

Nancy N. and J.C. Lewis Cancer & Research Pavilion

2016 ANNUAL REPORT

A Decade of Progress
Site Specific Focus: Breast Cancer



Nancy N. and J.C.
Lewis Cancer
& Research Pavilion
at St. Joseph's/Candler





Table of Contents

St. Joseph's/Candler Mission and Vision	2
Lewis Cancer & Research Pavilion Mission and Vision	3
Message from St. Joseph's/Candler President & CEO Mr. Paul Hinchey	4
Message from Lewis Cancer & Research Pavilion Medical Director, Dr. Howard Zaren	5
Message from Lewis Cancer & Research Pavilion Executive Director Nancy Johnson	7
Cancer Committee	8
Site Specific MDT Co-Chairs.....	9
Pillars of Progress: The Path We Traveled	12
A message from the Chairman, SJ/C Joint Committee Dr. Howard Zaren	13
Message from Lora Reese, Director of Telfair Pavilion	17
Breast Cancer Care Team Spotlight	18
References	28



St. Joseph's/Candler Mission and Vision

Mission

Rooted in God's love, we treat illness and promote wellness for all people.

Vision

To set the standards of excellence in the delivery of healthcare throughout the regions we serve.

Nancy N. and J.C. Lewis Cancer & Research Pavilion and the Oncology Service Line Mission and Vision

Mission

Holistic, multi-disciplinary, patient-centered cancer care provided across the disease continuum for all stages of a patient's journey.

Vision

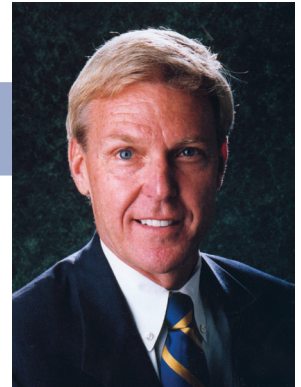
To be the premier destination for comprehensive cancer care in the region while providing a superior patient experience.



Message from St. Joseph's/Candler President & CEO

In 2003, the St. Joseph's/Candler (SJ/C) Board of Trustees, Physicians, and staff crafted a vision leading to the grand opening of the Nancy N. and J. C. Lewis Cancer & Research Pavilion in January of 2006.

Paul P. Hinchey
CEO and President, St. Joseph's/Candler



The premier facility, founded on a patient centric focus, established the direction for numerous achievements occurring throughout the past decade. Over the course of this relatively short timeframe, the program evolved into a cancer treatment destination where expert cancer specialists, advanced technology, collaborative research and extraordinary compassion have combined to create one of the most innovative clinical oncology programs in the nation.

Representing more than a \$50 million dollar investment in the community in both technology and infrastructure, the LCRP is home to a team of highly trained cancer specialists that skillfully use high-impact technological screening and treatment options for optimal results. Additionally, the program has access to nationally funded research and clinical trials, and provides community outreach and education specific to cancer patients and their families.

Our multidisciplinary approach provides for collaboration on individualized patient plans through every aspect of cancer care. Our integrated cancer teams include physician specialists, oncologists, surgeons, oncology nurses, genetic counselors, rehabilitation specialists, nutritionists and social workers who meet regularly to review individualized patient cases. This integrated cancer action team continuously works to identify opportunities to enhance patient care and improve clinical outcomes.

Additionally, the nurse navigators at the Nancy N. and J.C. Lewis Cancer & Research Pavilion assist patients throughout their journey by providing expert clinical care and guiding patients to the comprehensive services and resources throughout St. Joseph's/Candler. These caregivers are true advocates for patients and provide efficient and effective results for improved outcomes.

The Lewis Cancer & Research Pavilion focuses on a patient centered approach to advanced cancer care, enhanced by clinical partnerships and affiliations which promote:

- Patient-centered care from medical to supportive care services
- Comprehensive clinical care using advanced technologies
- Multidisciplinary Cancer Teams for Improved Outcomes
- Collaboration with primary care physician and our multidisciplinary medical teams in the development of patient's care plan
- Convenient patient access
- Programs to enhance the doctor-patient relationship
- Appropriate complementary therapies
- Post-treatment survivorship planning

In an increasingly global community partnerships are crucial to the sharing of information and services—and nowhere is that more important than in the field of medicine. The Lewis Cancer & Research Pavilion supports an environment of open communication with all affiliates. Our relationships are strengthened by participating in monthly conference calls and frequent site visits to collaborate on projects and programs that improve patient care and outcomes. With these national partnerships, state relationships, and affiliations, patients benefit from continually advanced cancer care services that drive increasingly good patient care outcomes.

As we move forward into our second decade of service, the Nancy N. & J.C. Lewis Cancer & Research Pavilion embraces the progress that has been made in the delivery of cancer services and looks to the future. By implementing evolutionary changes to improve the diagnosis, treatment, palliative care and survivorship of all oncology patients, 99% of patients diagnosed can be treated without leaving the area.

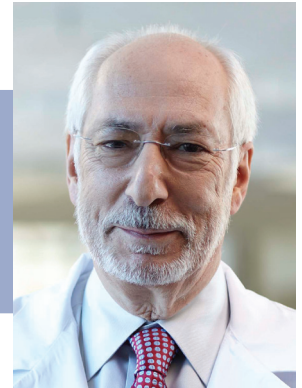


Message from the Cancer Committee Chairman

OVER A DECADE OF PROGRESS:

As the Nancy N. and J. C. Lewis Cancer & Research Pavilion (LCRP) opened the

Dr. Zaren is Medical Director at the Nancy N. and J.C. Lewis Cancer & Research Pavilion (LCRP), Co-principal Investigator for the Georgia NCORP Program, Professor of the Department of Surgery at Georgia Regents University, a GRA Distinguished Cancer Scientist, and the LCRP Cancer Committee Chairman.



doors for business in January of 2006, the multi-disciplinary clinical team in concert with the administration brought more than a freestanding cancer center to the community. The LCRP initiated access to advances in scientific discoveries through the available clinical trials and research programs offered as part of the National Cancer Institute's (NCI) selected community partners. The honor of being a NCI Community Cancer Centers Program (NCCCP) spanned seven years from July 2007 to September 2014. During this period, many accomplishments occurred that advanced research as well collaborative cancer care through multi-disciplinary clinical teams. As a NCCCP selected site, the LCRP was able to compete for opportunities to participate in projects such as The Cancer Genome Atlas (TCGA) project. Because of the LCRP's outstanding biospecimens collections program, the LCRP was selected following a rigorous scientific review process. For several years, the LCRP submitted specimens to the TCGA. Participation with the TCGA positioned the center for enrolling patients in clinical trials and therapies associated with personalized medicine. As a result, the biospecimens program works closely with numerous research entities across the United States.

The years as a NCCCP site positioned the LCRP to take the next step forward in 2015 to be selected by the NCI along with partner organizations, the Georgia Center for Research and Education, and the Northside Cancer Institute, as founding members of the NCI's Georgia Community Oncology Research Program. The LCRP's participation with GA-NCORP assures patients across the Southeastern coastal region, particularly in the counties surrounding Savannah and the low country of South Carolina have continued access to the clinical trials and scientific discoveries available through the National Cancer Institute and the cooperative trial groups. As a leader in the field, the LCRP currently runs the Scientific Advisory Council and oversees the Cancer Care Delivery Research of the GA-NCORP.

With access to national clinical trial support through our affiliations with national clinical trial partnerships, patients benefit from enhanced treatment options available through scientific breakthroughs. Our clinical expertise and ongoing focus on quality and safety improvement initiatives allow our cancer specialists to deliver advanced clinical care for the most complex cancer cases. The LCRP offers a world of clinical resources and unlimited opportunities to our staff and our patients.

Over the course of the last decade the LCRP has made great strides in eight (8) major areas, including disparities, screenings, patient navigation, clinical trials, information technology, biospecimens, quality, as well as survivorship & palliative care. Invested in the progress are multi-disciplinary disease specific teams that have led the center for over a decade to achieve phenomenal growth and excellence in patient care.



The multi-disciplinary teams (MDT) create an environment where physicians work together to determine and implement with the clinical and administrative staff best practices and evidence base guidelines in the treatment of cancer. The MDTs provide an interdisciplinary approach to assessing, planning, managing, monitoring, coordinating, and evaluating the delivery of cancer care services for patients whose care requires them to traverse multiple settings across the health system. The disease specific MDTs meet quarterly and report through the SJ/C Joint Cancer Committee to the SJ/C Medical-Executive Committee. By including physicians who diagnose, treat, educate, and follow cancer patients in the MDTs, the LCRP is able to design comprehensive programs that truly meet the needs of the cancer patients. The participating physicians are required to sign participation agreements and to routinely present cancer cases at the multi-disciplinary conferences.

