.

CTCA OUTPATIENT SATISFACTION RESULTS

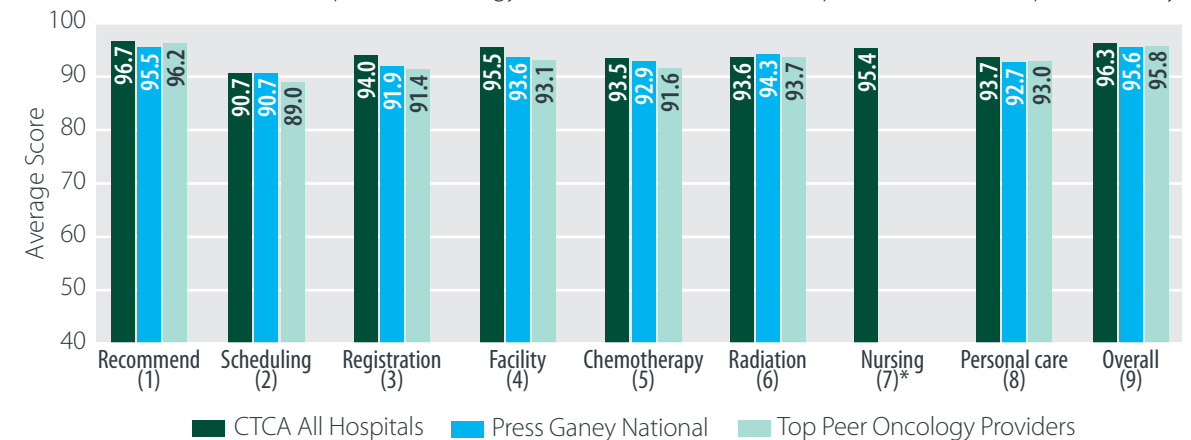
The data presented in the charts on pages 47-50 are "on average" scores using a 5-point Likert scale, in which an individual response is converted from very poor (0) to very good (100) and averaged. Performance for the Press Ganey national cohort and top peer providers within the data set are presented for key dimensions of care such as scheduling, registration, chemotherapy, radiation and personal care. In addition, comprehensive data are presented across CTCA by cancer type for each key dimension based on what we know to be important to our patients. Comparative peer data are not available at this level of detail by cancer type.



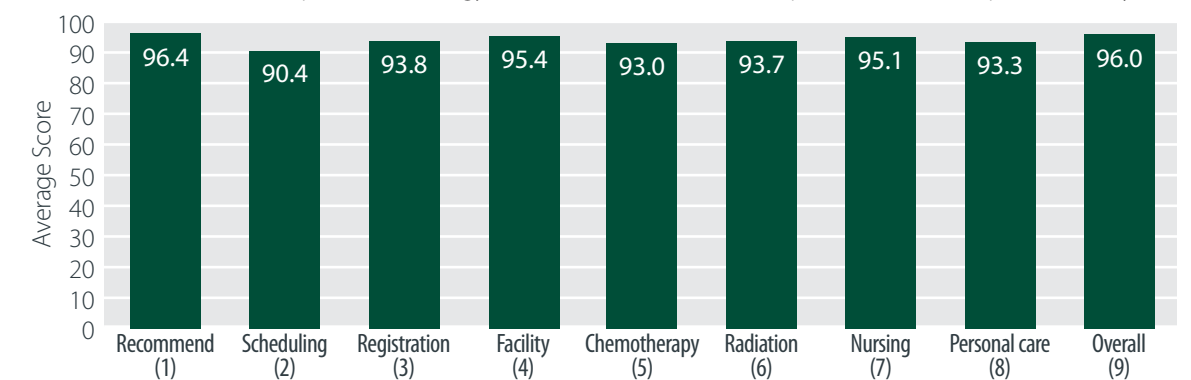
CTCA performs above the mean in comparison to the 379 national providers and the 16 Top Peer Oncology Providers.⁴ This performance is based upon the completion of 11,463 surveys across CTCA.

4 The Top 16 Peer Oncology Providers include: City of Hope Comprehensive Cancer Center, Dana-Farber Community Cancer Care, Dana-Farber Londonderry, Dana-Farber Longwood, Dana-Farber Milford, Dana-Farber South Shore, Dana-Farber St. Elizabeth's, Fox Chase Cancer Center, Moffitt Cancer Center, James Cancer Hospital and Solove Research Institute, MD Anderson Cancer Center, Memorial Sloan Kettering Cancer Institute, Roswell Park Comprehensive Cancer Center, Seattle Cancer Care Alliance, Sylvester Comprehensive Cancer Center and USC Norris Comprehensive Cancer Center.

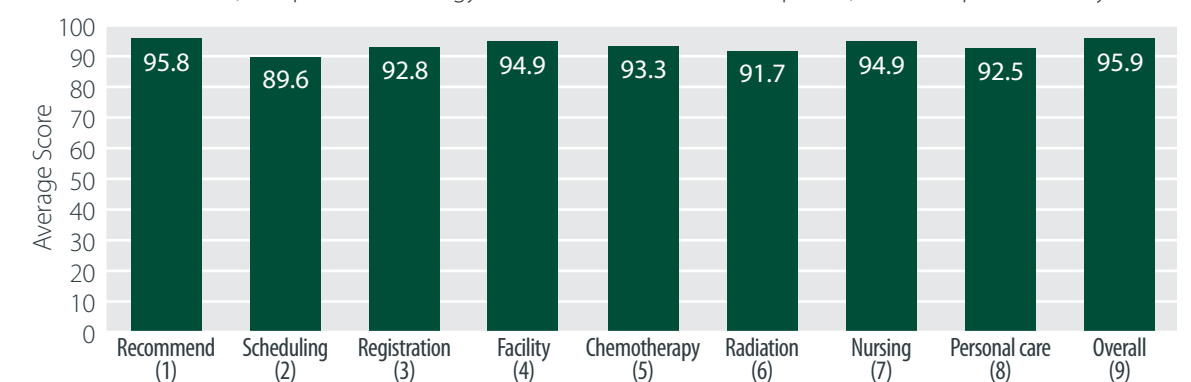
ALL CANCER TYPES | Outpatient Oncology Satisfaction for all CTCA Hospitals | 11,463 Completed Surveys



BREAST CANCER | Outpatient Oncology Satisfaction for all CTCA Hospitals | 3,180 Completed Surveys



COLON CANCER | Outpatient Oncology Satisfaction for all CTCA Hospitals | 726 Completed Surveys



5 Peer comparison data is unavailable for the nursing domain

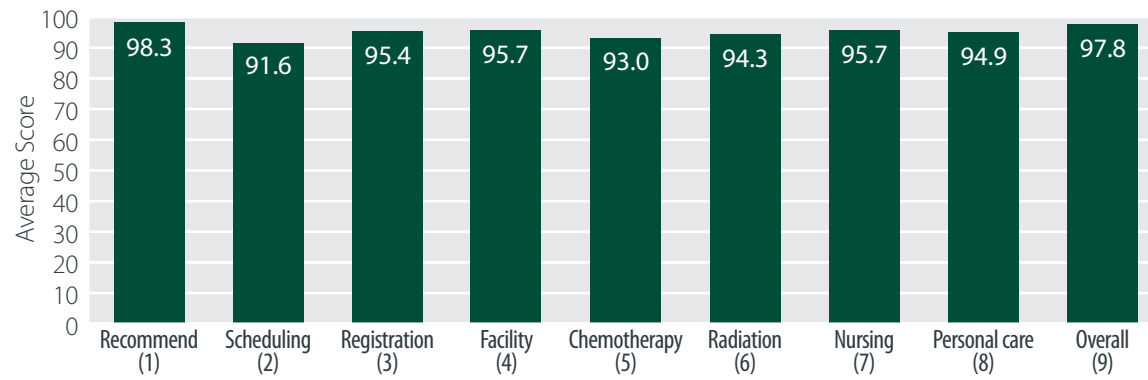
Our Patient Experience Results

OUTPATIENT | JULY 1, 2018 - JUNE 30, 2019

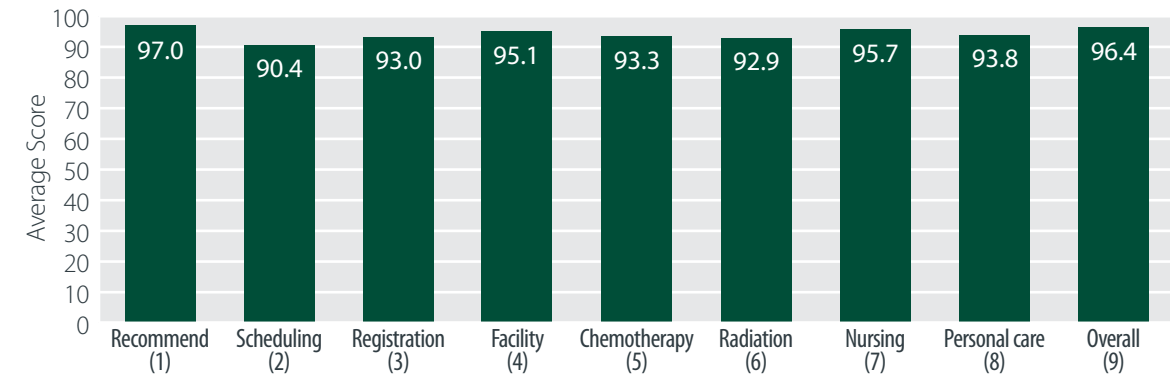
Our Patient Experience Results

OUTPATIENT | JULY 1, 2018 - JUNE 30, 2019

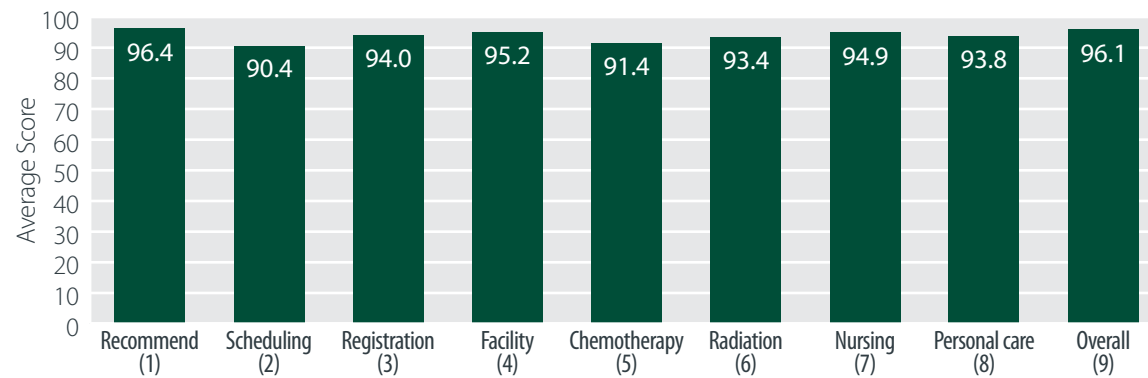
ESOPHAGEAL CANCER | Outpatient Oncology Satisfaction for all CTCA Hospitals | 226 Completed Surveys



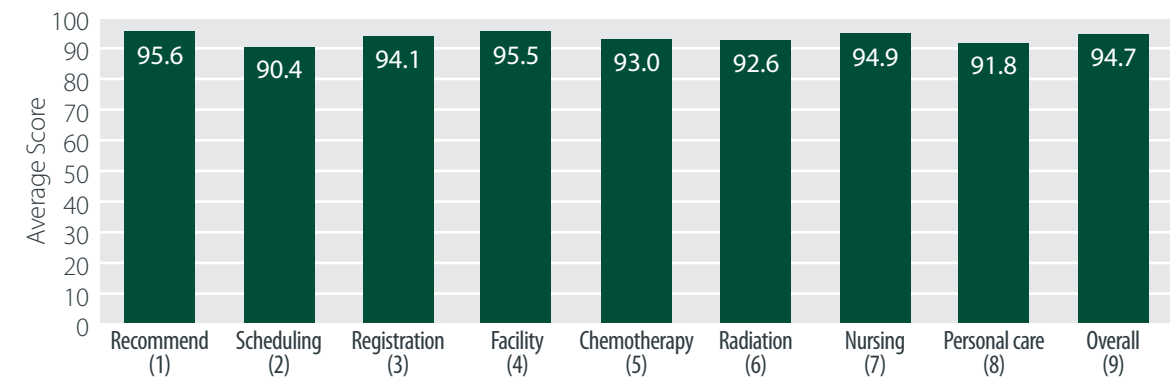
OVARIAN CANCER | Outpatient Oncology Satisfaction for all CTCA Hospitals | 335 Completed Surveys



