

Breast CANCER 901

“ THE STATUS OF
BREAST HEALTH CARE
IN THE MEMPHIS
METROPOLITAN REGION ”

DISPARITIES GAP

COMMUNITY DATA

AVAILABILITY OF SERVICES

UTILIZATION OF SERVICES

MAMMOGRAM CAPACITY

QUALITY OF MAMMOGRAMS



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Table of Contents

Cover	1
Report Authors.....	2
Table of Contents.....	3
Preface... ..	6
Foreword.....	8
About Common Table Health Alliance.....	9
About Memphis Breast Cancer Consortium.....	10
Executive Summary.....	13

Chapters

1. What Is Our Current Status?	14
Introduction	14
Shelby County Statistical Data	16
2. How and Where Did We Collect the Data?.....	19
The Survey Instrument Development and Submittal Process	19
Recruitment of Mammography Facilities	20
Participating Mammography Facilities	20
Accreditations	22
3. How Do We Define Capacity, Quality, and Utilization?.....	24
Need, Capacity, Utilization, Volume, and Facility Operations	24
Mammogram Utilization, Equipment, and Staffing	26
4. What Do The Data Show?	30
Type of Screenings and Diagnostic Procedures Offered	30
Duration of Services Offered	31
Percentage of Screening Mammograms Read & Availability of Comparison Films	32
Comparison of Available Films	33
Appointment Availability	34
Steps to Ensure the Quality of Mammogram Screenings	36

5. What Is the Status In Your Area?.....	38
Map of Mammogram Screenings by Zip Code and Race – African American	39
Map of Mammogram Screenings by Zip Code and Race – Caucasian	40
Map of Mammogram Screenings by Zip Code and Race – Other	41
6. What Does This Report Mean to Our Community?	43
Summary Findings and Highlights	43
7. What Can We Do As A Community?	45
Recommendations and Call to Action for MBCC	45
8. Voice of the Patient and Advocates	46
Testimonials	46
9. References.....	47
10. Acknowledgements.....	49

List of Maps

Map 1. Economic Hardship Index in Shelby County TN 2011-2015	18
Map 2. Cancer Mortality Rates in Shelby County TN 2011-2015.....	18
Map 3. Age-Adjusted Breast Cancer Mortality Rates with Mammogram Facilities by Zip Code, Shelby County, 2012-2016	21
Map 4. Total Number of Mammogram Screenings by Zip Code – African American	39
Map 5. Total Number of Mammogram Screenings by Zip Code - Caucasian	40
Map 6. Total Number of Mammogram Screenings by Zip Code – Asian, Hispanic and Others	41

List of Figures

Figure 1. Memphis Breast Cancer Consortium Governance Structure.....	12
Figure 2. Age-Adjusted Breast Cancer Mortality Rate Trend in Shelby County TN (3 Year Rolling Averages).....	17
Figure 3. Mammography Facility Assessment and Capacity Survey Data Portal.....	19
Figure 4. Participating Mammography Facilities	21
Figure 5. Facility Accreditation Types.....	22
Figure 6. Number of Digital Mammography Machines within Organizations	27
Figure 7. Mammography Procedure Visual Depiction	27
Figure 8. Number of FTE Mammography Technologists	28
Figure 9. Number of FTE Radiologists in 2017 versus 2016.....	29
Figure 10. Types of Screenings and Diagnostic Procedures Offered.....	30
Figure 11. Percentage of Screening Mammograms Read the Same Day	32
Figure 12. Frequency of Comparison Film Availability	33
Figure 13. Frequency of Feedback Given to Technologists.....	37
Figure 14. Mammography Mobile Units	38

List of Tables

Table 1. Age Adjusted Breast Cancer Mortality Rate Trend (3-year Rolling Averages).....	16
Table 2. Additional Accreditations	23
Table 3. Mammography Need, Capacity, Utilization, and Volume.....	25
Table 4. Number of Mammograms Per Facility	26
Table 5. Number of Screening Units Among the Organizations	27
Table 6. Types and Average Duration of Services.....	31
Table 7. Appointment Availability by Days	35

Preface

Breast Cancer 901 Community Report

Memphis, Tennessee, which is located in Shelby County, and its surrounding metropolitan statistical area (MSA), received the unfortunate distinction of ranking number one in breast cancer mortality disparity. This disparity describes the rates between African American and Caucasian women among the 50 largest U.S. cities during the period between 2005 to 2009 (Allgood, 2012). African American women in Memphis died at a rate of 44.3 per 100,000, more than double the rate of 21 per 100,000 for Caucasian women.

Progress is now being made. A new study in 2016 (Hunt, 2016) found that the Memphis MSA was one of only three cities showing a significant decrease in disparities, with a drop from 44.3 per 100,000 African American females, to 37.5 per 100,000 African American females. Despite this local improvement, mortality rates remain at 68.9% higher for African American females than the rate of 22.2 per 100,000 for Caucasian women.

The Memphis Breast Cancer Consortium (MBCC) is an important initiative created to address this undesirable distinction in breast cancer mortality disparity. In 2016, more than two dozen concerned groups united under the direction of the Common Table Health Alliance (CTHA), administrative home to MBCC, to provide a consolidated community effort focused on reducing mortality rate disparities. Although several activities already have been implemented to increase awareness and provide services, MBCC members recognize the best outcomes require more information about the current state of the resources available in our community. One of the results is this first-ever, community-wide report.

This report provides general demographic information and current trends associated with breast cancer mortality disparities. The community survey results add operational information about the quality, capacity, and utilization of area health care mammogram screening facilities.

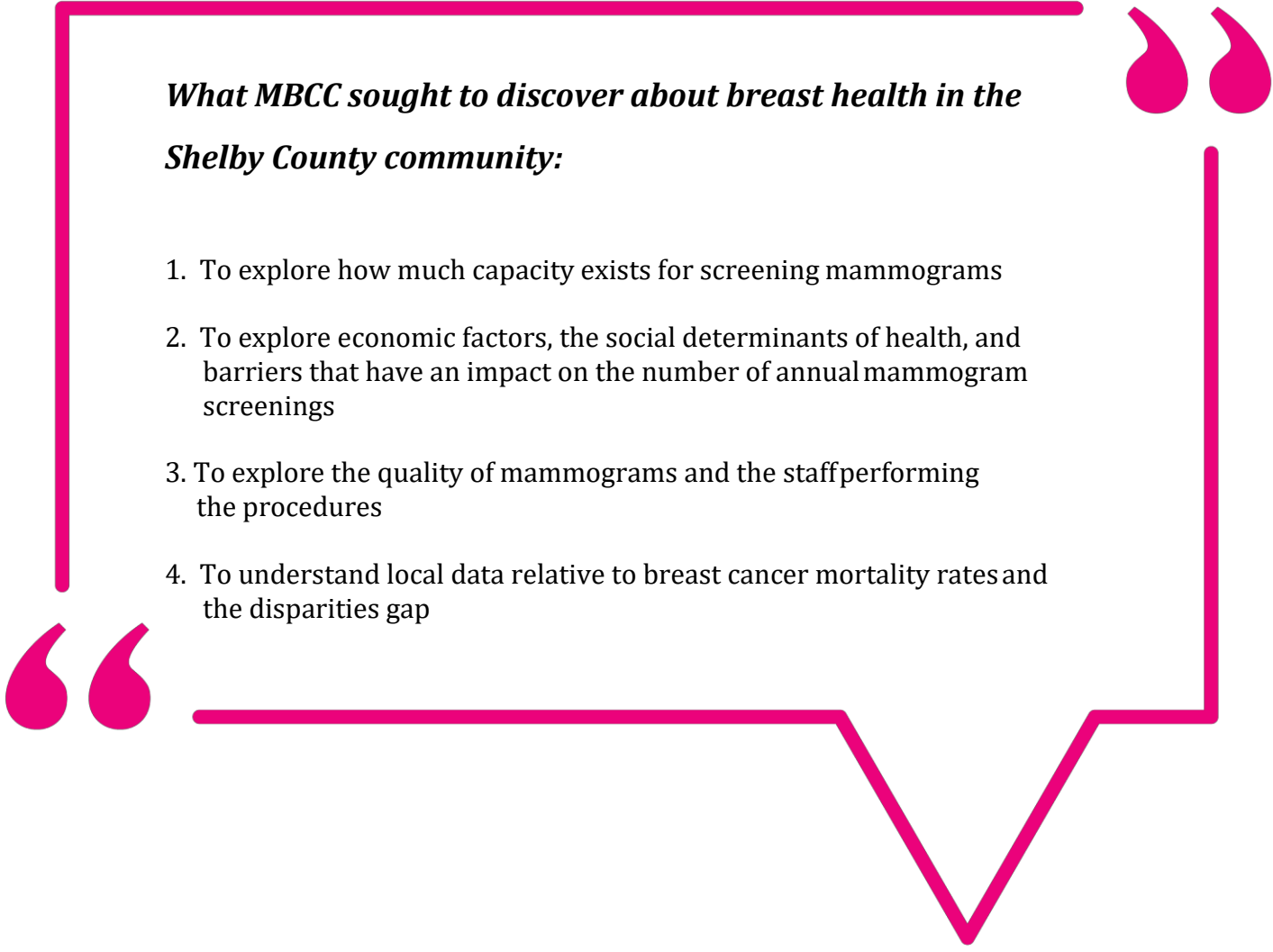
Shelby County, Tennessee was estimated by the Shelby County Health Department (SCHD) Office of Epidemiology to have a population of 470,174 women in 2016. More than 210,870 female residents were between the ages of 40 to 64 years; the recommended ages to seek a yearly screening mammogram (American Cancer Society, 2015). Yet, the most recent behavioral risk factor survey conducted by the Centers for Disease Control in 2015 for the Memphis area, estimates only 60% of the women (or a total of 126,522 women) reported receiving an annual mammogram.

This collaborative effort provides data on numerous aspects related to the status of breast cancer incidence and prevalence. The intent of this 10-chapter report is for the reader to learn from local demographic data and the 2017 mammogram facilities survey, upon which this report is based, to better visualize the status of this area's current need as well as the capacity and quality of our available resources to meet those needs. These data points are necessary to address the gap of an estimated 40%, or 84,348, of women in the Memphis MSA who are not receiving their annual recommended mammogram screenings (CDC 2015 Behavioral Risk Factor Statistical Survey). This report is designed to validate the area's ability to provide services if every eligible woman between ages 40 to 64 obtained their annual mammogram, as recommended by the American Cancer Society. Knowledge of the

mammogram results can support reducing the disparities in mortality rates among African American and Caucasian women.

This report is based on historical data from 2005-2016 provided by the Shelby County Health Department, along with facility self-reported survey data collected from 2015-2018. All organizations and institutions in the Memphis MSA conducting screening mammograms were invited to participate in the collection of de-identified data held in confidence by the Common Table Health Alliance Project Team.

*The terms Black, African American, White, or Caucasian are used interchangeably throughout this report. For the purposes of this report, data has been benchmarked in comparison to the Memphis metropolitan statistical area (MSA) and Shelby County reported data.



What MBCC sought to discover about breast health in the Shelby County community:

1. To explore how much capacity exists for screening mammograms
2. To explore economic factors, the social determinants of health, and barriers that have an impact on the number of annual mammogram screenings
3. To explore the quality of mammograms and the staff performing the procedures
4. To understand local data relative to breast cancer mortality rates and the disparities gap

Foreword



Monique Anthony, MPH, CHES

Director, Office of Minority Health and Disparities Elimination,
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The Tennessee Department of Health (TDH) works to ensure optimal health for everyone in the state. With various health disparities across the state of Tennessee, populations often experience poor health due to health inequities which are driven by social determinants, limited prevention measures, and inadequate access to health care. Health disparities occur when there is a significant difference in the burden of illness, injury, disability, or mortality between population groups. Disparities can be based on age, race, gender, sexual orientation, disability, socioeconomic status, or geographic location.

Breast cancer is the leading cause of most new cancer cases, and is the second leading cause of cancer deaths among women in Tennessee (American Cancer Society, 2018). African American women are more likely to die from breast cancer than women of any other race. (American Cancer Society, 2018). This disparity is most pronounced in Shelby County, within Southwest Tennessee, where Memphis is located. The Tennessee Department of Health's Office of Minority Health and Disparities Elimination (OMHDE), Tennessee Cancer Coalition, Breast and Cervical Cancer Screening Program, and the Office of Population Surveillance have worked with Common Table Health Alliance, the administrative home of the Memphis Breast Cancer Consortium, to analyze data and increase awareness and access to services in the communities of minority populations. Through the Association for State and Territorial Health Officials (ASTHO) Breast Cancer Learning Community Project, mapping of the breast cancer risk and mammography services by zip code was used to educate Shelby County policymakers, as well as organize and facilitate focus groups to understand the factors underlying the disparities in late-stage breast cancer diagnosis for African American women. This process led to re-allocation of funding for preventive screening, and Tennessee's invitation to participate as one of three states in a national breast cancer collaborative.

Tennessee is rapidly growing, and every woman deserves an opportunity to lead a healthy life. Decreasing the breast cancer mortality rate could make Tennessee a better place to live, learn, work, worship, and play. It has been my pleasure to serve on the MBCC Steering Committee and as a member of the Data Review and Analysis Panel. On behalf of Commissioner of Health, Dr. John Dreyzehner, we hope that this report will draw attention to those factors that create a significant difference in the burden of illness, injury, disability, or mortality between population groups, and prompt system changes that will positively impact health outcomes. Collectively, we can reduce the morbidity and mortality in breast cancer disparities, and provide opportunities necessary for every individual to achieve optimal health in Tennessee.

About Common Table Health Alliance



Kirstee (Kiki) Vail Hall

Chief Executive Officer
Common Table Health Alliance

Common Table Health Alliance (CTHA) is a community-based, non-profit, regional health and healthcare improvement collaborative serving Memphis, Shelby County, and the MidSouth region. The organization's mission is to achieve health equity through trusted collaborations, partnerships, and direct services. CTHA was founded in 2000 as Justice in Health, later became Healthy Memphis Common Table in 2006, and in 2012 was renamed the Common Table Health Alliance to reflect its regional efforts. CTHA is respected as an effective neutral convener of community organizations seeking to improve community health through local efforts to identify health disparities, improve healthcare quality, activate and engage healthcare consumers, increase health literacy, and align resources to address the area's most critical health issues. CTHA's success as a neutral trusted convener has resulted in the following initiatives:

Shaping America's Youth

- Addressed the alarming childhood obesity rates in the region, which resulted in a comprehensive movement adopted by 30 organizations to reduce obesity rates.
- Framed the adoption of nutritional content disclosure policies, such as menu labeling of calories by hospitals, schools, and caterers.