Our teams include members from the following clinical specialties:

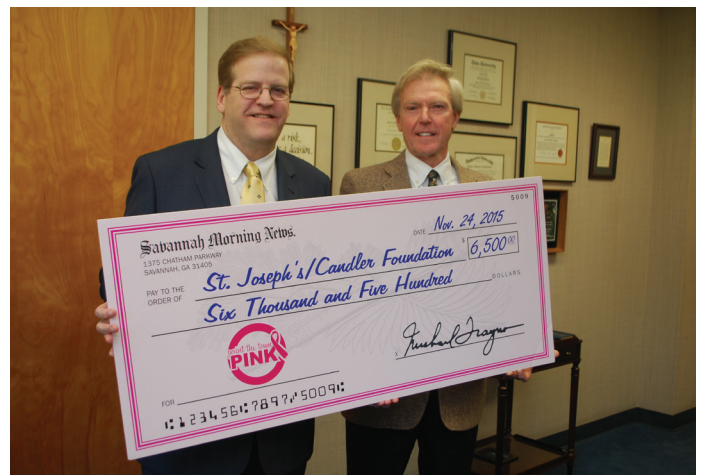
- Breast Cancer
- Genitourinary (GU)
- Neuro-Oncology
- Melanoma
- Gastrointestinal (GI)
- Head and Neck
- Thoracic (Lung)
- CNS

Considerable strides have been made at the LCRP because of the dedication of the physicians and clinical staff throughout this past decade. This annual report details major milestones accomplished by one of the disease specific teams, the Multi-Disciplinary Breast Cancer Team.

Beyond working with the clinicians and medical staff, St. Joseph's/Candler has a long standing history of working within the community to assure medically underserved populations receive care. For breast cancer patients, Savannah Morning News partners with St. Joseph's/Candler every October to raise funds for mammograms. The month long education and awareness program ends with a mammography day that has in excess of 200 women receiving mammograms on that day.



Paint the Town Pink 2014



Paint the Town Pink 2016



Message from The LCRP Executive Director

Looking back across the decade, the evolving cancer services within the Lewis Cancer &

***Nancy Johnson, M.S.M., Executive Director,
Nancy N. and J. C. Lewis Cancer & Research Pavilion
at St. Joseph's/Candler; Steering Committee Member of
Georgia's Comprehensive Cancer Control Coalition***



Research Pavilion (LCRP), mirror the mission and vision of St. Joseph's/Candler. Two key elements stand out: First, the services within the cancer center are patient centric. Parallel with the center's clinical and administrative team effort to bring advanced technological equipment to serve patients from throughout the 32 county region, the team attends to the caring touch that eases patients' burdens and guides them through difficult times. Second, the team continually strives to promote a culture of excellence by seeking ongoing peer reviews, participating in national registries, and voluntarily pursuing outside accreditations. Most notably, the LCRP has achieved the Outstanding Achievement Award from the Commission on Cancer of the American College of Surgeons. Additionally, in specific areas, ongoing accreditations for the following are to be celebrated:

- American College of Radiology (ACR) for the radiation services with the LCRP
- ACR accreditation for the Telfair Pavilion mammography services
- National Accreditation Program for Breast Centers (NAPBC)
- Quality Oncology Physician Initiative accreditation for the infusion services and physician management of our South Carolina site
- And the LCRP participates in system-wide accreditation through the Joint Commission and also for Magnet Nursing accreditations.

Although offering cutting edge advanced equipment and sophisticated highly trained clinicians are the basic foundation for daily service at the center, it is the commitment from the interdisciplinary team of experts to see each patient as significant and unique that makes the care patient centric. Out of this commitment, special programs have evolved that attend to the psychosocial needs of patients. By launching an outpatient palliative care clinic in 2010, the LCRP increased patient access to symptom management and transitions along the patient's disease continuum.

Working closely with a community dentist, Dr. John Howard, interested in the welfare of children whose parents have cancer, the Howard Hand in Hand program was founded and now serves 52 families. The LCRP created a department, *Supportive Oncology Services*, which includes palliative care, survivorship care planning, cancer transitions, oncology social workers, spirituality, and integrative medicine. As we move into the next decade, the charge ahead for us is to assure patients coming to the LCRP from our rural service areas have access to these supportive services. To this measure, the Howard Hand in Hand program is piloting an interactive web-site to provide support for children whose parents have cancer. Subsequent to the pilot phase, the functionality of the site can be replicated to provide supportive interactive web-based services to adult cancer patients in our rural counties.

With the advancements in media technologies, we anticipate this next decade will bring increased opportunities for the LCRP to holistically meet the supportive needs of all patients, both urban and rural.



Cancer Committee Members 2016

COC REQUIRED ROLE

CLP:

Corporate Administrator:

Cancer Program Administrator:

Diagnostic Radiologist:

Pathologist:

General Surgeon:

Specialty Surgeon:

Medical Oncologist:

Radiation Oncologist:

Physician Member of the Palliative Care Team:

Oncology Nurse:

Genetic Counselor

Rehabilitation Representative:

Hospice Nurse/Administrator:

Clinical Research Representative:

Social Worker:

Pastoral Care:

Oncology Nurse (Ambulatory Care):

Registered Dietician:

Pharmacist:

Certified Tumor Registrar:

Performance Improvement/Quality Mgmt.:

Palliative Care Team Member:

ACS Representative:

Cancer Conference Coordinator:

Quality Improvement Coordinator:

Cancer Registry Quality Coordinator:

Community Outreach Coordinator:

Clinical Research Coordinator:

Psychosocial Services Coordinator:

MEMBER

Dr. H. A. Zaren

Dr. James (Jim) Scott/Dr. Julia Mikell

Nancy Johnson/Pam Clark

Thomas Philbrick/David Knopf

Christine Green/Paul Drwiega

Susan Mahany/Charles Usher

Jeffrey Mandel/Stephen Yeager

Buffi Boyd/Samuel Torres

Richard Greco/Frederick Sailes

Nicolas Arredondo/Daniel Suh

Mark Taylor/Grant Lewis

Ronald Goldberg/George Negrea

John Pablo/Joshua McKenzie/John Mikell

Kelly Erola/Laura Farless

Lisa New/Mary Robinson

Jacob South

Mary Felchin/Courtney Zink

Mindy Yates/Monica Anderson

Stephanie Smith/Joni Shortt

Marcia Thompson/Sarah Copeland

Columbus Burns/Sr. Pat Kennedy

Beverly Youmans/Vanessa Gregory

Bentley Bruhn/Samantha Nola/Hayley Miller

Merri Avino/Donya Oglesby

Meredith Le Beau/Sherri Tillotson

Pam Clark/Pam Proman

Jennifer Fournier/Deborah Kemp

Marilyn Johnson/Ashley Cashon

Jenny Tillinger/Haley Snow

Pam Clark/Pam Proman

Lauren Balding/Meredith Le Beau

Krista Aliffi/Marylin Johnson

Stephanie Smith/Joni Shortt

Marcia Thompson/Sarah Copeland



Cancer Committee Members 2016 (continued)

COC REQUIRED ROLE

Medical Oncologist:

GYN Oncologist:

Pulmonologist:

GI:

ENT:

Family Practice:

Biorepository Specialist:

Director of Patient Care Services:

Nurse Navigators:

Director, Telfair Pavilion

MEMBER

Jennifer Yannucci

William Richards

Doug Mullins

Travis Wiggins

Fred Daniel

Karen Turner

Judy Miller

Marianne Fields

Krista Aliffi/Dana Coleman/Sheila Lowe

Lora Reese

Site Specific MDT Co-Chairs

Chair & Cancer Liaison Physician & Medical Director: H.A. Zaren

Brain/CNS

Co-Chair: Dr. Arredondo

Co-Chair: Dr. Suh

Co-Chair: Dr. Pablo

Co-Chair: Dr. Negrea

Co-Chair: Dr. Lewis

Melanoma

Co-Chair: Dr. Stephen Yeager

Co-Chair: Dr. John Mikell

Co-Chair: Dr. Alison Spellman

Co-Chair: Dr. Keith Stevens

Co-Chair: Dr. Jennifer Yannucci

Breast

Co-Chair: Dr. Susan Mahany

Co-Chair: Dr. John Pablo

Co-Chair: Dr. Mark Taylor

Co-Chair: Dr. Charles Usher

H&N

Co-Chair: Dr. Fred Daniel

Co-Chair: Dr. Stephen Rashleigh

Co-Chair: Dr. Timothy Minton

Co-Chair: Dr. George Negrea

Thoracic

Co-Chair: Dr. Doug Mullins

Co-Chair: Dr. John Pablo

Co-Chair: Dr. Mark Taylor

Co-Chair: Dr. Jennifer Yannucci

GU

Co-Chair: Dr. Michael Cox

Co-Chair: Dr. Buffi Boyd

GI

Co-Chair: Dr. Stephen Yeager

Co-Chair: Dr. Travis Wiggins



Regional Outreach

REGIONAL ONCOLOGY PROGRAMS AND PARTNERSHIPS: A DECADE OF PROGRESS

Since the selection of St. Joseph's/Candler as a NCI Community Cancer Centers Program (NCCCP) in 2007, attention has been directed toward providing access to cancer care for the residents of the 32 counties served by the Lewis Cancer & Research Pavilion. The medical staff of the LCRP has had a long standing history of serving the region by going into the rural communities (such as Statesboro and Hinesville) and providing consultations and follow up care. As part of the NCCCP deliverables, the LCRP medical director formalized the outreach effort by establishing a process where referrals come through the regional oncology navigator and are evaluated by the medical director for multi-disciplinary care through specialists participating in the cancer center.