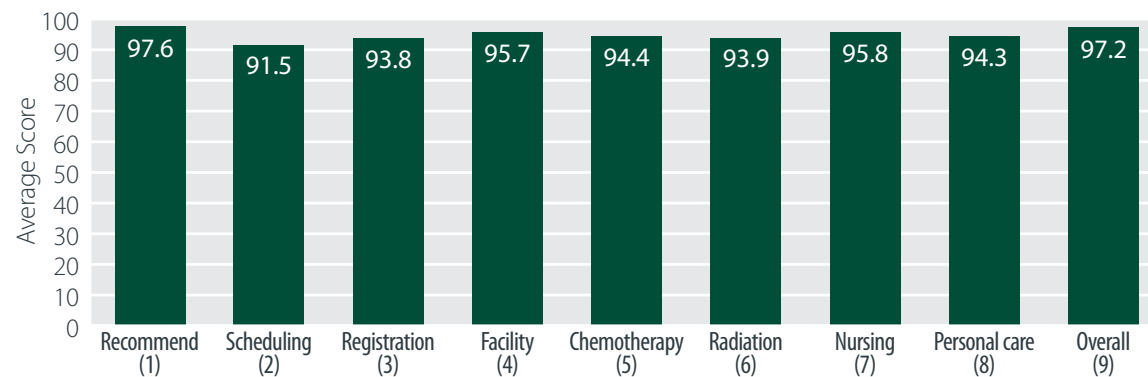
KIDNEY CANCER | Outpatient Oncology Satisfaction for all CTCA Hospitals | 384 Completed Surveys



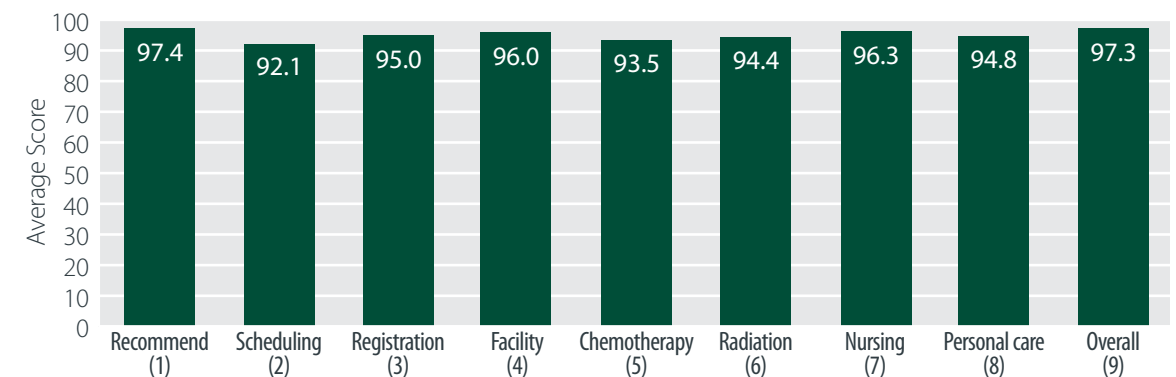
PANCREATIC CANCER | Outpatient Oncology Satisfaction for all CTCA Hospitals | 324 Completed Surveys



LUNG CANCER | Outpatient Oncology Satisfaction for all CTCA Hospitals | 1,281 Completed Surveys



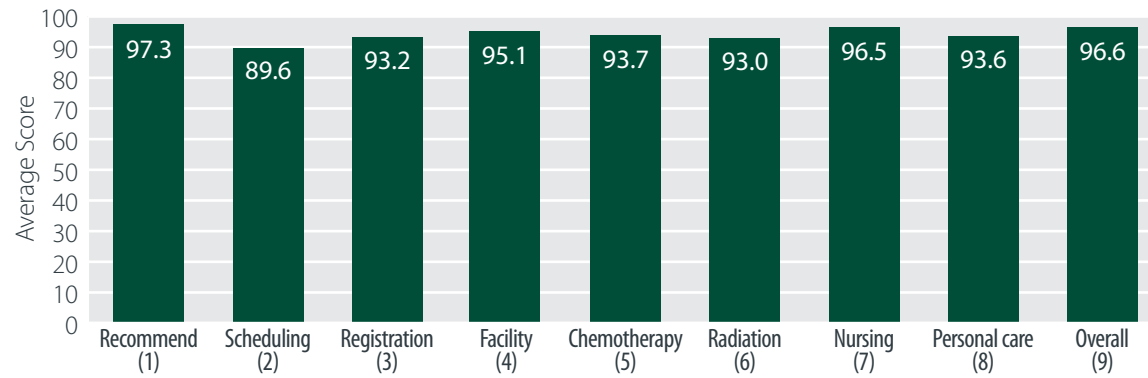
PROSTATE CANCER | Outpatient Oncology Satisfaction for all CTCA Hospitals | 1,505 Completed Surveys



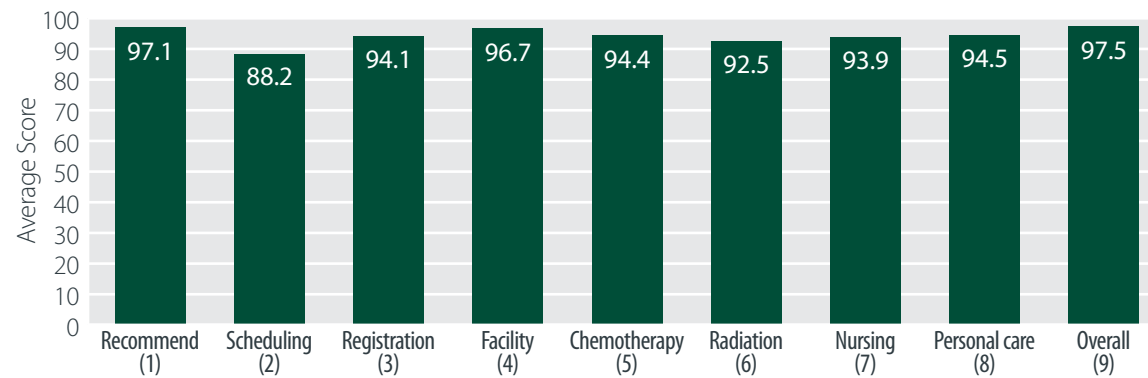
Our Patient Experience Results

OUTPATIENT | JULY 1, 2018 - JUNE 30, 2019

RECTAL CANCER | Outpatient Oncology Satisfaction for all CTCA Hospitals | 204 Completed Surveys



STOMACH CANCER | Outpatient Oncology Satisfaction for all CTCA Hospitals | 119 Completed Surveys



OUTPATIENT ONCOLOGY SURVEY KEY

GRAPH LABELS	SURVEY QUESTIONS (AND DOMAINS)
(1) Recommend	<ul style="list-style-type: none"> Likelihood of recommending services
(2) Scheduling	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Registration process ease Wait in registration area
(4) Facility	<ul style="list-style-type: none"> Facility cleanliness Found way around facility with ease Waiting area comfort Changing room privacy
(5) Chemotherapy	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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) Nursing⁵	<ul style="list-style-type: none"> Nurses' concern for questions and worries Nurses' responsiveness to your needs Quality of care received from nurse(s) Attention to pain control Caring manner of the nurses Nurses answered your questions
(8) Personal care	<ul style="list-style-type: none"> 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
(9) Overall	<ul style="list-style-type: none"> Overall rating of care given at this facility

Our Patient Experience Results

PHYSICIAN TRANSPARENCY STAR RATING | JULY 1, 2018 - JUNE 30, 2019

About this Report

Physician Transparency Star Rating Survey Background, Methodology and Results

CTCA voluntarily launched a Physician Transparency Star Ratings program in collaboration with third party research organizations Press Ganey and Binary Fountain. This program provides greater insight into the quality of patients' experiences with CTCA medical oncologists, radiation oncologists and gynecologic oncologists.

The data displayed on the CTCA website (cancercenter.com) are aggregations of two questions specific to physicians' patient care using the outpatient satisfaction survey. Data from the answers to the two questions are collected by Press Ganey and converted by Binary Fountain into a one to five-star rating, with one star being the lowest possible rating and five stars being the highest. Once a minimum of 30 responses is received by a physician, results are made available online. All patient comments are also posted online as written by the patient, whether they are positive or negative, after being de-identified for confidentiality and patient privacy.

The average star rating for CTCA physicians is 4.80 out of 5.0, which is based upon a volume of 6,150 ratings among 46 individual physicians over the course of 12 months. This is above the 4.57 average national star rating of other hospitals in the research organization's database. The distribution of star ratings across CTCA physicians is reflected below with 78.3% of CTCA physicians rated 4.8 stars or above on the 5-star scale. The data below reflect ratings collected between July 1, 2018 and June 30, 2019.

Our Length of Life Results

Our Quality of Life Results

Our Patient Experience Results

PHYSICIAN TRANSPARENCY | Star Rating



Our Patient Safety and Quality Results 5

Our Clinical Leadership

Our Research Publications

Tom S.

BLADDER CANCER

CTCA Chicago

“At CTCA, my care team discovered that I actually had two types of cancers: a high-grade urothelial carcinoma of the bladder and prostatic adenocarcinoma, Gleason 6. I was extremely fortunate to have caught it early, and that the cancer had not spread beyond my bladder and prostate. I was spared having to go through chemo and radiation, and my team offered me a new procedure using a neobladder. Essentially, I could live a much more normal life and continue my active lifestyle than if I had needed to use a urostomy bag.”

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-based 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-based 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.

SECTION 5 SPOTLIGHT

5

- CTCA utilizes the six aims of the Institute of Medicine (IOM) as a framework for our definition of quality care.
- CTCA has embraced principles consistent with the establishment of a “high reliability organization” utilizing evidence-based strategies to mitigate the risk of preventable harm.
- CTCA hospitals utilize the Agency for Healthcare Research and Quality (AHRQ) Hospital Survey on the Culture of Patient Safety, last completing this survey in 2019.
- All five CTCA hospitals are among the just over 300 U.S.-based oncology practices that have achieved three-year Quality Oncology Practice Initiative (QOPI) certification conferred by the American Society of Clinical Oncology. This certification recognizes select oncology practices that achieve a minimum overall composite quality score of 75% and comply with 28 safety standards.



Safety, Our First Commitment

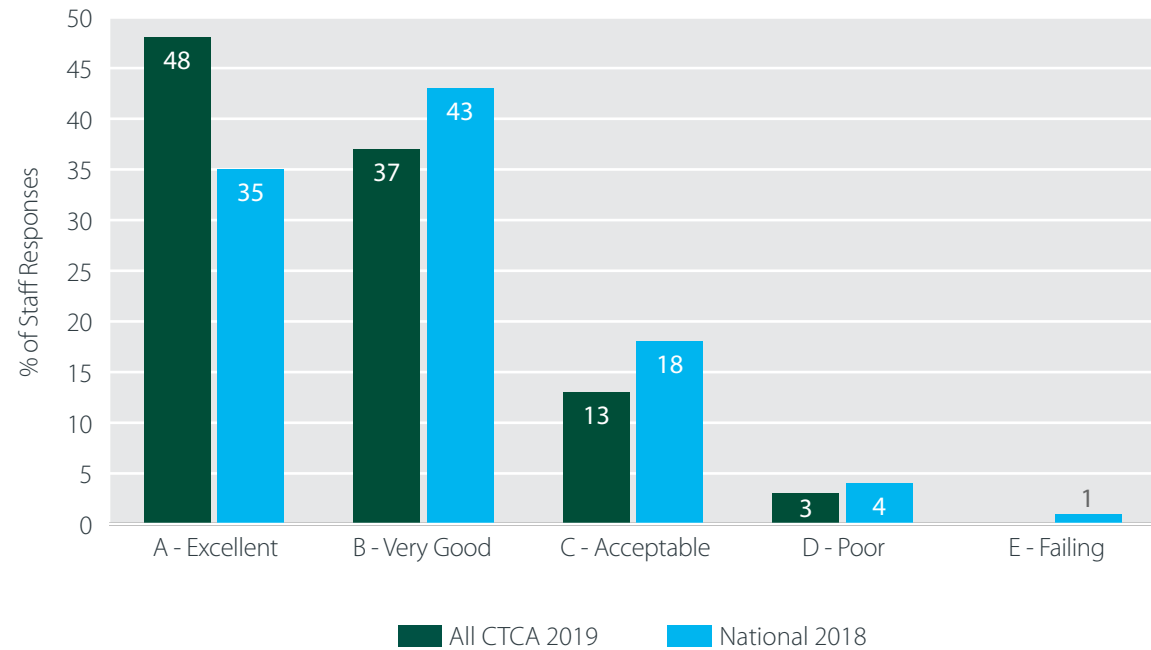
The We ARE (Accountable, Reliable and Empowered) Safe initiative establishes a framework to create a culture of safety for CTCA patients. As an organization committed to eliminating preventable harm through the detection and correction of system weaknesses, we have implemented high-reliability strategies 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 Press Ganey 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. The most recent comparative results are based on 2018 data during which more than 600 hospitals utilized the instrument, constituting a comparative data set of over 382,000 responses.