The Memphis Quality Initiative (MQI)

- Supported the efforts of the hospitals in Shelby County to adopt a city-wide no-smoking policy for all of their campuses, affecting 50,000 -75,000 employees.
- Reduced infection rates by 25% through a city-wide hand-washing campaign, impacting 100,000-125,000 patients each year.

Diabetes for Life (DFL)

- Reduced BMI and A1c levels of African Americans with diabetes in five local primary care practices via a comprehensive educational and health literacy program.
- Improved self-management skills of 600 patients through culturally tailored case management.

Aligning Forces for Quality (AF4Q), a national program of The Robert Wood Johnson Foundation

- Standardized race, ethnicity, and language (REL) data collection by health systems.
- Coached small medical practices to successfully obtain National Committee for Quality Assurance (NCQA) Patient Centered Medical Home recognition.

The Healthy Shelby Initiative (HSI)

- Facilitated for the County Mayor and City Mayor, a Triple Aim effort in Federally Qualified Health Centers and area health systems to improve population health, a Memphis Region initiative with the Institute for Healthcare Improvement. Noted results include: hospital-wide distribution and education of advance directives, new systems of care for African American males with hypertension, and the initiation of a safe sleep campaign to address high infant mortality rates.

"Believe in a Healthy Memphis" Obesity Summits

- Launched Healthy Eating and Active Living obesity reduction annual summits created in partnership with the Shelby County Health Department and 25 other organizations.

About Memphis Breast Cancer Consortium



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Project Director

Creation of the Memphis Breast Cancer Consortium (MBCC) in January 2016 marked the first phase of an innovative, comprehensive, aligned, and intentional community-wide effort to address the higher mortality rates of African American women versus Caucasian women in the Memphis metropolitan area. This difference in mortality rates is termed the disparities gap in the region (CDC MMWR 2011:60). Prior to the establishment of MBCC, no local structured collaborative effort was in place to convene resources addressing the disparity gap and potential contributing factors such as screening rates, capacity to provide services, lack of knowledge, fear, inadequate or no health insurance, lack of transportation, and geographically appropriate mammography locations. Common Table Health Alliance, the administrative home for MBCC, convened over 30 organizations to form the consortium, initially funded by the AVON Breast Cancer Crusade and the Patient Advocacy Foundation, with technical support from Genentech. MBCC is committed to operating in a collaborative model, thereby aligning strengths and efforts of the diverse stakeholders. Currently, MBCC represents 36-member organizations including survivor groups, health systems, consumer advocacy groups, universities, health plans, the Shelby County Health Department, and the Tennessee Department of Health.

A Multi-Year Strategy:

MBCC developed a multi-year strategy to address the many steps required to build the consortium structure and implement steps to address the issues underlying the acknowledged disparities.

1. Year One led to the creation of an MBCC operational and organizational infrastructure which defined five key program developmental goals: 1) Create the governance structure; 2) Define short- and long-term goals to reduce breast cancer inequalities in mortality rates; 3) Leverage key long-standing community partnerships; 4) Develop an advocacy platform; and 5) Execute the “Sister Pact” Awareness Campaign.
2. Year Two focused on adoption of a work plan utilizing the SMART goals format. Each goal was linked to measurable objectives and activities with corresponding timelines. MBCC was able to grow its membership and maintain a unified forum for collaboration. The Data Review and Analysis Panel was established in preparation for Year Three goals and initiatives.
3. Year Three emphasized increasing breast cancer awareness, identifying and/or creating availability of resources, and defining the quality and capacity of mammogram facilities within the Memphis Metro area.

Early detection and treatment are well-documented as key factors to reduce mortality rates of all women and increase survival rates by almost 100%. The coordinated outreach efforts by MBCC members in high mortality rate zip codes provide a strong platform to reach those women dying at a high rate due, at least in part, to their lower social and economic status.

MBCC Action Teams:

MBCC has three action teams (work groups) focusing on various activities: the People Team, Provider Team, and Policy Team (see Figure 1, on the following page). These teams address varied aspects of the MBCC agenda. The People Team activities focus on direct services, such as providing information, and focusing outreach efforts to underserved populations in high-incidence and high-mortality zip codes. A valuable Provider Team effort was demonstrated with focused provider group meetings, and a training workshop for mammography imaging technicians to enhance their skills and accuracy in mammogram results. The Policy Team members craft messages important to policy changes to improve access while reducing barriers to screening and treatment.

Resulting activities and initiatives from these work groups include:

1. **Live! Memphis:** A day of life-saving breast health workshops and on-site mammograms.
 - 2,400 women have attended Live! Memphis over 4 annual events
 - 103 mammograms have been performed on-site during the event
 - Attendees reported a 95% satisfaction rate for the event
 - 54% of the attendees in 2018 were first-timers
 - MBCC will celebrate survivors during its 5th annual event on February 9, 2019
2. **“Sister Pact” campaign:** An 18-month awareness campaign encouraging regular screening and early detection with an additional goal to help women with breast cancer get prompt access to treatment. Women who participated were asked to make a “Sister Pact” with a friend or family member to consult their health care provider about getting regular mammograms and to hold each other accountable for making breast health a priority. This resulted in over 8.5 billion impressions over the 18-month period. The average monthly impressions were:
 - 45,455 educational materials delivered by print and direct mail
 - Television impressions: 425,455; Radio impressions: 248,000
 - Digital Banners and Facebook impressions: 425,000
 - Outdoor signage impressions:
 - Posters = 293,111
 - Transit Stops = 134,000
 - Bus Wraps = 406,210
3. **“Leveling the Playing Field”:** A policy forum promoting the adoption of policies to impact health equity. MBCC issued a community call to action:
 - All employers (private, public, and government) were asked to offer four hours of paid time off to provide women an improved opportunity to obtain their yearly mammogram.
 - Mammogram facilities were asked to offer four hours each week before and after normal business hours for screening.
4. **The Pink Ribbon Resource Directory:** A community resource guide, linking individuals to local and national organizations providing services to patients and caregivers.
 - Directory is available in print and at <https://www.mbcc.live/online-resources/>
5. **MBCC Member Profile Publication:** Spotlights activities of each member organization and their alignment with the overall mission of MBCC.
 - Publication is available in print and at <https://www.mbcc.live/2018-profile-directory>

6. **“Breast Cancer 901...A Shared Responsibility”** A Medical Provider Learning Collaborative: Addressed transition in care gaps and use of data to improve the quality of care and patient outcomes.
 - Dr. Edith Mitchell, MD, FACP, clinical professor of Medicine and Medical Oncology at Thomas Jefferson University was the keynote speaker.
 - Attendees included breast surgeons, oncologists, radiologists, primary care, and other medical providers. 37 total attendees – 15 were awarded AMA PRA Category 1 credits from Baptist Memorial Health Care Corporation.
7. **Mammography Technologist Symposium:** Louise C. Miller, R.T.(R)(M)(ARRT), CRT, FSBI, co-founder of Mammography Educators, was engaged to emphasize the consistency and reproducibility of images, address the importance of body ergonomics, and highlight the importance of a positive patient experience for local mammography technologists from across the area.
 - 83 total attendees – 71 were awarded 493 Category A ASRT Continuing Education Units

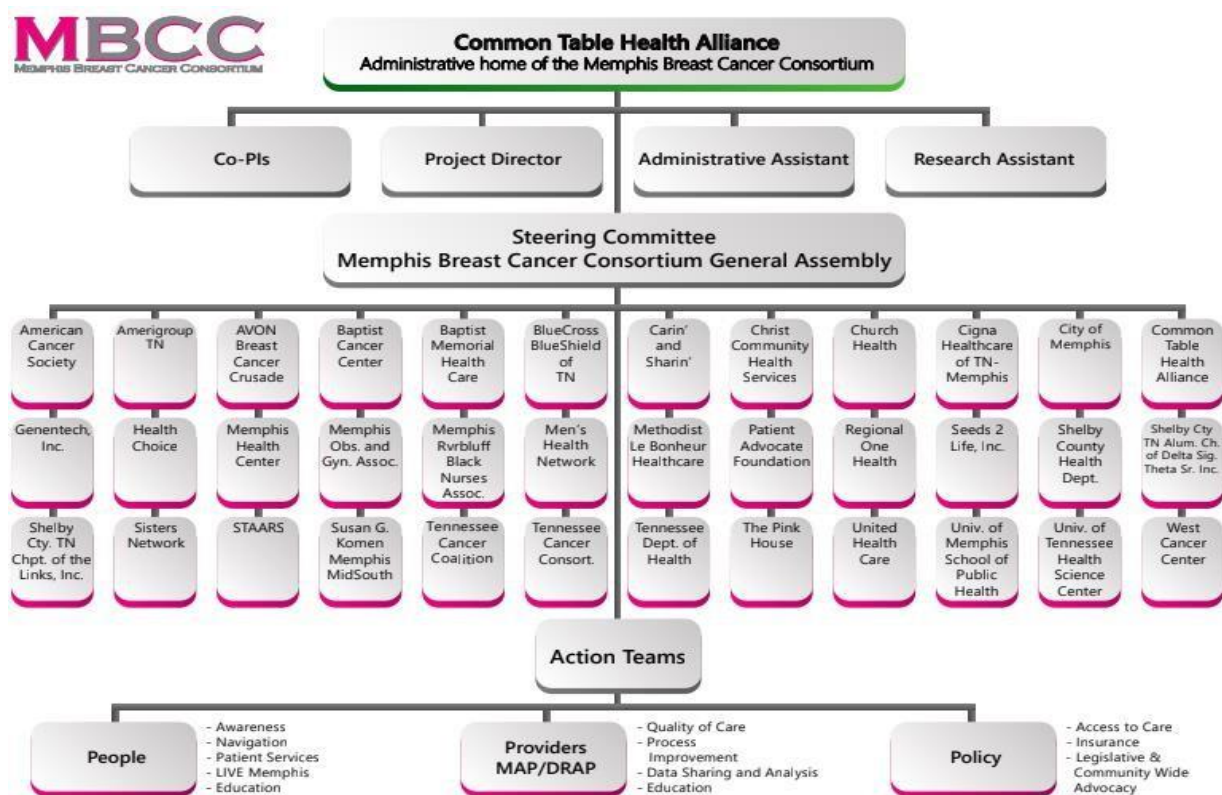


Figure 1. Memphis Breast Cancer Consortium Governance Structure

**MAP =Medical Advisory Panel *DRAP= Data Review and Analysis Panel*

The efforts of MBCC members, coordinated by the Common Table Health Alliance Project Team, focus on ensuring women receive quality mammogram screenings, support outreach efforts in high rate incidence and mortality zip codes, address the disparities gap in mortality rates, and provide consistent coordinated community efforts.

Executive Summary



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On behalf of the Common Table Health Alliance (CTHA) Board of Directors, we are proud and pleased to provide a summary of highlights in the first report on community efforts to unite and address equity in breast cancer health and care. This “Breast Cancer 901 Community Report” is designed to identify various key aspects associated with health disparities in breast cancer mortality rates, the status of the local demographic trends of breast cancer mortality rates, and a breast cancer facility level survey conducted in 2018. The creation of community level data reports has a long history within CTHA outcomes and deliverables, as noted by 10 previous “Take Charge” publications.

Five key highlights of the specifics noted in various parts of the report are detailed below:

1. Breast cancer mortality rates for all women in all zip codes in Shelby County have been above the national average from 2005 to the present day, and only an estimated 60% of eligible women report receiving a yearly screening mammogram.
2. Breast cancer mortality rates of African American women was two times the rate of Caucasian women, as noted in a report released by the Avon Breast Cancer Crusade, and the Sinai Urban Health Institute in 2014. These reports identified that of the largest cities in the US, Memphis was number one in this disparities gap between African American and Caucasian women (Hunt, 2013).
3. The Memphis Breast Cancer Consortium, supported by the Avon Breast Cancer Crusade, provided funds in 2016 for 3 years to support a community-wide call to action, of which this report is a direct result.
4. This “Breast Cancer 901 Community Report” provides overall cancer mortality rates by zip codes and social determinants of health, which were measured via an economic hardship index score.
5. The results of this facility-level survey concluded the Memphis region has the capacity with equipment, technologists and radiologists to reach 100% of the women who should seek yearly mammograms.

This report presents a more detailed list of key findings and other important highlights on pages 43 and 44. The “Breast Cancer 901 Community Report” is truly the first in the Memphis MSA to capture facility-level data on the quality, capacity, and utilization of screening mammography. We are privileged to have gained the trust of the 17 facilities participating in the survey, and we thank all of the 36 member organizations of Memphis Breast Cancer Consortium for their commitment to breast health equity, quality, and excellence.

Introduction



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The Issue of Breast Cancer Disparities

Important differences exist on both a national and local level between the breast cancer experiences of African American women and Caucasian women. Nationally, African American women experienced death rates from breast cancer that were 39% higher in 2015 than Caucasian women, despite Caucasian women having higher rates of breast cancer incidence. African American women are also diagnosed and die at an earlier age (American Cancer Society, 2018). These disparities in rates of breast cancer deaths for African American women compared to Caucasian women also have been noted as a local trend in Memphis over the last 10 years, according to data identified by the State of Tennessee Office of Minority Health and the Shelby County Health Department, based on breast cancer deaths by race and zip code. Caucasian women may experience breast cancer more often, but African American women are more likely to have a higher grade and deadlier type of breast cancer, which also occurs at an earlier age.

In October 2016, the former Avon Breast Cancer Crusade and the Sinai Urban Health Institute released a report with both compelling and disturbing information (Hunt, 2013). The report revealed a 10-year trend in the African American and Caucasian disparity gap in breast cancer mortality in 50 of the largest urban communities in the United States. The discovered disparity gap provided a new narrative, leading to an alarming amount of concern across the entire country. The Memphis metropolitan area was noted as number one on this list of 50 communities, with a disparity gap defined as 2:1, reported from 2005-2009 (Hunt). This 2:1 ratio indicated African American women's mortality rate for that period was 100% higher than that of Caucasian women in the Memphis region.