In 2012, Dr. Gary Thomas, with South Carolina Cancer Specialists (SCCS), formally teamed with SJ/C to work together for the advancement of cancer care and services in both Hilton Head and Okatie areas of South Carolina. SC Cancer Specialists is the only medical oncology and infusion practice in Hilton Head and serves along with Summit Cancer Care and Low Country Cancer Care in the Bluffton area. By joining St. Joseph's/Candler, the full range of services provided by the Nancy N. and J.C. Lewis Cancer & Research Pavilion and its relationship with the National Cancer Institute's Community Oncology Research program are available to patients in South Carolina. By 2016, St. Joseph's/Candler and SC Cancer Specialists in Hilton Head successfully completed a three-year certification program for outpatient hematology-oncology practices that meets nationally recognized standards for quality cancer care. It is the only practice in the Low Country and Savannah region to earn this certification. The recognition comes from the American Society of Clinical Oncology's Quality Oncology Practice Initiative Certification Program (QOPI).



Dr. Gary Thomas and the St Joseph's/Candler South Carolina Infusion Services Team - QOPI recipients



QOPI analyzes individual practice data and compares these to more than 160 evidence-based and consensus quality measures. The information is then provided in reports to participating practices. Individual practices are also able to compare their performance to data from other practices across the country. Based on this feedback, doctors and practices can identify areas for improvement.

To become certified, practices must submit to an evaluation of their entire practice and documentation standards. The Quality Cancer Program staff and steering group members then verify through on-site inspection that the evaluation and documents are correct and that the practices have met core standards in areas of treatment to include: Treatment planning, staff training and education, chemotherapy orders and drug preparation, patient consent and education, safe chemotherapy administration, and the monitoring and assessment of patient well-being.



South Carolina Cancer Specialists building in Hilton Head, S.C.



Pillars of Progress

OUTREACH

2008: Nine Community Health Advisors trained and bought 189 community members to cancer screenings

2010: Community Health Advisor program changed to prevention management program for the poorest census tracts through Medical Homes of St. Mary's Health Center and Good Samaritan Clinic

2010 - 2012: Worked with Morehouse School of Medicine to offer colorectal cancer screening, education and intervention programs in minority underserved populations

2013: Ongoing GYRIG funding for FIT kits and colonoscopies

2016: Liver cancer prevention program and HPV Screening

CLINICAL TRIALS

Over the 10 Years:

ECOG Special Member

RTOG Main Member

Main Member NRG

Georgia Community Oncology Research Program

Georgia CORE Affiliation

INFORMATION TECHNOLOGY

2007 - 2010: Worked through NCCCP to define Oncology EMR elements of a certified oncology EMR

2011: Evolved to completely electronic EMR, Varian's ARIA

2012: Added chair side medication verification system and process to infusion services component of EMR

2012 - Ongoing: Survivorship module in EMR

BIOSPECIMENS

2008: Launched biospecimens program in conjunction with Georgia Cancer Coalition's BRAG-ONC

2009: Participated in Moffitt Cancer Institute's Total Cancer Care

2012: Selected by The Cancer Genome Atlas to submit specific tissue specimens for cancer genomic profiling

QUALITY

2006: Tested feasibility for data collection of quality metrics from the IOM for the state of Georgia in conjunction with the Georgia Cancer Coalition

2009: Ongoing participation in RQRS through NCCCP

2011: Added Cyberknife & replaced linear accelerators with TrueBeam advanced digital technology.

2012: Added GYN Oncology and augmented radiation services with additional HDR applicators

2012: Patient reported outcomes study through NCCCP

2016: Quality Oncology Physician Initiatives accreditation, S.C. Cancer Specialists & St. Joseph's/Candler Infusion Services

SURVIVORSHIP

2009 - 2012: Tested manual processes for survivorship care planning

2012 - Ongoing: Electronic medical record module for survivorship care planning; testing processes system wide

Ongoing: Survivorship recognition lunches, cancer specific support groups, awareness/funding races and cook-outs.

PALLIATIVE CARE

2010: Launched an outpatient palliative care program in conjunction with the Steward Center for Palliative Care

2013: Palliative care system-wide to include inpatient and outpatient in conjunction with Steward Center for Palliative Care

2016 - Ongoing: Addressing silos and creating a seamless process between inpatient and outpatient services

NAVIGATOR & SUPPORT SERVICES

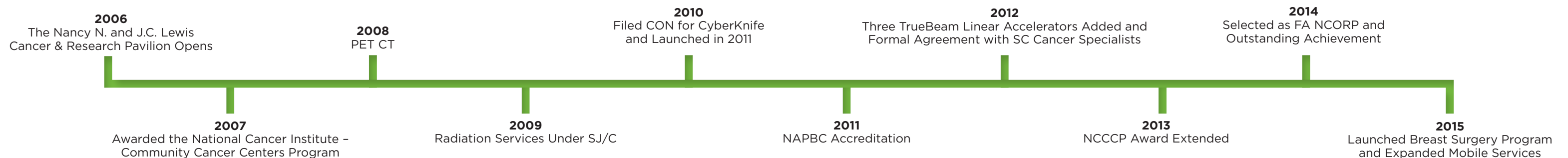
2006: Patient Navigation program increased from one navigator (2004) to two navigators and one social worker

2007: Patient Navigation program increased to three nurse navigators, one social worker, and a patient resource navigator (job share with the American Cancer Society)

Throughout the decade increased collaboration between SJ/C departments in order to transition underserved patients smoothly between services.

2017: Navigation team includes seven navigation nurses, three social workers, financial navigator, and two diagnostic nurse navigators.

The Path We Traveled

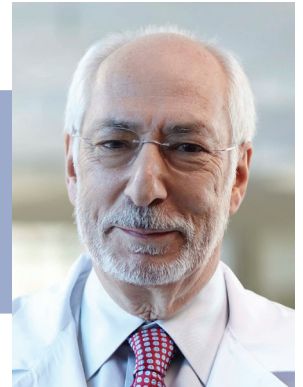




Message from the Cancer Committee Chairman

PROGRAM OVERVIEW AND ANALYSIS OF BREAST CANCER TRENDS

***Dr. Zaren** is Medical Director at the Nancy N. and J.C. Lewis Cancer & Research Pavilion (LCRP), Co-principal Investigator for the Georgia NCORP Program, Professor of the Department of Surgery at Georgia Regents University, a GRA Distinguished Cancer Scientist, and the LCRP Cancer Committee Chairman.*



The programmatic advances at the LCRP span across all disease sites and specialty services. Complementing the clinical research activities is a comprehensive interdisciplinary clinical team designed to holistically meet the needs of our cancer patients. As patients move from early detection and diagnosis through treatment and post-therapeutic care (whether that is survivorship or palliative care and hospice) a navigation team and coordinated care are hallmarks of the journey. Nurse navigators often facilitate communications and assure patients understand their disease and their treatments.

In 2004, the Breast Cancer Multi-Disciplinary Team (formerly the Health Enhancement Action Team, or HEAT) launched the first navigation service and directed the effort toward breast cancer patients. This new service represented the resolution of issues surrounding time between screening mammograms and patient treatment start times. Navigation services for all disease sites grew out of this work and metrics surrounding the timely early detection, diagnosis, and treatment of breast cancer patients.

NAVIGATION SERVICES — VALUE PROVEN:

Through the work during the NCCCCP years, the LCRP proved the value of navigation for improving access to cancer services and assuring seamless care along a patient's disease continuum. In particular, the LCRP collaborated with two partners, through the Georgia Cancer Coalition, demonstrating through integrated navigation services, patients moved from screening to diagnosis in under a week. The LCRP reviewed data prior to the implementation of navigation in 2004 and compared the days with the mature program of 2009 further demonstrating the value of navigators in continuity of care (Figure 1).

Two of the three sites in the collaborative study offered seasoned breast cancer navigation services to their patients. Shown in Figure 2, the comparison with the third partner, lacking a comprehensive navigation program, the LCRP (Site 1 using physician preference profiles) and Site 2 demonstrated a significant variance between programs in days from screening mammogram to biopsy. Patients navigated from the point of a positive screening mammogram often received diagnostic results within the week for Sites 1 and 2, while Site 3 averaged upwards of twenty-two days from positive screening mammogram to cancer diagnosis.

For this collaborative study, the LCRP along with partner organizations received the Innovator's Award recognition from the Association of Community Cancer Centers in 2010.

Values Prior to Implementation of Navigation Services: Days from Screening to Biopsy

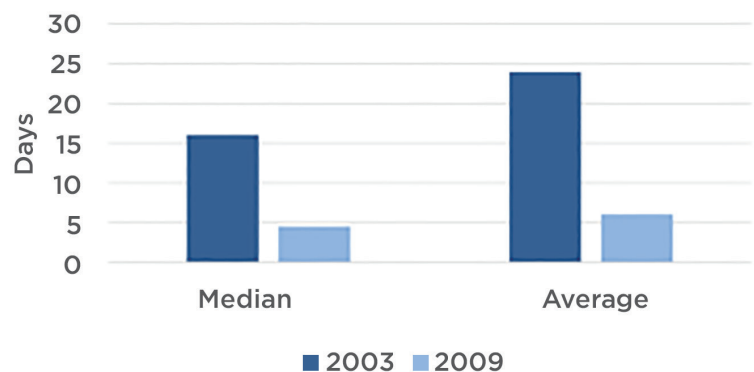


Figure 1: Program values at St. Joseph's/Candler in 2003 prior to the opening of the LCRP and prior to the launch of navigation services in 2004 compared to values of a mature program in 2009.