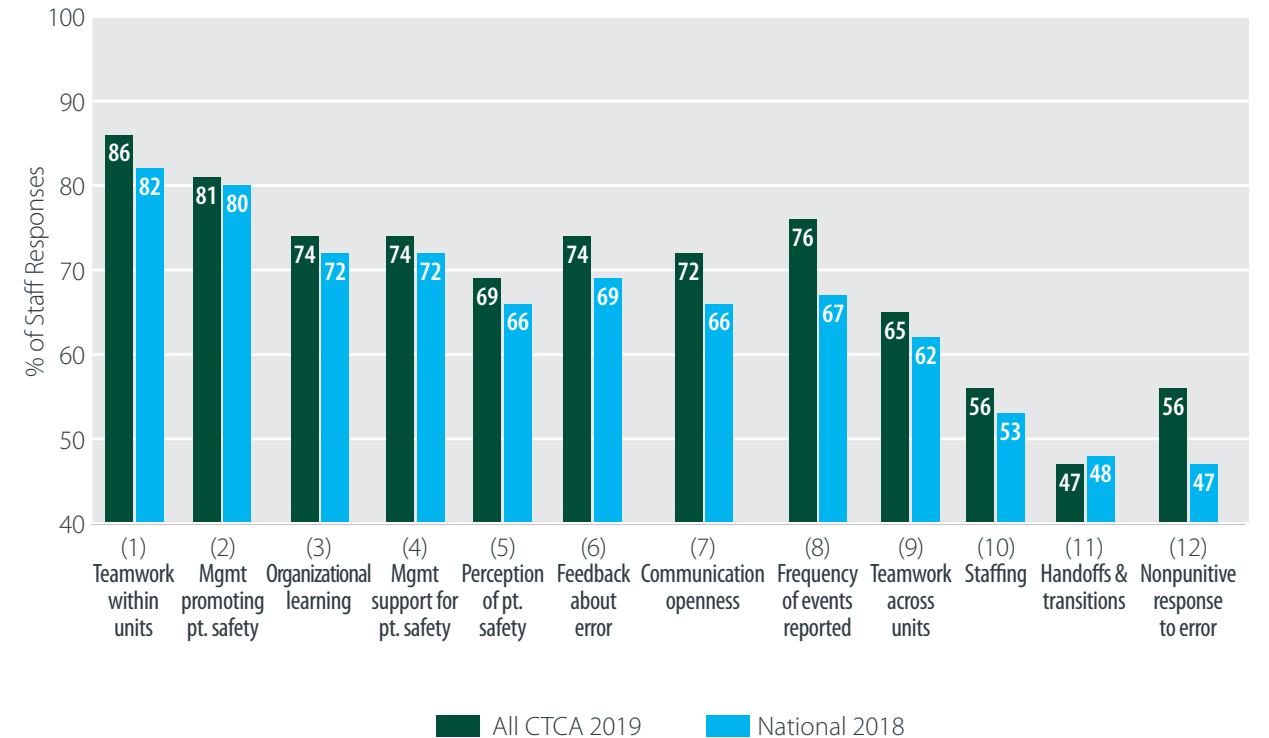
Conducting the survey every 24 months and contributing to the national database, CTCA hospitals' most recent Patient Safety Grade and composite scores are presented in comparison to the AHRQ 2018 national norms.



PATIENT SAFETY GRADE



PATIENT SAFETY CULTURE COMPOSITE SCORES | Higher Score Preferred



GRAPH LABELS	QUESTIONS INCLUDED IN PATIENT SAFETY CULTURE COMPOSITE SCORES
(1) Teamwork within units	<ul style="list-style-type: none"> • People support one another in this unit • We work together as a team to get the work done • People treat each other with respect • When really busy, others help out
(2) Supervisor/manager expectations & actions promoting patient safety	<ul style="list-style-type: none"> • Says a good word when he/she sees a job done according to safety procedures • Considers staff suggestions for improving patient safety • Wants us to work faster, even if that means taking shortcuts* • Overlooks patient safety problems that happen over and over*
(3) Organizational learning—continuous improvement	<ul style="list-style-type: none"> • We are actively doing things to improve patient safety • Mistakes have led to positive changes here • After we make changes to improve patient safety, we evaluate their effectiveness
(4) Management support for patient safety	<ul style="list-style-type: none"> • Provides a work climate that promotes patient safety • Shows that patient safety is a top priority • Seems interested in patient safety only after an adverse event happens*
(5) Overall perceptions of patient safety	<ul style="list-style-type: none"> • Just by chance that more serious mistakes don't happen around here* • Safety is never sacrificed to get more work done • We have patient safety problems in this unit* • Procedures and systems are good at preventing error
(6) Feedback & communication about error	<ul style="list-style-type: none"> • Given feedback about changes put into place based on event reports • Informed about errors that happen • Discuss ways to prevent errors from happening again

GRAPH LABELS	QUESTIONS INCLUDED IN PATIENT SAFETY CULTURE COMPOSITE SCORES
(7) Communication openness	<ul style="list-style-type: none"> • Staff will freely speak up if they see something that may negatively affect patient care • Staff feel free to question those with more authority • Staff are afraid to ask questions when something does not seem right*
(8) Frequency of events reported	<ul style="list-style-type: none"> • Mistake is made, but is caught and corrected, how often is this reported? • Mistake is made, but has no potential for harm, how often is this reported? • Mistake is made that could harm the patient, but does not, how often reported?
(9) Teamwork across units	<ul style="list-style-type: none"> • Units do not coordinate well with each other* • Good cooperation among units that need to work together • Unpleasant to work with staff from other units* • Units work well together to provide the best care
(10) Staffing	<ul style="list-style-type: none"> • Enough staff to handle the workload • Staff work longer hours than is best for patient care* • Use more agency/temporary staff than is best* • Work in "crisis mode" trying to do too much, too quickly*
(11) Handoffs and transitions	<ul style="list-style-type: none"> • Things "fall between the cracks" from one unit to another* • Important information is often lost during shift changes* • Problems occur in the exchange of information across hospital unit* • Shift changes are problematic for patients in the hospital*
(12) Nonpunitive response to error	<ul style="list-style-type: none"> • Staff feel like their mistakes are held against them* • When an event is reported, it feels like the person is being written up, not the problem* • Staff worry that mistakes they make are kept in their personnel file*

*Inverse questions: Responses associated with these questions are converted such that a higher score is always preferred.

Ongoing Measurement Through a Quality Dashboard

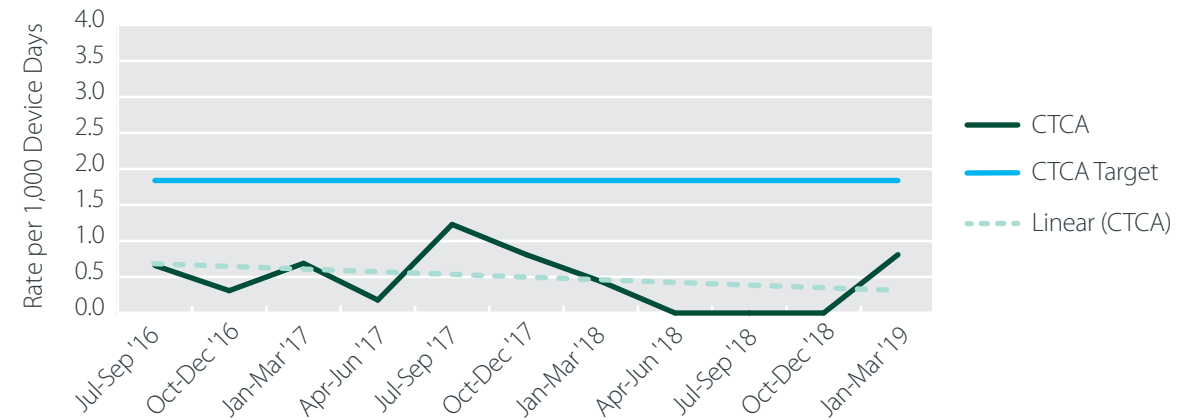
Using robust data from various external and internal sources, information is leveraged across CTCA hospitals to drive performance. Although not an exact match to publicly reported data, more timely internal data create transparency at all organizational levels and support real-time improvement. Through 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 as CTCA views the metrics of interest from multiple angles, including those of our patients, clinicians, the board of directors of the CTCA hospitals and the employer and payer communities. The following measures are examples of our current focus areas.

INFECTION PREVENTION

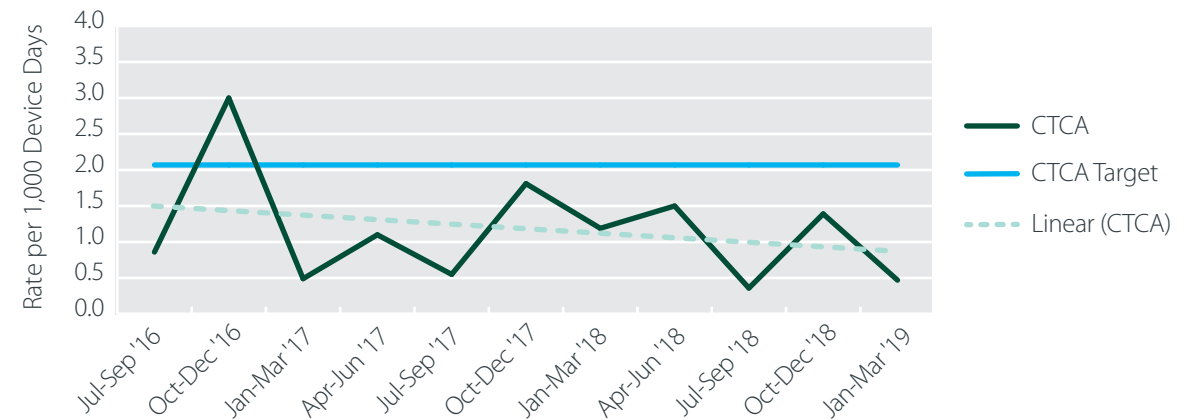
The prevention of hospital-acquired infections is a national priority. CTCA conducts Central Line Associated Bloodstream Infection (CLABSI) and Catheter Associated Urinary Tract Infection (CAUTI) surveillance in all inpatient care areas utilizing surveillance definitions from the Centers for Disease 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-based practices for central line and urinary catheter insertion and maintenance as evidenced by our performance. In addition, recognizing that proper hand washing is a simple yet effective way to prevent infections, CTCA monitors compliance with CDC guidelines for hand hygiene.



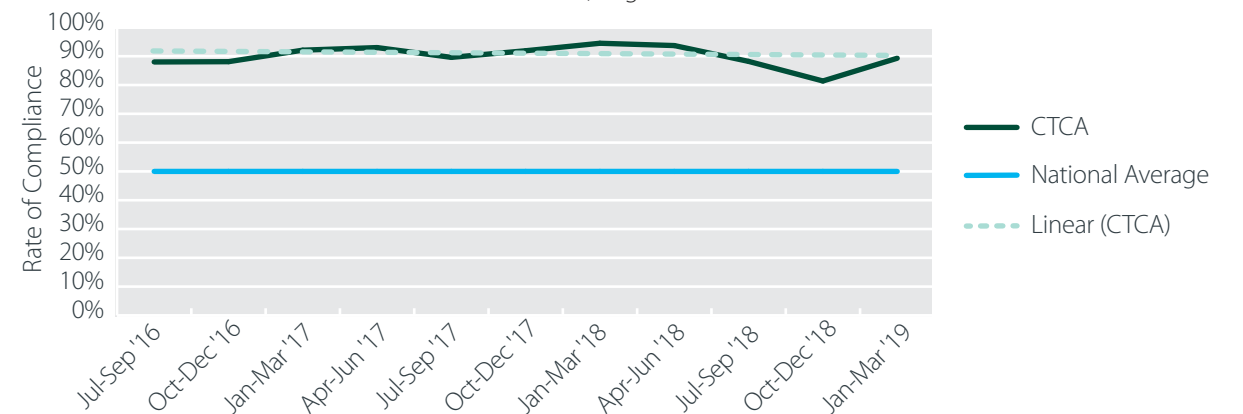
CLABSI RATE | Lower Score Preferred



CAUTI RATE | Lower Score Preferred



HAND HYGIENE COMPLIANCE | Higher Score Preferred

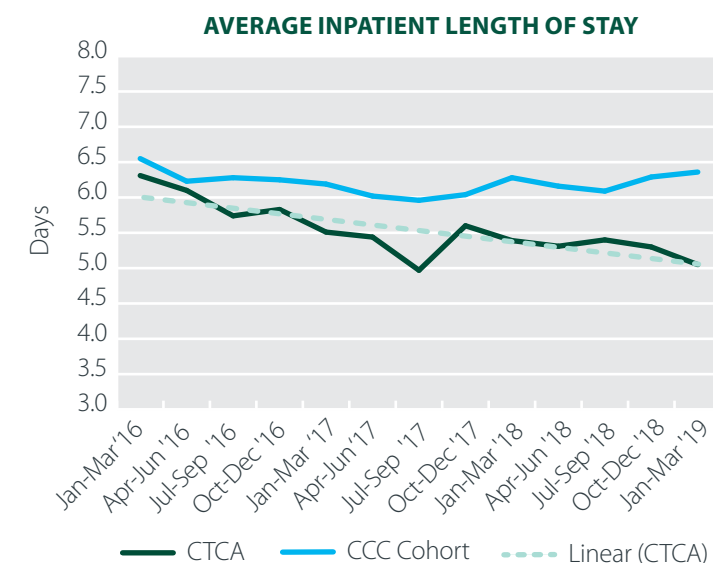
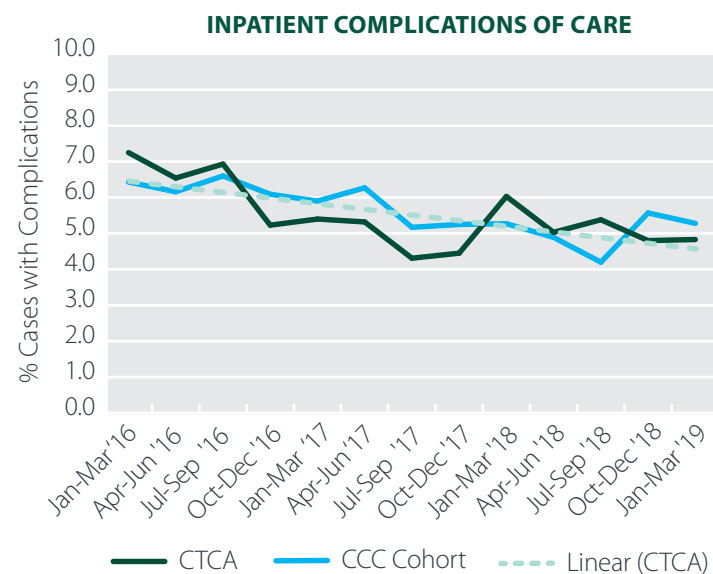