The Local Call to Action

A definitive call to action by national foundations, led by the Avon Breast Cancer Crusade, provided the seed funding in Memphis, among various other communities. The goal was to form a consortium to address these disparities. As a result, the Common Table Health Alliance was awarded a three-year grant to establish and operate the current Memphis Breast Cancer Consortium (MBCC). Part of MBCC's mission is to engage stakeholders across the region to build a community-wide plan addressing reduction needed in African American versus Caucasian breast cancer incidence and mortality. This effort has created a unique opportunity to support strategies designed to unify, share, and implement efforts across the entire community. These efforts focus on those zip codes with the highest levels of breast cancer incidence and mortality rates, with specific strategies designed to address the disparity gap. MBCC brings

together survivor groups, caregivers, health facilities, government agencies, academics, and advocacy groups in a consistent multi-stakeholder forum. MBCC's goals are to reduce the mortality rates associated with breast cancer disparities by increasing preventive screenings, promoting consistent education on early detection, and defining the capacity required to serve all women in the Memphis region. The unification of these efforts provides a strong platform for long-term success and sustainability. These efforts also ensure there is a long-term plan in place to reduce and eliminate breast cancer disparities, and build strong systems of equity in breast health care for all women.

Conflicting Breast Cancer Screening Guidelines for Women

Currently guidelines and recommendations for frequency of screening vary among national organizations. These represent conflicting timeframes and insurance reimbursement policies. Memphis Breast Cancer Consortium has adopted the American Cancer Society's recommendations for women aged 40 and over to seek an annual mammogram. Given the focus on high rates of mortality for all women in every zip code of Shelby County, the evidence indicates early detection and treatment provides the greatest opportunity for longer survival rates.

About this Report

This first ever "Breast Cancer 901 Community-wide Report" provides the findings of a comprehensive 38-question survey. The report focuses on local demographic data, breast cancer mortality disparity data, and operational information about the capacity and quality of health care mammogram screening facilities in the Memphis region. The survey data in this report were provided voluntarily by 17 of 23 facilities, including the market leaders who are the largest providers of screenings. This collaborative effort provides data on numerous aspects of breast cancer screenings. The intent is for the reader to learn from the local data, as it paints a picture of the capacity currently existing in the Memphis region.

This 10-chapter report is a critical step in creating local data transparency supporting the aim of informing our community. MBCC continues in its objectives to enhance the operations, quality, and access for all women seeking breast cancer screenings and care. The details of the report will identify where and how services are lacking and where additional support is needed. The results provide conclusions and recommendations supportive of policy changes, patient education enhancements, health literacy opportunities, and community-wide efforts to reduce breast cancer disparities. The goal of the Common Table Health Alliance is to continue to conduct this survey and produce a "Breast Cancer 901 Community Report" every two years through the collective efforts of MBCC and the research team of CTHA.

The analysis of the "Breast Cancer 901 Community Report" begins with a discussion of national trends. The next section will frame the Shelby County data provided by the local health department. This section highlights the age-adjusted breast cancer mortality rates by race, and further explores the economic hardship index from 2011-2015 and the potential relationship to key social determinants of health.

Shelby County Statistical Data

Shelby County Breast Cancer Mortality Rate Trends

Based on national data, one in eight women will be diagnosed with breast cancer in their lifetime, which is quite a startling figure. Breast cancer is the leading cause of cancer death among women ages 20 to 59 in the U.S. (Susan G. Komen, 2017).

The Shelby County Health Department Office of Epidemiology uses U.S. Census data and local death certificates to produce a three-year rolling average. This data, provided in Table 1, illustrates the mortality rates per 100,000 women to show trends of the rate of breast cancer deaths and the disparities gap between African American and Caucasian women. The data in this table is age-adjusted to make the comparisons more meaningful and factor out differences between groups due to age alone, as older populations inherently have higher cancer incidence.

Table 1. Age-Adjusted Breast Cancer Mortality Rate Trend (3-year Rolling Averages)			
Years	Total	Black	White
2005_2007	30.70	38.38	25.47
2006_2008	30.09	40.95	22.42
2007_2009	28.61	40.74	20.14
2008_2010	28.65	39.67	20.11
2009_2011	29.14	38.82	21.87
2010_2012	29.28	37.86	22.98
2011_2013	27.24	38.70	24.71
2012_2014	29.76	39.04	22.98
2013_2015	29.86	37.95	24.15
2014_2016	30.5	37.6	25.4

Noted on Figure 2 (located on the following page) is the three-year rolling average of age-adjusted breast cancer mortality rates trended for Shelby County, Tennessee. The data compare the rate of Black versus White women during 2005-2016, in three-year averages. This report uses the terms “African American” and “Caucasian” to identify the ethnicity of women. African American women experienced a mortality rate of 38.38 per 100,000 women in the first three-year period noted as 2005-2007, and Caucasian women had a mortality rate of only 25.47 per 100,000. This disparity gap continues for the entire 10-year period of the three-year rolling averages. It also is important to note the national average for age-adjusted breast cancer mortality rates have decreased during the same period. The current rate is 21 per 100,000 for all women in the U.S. (Susan G. Komen, 2017). In Shelby County, the breast cancer mortality rate for all women remains higher than the national average without any appreciable decline.

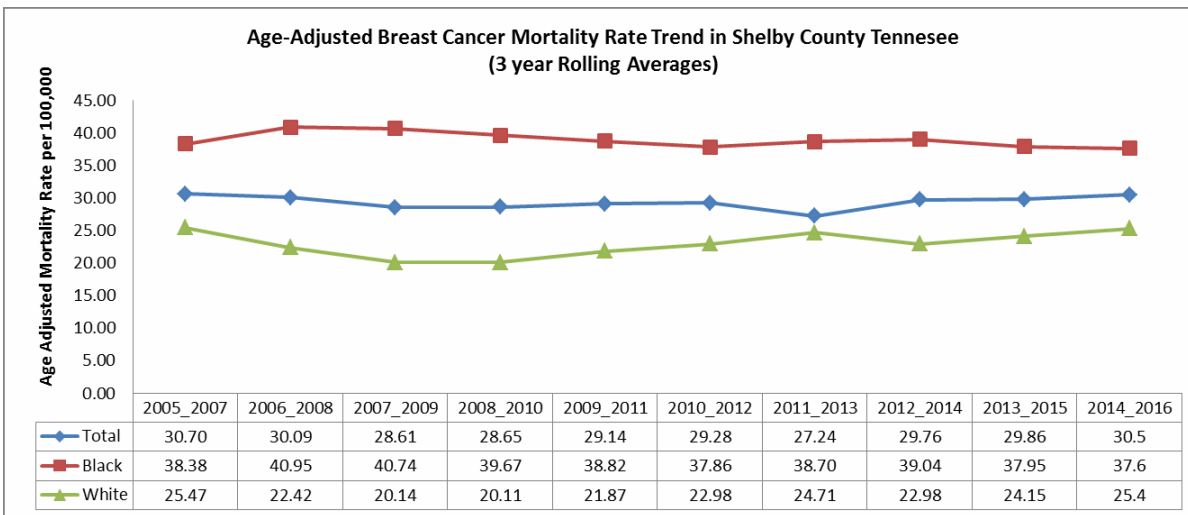


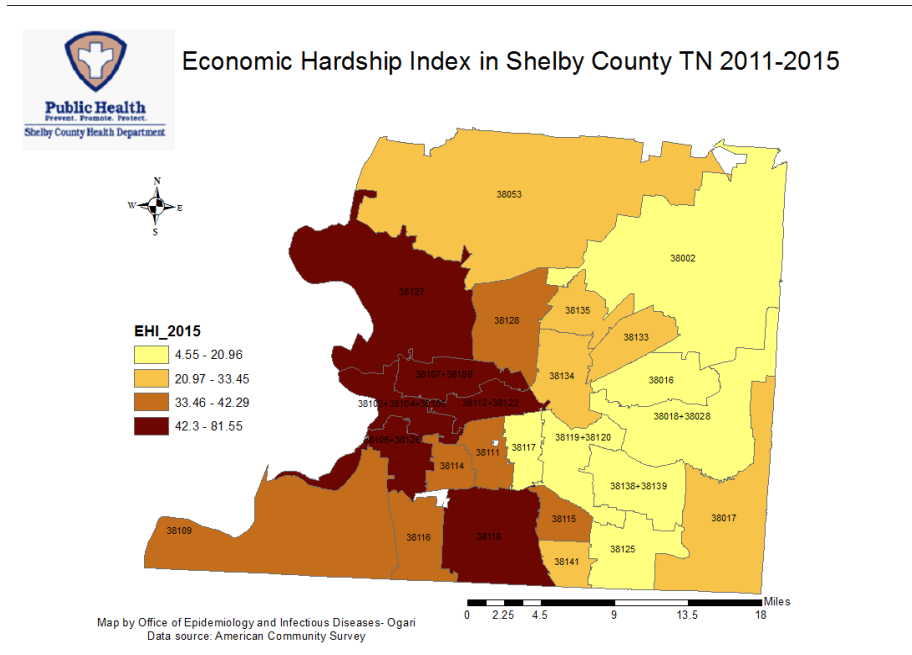
Figure 2. Age-Adjusted Breast Cancer Mortality Rate Trend in Shelby County, TN (3 Year Rolling Averages)

It is difficult to understand both the stubborn persistence of breast cancer disparities and the challenge Shelby County faces in improving health outcomes without considering the social and economic context in which all women in this region live. The social determinants of health are the conditions in which people are born, grow, live, work, age, and include the health care and public health systems. These circumstances are shaped by the distribution of money, power, and resources at global, national, and local levels, which are themselves influenced by policy choices. The social determinants of health are mostly responsible for health inequities—the unfair and avoidable differences in health status.

One way of calculating the distribution of social determinants of health is the Economic Hardship Index (EHI), which focuses on six key social determinants that are critical for one’s health. These include:

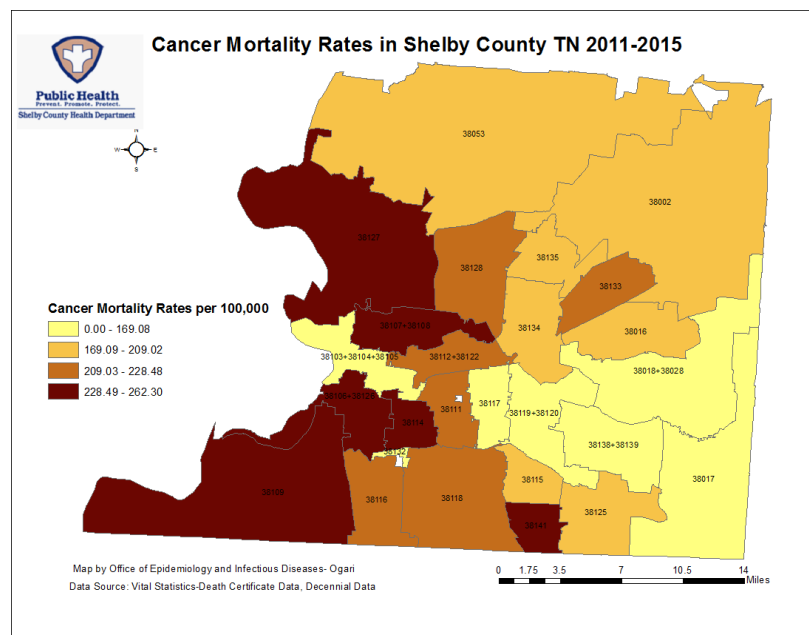
1. Unemployment: defined as the percent of the population over the age of 16 who are unemployed;
2. Dependency: the percentage of the population that is under the age of 18 or over the age of 64;
3. Education: the percentage of the population over the age of 25 who have less than a high school education;
4. Income level: the per capita income of the population;
5. Crowded housing: measured by the percent of occupied housing units with more than one person per room; and
6. Poverty: the percent of people living below the federal poverty level.

The EHI Score ranges from 0 to 100, where a higher score indicates greater economic hardship.



Map 1. Economic Hardship Index in Shelby County TN 2011-2015

Cancer mortality rates overall in Shelby County (Map 1), indicate areas with higher EHI scores, and are the same areas that have the highest cancer mortality rates (Map 2). While the context of economic hardship shapes the pattern of disparities in health outcomes, it also poses challenges for all our communities when Shelby County is compared with state and national rates. It is important to remember that these challenges can be overcome. We can only do this by understanding what our challenges are so that we can address them in our ongoing work, and in partnership with others working on these issues in Shelby County.



Map 2. Cancer Mortality Rates in Shelby County TN 2011-2015

The Survey Instrument Development and Submittal Process

The Mammogram Quality and Capacity Assessment Survey was developed collaboratively with input from local, regional, and national experts. The survey instrument and data collection process were reviewed by three sets of experts for appropriateness to promote validity and establish rigor and trustworthiness:

1. The Medical Advisory panel is composed of breast surgeons, oncologists, radiologists, obstetrics and gynecology specialists, as well as primary care, internal medicine, and family medicine medical providers.
2. The Data and Analysis Review panel is composed of epidemiologists, academic professors and researchers, state and local health department representatives, major healthcare system representatives, health insurance providers, cancer organizations, and quality assurance and improvement experts.
3. The MBCC Steering committee is composed of top decision-makers from national foundations, health systems, academic teaching institutions, health plans, state and local health departments, and cancer survivor groups.

Survey data were entered in a secure, password-protected data portal by staff directly involved with the daily operations of the various mammogram facilities (Figure 3). This included medical directors, clinical directors, managers, supervisors, and a lead mammogram technologist. Participating institutions completed the survey based on current practices during the time frame of data for services rendered based on the survey questions. Data collected referenced years 2015 to 2018.



Figure 3. Mammography Facility Assessment and Capacity Survey Data Portal

Stringent data security was used for collection and storage of the data. Applicable Health Insurance Portability and Accountability Act (HIPAA) guidelines were followed. Each facility had an individual account to enter their data. The authorization to access data was determined by the submitting facility. MBCC offered extensive support and ensured strong linkage existed between the facilities and the project staff.

The project team reviewed the surveys for completeness and checked for inconsistencies. The survey contained 38 questions in a variety of answer formats and topics to evaluate quality, capacity and operational procedures. Data were analyzed for statistical significance.

Recruitment of Mammography Facilities

On October 27, 1992, Congress enacted the Mammography Quality Standard Act (MQSA) to ensure all women had access to quality mammography for the detection of breast cancer in its earliest, most treatable stages. Efforts were made to ensure that all mammography facilities in the region were given the opportunity to participate in the survey. The facility list was obtained from the U.S. Food and Drug Administration (FDA) website. Twenty-three facilities offering screenings were identified in the Memphis area. All 23 facilities were contacted on several occasions with the offer to participate; 17 chose to participate.