Days from Screening Mammogram to Biopsy

IOM recommendation :14 days

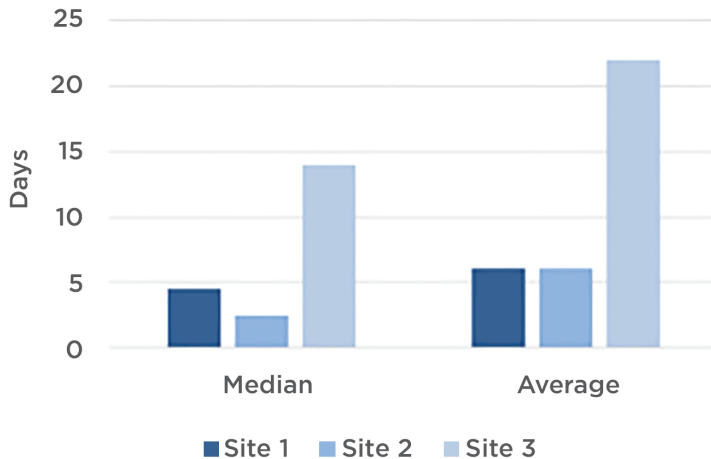


Figure 2: NCCCP Clinical Alliance sites participating in evaluation of navigation services to expedite care.

In September of 2011, the American College of Surgeons awarded the Telfair Pavilion the prestigious accreditation as a National Accreditation Program for Breast Centers (NAPBC). Achieving and maintaining the NAPBC recognition reflects the combined clinical efforts between the LCRP physicians, clinical support and allied healthcare staff.

The SJ/C breast cancer services, as a completely integrated model of private practice, employed physicians, and the LCRP clinical and support services staff, continue to advance programmatic goals and quality. In 2016, the Telfair Breast Surgery Program evolved. This program includes both private practice surgeons as well as employed surgeons who focus on the evidence-based practices of breast surgery. Within the program is the Telfair Breast Surgery (TBS) practice located on the Candler

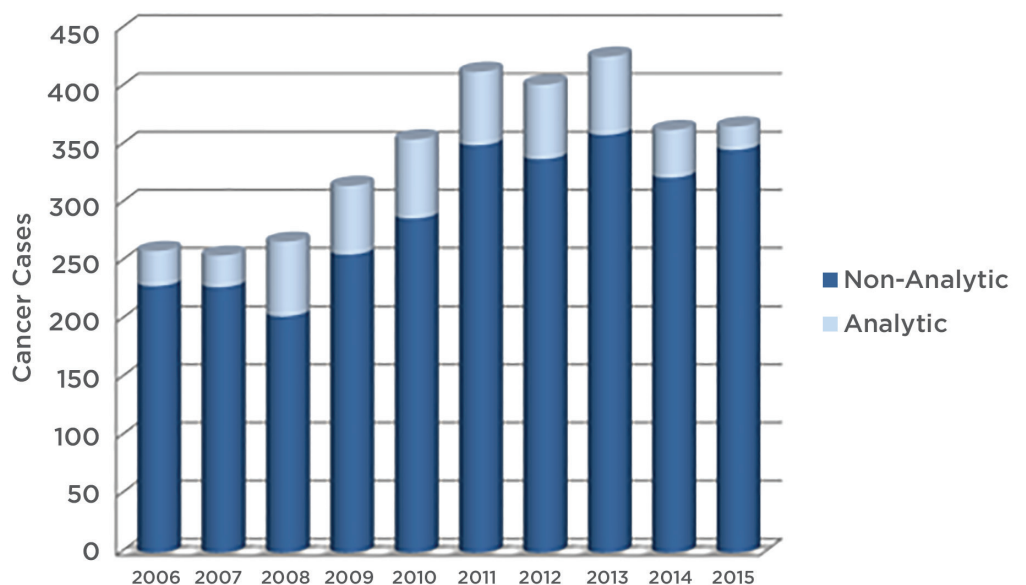
Hospital campus in close proximity to the Telfair Pavilion. TBS is dedicated exclusively to breast health services and expedites surgical consultation and interventions for women with positive screening and diagnostic mammograms.

BREAST CANCER STATISTICS: ACROSS THE DECADE THROUGH TODAY

Patients diagnosed with breast cancer consistently rank as one of the top site groups treated at the LCRP for cancer over the course of the past ten years. According to the 2016 American Cancer Society (ACS) report, this trend mirrors the national leading sites for new cancer cases showing breast cancer as the highest incidence site in women.

Figure 3: Cases accessioned annually according to Commission on Cancer criteria in the SJ/C Registry representing both analytical and non-analytical cases over the span of a decade.

SJ/C Breast Cancer Cases: 2006-2015



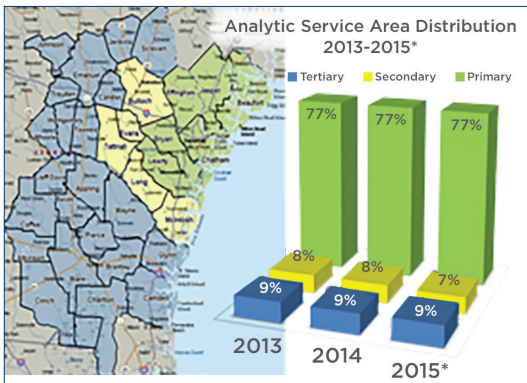


Figure 4: Service Market

Patient Origin: As part of the NCCCP agenda, the LCRP developed and launched an outreach program that utilized a regional oncology nurse navigator to work in concert with the medical director and physicians of the multi-disciplinary breast team to increase access to care for rural populations. The SJ/C Mobile Mammography service, The Screen Machine, branched out to serve remote locations lacking access to screening mammograms. Over the course of the past decade, the percentage composition of patient origin has shifted from predominantly within the primary market (85%) to reflect an increase of patient origin across the tertiary markets, 6.9% to 9.8%, with the secondary market remaining stable over time. In 2015, the greater percentage of patients, 77%, continue to originate from the primary market.

Patients coming to the LCRP from outside SJ/C have defined a tertiary market increase from 2% early in the decade to the current 7%. The shift in patient origin ties with the programmatic efforts to increase access to care through the mobile mammography screening service, physician relationship development, and regionalized navigation services.

Chatham County maintains a consistent 14% patient origin as evidenced over the years. Effingham shows a 2% increase. Liberty and Long counties show dramatic increases from lows of 1-3% to 9.6% and 5.3% respectively. Patient origin for the remaining counties within the primary market has remained consistent over time.

OUTCOMES AND OUTREACH INTERVENTIONS:

The test of program viability and impact are the outcomes that result from the attention to evidence-based guidelines and the integration of clinical and administrative efforts. Through continuous evaluation, monitoring, strategic development of new services and quality improvements, The Breast Multi-Disciplinary Team shows the positive impact for a community of women.

In the early days of program development, between 3.5% and 6.1% of the women diagnosed with breast cancer faced Stage IV disease. Today after consistently working on access to care, increased screenings, and multi-disciplinary care teams, only 2.2% of the women were diagnosed with Stage IV breast cancer in 2015.

Across ten years, Stage I has consistently fluctuated between 14-16% with a span of three years at mid-point of the decade running as high as 18-20%. The number of women diagnosed with Stage I breast cancer has consistently increased over the decade with the lows at 28.25% in the early years and increasing steadily to 40.4% in 2015.

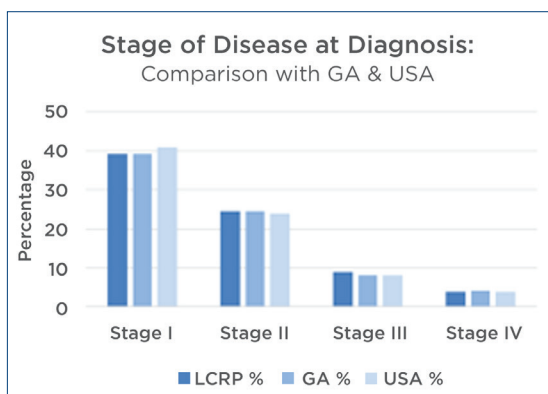


Figure 6: Aggregate comparison data obtained from the National Cancer Data Base for Georgia, United States, and the LCRP showing six years of data through 2014

Classification of patients to Stage II breast cancer shows a slight drop from highs around 25% to the current 21%. Stage III breast cancer diagnoses consistently trend between 7.5%-9% with 2015 diagnoses showing 8% at Stage III. Fifty percent of women diagnosed with Stage III & IV disease come to St. Joseph's/Candler from counties outside of Chatham.