INPATIENT COMPLICATIONS, LENGTH OF STAY AND ADVERSE EVENTS

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 Patient Refined Diagnosis Related Groups (APR DRG) grouper to compare only clinically-relevant cases.

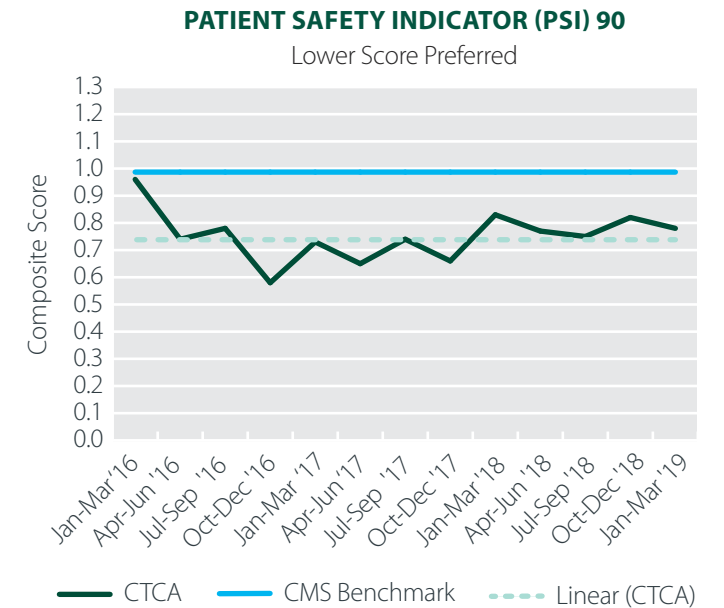
The inpatient complications of care rate depicts the percentage of inpatient cases with a complication code, excluding complications that were already present on admission (POA) or related to pre-existing conditions upon admission to the hospital. By excluding complications that were POA, this measure 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 graph to the right 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.



PATIENT SAFETY AND ADVERSE EVENTS COMPOSITE

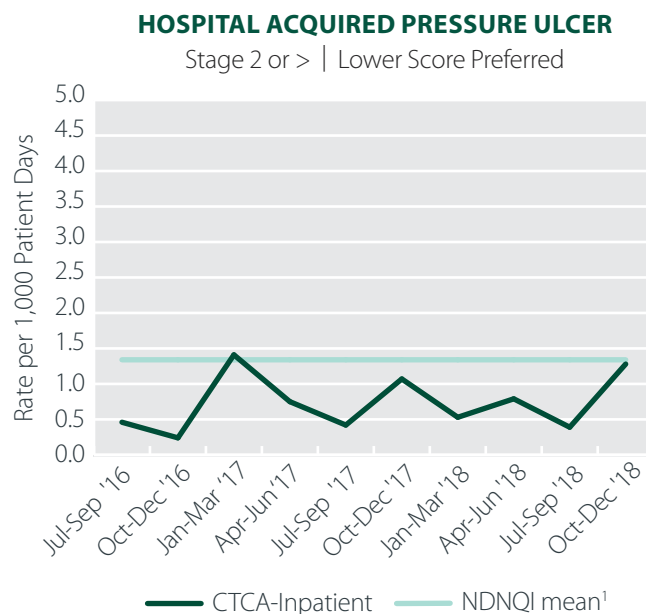
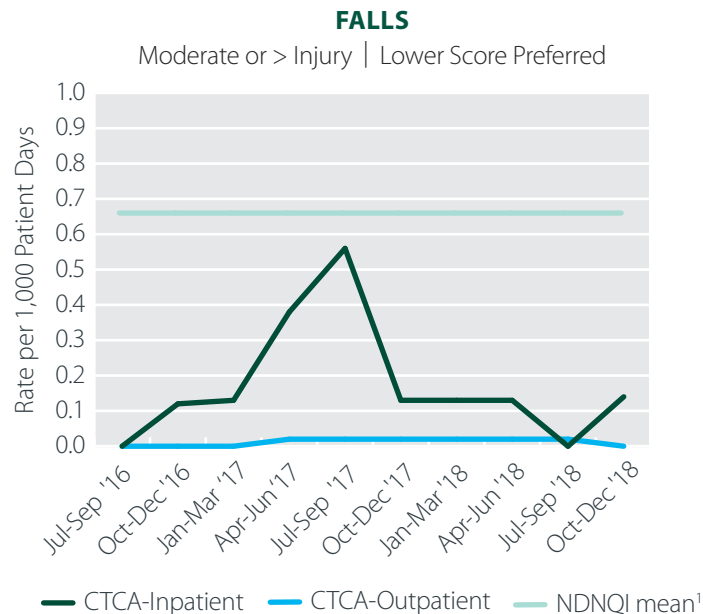
The Patient Safety and Adverse Events Composite, known as PSI 90, is a composite score that provides an overview of hospital-level quality as it relates to a set of potentially preventable hospital-related events associated with harmful outcomes for patients. Included in this measure are events such 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.



NURSING-SENSITIVE INDICATORS

CTCA utilizes numerous nursing-sensitive indicators to assess patient safety and quality. Two measures monitored include patient falls and hospital-acquired pressure ulcers (HAPU).

CTCA assesses the risk of falling continuously and puts into place prevention efforts to keep each patient safe. The pressure ulcer metric explores the relationship between nursing assessments performed, interventions used and pressure ulcer development. The development of a HAPU places the patient at risk for other adverse events and increases resource consumption and health care costs. In most at-risk patients, interventions to reduce pressure and shear, and to mitigate other patient risk factors (immobility, incontinence, impaired nutrition, etc.) will decrease development. CTCA targets a rate of "0" for both metrics — striving for no pressure ulcers or falls occurring in our facilities.

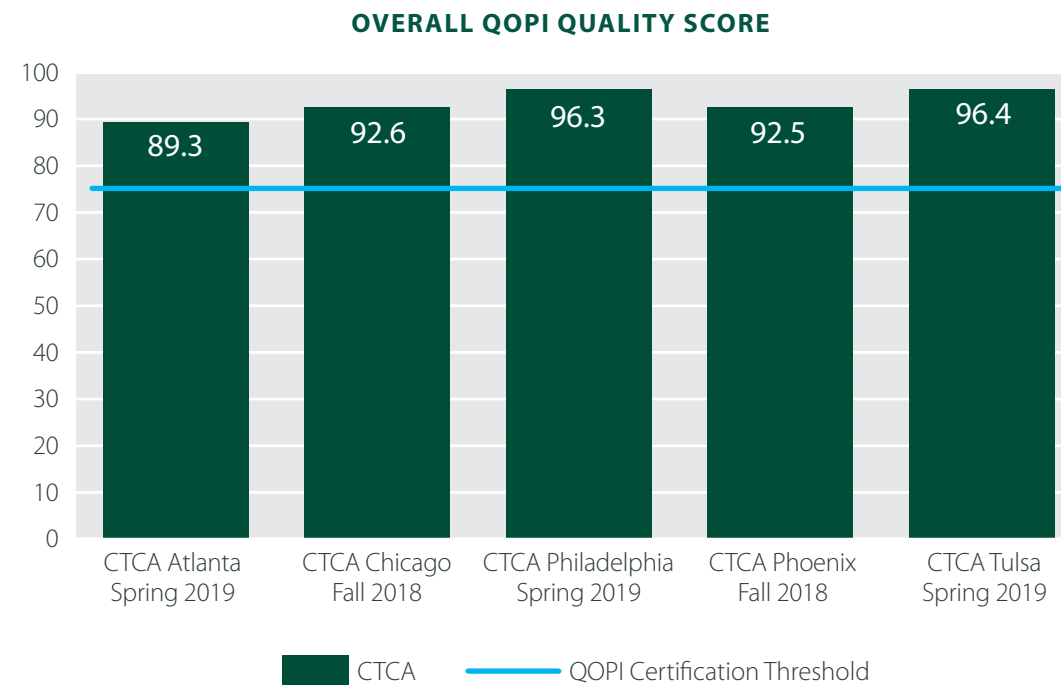


¹ Based upon performance of all hospitals (n=1,757) participating in the National Database of Nursing Quality Indicators (NDNQI), FY18Q1 data

Quality Oncology Practice Initiative (QOPI)

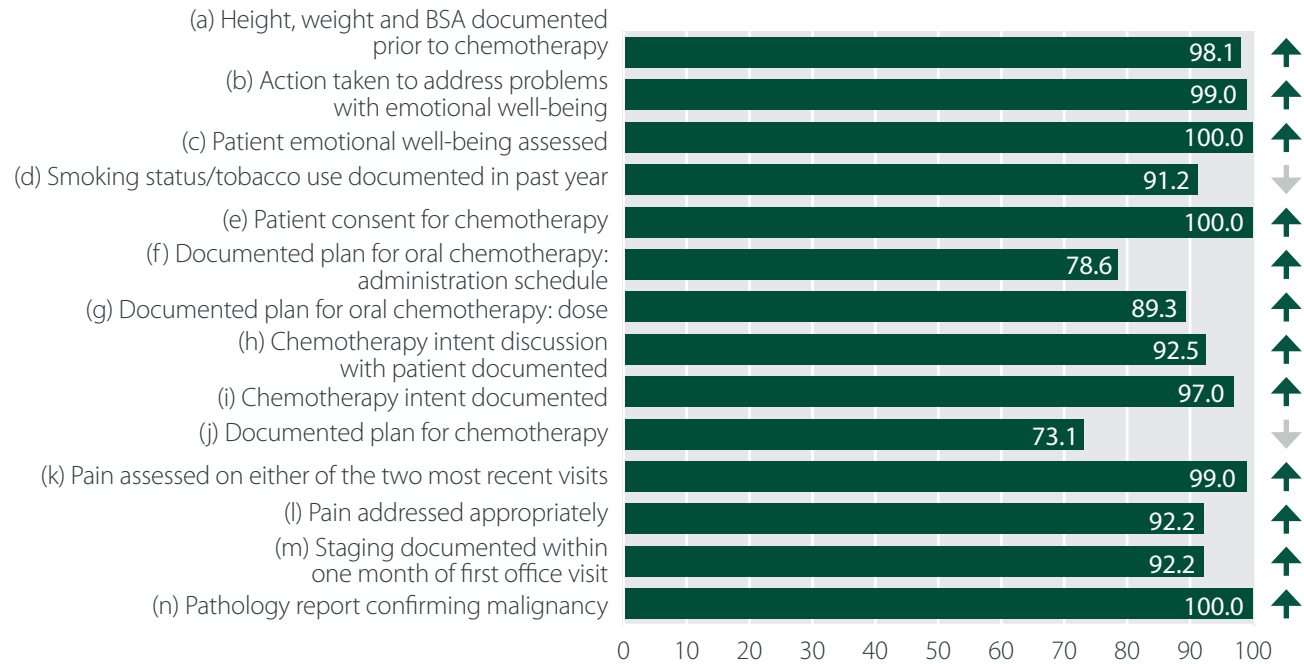
In response to the IOM report that identified major gaps in both quality and safety of patient care, the American Society of Clinical Oncology (ASCO) created the Quality Oncology Practice Initiative (QOPI), which was launched in 2006. Developed under the guidance of an expert panel of oncologists, the program provides a process for standardized assessment of care and reliable information to help focus improvement activities. Currently, approximately 1,000 U.S.-based oncology practices are registered in QOPI of which just over 300 are certified. All five CTCA® hospitals have achieved and 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 a set number of scored quality metrics, calculating a composite overall score and submitting data on approximately 150 measures. To achieve QOPI certification, a practice must achieve an overall quality score of 75% or higher and comply with 26 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 graph reflects performance for the most current data submission period, according to certification and maintenance requirements.