Participating Mammography Facilities

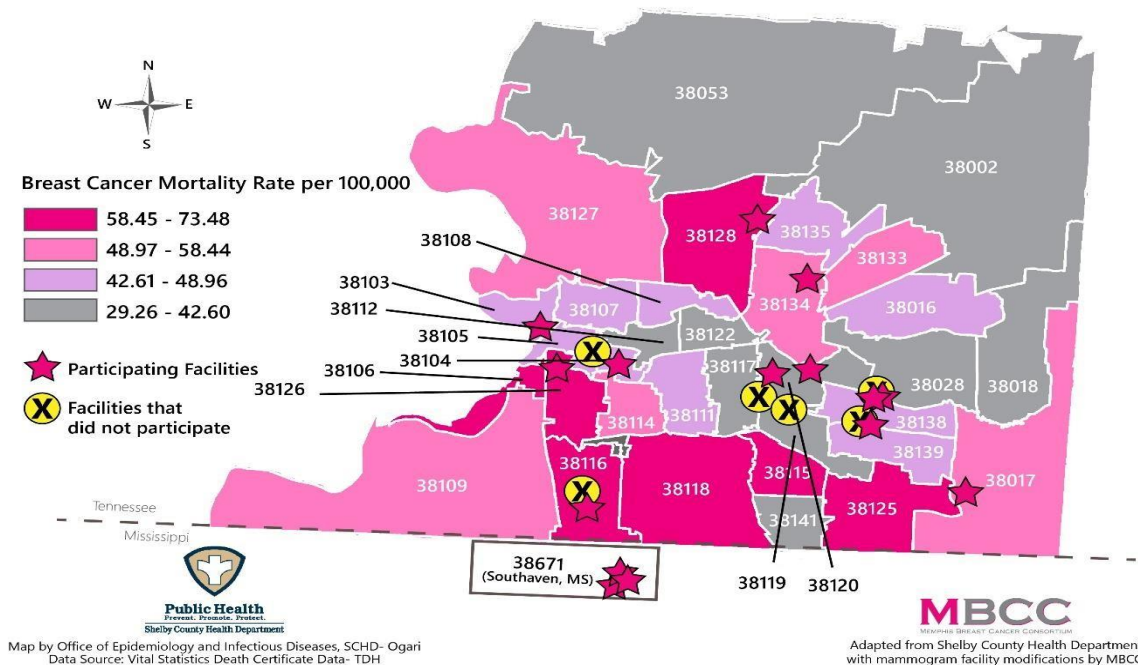
Participating facilities included academic medical centers, teaching hospitals, Federally Qualified Health Centers, cancer centers, obstetrical and gynecological centers, and free-standing facilities. Data from two mobile units are included in this report. Six facilities did not participate in the survey. Rationale for non-participation varied, which included that they did not perform screening mammograms, lacked the staff to perform the data collection process, were unwilling to share data, or declined to engage with CTHA's MBCC project team after multiple attempts.

Recruitment methodology included letters, emails, phone calls, and face-to-face visits.

Facility staff were informed regarding:

- ✓ the purpose of the survey
- ✓ the conceptual framework of the survey (each domain of the survey)
- ✓ type of data to be collected
- ✓ estimated time required to complete the survey
- ✓ data submission process
- ✓ de-identification of data prior to review by the Data Analysis panel
- ✓ expectation of data confidentiality
- ✓ support they would receive during and after the survey
- ✓ dissemination of data into the community

All participating facilities signed Business Associate and Data Use Agreements.



Map 3. Age-Adjusted Breast Cancer Mortality Rates with Mammogram Facilities by Zip Code, Shelby County, 2012-2016

Participating Mammogram Facilities

Baptist Memorial Hospital – Collierville	Margaret West Screening Breast Center – East	Memphis Obstetrics & Gynecological Association – DeSoto
Baptist Memorial Hospital – DeSoto	Margaret West Screening Breast Center – Midtown	Memphis Obstetrics & Gynecological Association – Humphreys
Baptist Women’s Health Center	Memphis Health Center	Memphis Obstetrics & Gynecological Association – Poplar
Baptist Women’s Health Center – Mobile Unit*	Methodist Diagnostic Center – Southaven	Memphis Obstetrics & Gynecological Association – Stage
Margaret West Comprehensive Center	Methodist North Radiology Department	Regional One Health
Margaret West Breast Center Mobile Mammography*	Methodist South Radiology Department	

Figure 4. Participating Mammogram Facilities

Accreditations

We asked each facility what type of accreditation they had when completing the survey. All 17 facilities met the federally required standards of being MQSA-certified (Table 2). The MQSA accreditation indicates facilities employ providers who are licensed to practice medicine, certified in diagnostic radiology, achieved at least 240 mammographic examinations within the 6month period immediately before the date that the physician qualifies as an interpreting physician, and have experience in interpretations of examination requirements. Additional accreditations held by the organizations are above and beyond the minimum. The participating facilities demonstrate a degree in excellence that should be highly commended. The additional accreditations are as follows: **five** facilities are BICOE accredited (29.4%), **two** facilities are DICOE accredited (11.8%), and **two** facilities are NAPBC accredited (11.8%). See Figure 5.

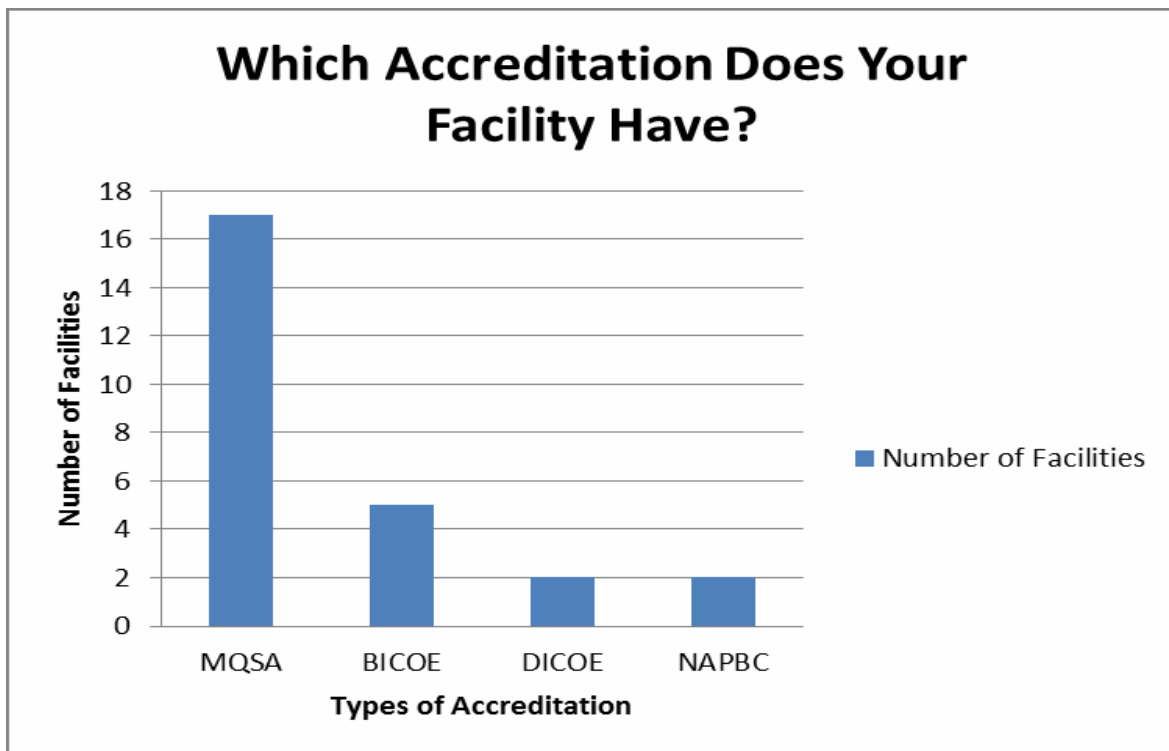



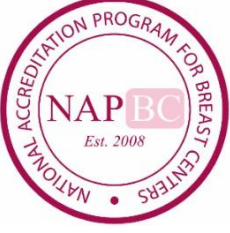


Figure 5. Facility Accreditation Types

Table 2. Additional Accreditations

	<p>The Mammography Quality Standard Act requires all facilities meet the requirements of the Mandatory Mammography Accreditation Program (MQSA).</p>
	<p>The designation of Breast Imaging Center of Excellence (BICOE) is awarded to breast imaging centers that achieve excellence by seeking and earning accreditation in all of the ACR's voluntary breast-imaging accreditation programs and modules. A center must be fully accredited in: Mammography by the ACR (or an FDA-approved state accrediting body), Stereotactic Breast Biopsy by the ACR, Breast Ultrasound by the ACR, and the Ultrasound-guided Breast Biopsy Module.</p>
	<p>The designation of Diagnostic Imaging Centers of Excellence (DICOE) is awarded to diagnostic imaging centers. They assess the qualifications of personnel, policies and procedures, equipment specifications, quality assurance (QA) activities, patient safety, image quality, and ultimately the quality of patient care. These evaluations focus on the process of delivering diagnostic imaging care. The (DICOE) program provides a comprehensive assessment of the entire medical imaging.</p>
	<p>The National Accreditation Program for Breast Centers (NAPBC) accreditation is granted only to those centers that have committed to provide the best in breast cancer diagnosis and treatment and is able to comply with established NAPBC standards. Each center must undergo a rigorous evaluation and review of its performance and compliance with the NAPBC standards. To maintain accreditation, centers must undergo on-site review every three years.</p>

CHAPTER 3: HOW DO WE DEFINE CAPACITY, QUALITY AND UTILIZATION

Need, Capacity, Utilization, Volume, and Facility Operations

Need

Shelby County, Tennessee was estimated by the Shelby County Health Department (SCHD) Office of Epidemiology to have a population of 470,174 women in 2016. More than 210,870 female residents were between the ages of 40 to 64 years; the recommended ages to seek a yearly screening mammogram (American Cancer Society, 2015). Yet, the most recent behavioral risk factor survey conducted by Centers for Disease Control and Prevention in 2015 for the Memphis area estimates only 60% of the women (or a total of 126,522 women) reported receiving an annual mammogram.

Capacity

CTHA's research team for the Memphis Breast Cancer Consortium (MBCC) estimated the maximum capacity for providing mammograms for each facility with the necessary equipment, using the 2006 Government Accountability Office (GAO) definition of maximum capacity. This GAO capacity definition estimated that 1 mammography machine and 1 technologist could perform about 3 mammograms per hour, which equates to 24 mammograms within an 8-hour day as potential maximum capacity (U.S. Government Accountability Office, 2006). A formula of three multiplied by the number of mammography machines in the region, times the number of hours the facilities are open, multiplied by the proportion of all screening mammograms, determined the maximum screening capacity. This yielded a potential capacity of 6,000 mammograms per machine per year. Among the 17 reporting facilities in Memphis, there are 35 digital mammography machines. Therefore, the maximum capacity for screening among the reporting facilities using the GAO estimation is 210,000 screening mammograms on an annual basis.

Utilization

The 17 facilities surveyed in this report conducted 99,825 screening mammograms. This number of mammograms represents 79% of the total 126,522 screening mammograms obtained in 2015, indicating that the reporting facilities account for the majority of screening mammograms performed. However, the 99,825 mammograms represent only 47.3% of the estimated need for women in Shelby County, as noted by SCHD in 2016. Another 84,348 women represented the total gap in services to achieve 100% screening mammogram coverage. While ideally, 100% of women will receive mammograms, the immediate recommendation of this report is to achieve the Healthy People 2020 goal of 80% of women 40 to 64 years of age receiving breast cancer screenings (a total of 168,696 women), or at least another 42,174 women.

Volume

Based on 2016 data identified by the capacity survey, the number of total screening mammograms performed within the MSA was 99,825. In addition, 42,524 diagnostic mammograms were also conducted, resulting in 142,349 total mammograms within the MSA. The reported annual screening mammography volume (99,825) is 47.3% of the eligible female residents, or "need" (210,870) of Shelby County. Based on data from the reporting facilities within the region, the MSA has the capacity to perform 99.6% of the estimated needed screening mammograms. However, we are still underutilizing our current resources because we have only performed 47.5% of the estimated capacity. We have enough

capacity to serve the majority of the women in the MidSouth, but greater efforts need to be made to reach these eligible women. The mammography need, utilization, and volume are presented in Table 3.

Table 3. Mammography Need, Capacity, Utilization, and Volume

Number of Participating Facilities	17
Annual Screening Mammographic Need	210,870
Number of Screening Mammograms Performed	99,825
Number of Total Mammograms Performed (Screening + Diagnostic mammograms)	142,349
Maximum Capacity for Screening using GAO Estimation	210,000

Operational Hours and Additional Services

Most facilities have consistent hours Monday – Friday, which included the time frames of 7:30am to 4:00pm, 7:30am to 5:30pm, and 9:00am to 4:00pm. One facility had extended hours, 7:00am to 7:00pm, and another offered Saturday and Sunday hours. Several facilities also provide patient transportation, and group support services.

Facility Participation and Assistance Used by Facilities for Uninsured or Underinsured

The Tennessee Breast and Cervical Screening program (TBCSP) through the Shelby County Health Department provides outreach, education, screening, diagnosis, and treatment services to women who meet all of the following guidelines: ages 40 to 64, income at or below 250% federal poverty level by family size, uninsured or underinsured, and a resident of the State of Tennessee. Women ages 18 to 39 may qualify under special criteria (symptomatic or abnormal screening test). TBCSP funding will cover the cost of a diagnostic mammogram and a biopsy when needed. Patients who require surgery, however, must qualify for TennCare. Funding for the patient ends when the therapy is completed. Four (4) out of the seventeen (17) participating survey facilities participate in the program. The program is available to all hospital, mammogram, and diagnostic facilities. TBCSP navigated 4,027 women in Tennessee, and 591 women in Shelby County through the program in 2017, which is a decrease from 610 women in 2016.

Grant-Funded Mammogram Services and Research

Susan G. Komen Memphis-MidSouth-Mississippi funds local healthcare grants to provide doctor visits, mammograms, diagnostics, treatment, and surgery for underserved women. In 2017, grant funds paid for 2,000 screening mammograms and 900 diagnostic mammograms to be performed.

Please note that neither the state nor Susan G. Komen cover all uninsured or underinsured women.

Clinical Trials

The difficulty engaging African American women in clinical trials often is noted in the literature as a barrier to support research identifying why African American women have higher rates of death and diagnosis with more serious forms of breast cancer. The American Cancer Society (ACS), an active member of MBCC, is investing in this work in the local Memphis area. In 2018, the American Cancer Society invested \$144,000 on breast cancer research in the Memphis area and provided transportation for treatment, for all women who are eligible for their services.