Continuing to address early detection through access to the mobile mammography service and awareness programs is the predominant strategy for reducing the number of women with advanced breast cancer.

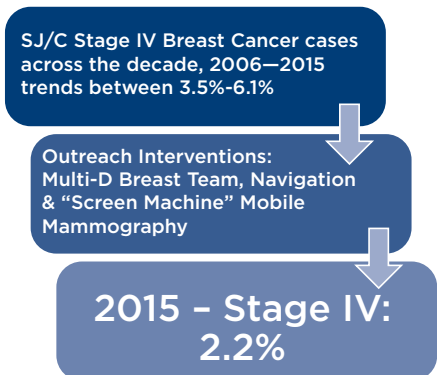


Figure 5: Stage IV Disease after 10 years



Comparing LCRP aggregated data from across the years with the same time period for the state of Georgia (GA) and the United States (USA), the LCRP stage at diagnosis trends consistently with state and national values. In Stage II & III categories, the LCRP variance is less than a percent in comparison and is not considered statistically significant.

AGE AT DIAGNOSIS

Data trends where the LCRP varies from state and national data relate to the age groupings for women seeking care at the LCRP. Prior to the strategic initiatives in 2012 to partner with physician practices within the service market, the age groupings at diagnosis trended fairly close with state and national data. With the outreach into the Hilton Head, South Carolina market where 80% of the patient case mix falls into the Medicare payer category, the number of women classified in 60 or older age groupings increased locally and current data shows a 3-4% variance when compared with state and national values.

In Savannah's service market, the number of retirement communities increased over the course of the past ten years. Because of the change in market demographics, the variance in age grouping comparisons with the state and national data is expected to continue into future years.

A COMMITMENT TO QUALITY

The Breast Multi-Disciplinary Team meets routinely throughout the year to monitor programmatic progress and clinical statistics as related to the NAPBC standards. Highlights of the current compliance with indicators and standards are showcased in the table below.

NAPBC STANDARD	DESCRIPTION	2015 RESULTS
1.2	Prospective required to be 85% of total case presentation	87% — compliant with standard
2.3	Breast Conserving Surgery target 50% of early stage breast cancer	62% — compliant with standard
2.4	Sentinel node biopsy	100% — compliant with standard
2.9	Needle biopsy is the initial diagnostic approach	99.7% — compliant with standard

Table 1: National Accreditation Program for Breast Centers — Standards selected by the breast program leadership team for ongoing monitoring through the Breast Multi-Disciplinary Team.

The quality of care for the breast cancer patient includes access to clinical trials and leading therapeutic interventions. The LCRP offers a dedicated research department with clinical research coordinators assigned specifically to breast cancer patients. NAPBC Standard 3.2 requires that 2% or more of all eligible breast cancer patients are accrued to treatment-related breast cancer clinical trials and/or research protocols annually. Over the past five years, the LCRP shows accrual percentages that fluctuate from the low of 2.2% in 2015 to highs of 7.4-9.1% in 2014 and 2013. The fluctuation is directly linked with the availability of trials at the cooperative group level.

YEAR	ANALYTIC BREAST CANCER CASES	BREAST TREATMENT CLINICAL TRIAL ACCRUAL	DOCUMENTED ACCRUAL PERCENTAGE
2011	350	10	2.9%
2012	325	9	2.8%
2013	339	25	7.4%
2014	307	28	9.1%
2015	313	7	2.2%

Table 2: Percentage of breast cancer patients accrued to clinical trials

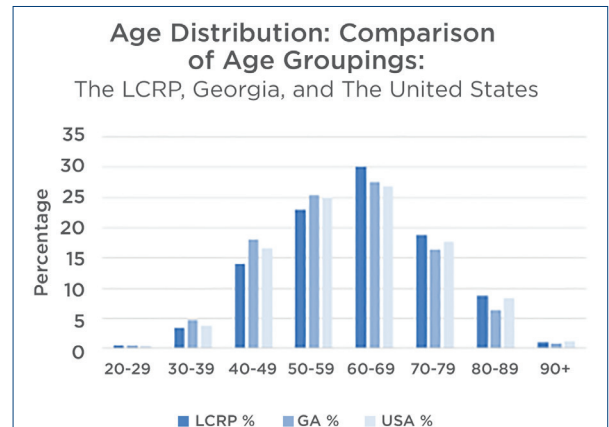
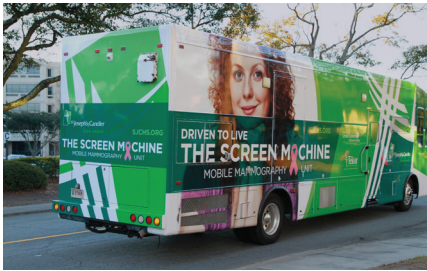


Figure 7: Aggregate comparison data obtained from the National Cancer Data Base for Georgia, United States, and the LCRP showing six years of data through 2014



A COMMITMENT TO OUTREACH AND ACCESS TO CARE

St. Joseph's/Candler's commitment to outreach is fostered throughout the region through mammography services located in areas convenient to the patients. As a result, over 27,000 mammograms are performed annually. Access to care is a prominent aspect of the breast health services program.

Over the past decade more than 6,000 medically underserved women were afforded screening mammograms. Additionally, over 3,500 ultrasounds and biopsies were performed to assure continuity of care for these

women. Navigation services attended to the underserved women diagnosed with cancer to assure that timely therapeutic interventions occurred.

In the most recent year, 580 women were screened for breast cancer, plus 384 diagnostic mammograms were performed and 147 ultrasounds to follow up on suspicious findings. Fifty-four women were biopsied and two were verified with breast cancer. Both patients were treated through the LCRP. Overall 1,165 clinical services were performed in 2016 for a cost in excess of \$116,000 (not including the absorbed treatment costs for the medically underserved women diagnosed with breast cancer).

The LCRP's commitment to the underserved begins at the two medical homes located in the poorest neighborhoods and census tracts in the area: St. Mary's Clinic (predominantly African American) and the Good Samaritan (predominantly Latino and Caucasian). Within the medical homes, a nurse practitioner focuses on whether patients coming for evaluation have appropriate screenings as recommended by the United States Prevention and Screening Task Force.

The Telfair mobile mammography service visits the clinics several times a year. If a patient's screening mammogram results in a suspicious finding the breast cancer nurse navigator brings the patient to the Telfair Pavilion and to Telfair Breast Surgery for diagnostic resolution. Patients diagnosed with cancer are navigated through treatment and supportive services offered at the Lewis Cancer & Research Pavilion. Every step of the journey, a navigator is available for the most vulnerable patient populations.

Deeply rooted in historic Savannah, St. Joseph's/Candler have over a hundred year history of providing a broad spectrum of programs and services to the poor and underserved populations. At the LCRP, medicine and mission are inseparable. We believe no woman should have to worry about how to pay for potentially life-saving breast screenings or treatments. Partnering with local donors and philanthropic organizations, the SJ/C Telfair Mammography Fund was founded in 2005 to make possible access to breast healthcare services for women. The purpose of the Mammography Fund is to provide no cost breast health services to uninsured/under-insured (underserved) individuals.

Lora Reese
Director, Telfair Pavilion



Since its inception, usage and need of the Mammography Fund has grown exponentially. To fund ongoing efforts, grant opportunities and other creative funding sources were sought. Proceeds from annual fundraising events, such as Smart Women and our Paint the Town Pink awareness campaign, have been designated to assist these women since 2006 with most recent annual proceeds from the events surpassing \$100,000. Other philanthropic organizations aligned with our access to care mission include *It's the Journey 2 Day Walk for Breast Cancer (2012-2017)*, *Susan G. Komen for the Cure (2009-2012, 2014-2016)*, *National Breast Cancer Foundation (2012-2016)*, as well as the ACTS (2012-2017) grant. Collectively, these grants have also provided annual support in excess of \$100,000 for the most recent year. Breast health services provided to the underserved are at a reduced rate (80% write-off) to increase access to care for this population. Additionally, all of our radiologists, pathologists, and surgeons agreed to significant adjustments off their fees for the underserved. Doing so ensures that LCRP, as well as the medical staff, act as good stewards of the monies entrusted to its work and mission via the generous grants and gifts from these organizations and major local donors.



Breast Cancer Care Team Spotlight

Quality cancer treatment depends upon careful coordination of multi-modality therapies between treatment providers. This involves the exchange of clinical and technical information as well as regular communication among the inter-disciplinary treatment team. In order to monitor and improve treatment outcomes associated with breast cancer patients, SJ/C physicians routinely engage in the LCRP Multi-D Breast Team for evaluation of patient care. The Breast Cancer Spotlight highlights perspectives about breast cancer from some members of this team.

MAGNETIC RESONANCE IMAGING FOR BREAST DISEASE

Magnetic Resonance Imaging or MRI modality for diagnosing and evaluating lesions within the breast is an excellent tool. Breast MRI is the single best imaging modality to evaluate silicone implants. In addition, breast MRI is used as a problem-solving tool in specific clinical situations, particularly as a way to evaluate patients with a new cancer diagnosis.