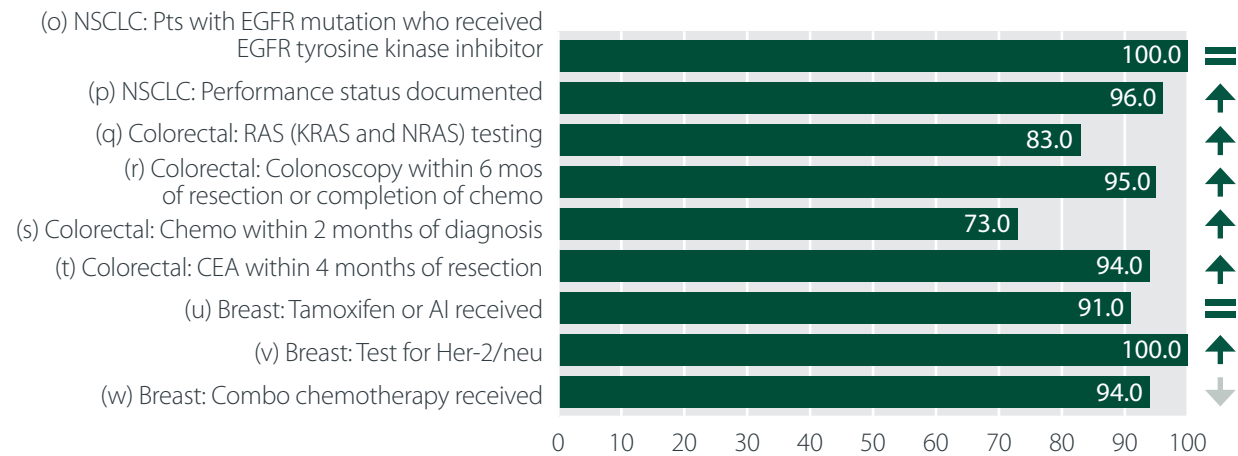


The scored quality metrics below reflect the performance of CTCA hospitals in aggregate and how these scores compare to the QOPI aggregate.¹ Directional arrows are used to reflect where CTCA is higher, the same as, or lower than the QOPI norm.

QOPI MEASURES: Core | Symptom | Toxicity | All Cancers



QOPI MEASURES: Disease Specific

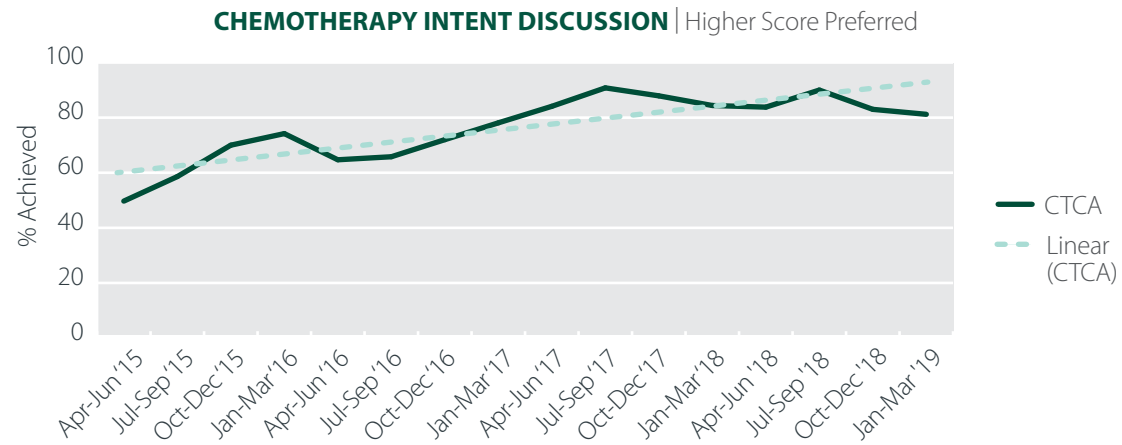


¹ CTCA performance is shown relative to the QOPI Spring 2019 aggregate in terms of being higher or lower than the QOPI aggregate with a higher score preferred. At this time, ASCO limits the public release of the QOPI aggregate data or benchmarks.

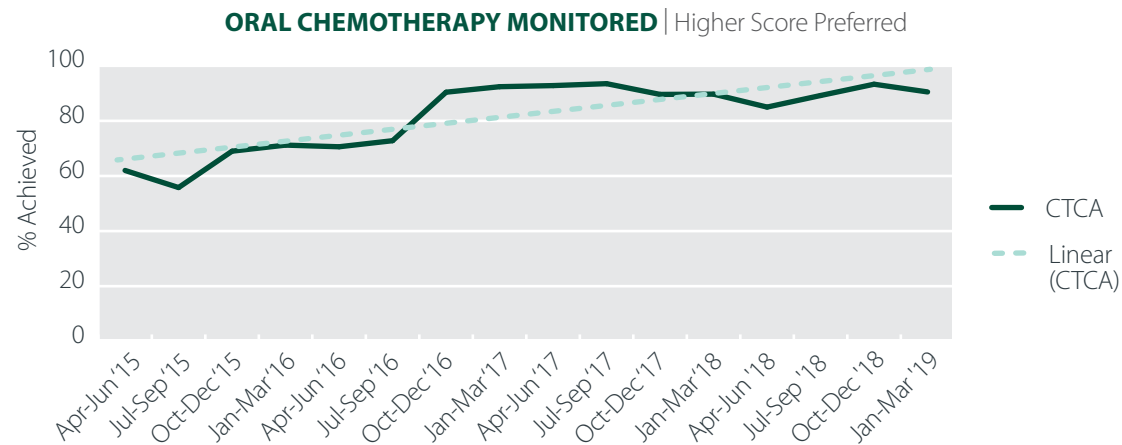
KEY

- a. Height, weight and BSA documented prior to chemotherapy
- b. Action taken to address problems with emotional well-being by the second office visit
- c. Patient emotional well-being assessed by the second office visit
- d. Smoking status/tobacco use documented in past year
- e. Patient consent for chemotherapy
- f. Documented plan for oral chemotherapy: administration schedule (start day, days of treatment, rest and planned duration)
- g. Documented plan for oral chemotherapy: dose
- h. Chemotherapy intent discussion with patient documented
- i. Chemotherapy intent (curative vs. non-curative) documented before or within two weeks after administration
- j. Documented plan for chemotherapy, including doses, route, and time intervals
- k. Pain assessed on either of the two most recent office visits
- l. Pain addressed appropriately (defect-free measure 3, 4a, and 5)
- m. Staging documented within one month of first office visit
- n. Pathology report confirming malignancy
- o. Patients with Stage IV NSCLC with adenocarcinoma histology with an activating EGFR mutation or ALK gene rearrangement who received first-line EGFR tyrosine kinase inhibitor or other targeted therapy
- p. Performance status documented for patients with initial AJCC Stage IV or distant metastatic NSCLC
- q. RAS (KRAS and NRAS) testing for patients with metastatic colorectal cancer who received anti-EGFR MoAb therapy
- r. Colonoscopy before or within 6 months of curative colorectal resection or completion of primary adjuvant chemotherapy
- s. Adjuvant chemotherapy received within 2 months of diagnosis by patients with AJCC Stage III colon cancer
- t. CEA within 4 months of curative resection for colorectal cancer
- u. Tamoxifen or AI received within 1 year of diagnosis by patients with AJCC Stage IA (T1c) and IB to III ER or PR positive breast cancer
- v. Test for Her-2/neu overexpression or gene amplification
- w. Combination chemotherapy received within 4 months of diagnosis by women under 70 with AJCC Stage IA (T1c) and IB - III ER/PR negative breast cancer

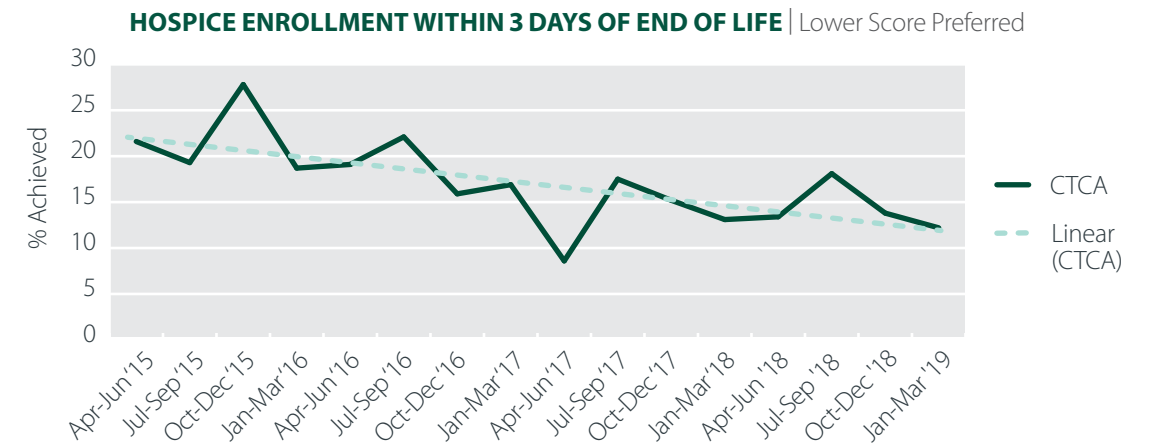
The four project-specific areas on these pages remain in high focus given their risk and significance across oncology providers nationally.



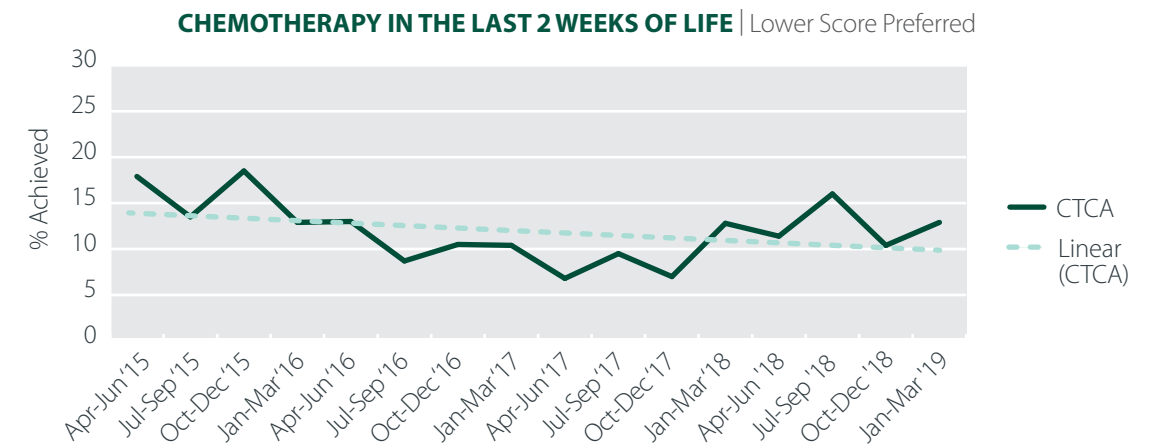
It is important to ensure through discussion that all patients prescribed chemotherapy via any route understand the intent of their therapy. This includes ensuring that curative, adjuvant or disease control is documented.



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.



Patients who are in the 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.



Comprehensive Cancer Care Network

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Viola J.
BREAST CANCER
CTCA Tulsa

“After tests and examinations, my CTCA care team presented me with my treatment options. I was going to need a lumpectomy to remove the growing mass and then chemotherapy and radiation. I wanted to complete radiation therapy at home since I would need to do it daily for about eight weeks. CTCA recommended a local radiation oncologist. My CTCA care team was in constant communication and coordinated care by working together.”