Clinical trials, which are scientific studies conducted to find better ways to prevent, screen, diagnose, or treat disease, are offered at some of the cancer center facilities in the region. They may also show which medical approaches work best for certain illnesses or groups of people. According to the FDA’s July 2017 Global Participation in Clinical Trials Report, only 14.48% of African Americans participated in clinical trials (based on NIMEs from 2015-2016). It is important to note that many MBCC member organizations are participating in clinical trials focused on minority, rural and underserved populations.

Mammogram Utilization, Equipment, and Staffing

When evaluating the mammography capacity within our region, one of the first questions asked was, “How many mammograms were performed within the calendar year?” This included both screening and diagnostic mammograms for the year 2016. The numbers reported (Table 4) represent 17 out of 23 MQSA-accredited facilities in the Memphis MSA. The total number of screening mammograms conducted by all reporting facilities in 2016 was 99,825. The minimum number of screening mammograms conducted in the facility dataset was 209, and the maximum number was 20,189. (mean =5,972; median = 3,557). The total number of diagnostic mammograms conducted was 42,614 for all reporting facilities, with the maximum amount being 20,124 (mean = 2,501; median = 8).

Table 4. Number of Mammograms Per Facility

	Total	Mean	Median	Minimum	Maximum
Number of Screenings	99,825	5,872	3,557	209	20,189
Number of Diagnostic Mammograms	42,614	2,501	8	0	20,124

*The rationale for providing the mean, median, minimum, and maximum number in Tables 4 and 5 is to provide a general overview of the capacity as it relates to the current volumes of screening and diagnostic mammograms.

The survey also determined the number and types of machines, or units, in operation across all facilities. The total number of digital mammography machines reported was 35, with an average of 2 per facility (Table 5). As a note of clarification, the number of digital mammogram units housed in facilities, refers to the number located within the physical address of a mammogram center. The term “organization”, as mentioned in Table 5 and Figure 6, refers to the entity which serves as the larger health care system to which each facility, whether physical or mobile, is associated. Based on the availability of screening units, the number of organizations had a range of one to nine units.

All facilities responding to the survey use digital mammography machines (Table 5). Both traditional film and newer digital mammography units produce accurate results for most women; however, digital mammography has important advantages over film for women who are less than age 50, have dense breasts, and/or have not experienced menopause, or menopause occurred less than a year ago. Digital machines also make it possible for all women to have additional analysis by both radiologists and advanced computer technology. Ease in sharing electronically means second opinions are easier to obtain. Finally, digital images provide better clarity and visibility while allowing more views with less radiation exposure.

Table 5. Number of Screening Units Within the Organizations	Total	Minimum per facility	Maximum per organization
Digital Mammography Machines	35	1	9

Table 5. Number of Screening Units Within the Organizations

Figure 6 provides the reader with a visual depiction of how the mammogram is performed. The one-on-one interaction between the imaging technologist and the patient being screened is important throughout the screening process. Patients are required to lay each breast individually on the flat bed of the screen to produce adequate images. Additionally, multiple images are obtained for each breast. While this process can be uncomfortable and confusing, technologists act as coaches and provide support, in addition to performing the required technical aspects of obtaining images to be read by the radiologist.

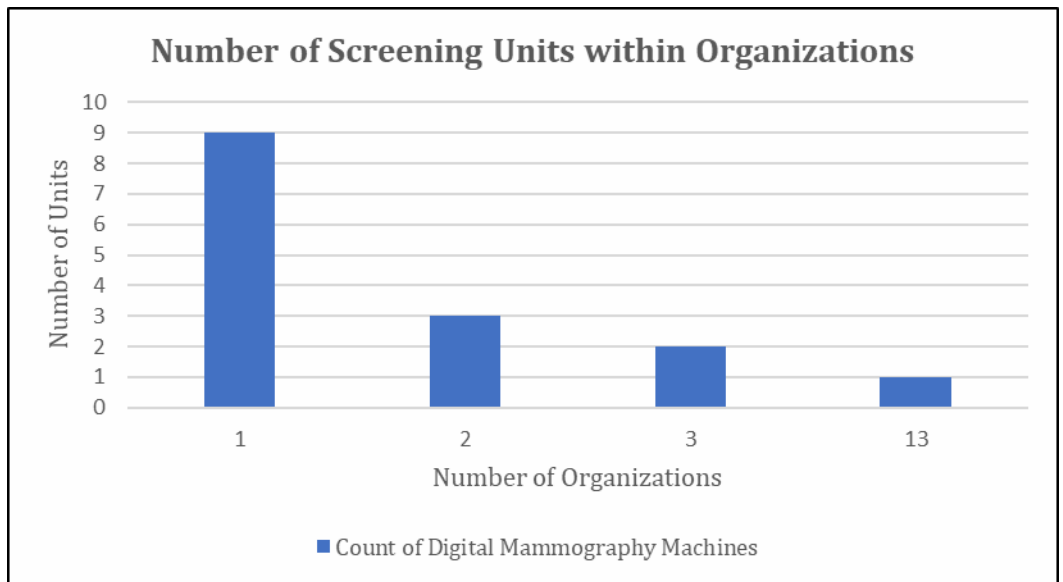


Figure 6. Number of Digital Mammography Machines within Organizations



Figure 7. Mammography Procedure Visual Depiction

The screening mammogram volume that can be serviced by 35 digital mammography machines is 3 per hour, at 8 hours per day, for 5 days per week for 52 weeks is 218,400. Given the fact that the 17 facilities performed 99,825 screening mammograms that leaves a remaining capacity of 118,575. This remaining capacity is split between diagnostic procedures and other services as required. These preliminary numbers of digital mammography machines that are used for performing the breast imaging are not a capacity constraint.

Number of Full-time Imaging Technologists

Mammography imaging technologists first must complete a two-year associate program to become a certified radiologic technologist. Becoming a mammography imaging technologist requires an additional 40 hours of training, with a minimum of 25 examinations performed under direct supervision. An additional registry examination is also required.

In 2016, an average of 3 to 4 full time equivalent (FTE) imaging technologists per facility performed mammography and breast imaging (min = 1, max = 12) (See Figure 8). The total number of FTE imaging technologists reported was 65, and the number of FTE technologists who performed breast imaging more than 75% of the time in 2016 was 59. The screening mammogram volume that can be serviced by 65 technologists at 3 mammograms per hour, working a standard 40-hour week (with 2 weeks off due to the holidays) is 390,000. The 17 facilities completed 99,825 screening mammograms, requiring a total of 17 FTEs performing 3 screening mammograms per hour. The remaining capacity was split between diagnostic procedures and other services as required. These preliminary numbers of technologists who work full-time indicate performing breast imaging is not a capacity constraint.

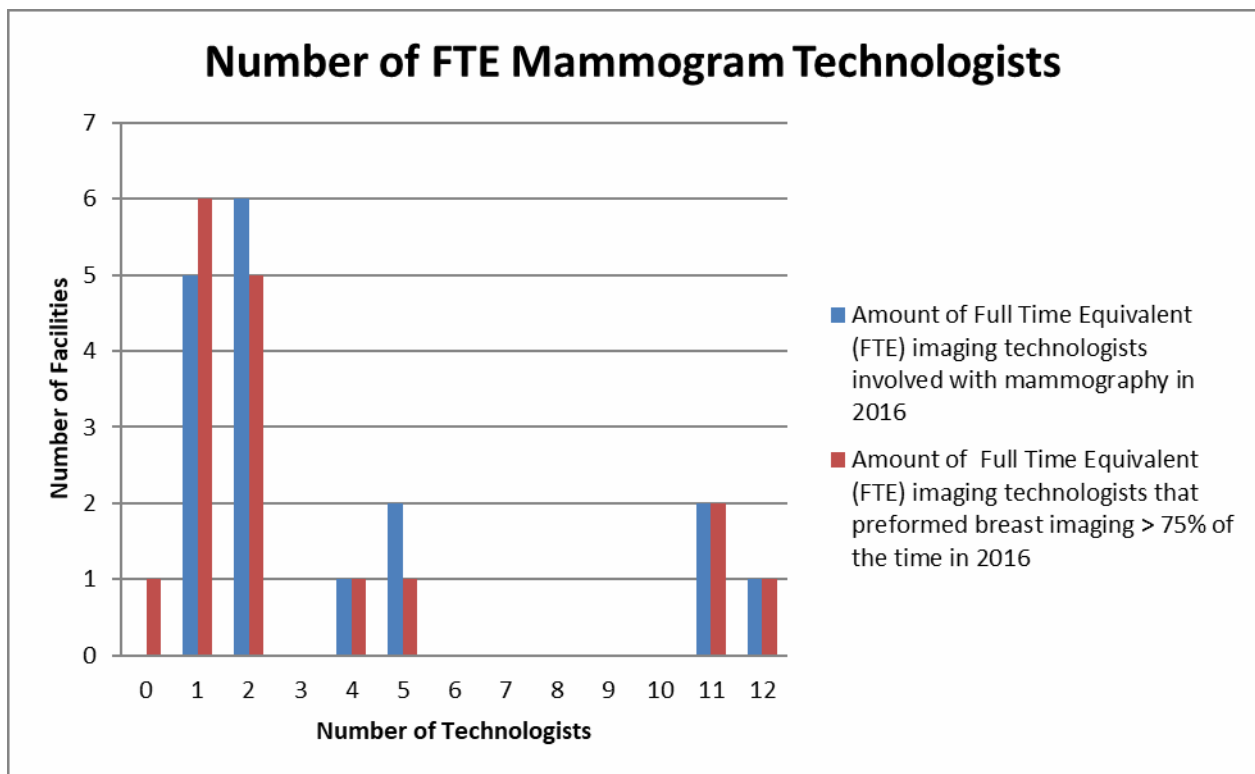


Figure 8. Number of FTE Mammogram Technologists

Number of Full-time Radiologists

Radiologists are physicians with additional training in the reading of X-rays and other imaging studies. The U.S. Food and Drug Administration has specific expectations for initial preparation required for physicians to interpret mammograms as well as requirements to maintain their qualifications. Radiologists interpreting mammograms must read at least 960 mammograms every 24 months to maintain their qualification. This requirement is in addition to continuing education.

In 2016, FTE radiologists dedicated to reading breast images more than 75% of the time ranged from 0 to 3 physicians for reporting facilities. Furthermore, in 2017, FTE radiologists reading breast imaging ranged from 0 to 6 physicians (Figure 9). Although a radiologist may not have been present on-site for some facilities, radiologists at other entities were available to provide access for those services. Radiologists also provide advice regarding the need for biopsies and any additional testing services. The preliminary number of radiologists who are on site full-time, and the ability to outsource volume to additional radiologists indicates that the reading of breast images is not a capacity constraint.

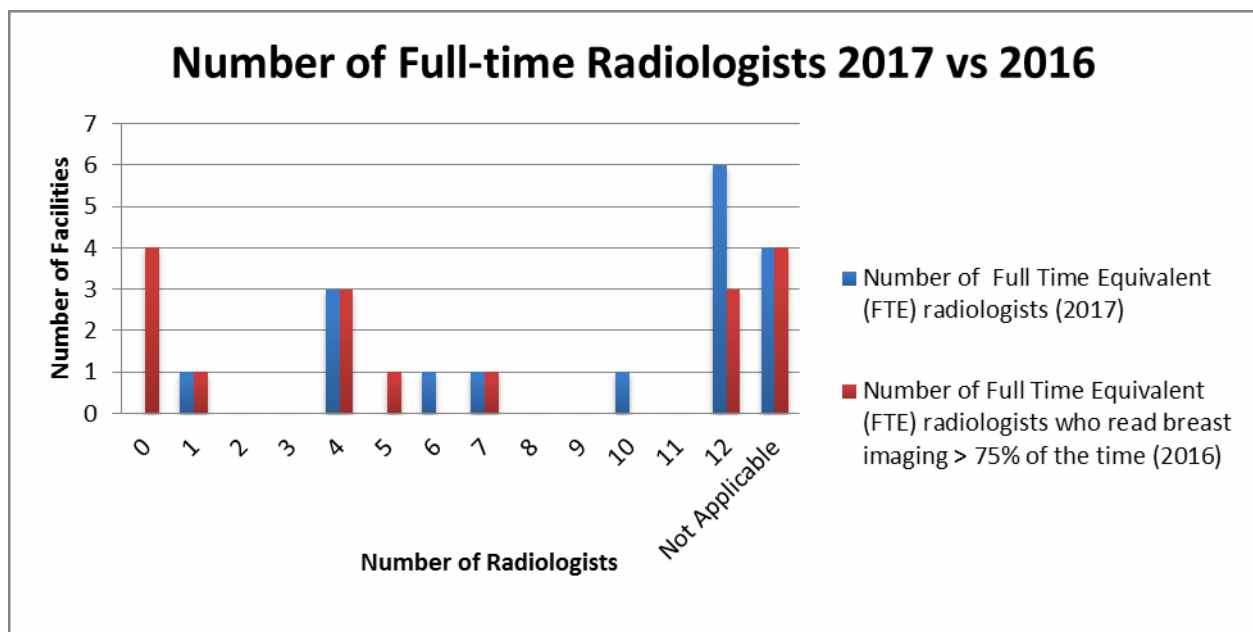


Figure 9. Number of FTE Radiologists in 2017 versus 2016 (note: not applicable is defined as not having full-time on-site radiologist).

Type of Screenings and Diagnostic Procedures Offered

Respondents to the survey were asked about patient access and engagement. These questions included information about the types of services their facility offers, how long the average appointment takes, and the next available appointment time slots. Healthcare clinicians determine the selection of the varied screenings and/or diagnostic procedures for the patient based on the best approach for a thorough evaluation. There were seven various categories of additional services facilities offered in addition to screening mammograms (Figure 10). Not all settings and facilities provide all choices, however, eight facilities offered additional services. All the facilities reporting offer screening mammography, but less than 50% offer the additional screening and diagnostic procedures mentioned. Diagnostic mammography, breast ultrasound, and Ultrasound guided breast biopsies were offered by seven facilities within the region. Four facilities offered Stereotactic biopsy, two facilities offered Breast magnetic resonance imaging and MRI guided breast biopsies, and one facility offered Tomosynthesis guided biopsies (Figure 10).