Breast MRI can be used to evaluate the morphology of the primary lesion, detect adjacent satellite lesions and other ipsilateral and contralateral lesions. All patients with a diagnosis of invasive lobular carcinoma should undergo preoperative breast MRI, as a significant number of patients are found to have additional disease, which can alter therapy. Overall, breast MRI is an invaluable tool in the diagnosis and management of breast cancer. Breast MRI is more sensitive than both mammography and ultrasound, and when used in the appropriate clinical situations, can alter patient management and improve outcomes.

Current recommendations for screening breast MRI include patients with a strong family history, BRCA 1 and BRCA 2 mutations, those with syndromes such as Cowden or LiFreumanic (both rare disorders that increase the risk for developing certain cancers), and those who have had radiation to the chest between the ages of 10 and 30.

Dr. David R. Knopf, MD
Specializes in Radiology



John C. Gouse, MD
Specializes in Radiology

TOMOSYNTHESIS: A DIAGNOSTIC TOOL FOR BREAST CANCER

Mammography remains an excellent screening tool for the detection of breast cancer, but is not without limitations. One of the challenges of mammography is the problem of dense breast tissue that can potentially obscure a true abnormality or possibly mimic pathology when none is present. Tomosynthesis or 3D Mammography is a newer technology available at Telfair Pavilion and our satellite centers that helps minimize the effect of dense tissue and improves diagnostic accuracy.

Tomosynthesis involves acquiring multiple low dose images of the breast at various angles, which are then reconstructed into a stack of thin slice images that can be viewed. It helps the radiologist to better see through layers of tissue, making it easier to identify and distinguish masses and areas of distortion from overlapping normal dense tissue. Studies have shown a 30% increased detection of all breast cancers and up to 44% improved detection of invasive cancers with this technique.



PATHOLOGY

The pathology services department works closely with the Lewis Cancer & Research Pavilion to assure the diagnostic processes are consistently evaluated for alignment with standards and best practices in diagnosing and managing breast cancer. All patients diagnosed with breast cancer have their tumors evaluated with a breast panel to include hormone receptor status (estrogen and progesterone) and Her2neu status. In compliance with College of American Pathology (CAP) and American Society of Clinical Oncology (ASCO) guidelines, image analysis is utilized to enhance analysis with compliance with CAP/ASCO guidelines. Comprehensive synoptic reports are completed on resection specimens utilizing CAP (College of American Pathology) for standardized pathology reports and to provide the treating physicians with all pertinent information for medical decision making in patient care. Pathologists work closely with radiology, surgical oncology, medical oncology, and radiation oncology to assure optimal care for our breast cancer patients.

Christine A. Green, MD
Specializes in Pathology



Charles H. Usher, MD
Specializes in Breast Surgery, Telfair Breast Surgery

BENIGN CHANGES THAT INCREASE RISK OF BREAST CANCER DEVELOPMENT

Among the benign or non-cancers breast changes, there are three types of lesions that are associated with increased risk for developing breast cancer. The three types of benign lesions with escalating risk include: proliferative lesions, proliferative lesions with atypical, and lobular carcinoma in situ (LCIS).

Proliferative lesions, in which the cells grow faster but appear normal, can double the risk of breast cancer. Examples of proliferate lesions include ductal hyperplasia, complex fibroadenoma, sclerosing adenosis, papilloma, papillomatosis and radial scar. Some of these lesion may require surgical resection.

Atypical ductal hyperplasia and atypical lobular hyperplasia are proliferative lesions with atypia in which the cells grow faster and appear abnormal. These findings increase risk of breast cancer 4 to 5 times higher than average. If these findings are found on a needle biopsy, the patient will need to undergo an excisional biopsy to rule out an associated breast cancer. These patients may be considered for risk reduction counseling and risk reduction therapy.

LCIS is an abnormal cell growth in the breast lobules but is not considered a true cancer. Findings of LCIS on a breast biopsy increase the chance of developing breast cancer 7 to 11 times higher than average. According to the National Comprehensive Cancer Network (NCCN) Panel, it is reasonable to undergo a surgical excision of the area to exclude an associated cancer. In patients undergoing biopsy with LCIS, breast cancer has been found by some studies 17 to 27% of the time. Patients with LCIS should receive risk reduction counseling and consider risk reduction therapy.

Lifestyle choices can be adopted to reduce the risk of breast cancer. This is particularly important for women diagnosed with any of these benign findings. The life style changes include maintaining appropriate weight, regularly exercising, eating a healthy diet, limiting alcohol consumption, and quitting smoking. By working closely with the physician, reviewing family history and making lifestyle changes, an individualized screening program and plan of care with appropriate risk reduction therapy options is possible for the management of these benign lesions.



HIGH-RISK BREAST CANCER PATIENT

Identification and treatment of the high-risk breast cancer patient

has evolved significantly over the last decade. This is in large part due to advancements in genetic sequencing, testing, and statistical models, that identify the high-risk patient as having a greater than 20% lifetime risk of developing breast cancer. Increased risk is also associated with nulliparity, combined hormone replacement therapy, and obesity. With an increased awareness of both familial and heredity predispositions, physicians are able to provide these select patients with appropriate lifestyle and genetic counseling, frequent surveillance alternating MRI and mammogram every six months, as well as options for chemoprevention and bilateral mastectomy. Targeting this high-risk population in turn results in improved oncologic care and outcomes.

Christa L. Jillard, MD

*Specializes in Breast and Endocrine Surgery,
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Susan J. Mahany, MD

Medical Director, Telfair Breast Surgery

PREGNANCY AND BREAST CANCER

Pregnancy should be a joyous time, filled with thoughts of baby names, layettes, and nursery decor. But for 1 in 3000 pregnancies, the joy is marred with the diagnosis of breast cancer.

Detecting breast cancer in the pregnant patient may be difficult due to the physiologic changes in breast tissue during pregnancy, secondary to normal hormonal changes. Small lumps may be difficult to detect due to the increased density of the tissue. These changes may delay diagnosis, leading to a more advanced stage of disease at initial diagnosis. Breast exams, both by the patient and her physician, should be a routine part of prenatal and postnatal check-ups. Mammograms, ultrasounds, and MRI are all safe diagnostic tools during pregnancy, though cancer may be difficult to visualize with mammography due to the increased density of the breast tissue.

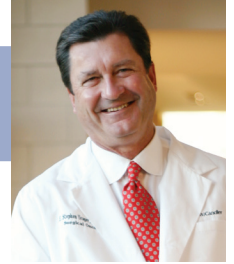
Once a core needle biopsy confirms the diagnosis of breast cancer, various treatment options are available, depending on the stage of the pregnancy and the clinical stage of the cancer. In the first trimester, ending the pregnancy is an option, but is not necessary in all cases. (Though with inflammatory breast cancer, a delay in treatment i.e., chemotherapy, would likely harm the patient, and termination of the pregnancy may be advised). If the pregnancy is continued, mastectomy, rather than lumpectomy with radiation, and axillary dissection, is recommended, because radiation is not safe for the fetus during this stage of pregnancy. Radiation and hormonal therapy, if needed, would be held until after the birth. Sentinel node biopsy, which is a sampling of axillary nodes vs. a full axillary node dissection, has been determined to be safe during all stages of pregnancy, but is not often done due to the later stage of disease at diagnosis.

Chemotherapy, if needed, would be held until the second trimester. Radiation and hormonal therapy, if needed, would be given postpartum. During the second trimester, the guidelines recommend either mastectomy or lumpectomy, with axillary node dissection. Chemotherapy is deemed safe to the fetus after the first three months of gestation, and can be given pre-surgery. It has not been shown to increase the risk of birth defects, still births, or health problems shortly after birth, though it may increase the risk of early delivery. During the third trimester, either a mastectomy or lumpectomy, with axillary node dissection, is recommended. Chemotherapy, again, is considered safe at this stage of the pregnancy. The guidelines note that doxorubicin, cyclophosphamide and fluorouracil are safe chemotherapeutic agents during pregnancy. Taxanes are not mentioned, but some small studies suggest that they are safe during the second and third trimesters. The targeted therapies, trastuzumab, lapatinib, and bevacizumab are not mentioned in the guidelines, but some small studies have determined that they are not safe to use during pregnancy. Although a diagnosis of breast cancer during pregnancy is rare, there are more women choosing to have children later in life when breast cancer risks increase. Because of this trend, there may be increasing numbers of breast cancer patients diagnosed during pregnancy in the future.



E. Stephen Yeager, MD, F.A.C.S

*Specializes in Oncology and General Surgery,
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NIPPLE SPARING MASTECTOMY

Nipple sparing mastectomy (NSM) has become increasingly popular in recent years. In carefully selected patients it is a viable option for both therapeutic and prophylactic purposes. Initially there were concerns regarding the oncologic safety of the procedure. However multiple retrospective studies have confirmed a very low incidence of nipple areolar recurrence. In a large meta-analysis reported in the Annals of Surgical Oncology this past year, De La Cruz, et al.; did not find any adverse oncology outcomes in women undergoing NSM as opposed to Skin Sparing Mastectomies (SSM) or Modified Radical Mastectomy (MRM), in regards to overall survival, disease free survival and local recurrence. NSM is now an option for carefully selected patients with early stage breast cancer and for those patients needing mastectomy for prophylactic purposes. There are other risks with NSM such as ischemic necrosis of the nipple – areolar complex. This has been reported to be from 5 – 20 percent. This incidence is less in lateral inframammary crease incisions.