Medicine & Science Executive Clinical Leadership



Maurie Markman, MD *President, Medicine & Science*

- **Medical degree:** MD, New York University School of Medicine, New York, NY
- **Graduate degrees:** MS, Health, Policy and Management, New York University Graduate School of Public Administration, New York, NY; Graduate Certificate, Advanced Study in Bioethics, Cleveland State University, Cleveland, OH
- **Residency:** Internal Medicine, New York University Bellevue Hospital, New York, NY
- **Fellowships:** Hematology and Oncology, National Cancer Institute, Rockville, MD, and The Johns Hopkins University (Sidney Kimmel Comprehensive Cancer Center), Baltimore, MD
- **Board certifications:** Diplomate, American Board of Internal Medicine; Medical Oncology, Hematology and Internal Medicine, American Board of Internal Medicine



Julian Schink, MD *Chief Medical Officer*

- **Medical degree:** MD, The University of Texas Health Science Center at San Antonio, San Antonio, TX
- **Residency:** Obstetrics and Gynecology, Northwestern University Feinberg School of Medicine, Chicago, IL
- **Fellowship:** Gynecologic Oncology, UCLA Medical Center, Los Angeles, CA
- **Board certifications:** Diplomate, American Board of Obstetrics and Gynecology; Obstetrics and Gynecology, Gynecologic Oncology, American Board of Obstetrics and Gynecology

Enterprise Clinical Leadership | Department Chairs & Vice Chairs



Jason Beland, MD *Chair, Department of Radiology*

- **Medical degree:** MD, Northwestern University Feinberg School of Medicine, Chicago, IL
- **Residency:** Diagnostic Radiology, University of North Carolina Hospitals, Chapel Hill, NC
- **Fellowship:** Diagnostic Neuroradiology, Emory University Hospital, Atlanta, GA
- **Board certifications:** Diagnostic Radiology and Neuroradiology, American Board of Radiology



Pamela Crilley, DO *Chair, Department of Medical Oncology*

- **Medical degree:** DO, Philadelphia College of Osteopathic Medicine, Philadelphia, PA
- **Residency:** Internal Medicine, Delaware Valley Medical Center (Aria Bucks Hospital), Bristol, PA
- **Fellowship:** Hematology & Oncology, Drexel University College of Medicine, Hahnemann University Hospital, Philadelphia, PA
- **Board certifications:** Medical Oncology and Internal Medicine, American Board of Internal Medicine
- **Academic association:** Professor of Medicine, Drexel University College of Medicine, Philadelphia, PA

Enterprise Clinical Leadership | Department Chairs & Vice Chairs



Jeffrey Hoag, MD, MS, FCCP, FPLI *Chair, Department of Medicine*

- **Medical degree:** MD, Virginia Commonwealth University School of Medicine, Richmond, VA
- **Graduate degree:** MS, Physiology/Biophysics, Virginia Commonwealth University School of Medicine, Richmond, VA
- **Residency:** Internal Medicine, Virginia Commonwealth University School of Medicine, Richmond, VA
- **Fellowship:** Pulmonary and Critical Care Medicine, The Johns Hopkins University, Baltimore, MD
- **Board certifications:** Internal Medicine, Pulmonary Medicine, Critical Care Medicine, and Hospice and Palliative Care Medicine, American Board of Internal Medicine
- **Academic association:** Associate Professor of Medicine: Division of Pulmonary, Critical Care Sleep Medicine, Drexel University College of Medicine, Philadelphia, PA



Arturo Loaiza-Bonilla, MD *Vice Chair, Department of Medical Oncology*

- **Medical degree:** MD, Universidad Nacional de Colombia, Bogotá, Colombia
- **Graduate degree:** MS, Medical Education, University of Pennsylvania, Penn Graduate School of Education, Philadelphia, PA
- **Residency:** Internal Medicine, Harbor Hospital Center (MedStar Harbor Hospital), The Johns Hopkins Hospital, Baltimore, MD
- **Fellowship:** Hematology and Oncology, Sylvester Comprehensive Cancer Center at University of Miami, Miller School of Medicine, Miami, FL
- **Board certifications:** Diplomate, American Board of Internal Medicine; Medical Oncology and Hematology, American Board of Internal Medicine



Marnee Spierer, MD
CTCA Phoenix

Enterprise Clinical Leadership | Department Chairs & Vice Chairs



Bradford A. Tan, MD *Chair, Department of Pathology and Laboratory Medicine*

- **Medical degree:** MD, Cebu Institute of Medicine, Cebu City, Philippines
- **Residency:** Anatomic and Clinical Pathology, University of Illinois Metropolitan Group Hospitals, Chicago, IL
- **Board certifications:** Anatomic Pathology, Clinical Pathology and Cytopathology, American Board of Pathology
- **Academic association:** Clinical Instructor, University of Illinois College of Medicine, Chicago, IL



Kevin Tulipana, DO *Vice Chair, Department of Medicine*

- **Medical degree:** DO, Des Moines University College of Osteopathic Medicine and Surgery, Des Moines, IA
- **Graduate degree:** MS, Bioethics, University of Mary, Bismarck, ND
- **Residency:** Family Medicine, Mercy/Mayo Family Medical Center, Des Moines, IA
- **Board certification:** Family Medicine, American Board of Family Medicine
- **Academic association:** Adjunct Faculty, Arkansas College of Osteopathic Medicine, Fort Smith, AR



Alan Yahanda, MD *Chair, Department of Surgery*

- **Medical degree:** MD, The Johns Hopkins University School of Medicine, Baltimore, MD
- **Residency:** General Surgery, The Johns Hopkins Hospital, Baltimore, MD
- **Fellowships:** Pediatric Surgery Research, The Johns Hopkins Hospital, Baltimore, MD; Complex General Surgical Oncology, The University of Texas MD Anderson Cancer Center, Houston, TX
- **Board certifications:** General Surgery, American Board of Surgery; Surgical Oncology, Society of Surgical Oncology
- **Academic association:** Clinical Adjunct Professor of Surgery, Morehouse School of Medicine, Atlanta, GA

Chiefs of Staff

Jeffrey Hoag, MD, MS, FCCP, FPLI

CTCA Philadelphia

Kevin Tulipana, DO

CTCA Tulsa

Marnee Spierer, MD

CTCA Phoenix

Alan Yahanda, MD

CTCA Atlanta

Bradford A. Tan, MD

CTCA Chicago

CTCA Physicians by the Numbers

48

Medical Oncologists & Hematologists

30

Surgical Oncologists

16

Radiation Oncologists

47

Radiology (Diagnostic, Therapeutic, Vascular & Interventional)



996

Total active medical staff and allied health

51

Number of Specialties (Listed below)

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

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Doug P. | **PROSTATE CANCER** | CTCA Chicago

“From the very first person I met who fitted me with a wristband to the doctors who examined me during my evaluation, I felt so much compassion and caring. I never felt rushed when talking to my doctors; they were patient, answered all my questions, and if they didn’t have the answer, they followed up with me by phone or email. I also took advantage of nutrition, naturopathic support and mind-body counseling at CTCA, which I found helpful in coping physically and emotionally with my surgery and treatments.”

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

Our Research Publications & Presentations

JULY 1, 2017 - JUNE 30, 2019

ADVANCES IN TREATMENT OPTIONS

- Julian Schink, Virginia Filiaci, Helen Huang, John Tidy, Jeanne Carter, David Miller. An International Phase III Randomized Trial of Pulse Actinomycin-D versus Multi-day Methotrexate for the Treatment of Low-Risk Gestational Trophoblastic Neoplasia. American Society of Clinical Oncology (ASCO). June 2019. [Abstract]
- Thomas Karasic, Mark O’Hara, Arturo Loaiza-Bonilla. Effect of Gemcitabine and Nab-paclitaxel with or without Hydroxychloroquine on Patients with Advanced Pancreatic Cancer. A Phase 2 Randomized Clinical Trial. *JAMA Oncology*. May 2019. [Manuscript]
- Julie Fisher, Elizabeth Garrett-Mayer, Susan Halabi, Pam Mangat, Ricardo Alvarez, Timothy Cannon, Pamela Crilley, Theodore Pollock, Tareq Al Baghdadi, Jared Cotta, Andrew Rygiel, Kaitlyn Antonelli, Samiha Islam, Susanna Bruinooge, Richard Schilsky. Cetuximab in Patients with Breast Cancer and Non-Small Cell Lung Cancer without Reported KRAS, NRAS, BRAF Mutations: Results From the Targeted Agent and Profiling Utilization Registry (TAPUR) Study. American Association for Cancer Research (AACR). April 2019. [Poster Presentation]
- Catherine Lai, Vishal Ranpura, Colin Wu, Matthew Olnes, Ankur Parikh, Aarthi Shenoy, Julie Thompson, Barbara Weinstein, Phillip Scheinberg, John Barrett, Ronan Desmond, Neal Young, Christopher Hourigan. Long-term Outcomes in Myelodysplastic Syndrome Patients Treated with Alemtuzumab. *Blood Advances*. April 2019. [Manuscript]
- Gerald Li, Dean Pavlick, Jon Chung, Todd Bauer, Bradford Tan, Julio Peguero, Patrick Ward, Andre Kallab, Jose Bufill, Anthony Hoffman, Ahad Sadiq, Jeff Edenfield, Jie He, Matthew Cooke, Jason Hughes, Brady Forcier, Michelle Nahas, Phil Stephens, Siraj Ali, Alexa Schrock, Jeffrey Ross, Vincent Miller, Jeffrey Gregg. Genomic Profiling of Cell-free Circulating Tumor DNA in Patients with Colorectal Cancer and its Fidelity to the Genomics of the Tumor Biopsy. *Journal of Gastrointestinal Oncology*. April 2019. [Manuscript]
- Laurie Gay, Julian Schink, Jason Wright, Shashikant Lele, Paul Mayor, Kunle Odunsi, Amanda Hemmerich, Vu Ngo, Angeles Alvarez Secord, June Hou, Gottfried Konecny, Alessandro Santin, Julia Elvin. Targeting ERBB Family Genomic Alterations in Gynecological Malignancies. Society of Gynecologic Oncology (SGO). March 2019. [Poster Presentation]
- Christopher Halpin, Erica McGovern, Jeffrey Hoag. Rituximab-induced Bronchiolitis Obliterans Treated with Intravenous Immunoglobulin. *Journal of Medical Oncology*. January 2019. [Case Report]
- Theodore Pollock. Tumor Immunology in NSCLC. Texas Osteopathic Medical Association (TOMA). January 2019. [Oral Presentation]
- Miguel-Angel Perales, Syed Abutalib, Catherine Bollard. *Cell and Gene Therapies (Advances and Controversies in Hematopoietic Transplantation and Cell Therapy)*. First Edition. November 2018. [Book Chapter/Textbook]
- Ricardo Alvarez, Vasileios Assikis, Claudio Savulsky, Wei Zhu, Padma Iyer, Dongyuan Xing, Craig Berman, Nathalie Lokker, Merrill Shum. Early Results from an Open-Label Phase 1b/2 Study of Eribulin Mesylate (EM) + Pegylorhyaluronidase Alfa (PEGPH20) Combination for the Treatment of Patients with HER2-Negative, Highly Hyaluronan (HA) Metastatic Breast Cancer (MBC). European Society of Medical Oncology (ESMO) Congress. October 2018. [Poster Presentation]
- Clarisse Dromain, Arturo Loaiza-Bonilla, Thomas Beveridge, Beloo Mirakhur, Julia Wilkerson, Antonio Fojo. A Novel Analysis of the CLARINET Landmark Study that Established the Efficacy of Lanreotide in Patients with Indolent Neuroendocrine Tumors Demonstrates Continued Efficacy with Prolonged Administration. North American Neuroendocrine Tumor Society (NANETS) Symposium. October 2018. [Poster Presentation]