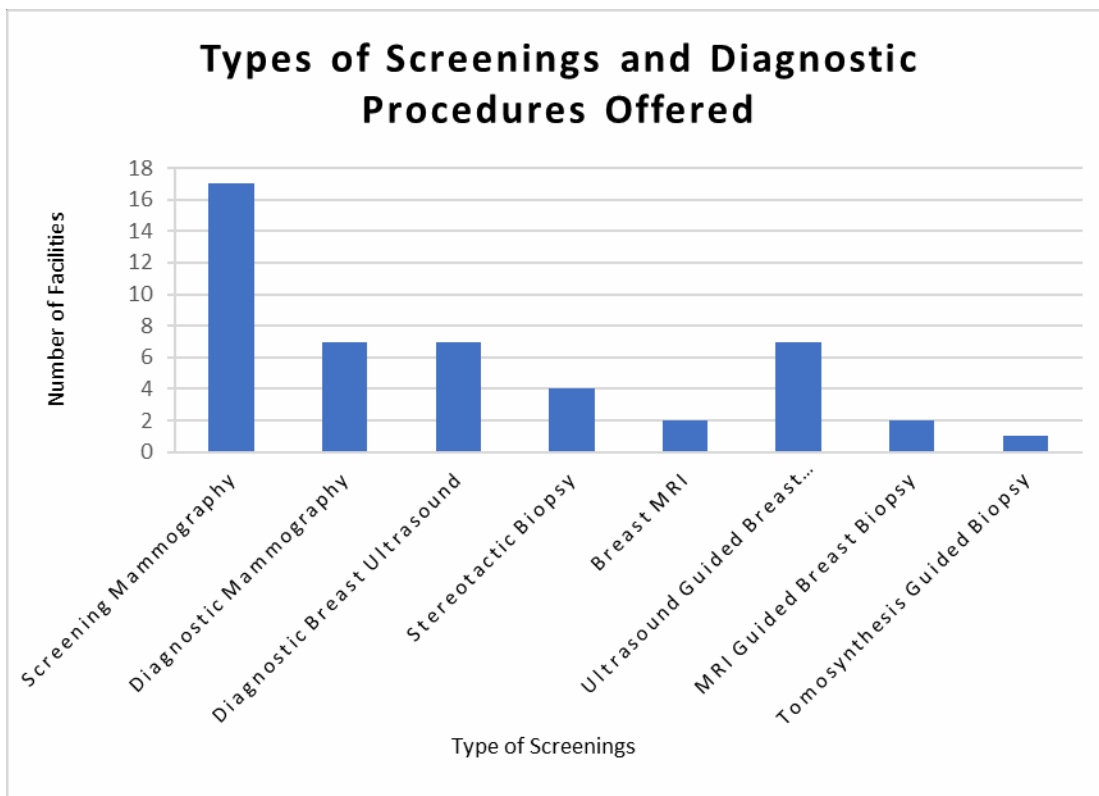


Figure 10. Types of Screenings and Diagnostic Procedures Offered

Diagnostic mammography is used after suspicious results are detected on a screening mammogram or some other indicators of breast cancer are present. Breast ultrasound also is used often as a follow-up test after an abnormal screening result. Stereotactic biopsy uses mammography to identify and biopsy abnormalities found within the breast. Breast magnetic resonance imaging (MRI) uses radio waves and strong magnets to make detailed pictures of the inside of the breast. Ultrasound guided breast biopsies also use sound waves to help locate a lump or abnormality and remove a tissue sample for examination

under a microscope. MRI guided breast biopsies use magnetic resonance imaging to locate and remove suspicious tissue from the breast. Tomosynthesis guided biopsies are conducted from various angles with 3D image guidance, along with a vacuum biopsy needle, and are useful for diagnostic examinations of non-calcified lesions.

Duration of Services Offered

Based on national mammography capacity data from the 2006 Government Accountability Office (GAO), a screening mammogram took an average of 15 to 20 minutes, and a diagnostic mammogram required 30 to 60 minutes to perform. The average duration of each type of service offered was reported by each facility within the survey. This was reported as the average number of minutes for each appointment to be completed. The overall average appointment duration times for all facilities are shown in Table 6. Average appointment times and duration of services for both screening and diagnostic mammograms for local facilities were within the nationally reported estimates and aligned with the GAO national standards. The GAO did not have a standard for the additional procedures and services offered.

Table 6. Types and Average Duration of Services

<u>Type of Service</u>	<u>Average Number of Minutes</u>
Screening Mammography	18.8 minutes
Diagnostic Mammography	48.9 minutes
Breast Ultrasound	36 minutes
Stereotactic Biopsy	83.9 minutes
Breast MRI	50 minutes
Ultrasound Guided Biopsy	71.9 minutes
MRI Guided Biopsy	67.5 minutes
Tomosynthesis Guided Biopsy	52.5 minutes

Percentage of Screening Mammograms Read & Availability of Comparison Films

The frequency of reading mammograms within the same day performed can be helpful to improve the patient experience with mammography services. Three facilities reported their mammogram films read within the same day more than 75% of the time. Of the 17 reporting facilities, 14 facilities did not meet that percentage. Mammograms were read the same day less than 10% of the time for the majority of facilities (11 facilities), and 3 facilities read mammograms the same day 10-24% of the time. (Figure 11). Some facilities do not have the ability to interpret films on site. The process is outsourced and completed by other radiological services within the city.

The only available standard for reporting to the patient is based on the Mammography Quality Standards Act (MQSA). These regulations require mammography facilities send each patient a written summary of the mammography report in lay terms within 30 days of the examination ([MQSA Regulations](#), at 21 CFR 900.12[c][2]). Patients must also be informed of recommendations for additional evaluation within 30 days.

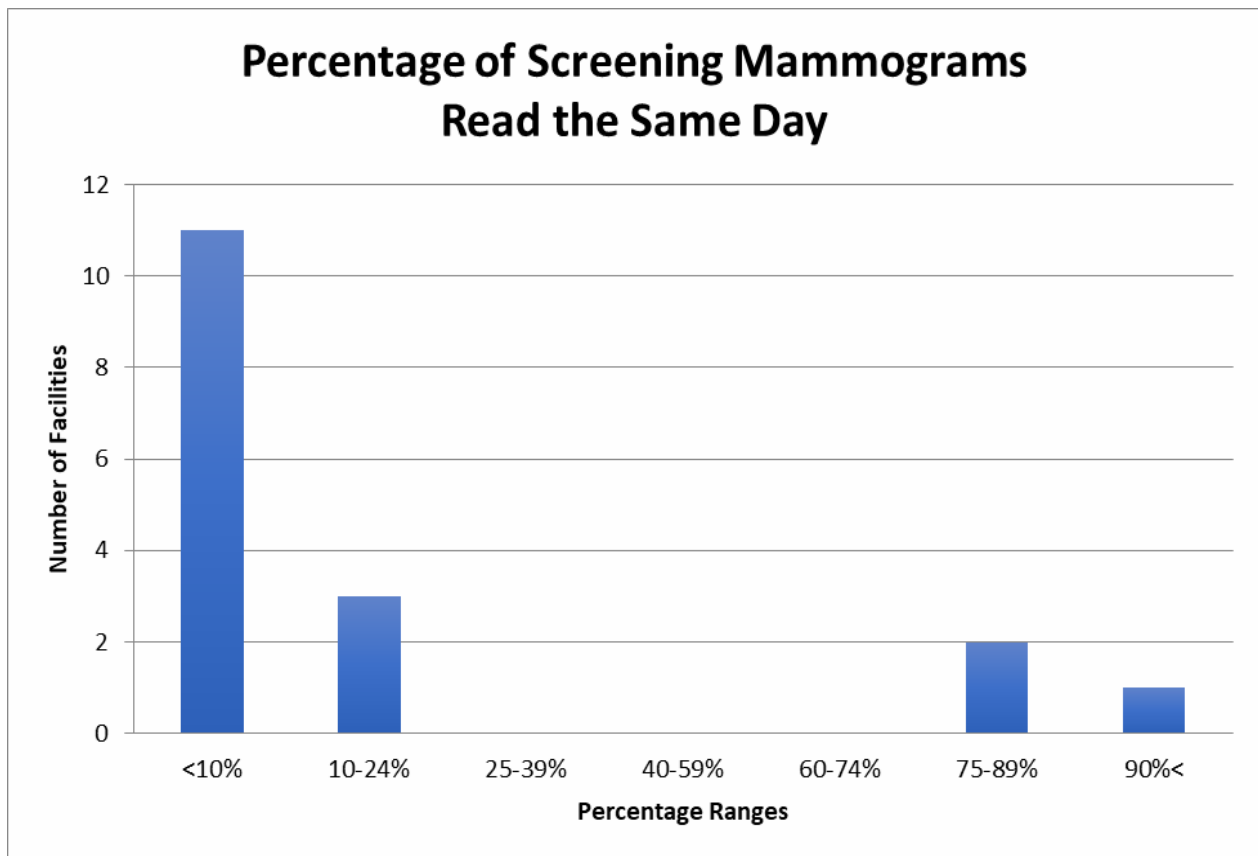


Figure 11. Percentage of Screening Mammograms Read the Same Day

Comparison of Available Films

Ideally radiologists follow practice guidelines to compare newly obtained mammogram findings with prior breast imaging studies. This is an important part of interpreting mammograms (American College of Radiology, 2008). The practice of comparing previous and current images increases the confidence of radiologists in reporting newly identified abnormalities. Radiologists feel more confident reporting an abnormality on a current mammogram when previous images are available for comparison (Wilson, 1996).

False positives can be reduced by 44% when a radiologist compares the most recent mammogram with earlier mammograms. A false positive reading occurs when a negative mammogram is determined to indicate the presence of a tumor, when in fact none exist. Such a reading increases both anxiety and costs for the patient, as additional testing is recommended to ensure whether or not cancer is present. The key is to ALWAYS compare current and earlier mammograms instead of comparing mammograms only when the radiologist thinks it might help. Comparing mammograms also can help radiologists identify problem areas that might otherwise be missed (Comparing Mammograms Boosts Accuracy, Breastcancer.org).

The frequency of comparison films available versus unavailable at the time of screening in 2016 was also assessed. Comparison films were available at the time of screening 90% of the time in 5 facilities (see Figure 12 below) within the region evaluated. Specifically, comparison films were not available less than 10% of the time for women who had prior screening in 15 facilities in 2016 (Figure 12).

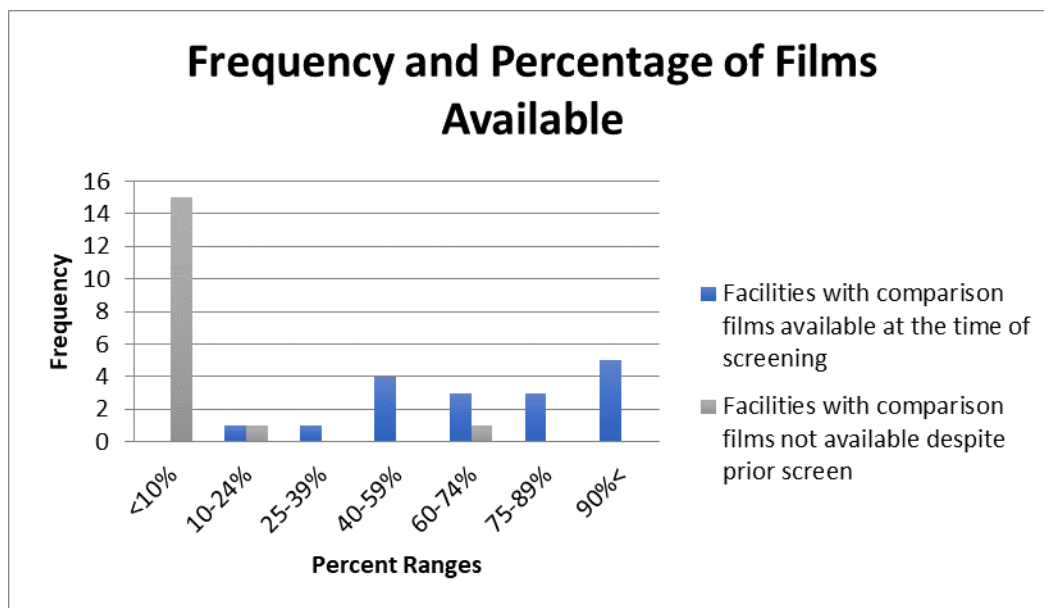


Figure 12. Frequency of Comparison Film Availability

Appointment Availability

To determine appointment availability, each facility was presented a scenario for each of the services offered. The question was asked, “If a patient called today, when is your next available appointment?” The question was asked based on the National Committee for Quality Assurance (NCQA, 2014) standards. The wait times for next available appointments are closely linked to the patient experience component of breast health care. Often when patients are required to wait an extensive amount of time for appointments, it can lead to increased worry and anxiety among them and their caregivers. In addition, patients do not want to run the risk of their condition becoming worse due to a delay in treatment.

Longer waiting times prior to breast cancer diagnosis and the initiation of therapy are of prognostic concern if delay leads to stage progression, disease worsening, or treatment complications. Two major types of delay exist. “Patient delay” is a delay in seeking medical attention after self-discovering a potential breast cancer symptom, or failure to keep appointments. “System delay” is a delay within the health care system in getting appointments, scheduling diagnostic tests, receiving a definitive diagnosis, and initiating therapy.

Both patient and system delays have the potential to result in delays in diagnosis and treatment, which could result in a poorer prognosis for women with breast cancer (Caplan, 2014). Among African American women, patient trust in physician interactions, and a belief that providers would take their health concerns seriously, was central to preventing diagnostic delays between the time that a breast abnormality was identified, and a biopsy or surgery occurred (Maly, 2011). The MBCC Medical Advisory Panel agreed to measure their access performance against the National Committee for Quality Assurance (NCQA) Patient-Centered Home Standard 1A (NCQA). This standard requires practices to provide access for both routine and urgent needs for patients. It is a MUST pass element to obtain Patient-Centered Medical Home accreditation.

Table 7 shows the number of facilities responding to each category of services offered, the average and range of time in days of the first available appointment, along with the third and seventh next available appointments, per NCQA guidelines.