In the appropriate patient, NSM with immediate reconstruction is now an option with that increases cosmetic and psychological benefits for women.



Jeffrey S. Mandel, MD, F.A.C.S.

*Specializes in General and Laparoscopic Surgery,
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CARE PLANNING FOR THE HER2 POSITIVE BREAST CANCER PATIENT

Over the course of the past decade, the treatment of breast cancer became increasingly guided by molecular diagnostics that characterize significant features of the cancerous cells. For instance, breast cancer cells may or may not express certain receptors on the cell surface. Information regarding the receptors provides both prognostic data as well as targets for treatment. The three receptors breast cancer cells are routinely tested for include estrogen receptors (ER), progesterone receptors (PR) and HER2/neu receptors (HER2). The reports detailing whether breast cancers are determined to be positive or negative for these receptors provide valuable information for the physicians developing the patient's treatment plan.

In general, normal breast tissue cells have ER and PR receptors and are ER/PR positive. The more the cancer cells look like normal breast cells the less aggressive the cancer and the more responsive to treatment. HER2 is a protein involved in normal cell growth. It is found in increased amounts on some types of cancer cells (HER2 positive), including some breast cancers. In these Her -2 positive breast cancers, the increased amount of the HER2 protein contributes to cancer cell growth and survival of the malignant cells. Approximately 25% of women who have breast cancer will be HER2 positive. HER2 positive cells tend to be more aggressive. Prior to the development of drugs that target the HER2 receptors, patients diagnosed with breast cancers that were HER2 positive suffered a worse prognosis.

Based on the results from clinical trials that demonstrated that trastuzumab (Herceptin) increased the response to treatment rates and increased the time to disease progression, the FDA, in 1998, approved trastuzumab (Herceptin) for metastatic breast cancer that is HER2 positive. In 2006, the FDA approved expanding use to non-metastatic node positive HER2 positive patients, and in 2008 to early stage node positive and node negative HER2 positive patients. In 2012 the FDA approved a new monoclonal antibody that also targets the HER2 receptor, pertuzumab (Perjeta). Adding Perjeta to the standard regimen was found to increase progression free survival for patients. And in 2013 it was FDA approved to be used pre-operatively in patients with locally advanced, inflammatory, or early stage breast cancer (tumor > 2cm or node positive) as it had been shown to increase pathologic complete responses in 39 percent of patients in combination with standard neoadjuvant chemotherapy versus 21 percent using standard neoadjuvant chemotherapy alone. Although the data regarding survival is not yet available, pathologic complete response (disappearance of any detectable cancer cells after chemotherapy) has been shown to have better survival rates in many other cancers.



CLINICAL TRIALS RESEARCH

Across the past decade, a portfolio of clinical trials led to some significant improvements in both survival and quality of life for breast cancer patients and influenced the treatments of choice we make today.

At the opening of the Lewis Cancer & Research Pavilion (LCRP) in 2006, the national clinical research agenda was already moving in the direction of targeted therapies, particularly in the area of hormone-receptor (HR) or human epidermal growth factor receptor 2 (HER2). By understanding the predictive value of biomarkers, the results from clinical trials determined the effectiveness of biomarkers in treatment decisions. This is especially true in patients with HER2 markers, which is approximately 20% of those diagnosed with breast cancer (1). Today, the HER2 biomarker is factored in the pre-treatment work-up for breast cancer patients.

The LCRP participated with the National Cancer Institute's The Cancer Genome Atlas (TCGA) by submitting breast cancer tissue from patients agreeing to participate in the biospecimens research. The tissues submitted are being used as part of the National Cancer Institute's ongoing research into understanding genomic techniques in relation to biomarkers and response to treatments. Some of the current research effort is directed toward the analysis of cancer genomes and the specific mutations found in breast tumors that reveal gene signatures useful in prognostic outcomes. For example, in a study of triple-negative breast cancers, a 31-gene signature was notably associated with development of metastases (Baird & Caldas, 2013). As we move into this next decade, the future holds the promise of increasingly targeted clinical trials research for breast cancer patients as well as the possibilities of using serial blood samples for real time, in the clinic, evaluation of whether a patient's disease is drug resistant to the current therapy (Baird & Caldas, 2013). These unfolding practices will avail options for patients as well as earlier determinations of treatment effectiveness for physicians.

Mark A. Taylor, MD

Specializes in Hematology/Oncology



Richard J. Greco, MD

Specializes in Plastic Surgery



RECONSTRUCTION'S PLACE IN HEALING

Through careful attention to each woman's unique situation and by providing education surrounding her

choices, empowering women in their decisions surrounding breast reconstruction continues to be our main focus.

The plastic surgeon is an important member of the multi-disciplinary treatment team. By working closely with the general and breast surgeons, for the appropriate patients, we are able to perform immediate reconstruction, and often direct to implant in one stage allowing the patient to have all her procedures completed in one day. With general surgery move toward Nipple Sparing Mastectomies, the resection and reconstruction procedures occurring same day for appropriate patients is a trend not typical in prior years.

Many women in this region have large breasts and the current available implants are inadequate for their reconstruction. Fortunately, through Candler Hospital, plastic surgeons have access to larger implants for reconstruction efforts—unlike other reconstructions, the larger implants require a step-wise reconstruction with Tissue Expanders used at first during the early phases of healing. Autologous tissue continues to be an excellent long-term alternative with hospital stays usually one or two days.

St. Joseph's/Candler participated with the National Institutes of Health and 16 additional sites in a study on Post Mastectomy Reconstruction Outcomes. This study recently closed and results are being prepared for publication.



THE MANY FACETS OF SURVIVORSHIP CARE

Just as a team of clinical specialists partner with patients through therapy, the post-treatment care requires an ongoing alliance between patient and physician. Breast cancer patients undergoing multi-modality regimens face a multitude of complex issues, potentially impacting the path to wellness due to physical and psychosocial long-term and late side effects. Through the summation of treatments received, a specific plan of follow up care can be developed. The survivorship care plan addresses the need for ongoing clinical assessments, surveillance plan for recurrence or secondary primary, as well as patient education and supportive services.

Jennifer Yannucci MD,
Specializes in Hematology/Oncology

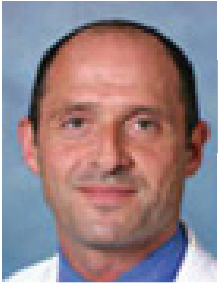


Every breast cancer patient presents with unique situations and responses to treatment. Depending on the patient's stage at diagnosis, the type of treatment will vary as will the post-treatment care plan. Twenty-five percent of breast cancer patients fall into the category of young breast cancer survivors. This group of women face different issues in survivorship care than women diagnosed at age 60, the median age for diagnosis of breast cancer. Follow up encompassing aspects of physical assessment, social and psychological support as well as spirituality contributes to post treatment stress resiliency in young breast cancer survivors relates to physical, social and psychological support as integral components of follow up care. These four domains are the hallmark of long-term quality of life concerns for the young breast cancer survivor as well as the older survivor. Race and culture play into the dynamics of care and need to be considered when developing post treatment survivorship care plans.

At the Lewis Cancer & Research Pavilion (LCRP), attention to the needs of breast cancer survivors has been ongoing for several years through the Cancer Transitions program. Additionally, as an accredited program of the Commission on Cancer of the American College of Surgeons, the LCRP works closely with physicians to meet the goal of providing comprehensive survivorship care plans to all patients by 2019. Survivorship care plans serve both as guidelines for follow up and communications tools between the oncologists, patients, and primary care providers.

Since the Institute of Medicine's 2006 publication, *Lost in Transition*, increased attention to the ongoing healthcare needs of survivors resulted in national guidelines from professional organizations committed to excellence in cancer care, i.e., The American Society of Clinical Oncology (ASCO), the American Cancer Society (ACS), the National Comprehensive Cancer Network (NCCN) and the Commission on Cancer (CoC). Consensus among experts in the field of survivorship care present the following four main categories for physicians to consider in the ongoing follow up of breast cancer patients. These areas are addressed within the care plans developed for patients at the LCRP:

- Surveillance for recurrence
- Screening for secondary primary cancers
- Ongoing clinical assessments and management to address latent side-effects as well as physical and psychosocial well-being
- Survivorship care planning and care coordination (10)



Michelino Scarlata, MD
Specializes General/Oncology Surgery

TAKING CARE OF THE REGION

Living in rural Georgia offers a lifestyle quite different than the bustle of the major urban

areas. The choice to reside in the outlying counties brings with it access to medical care concerns. Barriers for breast cancer patients fall into many categories from medically underserved to geographic or rural based residences. Georgia's population based cancer registry shows 18.3% of rural patients diagnosed with breast cancer compared to 9.6% of urban patients are unstaged at time of diagnosis and often present with advanced stage of disease (12).