Our Research Publications & Presentations

JULY 1, 2017 - JUNE 30, 2019

ADVANCES IN TREATMENT OPTIONS - CONTINUED

- Dennis Citrin, Bradford Tan, Nimesh Patel, Vicki Doctor, Siraj Ali, Ankur Parikh, Maurie Markman, Jeffrey Ross, Arun Syriac, Sara Brzezinski. Treatment of Patients with Lobular Breast Cancer Harboring Human Epidermal Growth Factor Receptor 2 Mutation with HER2-Directed Therapy. *JCO Precision Oncology*. September 2018. [Case Report]
- Ankur Parikh. Applying Genomics to Leukemias & Lymphomas. *Oncology Times*. September 2018. [Manuscript]
- Abed Rahman, Raed Rahman, George Macrinici, Sam Li. Low-Volume Neurolytic Retrocrural Celiac Plexus Block for Visceral Cancer Pain: Retrospective Review of 507 Patients with Severe Malignancy Related Pain Due to Primary Abdominal Cancer or Metastatic Disease. *Pain Physician*. September 2018. [Case Report]
- David Topolsky. A Review of Immunotherapy in Advanced Bladder Cancer. *Oncology Times*. September 2018. [Manuscript]
- Olsi Gjyshi, Pankaj Vashi, Laura Seewald, Mitra Kohan, Elham Abboud, Eric Fowler, Revathi Suppiah, Hatem Halabi. Therapeutic and Prophylactic Gastrectomy in a Family with Hereditary Diffuse Gastric Cancer Secondary to a CDH1 Mutation: A Case Series. *World Journal of Surgical Oncology*. July 2018. [Manuscript]
- Ankur Parikh, Siraj Ali, Alexa Schrock, Lee Albacker, Vincent Miller, Phil Stephens, Pamela Crilley, Maurie Markman. Response to Rapamycin Analogs but not PD-1 Inhibitors in PTEN-mutated Metastatic Non-small Cell Lung Cancer with High Tumor Mutational Burden. *Lung Cancer: Targets and Therapy*. May 2018. [Case Report]
- Ricardo Alvarez. Drug-Resistant TNBC: The Search for Novel Therapeutic Approaches. *Oncology Times*. February 2018. [Manuscript]
- Pamela Crilley. Therapeutic Options for Relapsed/Refractory Mantle Cell Lymphoma. *Oncology Times*. February 2018. [Manuscript]
- Janelle Sousa, Ravi Sood, Daniel Liu, Kristine Calhoun, Otway Louie, Peter Neligan, Hakim Said, David Mathes. Comparison of Outcomes in Immediate Implant-Based Breast Reconstruction Versus Mastectomy Alone. *Plastic Surgery*. February 2018. [Manuscript]
- Eugene Ahn, Ricardo Alvarez, Damien Hansra, Jizhou Ai, Anjanette Sorensen, Maurie Markman. A phase II study of Neoadjuvant Aromastase inhibitor with Pertuzumab and Trastuzumab (NEOADAPT). San Antonio Breast Cancer Symposium (SABCS). December 2017. [Poster Presentation]
- Christian Hyde, Shannon Kinser, Christopher Croft, Patricia Schantz, Kayla Brown, Rajendra Vazirani, Jikun Wei, Ioana Bonta. Fractionated Radiosurgery Alone for Thirty-seven Brain Metastases: Not Everything that can be Counted Counts. *Cureus*. December 2017. [Case Report]
- Sean Cavanaugh, Steven Crawford, Joseph Dick, Patricia Schantz, Tiffany Tsui, John Swanson. Updated Retrospective Dose Volume Histogram Analysis of High Dose Rate Prostate Brachytherapy Patients with Hydrogel Spacer Implantation. American Society of Therapeutic Radiation Oncology (ASTRO). September 2017. [Poster Presentation]
- Dennis Buck, Tristan Smith, Wilbur Montana. An Uncommon Presentation of a Metachronous Testicular Primary Nonseminoma and Seminoma Separated by Two Decades and a Testicular Cancer Literature Review. *Case Reports in Oncology*. September 2017. [Case Report]
- Wilbur Montana, Dennis Buck, Tristan Smith. Near Complete Response in a Patient with Classical Hodgkin Lymphoma Treated with Brentuximab Vedotin Concurrent with Radiation Therapy. *Case Reports in Oncology*. September 2017. [Case Report]
- Julian Schink, Virginia Filiaci, Helen Huang, John Tidy, Jeanne Carter, David Miller. A Phase III Randomized Trial of Pulse Actinomycin-D versus Multi-day Methotrexate for the Treatment of Low-Risk Gestational Trophoblastic Neoplasia. International Society of the Study of Trophoblastic Disease. September 2017. [Oral Presentation]

- Emese Zsiros, Julian Schink. Role of Chemotherapy in Gestational Trophoblastic Disease. *Chemotherapy for Gynecologic Cancers: Society of Gynecologic Oncology Handbook*. Third Edition. July 2017. [Book Chapter/Textbook]

ADVANCES IN THE MANAGEMENT OF DISEASE COMPLICATIONS

- Rebanta Chakraborty, Jeffrey Hoag. Acquired Aero Digestive Fistula in Adults—Case Series and Review. *EC Pulmonology and Respiratory Medicine*. January 2019. [Manuscript]
- Ali Alshati, Mankanwal Sachdev, Alan Tan, Diego Muilenburg, Toufic Kachaamy. Successful Endoscopic Management of a Malignant Gastroretroperitoneal Fistula. American College of Gastroenterology 2018 Annual Scientific Meeting. October 2018. [Case Report]
- Rahul Mehta, Jeffrey Hoag, Amit Borah, Emil Abramian. Closure of a Bronchopleural Fistula Complicating Cryoprobe Biopsy of the Lung. *Respirology Case Reports*. April 2018. [Case Report]
- Sudheer Nambiar, Asha Karippot. Multiple Cutaneous Metastases as Initial Presentation in Advanced Colon Cancer. *Case Reports in Gastrointestinal Medicine*. April 2018. [Case Report]
- Benjamin Shepard, Carrie Trower, Scott Hendrickson. Toxic Injury to the Gastrointestinal Tract After Ipilimumab Therapy for Advanced Melanoma. *The Journal of the American Osteopathic Association*. January 2018. [Case Report]

ADVANCES IN DIAGNOSTIC OPTIONS

- Jennifer Plichta, Molly Sebastian, Linda Smith, Carolyn Menendez, Anita Johnson, Sussan Bays, David Euhus, Edward Clifford, Mena Jalali, Scott Kurtzman, Walton Taylor, Kevin Hughes. Germline Genetic Testing: What the Breast Surgeon Needs to Know. *Annals of Surgical Oncology*. April 2019. [Manuscript]
- Julian Schink, Ricardo Alvarez, Julia Alvin, Amber Moran, Kelly Manahan, John Geisler, Justin Chura, David McIntosh, Natalie Godbee, Bradford Tan, Susan Zook, Maurie Markman. Mutational Landscape of Gynecologic Cancers (GC) Identified by Prospective Clinical Sequencing in a Nationwide Cancer Network. Society of Gynecologic Oncology (SGO). March 2019. [Poster Presentation]
- Asha Karippot, Sarah Groover, Jizhou Ai, Sudheer Nambiar. Utility of Carcinoembryonic Antigen (CEA) in Appendiceal Carcinoma. European Society of Medical Oncology (ESMO) Congress. October 2018. [Poster Presentation]
- Ankur Parikh, Siraj Ali, Amber Moran, Pamela Crilley, Alexa Schrock, Alan Tan, Prasanth Reddy, Vincent Miller, Jeffrey Ross, Susan Zook, Ricardo Alvarez, Maurie Markman. Detection of Targetable Kinase Fusions in 7,692 Patients in an Integrated Cancer System. European Society for Medical Oncology (ESMO) Congress. October 2018. [Poster Presentation]
- Khazenay Bakhsh, Emil Abramian, Amit Borah. Make the Definitive Diagnosis: The Importance of Pleural Biopsy in Diagnosing Nonmalignant Pleural Effusions in Cancer Patients. American Thoracic Society. May 2018. [Poster Presentation]
- Pankaj Vashi, Kimberly Gorsuch, Danielle Hill, Amie Nader, Digant Gupta. Sarcopenia Supersedes Subjective Global Assessment as a Predictor of Survival in Colorectal Cancer. American Society for Parenteral and Enteral Nutrition (ASPEN) Nutrition Science and Practice. January 2018. [Oral Presentation]

PATIENT SAFETY AND QUALITY IMPROVEMENT

- Diane Denny, Brandon Bosch, Morgan Hannaford, Scott Hartman. Patient-Reported Outcomes: Investing in Real-Time Intervention to Improve Care. *Journal of Clinical Pathways*. April 2019. [Manuscript]
- Lisa Pittman, Jacklynn Lesniak, Samantha Bauer, Kara Bailie. Oncologic Surgical Site Infection Bundle. Oncology Nursing Society (ONS) National Congress. April 2019. [Oral Presentation]
- John Geisler, Neil Seeley, Kelly Manahan. Changes in Length of Stay and 30-Day Readmission Rates After Starting an Advanced Surgical Recovery Program. Society of Gynecologic Oncology (SGO). March 2019. [Poster Presentation]
- John Geisler, Neil Seeley, Kelly Manahan. Changes in Opioid Use After Initiation of an Advanced Surgical Recovery Program. Society of Gynecologic Oncology (SGO). March 2019. [Poster Presentation]
- John Geisler, Allison Bryant, Kelly Manahan. Further Use of Liposomal Doxorubicin Regimen After Initial Dose Hypersensitivity. Society of Gynecologic Oncology (SGO). March 2019. [Poster Presentation]
- Pankaj Vashi, Kim Gorsuch. Successful Implementation of ENFit in a Multi-Hospital System: Challenges and Lessons Learned. American Society for Parenteral and Enteral Nutrition (ASPEN) Nutrition Science & Practice. March 2019. [Oral Presentation]
- Sara Ollanketo, Andrea Anderson, Lisa Pittman, Barb Radtke, Morgan Sax, Kara Bailie, Samantha Bauer. CVAD No Blood Return Algorithm and Its Impact on Patient Safety. *Journal of Infusion Nursing*. October 2018. [Poster Presentation]
- Kathleen Dunn, Scott Hartman, Morgan Hannaford, Diane Denny. A Patient Reported Outcomes Tool as a Gateway to Palliative Care. American Society of Clinical Oncology (ASCO) Quality Care Symposium. September 2018. [Poster Presentation]
- Diane Denny, Caitlyn Shinnars. Mitigating Risk of Preventable Medical Errors Across a Network Through Event Sharing. American Society of Clinical Oncology (ASCO) Quality Care Symposium. September 2018. [Poster Presentation]
- Diane Denny, Sarah Hizon, Lauren Caldarello, Scott Hartman. Electronic Physician Ratings and Reviews Process: Use of Online Physician Reviews to Impact Care. American Society of Clinical Oncology (ASCO) Quality Care Symposium. September 2018. [Poster Presentation]
- Diane Denny, Danielle Gross, Gary Bernstein. Ongoing Professional Practice Evaluation – An Infrastructure for Accountability. American Society of Clinical Oncology (ASCO) Quality Care Symposium. September 2018. [Poster Presentation]
- Diane Denny, Caitlyn Shinnars. Medical Error Reporting – Culture & Infrastructure. American Society of Clinical Oncology (ASCO) Quality Care Symposium. September 2018. [Poster Presentation]
- Diane Denny, Danielle Gross, Maurie Markman. Education, Engagement and MIPS – The New Era of Accountability. American Society of Clinical Oncology (ASCO) Quality Care Symposium. September 2018. [Poster Presentation]
- Sarah Ollanketo, Andrea Anderson, Lisa Pittman. CVAD No Blood Return Algorithm and Its Impact on Patient Safety. Association for Vascular Access (AVA). September 2018. [Poster Presentation]
- Rory Lettvin, Alpna Wayhal, Amy McNutt, Robert Miller, Robert Hauser. Assessment and Stratification of High-Impact Data Elements in Electronic Clinical Quality Measures: A Joint Data Quality Initiative Between CancerLinQ® and Cancer Treatment Centers of America. *JCO Clinical Cancer Informatics*. August 2018. [Manuscript]
- Renee Pieroth, Stephanie Paver, Sharon Day, Carolyn Lammersfeld. Folate and Its Impact on Cancer Risk. *Current Nutrition Reports*. August 2018. [Manuscript]
- Ankur Parikh. Underrepresentation of Elderly Population in Clinical Trials. *Oncology Times*. July 2018. [Manuscript]
- Sharon Barniak, Jennifer Leahy, Jason Brash, Dana Wright, Joanne McGovern. Sustaining Operational Excellence in the Oncology Intensive Care Unit. American Society of Clinical Oncology (ASCO) Quality Care Symposium. September 2018. [Poster Presentation]
- Sarah Ollanketo, Andrea Anderson, Lisa Pittman, Barb Radtke, Morgan Sax, Kara Bailie, Samantha Bauer. CVAD No Blood Return Algorithm and Its Impact on Patient Safety. Infusion Nursing Society (INS). May 2018. [Poster Presentation]
- Shanna Ramsey-Haynes, Regina Brigman-Lake. Development and Implementation of an Oncology Advanced Surgical Recovery (ASURE) Program. Oncology Nursing Society (ONS) Congress. May 2018. [Poster Presentation]
- Sharon Barniak, Jennifer Leahy, Jason Brash, Dana Wright, Joanne McGovern. Achieving Operational Excellence in the Oncology Intensive Care Unit. Institute of Healthcare Improvement (IHI) National Forum. December 2017. [Poster Presentation]
- Sarah Swanson, Sean Cavanaugh, John Swanson, Felipe Patino, Corrine Abraham, Carolyn Clevenger, Elaine Fisher. Improving Radiation Oncology Error Reporting. Institute of Healthcare Improvement (IHI) National Forum. December 2017. [Poster Presentation]
- Kerri Mack, Robyn Dunbar, Cheryl Clements, Margie Bonawitz, Joanne McGovern. Taking HAP (Hospital-Acquired Pneumonia) off the Map with a Routine Screen. Institute of Healthcare Improvement (IHI) National Forum. December 2017. [Poster Presentation]
- Anne Newbert, Richard Wright, Jason Brash, Paul Gehringer, Stephanie Ashton, Joanne McGovern. Sustaining Positive Outcomes with a Progressive Upright Mobility Program Protocol in Cancer Patients. Institute of Healthcare Improvement (IHI) National Forum. December 2017. [Poster Presentation]
- Kristen Tinney, Meredith Simoes, Michael DiPalma, Colleen Atherholt, Robin Reynolds, Joanne McGovern. Post-Operative Vital Signs: How Often Is Too Often? Institute of Healthcare Improvement (IHI) National Forum. December 2017. [Poster Presentation]
- Nicole Worthington, Louise Molz. Sustaining a Culture of Patient Safety in a Hospital Setting. Institute of Healthcare Improvement (IHI) National Forum. December 2017. [Poster Presentation]
- Carolyn Lammersfeld, Michael Levin, Paul Reilly, Joseph Coyne, Timothy Birdsall, Maurie Markman. Assuring Quality of Dietary Supplements for Cancer Patients: An Integrative Formulary Systems Approach. *Integrative Medicine*. October 2017. [Manuscript]