Table 7. Appointment Availability by Days

	Number of Facilities	1st Available (average)	Range	3rd Available (average)	Range	7th Available (average)	Range
Screening Mammography	17	1.1 days	0 – 6 days	2.5 days	0 – 14 days	4.1 days	0 – 21 days
Diagnostic Mammography	7	5 days	0 – 28 days	6.9 days	0 – 35 days	8.1 days	0 – 35 days
Diagnostic Breast Ultrasound	7	1.2 days	0 – 28 days	2.2 days	0 – 35 days	3.4 days	0 – 35 days
Stereotactic Biopsy	4	2 days	0 – 6 days	5 days	0 – 14 days	9.3 days	1 – 21 days
Breast MRI	1	0 days	0 days	1 day	1 day	1 day	1 day
Ultrasound Guided Breast Biopsy	7	10.3 days	1 – 28 days	13.2 days	0 – 35 days	20.3 days	0 – 49 days
MRI-guided biopsy	2	6 days	5 – 7 days	10 days	6 – 14 days	13.5 days	6 – 21 days
Tomosynthesis Guided Breast Biopsy	1	4 days	4 days	4 days	4 days	4 days	4 days

Steps to Ensure the Quality of Mammogram Screenings

In 2016, the MBCC Medical Advisory Panel (MAP) adopted a set of agreed, defined steps to address the consistent quality of mammogram screenings performed in the Memphis region through positioning and compression techniques. The quality of the image provided to the radiologist was clearly noted as a necessary first step. The MAP framed steps that ensured education and knowledge of proper techniques of all mammogram technologists in the Memphis region to effectively perform compression and positioning of the breast during the screening process. The MAP noted variations, which currently exist, and the need to ensure consistent positioning and compression techniques to improve the mammogram image and patient experience during the screening process.

In addition, other steps have been noted to be important in addressing the quality of the screening mammograms, which include the following: feedback to technologists, local provider learning collaboratives to share best practices in breast care, adoption of national standards in breast care, a uniform platform for training technologists, and general educational activities across all screening facilities.

All these steps have been adopted by MBCC members as a reliable approach to ensure all screening mammograms are clear and readable, accreditation standards are met, and all Memphis region facilities provide the highest quality of patient care.

The survey collected data on the frequency of the feedback given to mammogram technologists, a national standard adopted by MBCC members. Data was specifically collected on how often feedback is provided on positioning and compression during the screening process. Appropriate feedback contributes significantly in developing learners' competence and confidence at all stages of their professional careers; it also helps them think about the gap between actual and desired performance, and identifies ways to narrow the gap and improve. In addition to yearly feedback to mammogram technologists, MBCC also has promoted continuing medical education (CME) and continuing education unit (CEU) learning activities across all facilities.

Without feedback, staff will continue practicing in the same way. This leads into a false self-assessment of their skills and abilities. Giving and receiving effective feedback are skills that are central in healthcare settings. The whole process is closely linked with professional development and improved performance. Both impact the quality of healthcare services and patient satisfaction.

In 2016, Louise C. Miller, R.T.(R)(M)(ARRT), CRT, FSBI, co-founder of Mammography Educators was engaged to conduct a comprehensive 8-hour training session offered to all mammogram technologists in the Memphis region. The session was attended by technologists employed by 19 of the 23 facilities in the region providing mammogram-screening services. This represents 82.6% of the Memphis market. In addition, data was collected at this training session by the CTHA MBCC project team on levels of satisfaction of the training, pre-and post-tests on the knowledge gained, and the number of Category A, ASRT CEUs awarded as a result of this training. Pre versus post-test scores identified a 50% increase in knowledge among participants.

Among technologists in the Shelby County region, most received feedback annually and quarterly (See Figure 13). Feedback is given by all 17 facilities at least once a year.

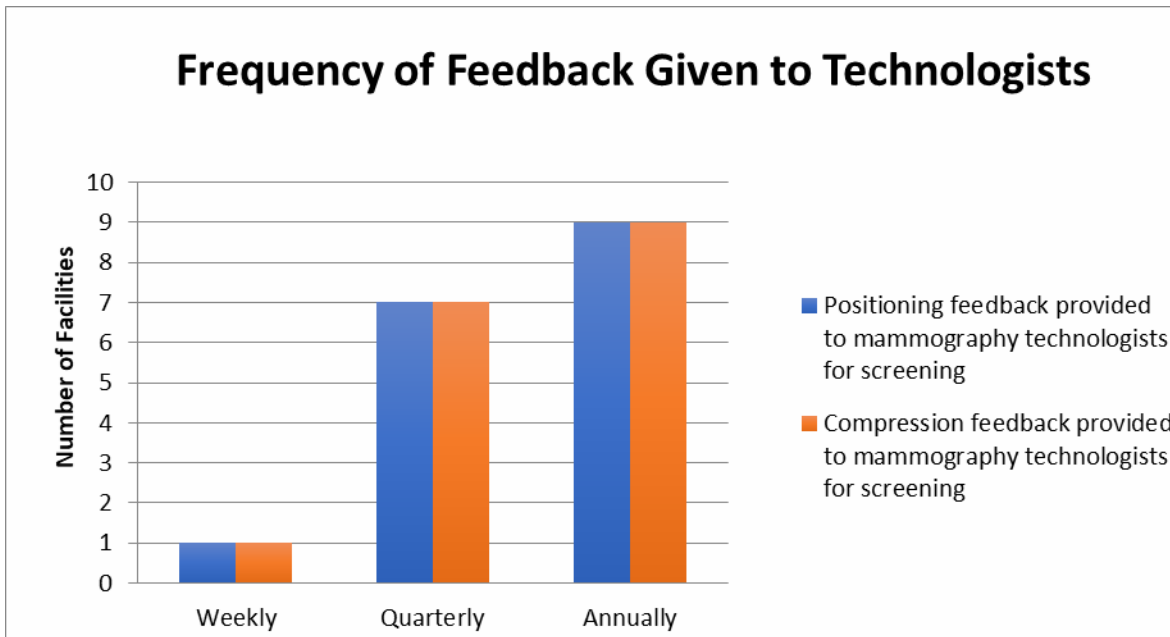


Figure 13. Frequency of Feedback Given to Technologists

Additional educational activities have been instituted for the providers through shared learning collaboratives. This format led by the CTHA MBCC project team offers CMEs, with the engagement of a national speaker to promote best practices and discuss data on national statistics and their relationship to local quality, disparities, and overall breast health trends. These collaboratives are open to all providers of breast care services and provide a unique forum of learning and sharing among competing healthcare facilities.

The steps noted in this section are designed to be continued as a yearly process across all facilities to affect system wide improvements, which promote higher quality screening mammograms, reduction in the disparities gap, better patient engagement, and improved screening accuracy.

CHAPTER 5: WHAT IS THE STATUS IN YOUR AREA?

The maps noted on the next three pages are designed to provide the reader with a visual representation of breast cancer mammogram facilities by zip code. These maps were created by mapping the zip codes of the residences of the 99,825 women who received a mammogram conducted across the 17 participating facilities. In addition, some key census data are also provided to frame differences in African American, Caucasian, and women of other races. The intent is to illustrate the geographic coverage of the facility locations versus the zip codes where the recipients of the mammograms live.

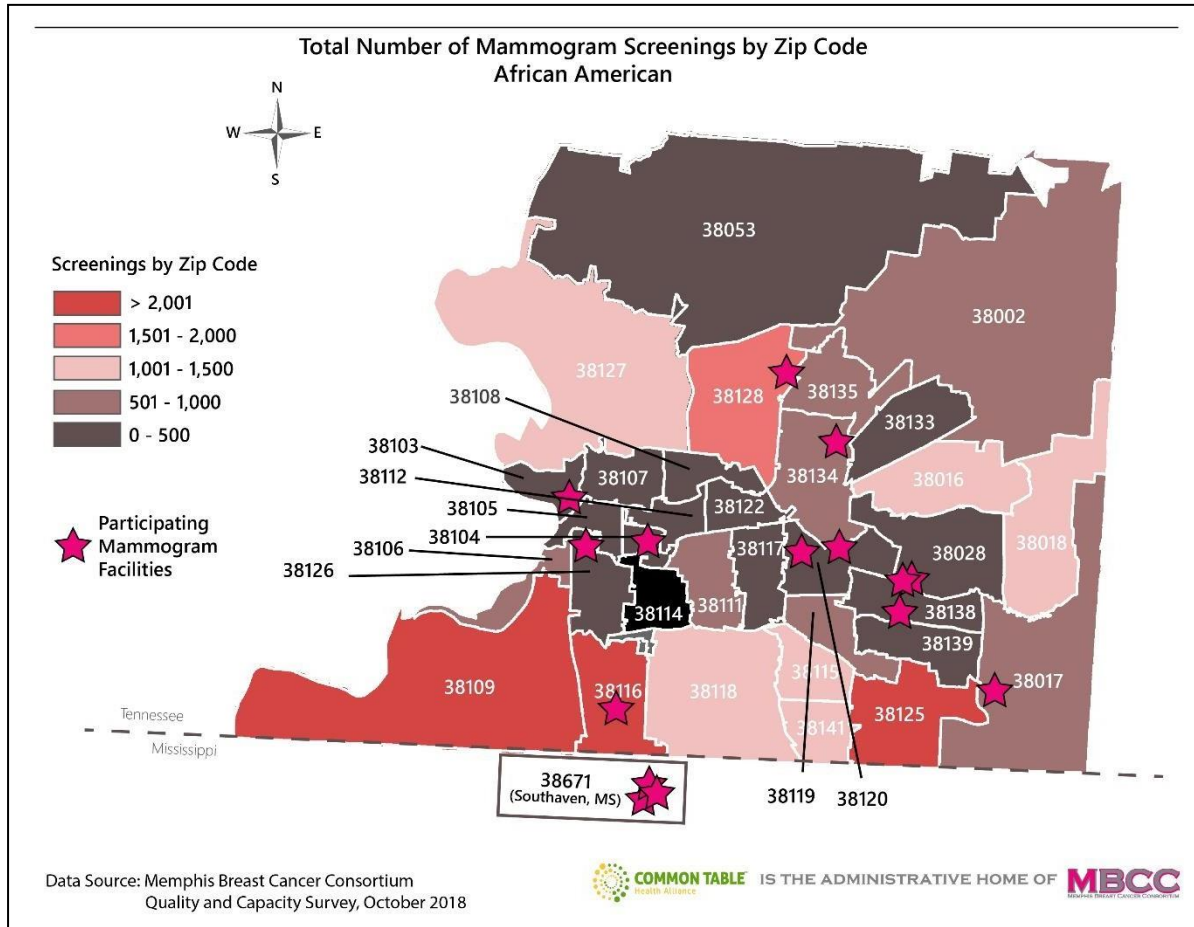
It is important to note that the maps show the breakout of the women who received mammograms by race and where they reside, but do not show the number of women by race by zip code who are eligible for mammograms. As a result, we are not able to tell visually on these maps how much of an impact MBCC efforts are having in each zip code. However, we can see that women in high mortality zip codes are getting their mammograms.

Women obtaining their mammograms is a positive sign of the effectiveness of the 18 -month “Sister Pact” campaign. A key observation is that most of the facilities are located along Poplar/Union/Walnut Grove roads (the main local corridor) for the Memphis MSA. This corridor follows the historical trend of growth for the metropolitan area, and larger healthcare facilities are located along this route. The areas not co-located with a facility are a focus of the mobile mammography units.



Figure 14. Mammography Mobile Units

Map of Mammogram Screenings by Zip Code and Race – African American



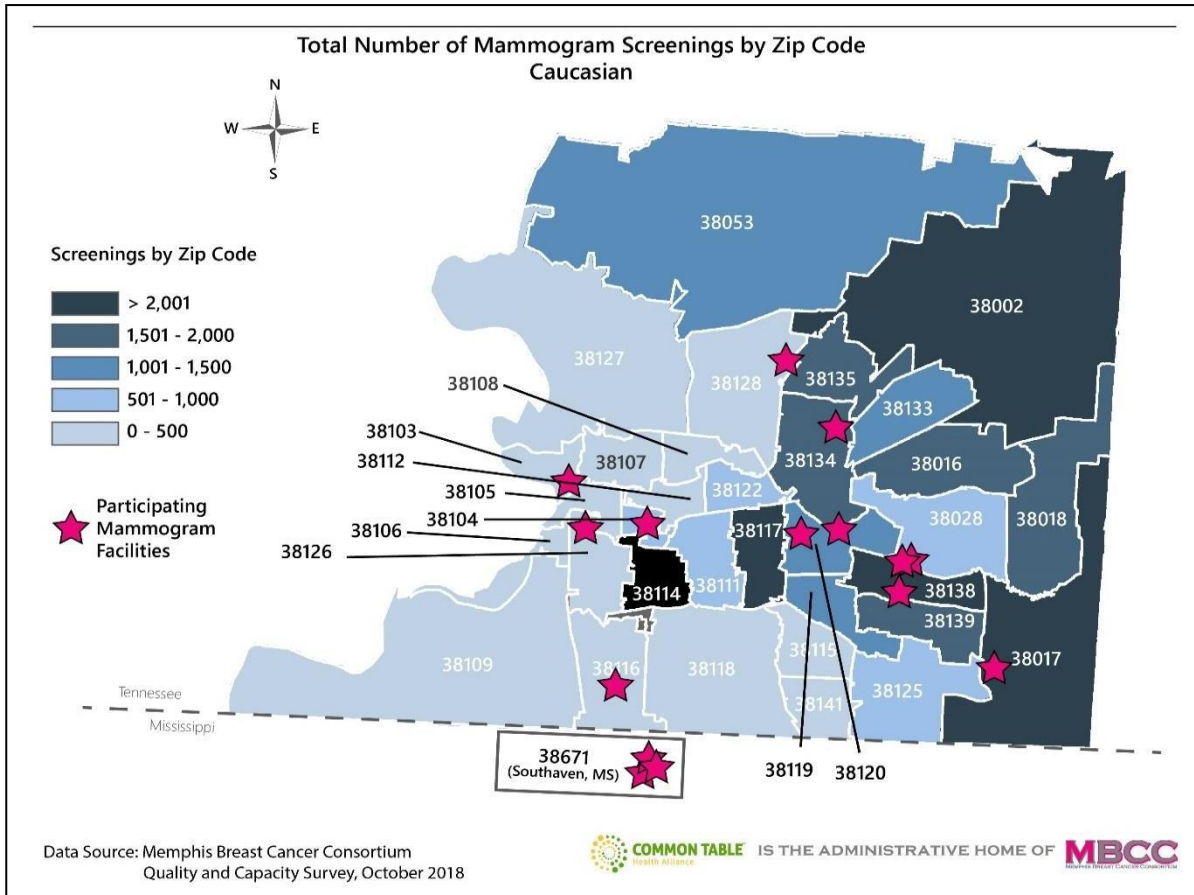
Map 4. Total Number of Mammogram Screenings by Zip Code – African American

The Memphis, TN, city area hosts a total population of 652,231 people (Females=53%; Males=47%). The Shelby County, TN, area includes the surrounding suburban cities and hosts a population of 936,961 people (Females=52%; Males=48%). The female population over the age of 40 is 23.1% for Memphis, TN, and 24% for Shelby County, TN. The ratio of African American males to females by percentages is 46% (males) to 53% (females).