Studies show there are many influential factors for timely access to care for breast cancer patients. For the rural population, a major correlation for early detection relates to access to primary care physicians and screening services versus the distance rural patients travel for care. In a recent analysis of Atlanta and Rural Georgia Cancer Registry patients, a significant association between rural patients and late stage breast cancer did not present. What is known and is significant relates to racial disparities. Rural African American and Hispanic women experience increased odds for late stage diagnosis compared to their urban counterparts. Disadvantaged white populations rank equally with the most advantaged black populations.

While the equivalency between mastectomy and breast conservation--lumpectomy and radiation has been established, studies show women from rural areas persist in favor of mastectomy (7). This same trend is seen among the breast cancer data for the Lewis Cancer & Research Pavilion (LCRP). As the demographic percentages of patient residences have shifted to include a higher percent from rural Georgia (secondary and tertiary markets), the percentage associated with breast conservation (BC) and radiation has dropped over the past 3 years from a high of 72% (BC) to the current 2015 62%. Given the presence of SJ/C primary care physicians and surgical specialists throughout the rural market coupled with SJ/C's Screen Machine (mobile mammography) and the breast patient navigation service, women from the rural counties within SJ/C service area presenting with advanced stage breast cancer represent less than 1% for Stage IV and 1.2% for Stage III of the newly diagnosed.

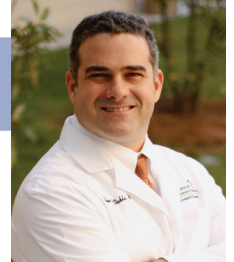


Spotlight on Lewis Cancer & Research Pavilion Radiation Oncology

A DECADE OF ADVANCEMENTS

For more than two decades, 5 to 7 weeks of radiation therapy following breast conserving surgery has been the standard of care. Given the emphasis on early detection and screening coupled with improved mammographic imaging, the incidence of patients presenting with noninvasive breast cancer has increased tremendously in recent years, from 5%- 30%.

John A. Pablo, MD
Specializes in Radiation Oncology



In line with technological advances surfacing over the course of the past decade, new advances in radiation treatment planning led to the development of intensity modulated radiation therapy (IMRT) or forward planning IMRT to treat the breast. The radiation dose to the contralateral breast is reduced. By conforming doses along the breast and blocking normal structures with multi-leaf collimators, the normal structures like the lungs or heart for left sided breast cancer treatment also benefit from reduced doses. Studies have shown that forward planning IMRT, when compared to standard radiotherapy, can produce homogenous plans with fewer hot spots. This could particularly benefit large-breasted women or those with large breast separation. Whether this translates to better cosmetic outcomes is unknown until the clinical trials mature.

As advancements in computed tomography imaging (CT), simulation, treatment planning and delivery systems evolved, the delivery of accurate and homogenous radiation treatment s increased. Today, radiation therapy options following breast-conserving surgery may include whole breast radiation, accelerated partial breast radiation with external beam treatment or brachytherapy, and hypofractionated whole breast radiation treatment. Certainly, the role of radiation therapy in early breast cancer will continue to evolve.



John L. Mikell, MD
Specializes in Radiation Oncology

INDIVIDUALIZED APPROACH TO CARE

Ductal carcinoma in situ (DCIS) is the most common form of non-invasive breast cancer.

Routine radiation therapy after DCIS surgery was common in the past, but newer DCIS treatment guidelines say that radiation therapy after surgery doesn't have to be given routinely to all women. At the same time, doctors aren't always sure which women will benefit from radiation therapy, so a test to help guide the decision is helpful. Oncotype DX is a diagnostic test for patients with DCIS that is used to learn more about a patient's specific tumor and help physicians create a better treatment plan. The test helps providers determine the likelihood of DCIS returning or the tumor returning as invasive breast cancer in the same location. The test measures cancer cells from the patient's tissue sample taken at the time of surgery and determines how active they are. The report produces a number 0 to 100, the lower the score the less likely for DCIS to return to the same breast or developing as an invasive breast cancer.

The recurrence score is considered along with a combination of other individualized factors. Because each patient and their diagnosis are unique, this advanced testing allows physicians to deliver a more personalized approach in the treatment of breast cancer.



IMPROVEMENTS IN THE DELIVERY OF RADIATION THERAPY

In the field of radiation oncology, we are constantly researching improved approaches to the delivery of radiation therapies. Accelerated hypofractionated whole-breast irradiation evolved as a faster way to deliver radiation therapy following breast conserving surgery. The typical 5 to 7 weeks of radiation therapy is reduced to a shorter period of time. Hypofractionated whole-breast irradiation therapy allows radiation therapy to be delivered in fewer fractions over a couple weeks and with less costs charged to the patients. This affords another option for women who may not have the time or resources to undergo several weeks of conventional external beam radiation therapy. Randomized trials have shown hypofractionated whole-breast treatments result in equivalent outcomes in both local control and cosmesis when compared to conventional whole-breast irradiation.

Joshua McKenzie, MD
Specializes in Radiation Oncology



Improvements in the delivery of radiation often are associated with protecting normal tissues from exposure to radiation directed at the tumor. Radiation treatment to left breast cancers is associated with increased cardiac morbidity and mortality. The deep inspiration breath-hold technique (DIBH) can decrease radiation dose delivered to the heart and may facilitate the treatment of the internal mammary chain nodes. Reducing radiation dose to the heart through DIBH is important for several reasons. With local control of disease and survival for patients with early breast cancer showing excellent results, the minimization of treatment-related toxicity and, in particular, reducing cardiac toxicity associated with breast radiation therapy is a major priority. To reduce latent side effects following radiation treatment, engaging in treatment techniques and technologies that minimize dose to the heart is essential. The DIBH technique consistently demonstrates lower radiation exposure to the heart.



Pamela Proman
Director, Radiation Services

RADIATION ONCOLOGY ACROSS THE DECADE

Radiation Oncology has always been a part of the Nancy N and JC Lewis Cancer & Research Pavilion, beginning in 2006 with the grand opening. In 2009, Savannah Oncology Center became St. Joseph's/Candler Radiation Oncology services, Hilton Head/Savannah. It was at this time that significant investments occurred within the program while maintaining an outstanding team of physicians, nurses, physicists, therapists and dosimetrists. The first investment came in 2011 when the CyberKnife program was developed. A year later, more technological advancements were implemented with the purchase of three Varian TrueBeam™ linear accelerators, a complete electronic medical record system, and the Eclipse™ treatment planning system. These investments provide state of the art treatments such as intensity modulated radiation therapy, volumetric modulated radiation therapy, stereotactic radiosurgery and stereotactic body radiation therapy to our patients in this 32 county service area. We expanded our services to include a regional satellite physician office in Statesboro, Georgia in 2014. In 2015, radiation oncology received a three year accreditation from the American College of Radiology bringing our total accredited years to over ten years. This accreditation recognizes our commitment to being a national destination for cancer care through staff engagement, advanced cancer technology, patient safety, and quality assurance.





ONCOLOGY NURSING

Oncology nurses throughout the SJ/C health system including the Lewis Cancer & Research Pavilion are

known for their dedication to patients and commitment to compassionate care delivered with excellence in quality service as a top priority. Over 25%, which is the minimum standard, have received advanced certifications through the Oncology Nursing Society. As the LCRP services have grown to include locations outside of the main center, GYN Oncology and South Carolina, the LCRP nurses assembled a nursing leadership workgroup to assure there is standardization of nurse practice. The LCRP Nursing Shared Governance Council creates a working milieu that facilitates patient-centered nursing practice across the continuum of care while encouraging professional growth and personal satisfaction for nurses.

Four areas are slated for projects: Oncology leadership, oncology quality, oncology research, and oncology education and mentorship. By directing attention to each of the areas, the LCRP Shared Governance Council assures quality in care and access to research to patients, and professional advancement and training for nurses serving cancer patients. The LCRP Nursing Shared Governance Council has members from the inpatient as well. The inclusiveness of the workgroup lends to assuring continuity of patient care across the divide between inpatient and outpatient services.

Pam Clark

Director, Clinical Services & Quality



Jacob South

Genetic Counselor

BREAST CANCER GENETIC TESTING & COUNSELING

Genetic testing is available to patients diagnosed with breast cancer, and the associated counseling that

helps patients to make decisions relating to ongoing disease surveillance.

Hereditary cancer accounts for approximately 5 -10 % of all cancers with many of these syndromes approaching an 80 -100 % lifetime risk for cancer. Identification of genetic syndromes is vital for prevention and management of families with high cancer risks, and in many cases, cancer treatment. Genetic testing can indicate need for more extensive surgery, such as bilateral mastectomy, or may indicate the option for additional cancer therapies (i.e. PARP inhibitors available through clinical trial). Although BRCA testing has been available since the 1990s, at least 16 genes are now known to be associated with increased risk for breast cancer. Furthermore, advances in genetic testing are rapidly changing with the advent of next generation sequencing that allows simultaneous analysis of multiple genes. Genetic counselors not only have the skillset to interpret these complicated results, they are also trained to present complex and difficult-to-comprehend information to families and patients about genetic risks, testing, cancer treatment, surveillance, and prevention. Genetic counseling is offered in a pre-test setting so that patients can make informed decisions about genetic testing, and in a post-test setting so that the test results and their implications are fully understood.



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