QUALITY OF LIFE, SYMPTOM MANAGEMENT AND SUPPORTIVE CARE

- Erika Carachilo, Sarah Fulcher. Impact of Preventative Exercise on Feeding Tube Dependence Following Treatment for Oropharyngeal and Hypopharyngeal Cancer. American Speech-Language-Hearing Association (ASHA) National Convention. November 2018. [Oral Presentation]
- Brandon Bosch, Scott Hartman, Lauren Caldarello, Diane Denny. Integrating PRO Data Into the EHR. American Society of Clinical Oncology (ASCO) Quality Care Symposium. September 2018. [Poster Presentation]
- Kathleen Dunn, Diane Denny, Marjorie Hepler, Imran Shariff, Pamela Crilley. End of Life – Addressing Challenging Conversations. American Society of Clinical Oncology (ASCO) Quality Care Symposium. September 2018. [Poster Presentation]
- Shayma Kazmi, Jay Ferraro. My Transformational Experience in a Physician Forum Group. *Oncology Times*. August 2018. [Manuscript]

Our Research Publications & Presentations

QUALITY OF LIFE, SYMPTOM MANAGEMENT AND SUPPORTIVE CARE - CONTINUED

- Gerry Finkelston, Kerri Mack, Elizabeth Dailey, Robin Reynolds, Michael DiPalma. Help the Patient: Be Good to Yourself. American Holistic Nurses Association Conference. June 2018. [Poster Presentation]
- Imran Shariff. Dementia, Delirium, and a Distended Bladder. *Case Studies in Neuropalliative Care*. May 2018. [Book Chapter/Textbook]
- Imran Shariff. The Case of a Lost Patch. *Case Studies in Neuropalliative Care*. May 2018. [Book Chapter/Textbook]
- Damien Hansra, Kaitlin McIntyre, Jeremy Ramdial, Stuart Sacks, Cory Patrick, Brendan McIntyre, Katharina Feister, Miranda Miller, Amy Taylor, Eugene Ahn. Evaluation of How Integrative Oncology Services are Valued Between Hematology/Oncology Patients and Hematologists/Oncologists at a Tertiary Care Center. *Evidence-Based Complementary and Alternative Medicine (EBCAM)*. April 2018. [Manuscript]
- Damien Hansra, Rebecca Rollins, Karen Rados, Anita Johnson, Jonathan Ramey, Rachel Pannell, John McKnight, Kimberly Randolph, Haritha Pabbathi, Mary Ninan, Ricardo Alvarez. Analysis of Weight Trends Over Time in Female Survivors with Triple Negative Breast Cancer. American Society of Clinical Oncology (ASCO) Cancer Survivorship Symposium. February 2018. [Poster Presentation]
- Damien Hansra, Jeremy Ramdial, Eugene Ahn, Anthony Perre, Lauren Masar, Alora Brock, Tamara Walters, Kimberly Randolph, Ricardo Alvarez. Expectations for Survivorship Care Among Hematology Oncology and Primary Care Providers. American Society of Clinical Oncology (ASCO) Cancer Survivorship Symposium. February 2018. [Poster Presentation]
- Mahdi Taha, Grace Bendinger, Sean Cavanaugh, Scott Shelfo, Farhang Rabbani, Danielle Kendrick, Diane Denny, Scott Hartman, Rebecca Rollins, Maurie Markman, Ricardo Alvarez. Evaluation of Self-Reported Symptoms and Interference Issues in Prostate Cancer Patients. American Society of Clinical Oncology (ASCO) Cancer Survivorship Symposium. February 2018. [Poster Presentation]
- Gerry Finkelston, Kerri Mack, Elizabeth Dailey, Robin Reynolds, Michael DiPalma. Promoting Self-Care to Improve Well-Being of Healthcare Providers. Institute of Healthcare Improvement (IHI) National Forum. December 2017. [Poster Presentation]
- Neil Seeley. Multimodal Analgesia in Breast Surgical Procedures: Technical and Pharmacological Considerations for Liposomal Bupivacaine Use. *Plastic and Reconstructive Surgery – Global Open*. September 2017. [Manuscript]

TECHNOLOGY AND INNOVATION

- Kathy Castle. Pilot Project: Using a Pain Tracking App in an Adult Oncology Pain Clinic. American Society for Pain Management Nursing (ASPMN) 28th National Conference. September 2018. [Oral Presentation]
- Kimberly Kisiel, Nancy Hesse, Joanne McGovern, Gerry Finkelston. Enhancing the Profession of Nursing through Social Media. Institute of Healthcare Improvement (IHI) National Forum. December 2017. [Poster Presentation]
- Daniel Liu. Digital Imaging in Plastic Surgery. *Plastic Surgery*. Fourth Edition. September 2017. [Book Chapter/Textbook]

Our Accreditations and Certifications

Cancer Treatment Centers of America® (CTCA) comprehensive care and research centers are accredited and recognized by several renowned professional health care organizations that assess and monitor the quality of patient care. The voluntary accreditations and certifications highlighted were earned by all CTCA® centers unless otherwise specified.



THE JOINT COMMISSION

The Joint Commission's Gold Seal of Approval® for Hospital Accreditation reflects a commitment to providing safe and effective patient care and a willingness to voluntarily undergo rigorous, unannounced onsite surveys. Accreditation requires compliance with standards related to areas such as patient rights, environment of care, infection prevention, leadership and medication management.



QUALITY ONCOLOGY PRACTICE INITIATIVE (QOPI)

The QOPI Certification Program, an affiliate of the American Society of Clinical Oncology (ASCO), recognizes outpatient practices that meet the benchmarks for breast, colorectal, non-small cell lung, non-Hodgkin lymphoma, gynecologic and prostate cancers. This seal designates those practices that scored high on key QOPI quality measures and met rigorous chemotherapy safety standards established by ASCO and the Oncology Nursing Society.



COMMISSION ON CANCER (COC)

The COC recognizes cancer care programs for their commitment to providing comprehensive, high-quality, multidisciplinary patient-centered care. COC Program Standards require facilities to create meaningful processes for implementation of patient-centered care.



NATIONAL ACCREDITATION PROGRAM FOR BREAST CENTERS (NAPBC)

Accreditation by the NAPBC is granted only to those centers that are voluntarily committed to providing the highest standards of care to patients with diseases of the breast. NAPBC requires a rigorous evaluation in a number of areas, including program leadership, use of evidence-based practices, surgery, imaging and quality improvement process.



AMERICAN COLLEGE OF RADIOLOGY IMAGING ACCREDITATION (ACR)

ACR accreditation indicates that providers adhere to the highest level of image quality and safety by documenting the requirements for equipment, medical personnel and quality assurance. All CTCA centers have earned accreditation in radiation oncology along with various imaging modalities, including mammography, CT, PET, ultrasound, nuclear medicine, MRI, and, as appropriate, breast MRI, breast ultrasound and stereotactic breast biopsy.

Our Accreditations and Certifications



STEM CELL TRANSPLANT AND CELL THERAPY PROGRAM FACT ACCREDITATION

The Foundation for the Accreditation of Cellular Therapy (FACT), an internationally recognized accrediting body for hospitals that perform stem cell transplants, designates the threshold for excellence in cellular therapy including bone marrow or cord blood transplant. FACT recognizes excellence with respect to clinical care, donor management, apheresis collection, processing, storage, transportation, autologous administration and cell release. CTCA Chicago and CTCA Philadelphia have earned the FACT accreditation.



COLLEGE OF AMERICAN PATHOLOGISTS ACCREDITATION (CAP)

The CAP Laboratory Accreditation Program accredits the entire spectrum of laboratory test disciplines with the most scientifically rigorous customized checklist requirements. Serving as the gold standard, this accreditation ensures compliance to laboratory standards and safety measures and maintenance of staff proficiency. All CTCA centers are CAP accredited; the laboratory at CTCA Chicago and CTCA Philadelphia are also CAP-accredited biorepository programs. These laboratories collect, process and store biospecimens to support future scientific investigation.



MAGNET RECOGNITION

Awarded by the American Nurses Credentialing Center (ANCC), Magnet status is considered the highest honor a hospital can achieve for its nursing programs. Of the nearly 5,000 hospitals in the United States, fewer than nine percent have earned Magnet Recognition. CTCA Chicago has achieved this designation with each of the remaining centers in the process of attaining accreditation.



CERTIFIED QUALITY BREAST CENTER OF EXCELLENCE (NQMBC)

The NQMBC Program evaluates breast programs using various quality indicators in the areas of imaging, surgery, cancer registry, pathology, radiation and patient satisfaction. This certification is currently maintained by CTCA Chicago.

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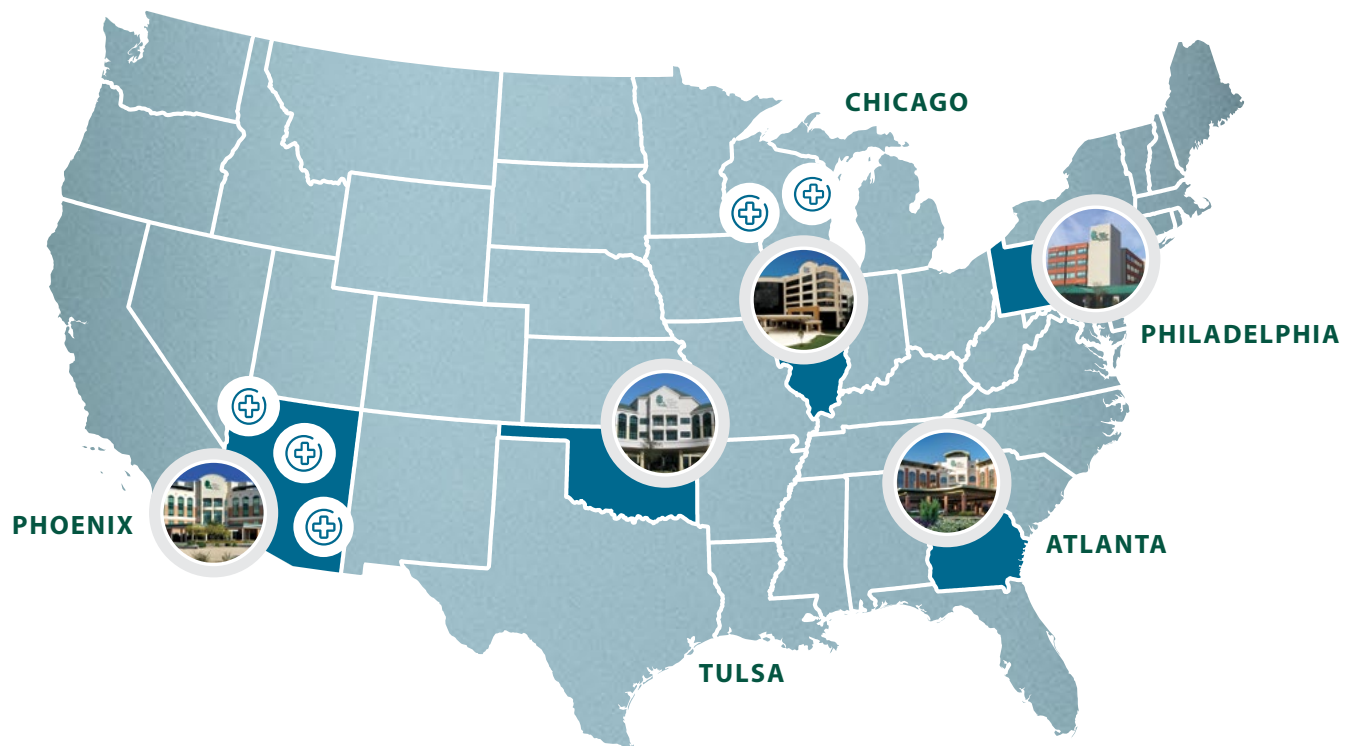
HEADQUARTERS

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About Cancer Treatment Centers of America Global, Inc.

Cancer Treatment Centers of America Global, Inc. (CTCA) is a comprehensive cancer care network of hospitals and outpatient care centers in Atlanta, Chicago, Philadelphia, Phoenix and Tulsa. Specializing in the treatment of adult cancer patients, CTCA® offers an integrative approach to care that combines surgery, radiation, chemotherapy, and immunotherapy with advancements in precision cancer treatment and supportive therapies designed to manage side effects and enhance quality of life both during and after treatment. CTCA also offers a range of clinical trials for cancer patients with the objective of revealing new treatments supported by scientific and investigational research. CTCA patient satisfaction scores consistently rank among the highest for all cancer care providers in the country.

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