The African American female population over the age of 40 is 13.6% for Memphis, TN, and 11% for Shelby County, TN. African American (AA) Population-Specific Data:

Characteristics	Memphis, TN	Shelby County, TN	TN
<u>Population</u>	63.4%	53.4%	16.6%
<u>AA Females (40+)</u>	13.6%	11.0%	-----
<u>Poverty Rate (18-64 yo)</u>	26.6%	23.2%	21.8%
<u>Median Income</u>	\$31,471	\$35,632	\$35,669

Map of Mammogram Screenings by Zip Code and Race – Caucasian



Map 5. Total Number of Mammogram Screenings by Zip Code - Caucasian

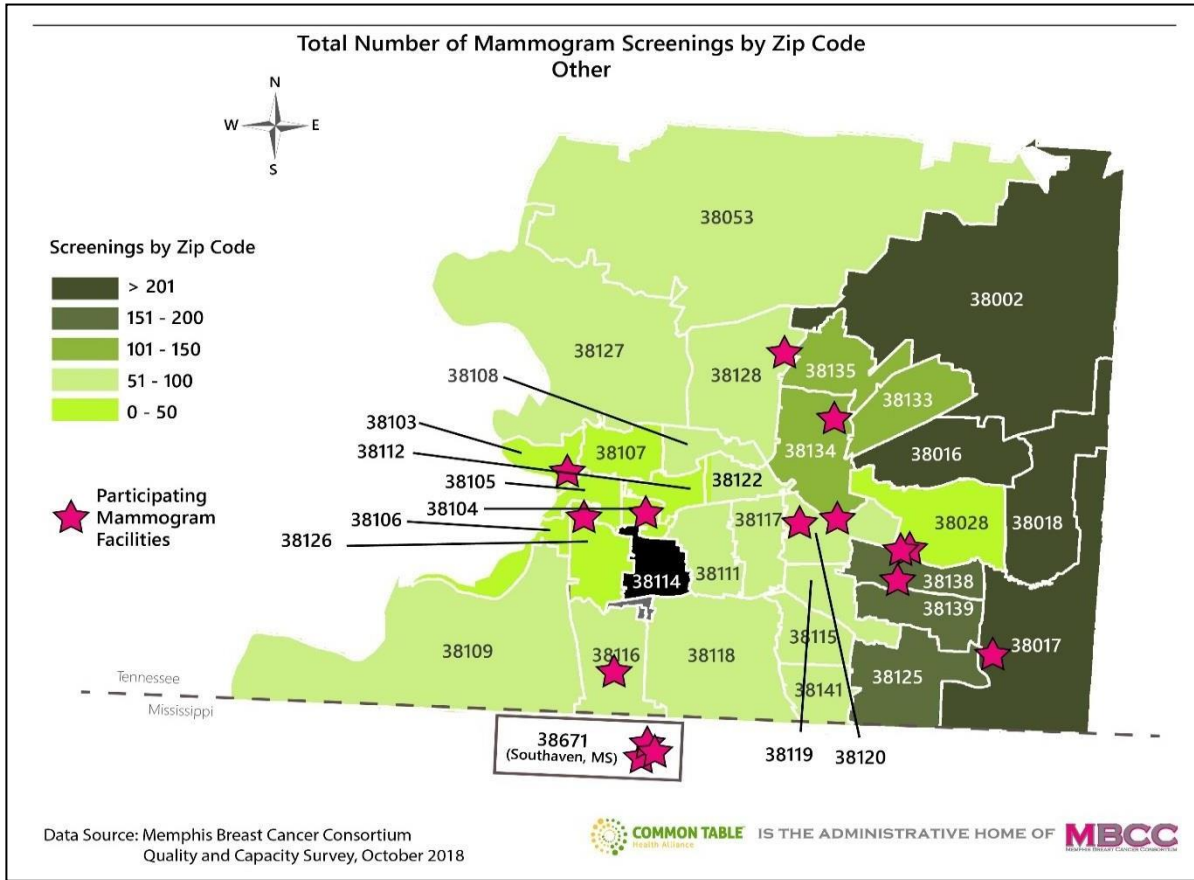
The ratio of Caucasian males to females by percentages is 48.8% (males) to 51% (females). The **Caucasian** female population over 40 years old is 7.9% for Memphis, TN, and 11% for Shelby County, TN.

The Caucasian female population over the age of 40 is 7.9% for Memphis, TN, and 11% for Shelby County, TN. Caucasian (CC) Population-Specific Data:

Caucasian Population-Specific Data:

Characteristics	Memphis, TN	Shelby County, TN	TN
<u>Population</u>	25.5%	35.8%	73.9%
<u>CC Females (40+)</u>	7.9%	11.0%	-----
<u>Poverty Rate (18-64 yo)</u>	14.3%	9.2%	12.9%
<u>Median Income</u>	\$56,520	\$71,158	\$51,794

Map of Mammogram Screenings by Zip Code and Race – Asian and Hispanic



Map 6. Total Number of Mammogram Screenings by Zip Code – Asian and Hispanic

Asian, Hispanic and Other Race Population Specific Data:

A more specific breakdown of the female population within these racial groups is not available due to the small size of this population, which accounts for less than 1% of the population for Memphis, TN, and Shelby County, TN. Other races include American Indian, Native Hawaiian Pacific Islander, and those identifying three or more races.

Characteristics	Memphis, TN	Shelby County, TN	TN
<u>Population (Asian)</u>	1.7%	2.5%	1.8%
<u>Population (Hispanic)</u>	7.7%	6.4%	5.4%
<u>Population (Some other race)</u>	4.0%	3.0%	-----
<u>Females (40+)</u>	<1.0%	<1.0%	-----
<u>Poverty Rate (Asian)</u>	N/A	N/A	12.2%
<u>Poverty Rate (Hispanic)</u>	N/A	N/A	27.7%
<u>Poverty Rate (18-64 yo/Asian)</u>	N/A	N/A	14.0%
<u>Poverty Rate (18-64 yo/Hispanic)</u>	N/A	N/A	21.8%
<u>Median Income (Asian)</u>	N/A	N/A	\$69,497
<u>Median Income (Hispanic)</u>	N/A	N/A	\$41,013

Summary Findings and Highlights

1. Memphis was noted by a national study conducted in 2005-2009 as having the worst breast cancer disparities gap between African American and Caucasian women. The report was presented in 2014. Memphis accepted a call to action via a grant awarded by the Avon Breast Cancer Crusade, to form a community-wide consortium (MBCC), which was officially formed in January 2016.
2. Social determinants of health are mostly responsible for health inequalities—the unfair and avoidable differences (disparities) in health status, in Shelby County.
3. The State of TN, through the Association for State and Territorial Health Officers (ASTHO), started a breast cancer learning community project, in which CTHA participated, to map out state-wide efforts to address disparities in cancer mortality rates by county. MBCC methods were noted as a best practice approach in addressing disparities at the local level.
4. The American Cancer Society recommends that women age 40 and older, receive a yearly mammogram, which has been adopted by MBCC members.
5. There are an estimated 210,870 women from ages 40-64 in Shelby County who are recommended to get a yearly mammogram. Studies note only 60% do so in Shelby County, leaving an estimated 84,348 who have not received screening.
6. In the Memphis Metropolitan Market, women who are uninsured and meet defined financial need criteria can receive a funded screening mammogram via the state of TN or Susan G. Komen Memphis MidSouth-Mississippi grant-funded programs and other potential programs.
7. Twenty-three (23) FDA-accredited mammogram facilities/sites are located in the Memphis Region. The survey included 17 of these facilities, and also included the largest providers of these services.
8. Eight (8) facilities have additional accreditations of excellence (BICOE, DICOE, NAPBC).
9. The 17 Facilities surveyed noted a total of 99,825 screening mammograms.
10. All 17 facilities use digital imaging as the form of mammogram screening.
11. All 17 facilities are adopting 3-D imaging machines to support enhance dense breast screenings.
12. The use of Mobile Units by several health systems focus on high-risk zip codes, as noted in this report.
13. Most facilities offer additional screening access during non-traditional business hours.
14. Annual screening capacity for 35 machines operated by the 17 sites is estimated at 210,000 per the GAO calculation method.
15. Based on GAO calculations, the number of machines operated by the 17 surveyed facilities is adequate to meet current demands, and unmet needs for annual mammogram screenings.
16. The time to conduct screening mammograms within the Memphis MSA averaged 18.8 minutes, which is comparable to the national average of 15 minutes.
17. Next-available appointment wait times range from 0-6 days for a routine annual screening, but can be as long as 13 days for an ultrasound guided breast biopsy.

18. Feedback of mammogram technologists is one quality metric used in this report. All facilities offer at least annual feedback to technologists on positioning and compression of the breast. Position and compression are key metrics of quality in the image of the breast via a mammogram. In addition to annual feedback, one facility provides weekly feedback while seven facilities provide quarterly feedback.
19. MBCC has been successful in producing key resources to the community, which include the following: a Pink Ribbon Resource Directory, the MBCC member profile directory, the Live Memphis! community-wide educational summit, CEU and CME mammogram technologist and provider learning collaboratives, and an interactive web site.
20. CTHA is the administrative home of MBCC and provides the operational staff and infrastructure to operate the 36-member consortium. This is consistent with CTHA's long-standing role in the Memphis Region as a neutral and trusted convener with a goal of reducing health disparities, increasing quality of care, and data transparency of local health information.
21. Current breast cancer mortality rates for all women in Shelby County have been above the national average since 2005, and only an estimated 60% of eligible women report receiving a yearly screening mammogram.
22. Breast cancer mortality rates of African American women versus Caucasian women had a mortality rate difference of 100% or 2:1. This means African American women were dying at two times the rate of Caucasian women, as noted in a report released by the Avon Breast Cancer Crusade, and the Sinai Urban Health Institute in 2014. These reports identified that of the largest cities in the US, Memphis was number one in this disparities gap between African American and Caucasian women (Hunt, 2013).
23. The Memphis Breast Cancer Consortium, supported by the Avon Breast Cancer Crusade, provided funds in 2016 for 3 years to support a community-wide call to action, of which this report is a direct result.
24. This "Breast Cancer 901 Community Report" provides overall cancer mortality rates by zip codes and social determinants of health, which were measured via an economic hardship index score.
25. The results of this facility-level survey concluded that the Memphis region has the equipment capacity, technologists and radiologists to reach 100% of the women who should seek yearly mammograms.

Recommendations and Call to Action for MBCC

1. Continue the MBCC action plan of increasing screening rates in Shelby County to 80% (the State of Tennessee target rate), and a mortality rate reduction of 50%.
2. Produce additional local data reports in partnership with the Shelby County Health Department, Tennessee State Office of Minority Health, and all breast cancer facilities, which provide a deeper understanding of associated barriers to care, causes of disparities, and opportunities to promote annual mammography screening equity in the Memphis region.
3. Continue CEU and CME community-wide training and provider learning collaboratives across all breast health centers to share best practices; continue to institute national operating and clinical standards, and establish local quality metrics, which collectively support better healthcare and equity in breast health.
4. Reinforce community-wide campaigns and outreach efforts to promote the first line of defense against unnecessary deaths from breast cancer: annual mammograms, monthly self-breast examinations, education, and treatment.
5. Seek funding to produce an in-depth study to determine barriers affecting 84,000 plus women. These can be personal fear, lack of transportation, and other circumstances associated with the inability to obtain their mammograms, lack of insurance, underinsured, or not qualifying via any grant payment programs.
6. Continue the alignment of community outreach efforts of the all the members of MBCC; tracking by zip code to ensure areas of focus for high risk mortality rates are reached and have an impact on increasing mammogram screenings, which reinforce early detection and treatment.
7. Continue to produce white papers and public forums designed to advocate for reducing barriers to access for all women seeking mammograms, with a focus on the uninsured and the underinsured.
8. Continue the success of the Live! Memphis Breast Cancer Equity Summit designed to promote early detection and treatment, breast cancer health literacy, and a celebration of cancer survivors.
9. Design and obtain funding for studies which focus on the patient's personal challenges associated with seeking a screening mammogram such as: pain associated with breast compression, fear of discovery, social determinants, literacy, and time commitments.
10. Seek a sustainable funding platform to support the collective efforts of the MBCC members.

Testimonials

Table 8. Group Feedback

Advocacy groups	
American Cancer Society	<p>“American Cancer Society joined forces with MBCC to unite the community around implementing changes in breast cancer disparities. We have convened survivors, collaborated with other breast cancer organizations and celebrated advances in breast cancer statistics. We are committed to make Memphis a better and healthier city.”</p> <p>Bertha Fayne, Specialist, Community Health Advisor</p>
Susan G. Komen Memphis MidSouth Mississippi	<p>“Susan G. Komen Memphis-MidSouth Mississippi, along with many of our grantees, worked together to create the Memphis Breast Cancer Consortium because we know that serving our community through collaboration ensures quality breast health care availability for all. We practice our belief that where you live should not determine if you live.”</p> <p>Elaine Hare, CEO Susan G. Komen Memphis-MidSouth Mississippi</p>
Patient Advocate Foundation	<p>“The MBCC has been and continues to be the nexus, linking Patient Advocate Foundation (PAF) a national non-profit organization, to African American women, providers, and community-based organizations across Memphis to PAF’s platform of services and supports to help patients and caregivers overcome financial, insurance, social, and logistical barriers encountered along their cancer journey. This partnership is significant to PAF’s health equity goal to impact ‘one community at a time’.”</p> <p>Shonta Chambers, Executive Vice President-Health Equity and Community Engagement</p>
Support Groups	
Carin’ & Sharin’	<p>“Carin’ & Sharin’ teamed with MBCC to provide education, support, and be an outlet for socialization to women living with breast cancer.”</p> <p>Gwen Brown, Executive Director</p>
Surviving Thriving African Americans Rallying Support	<p>“As a 22-year African American cancer survivor, I really understand the importance of having a community wide effort like MBCC to address the mortality disparities gap. MBCC has been instrumental in creating and delivering effective, educational communication campaigns throughout the community as well as significantly helping to reduce barriers to access by developing a portal of collaborative resources and services. We are truly all committed to this cause.”</p> <p>Dr. Barbara D. Davis, Founder and Facilitator of STAARS</p>
Sisters Network	<p>“Sisters Network Memphis, Inc., and MBCC have joined together in an effort to bring awareness and actions to the issues that relate to breast cancer in teenage girls and African American women. We are very appreciative of the skills and expertise that MBCC has afforded our organization. We are looking forward to a continuous relationship to improve support and services for African American women in Memphis and its surrounding areas.”</p> <p>Carolyn Whitney President</p>

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