Breast Cancer Timeliness of Care: 15-Year Results of Diagnosis to Surgery

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INTRODUCTION: Timeliness of care is a fundamental quality metric as described by the Institute of Medicine (1999, 2004). The time from breast cancer diagnosis to surgery includes multiple variables across many disciplines and is particularly stressful to the patient. Defining existing performance is a first step to assess quality. Interrogation of time to surgery may identify correctable gaps. Establishing current timeframes of this metric may be valuable to all who provide initial breast cancer care.

METHODS: The National Quality Measures for Breast Centers (NQMBC) is a web-based voluntary quality program initiated in 2005 that collects real time data from participating breast centers across the country. Once a center's data is entered, that site provides immediate comparisons with other centers' performance. One NQMBC measure assesses the average time in workdays between core needle biopsy and initial breast cancer surgery, excluding the neoadjuvant patient. Minimal exclusions are allowed to have universally comparable data. Each submission reviews a set of consecutive patients in a six-month period. Individual center demographic data is collected for enhanced comparisons.

RESULTS: From 2005-2019, 373 breast centers from 45 States submitted 2,842 data entries that reviewed over 140,821 patients. The mean time to surgery was 20 days with 25th and 75th percentile at 25 and 15 days respectively. Ninety percent of centers averaged less than 31 days (lowest tenth percentile). Time between diagnosis and surgery steadily increased over 15 years by 28% from 17.6 days to 22.6 days ($p < 0.001$) See Figure. Successive 5-year periods showed significant and progressive increase in time to surgery; 17.6 days, 20.0 days and 22.6 days for periods 2005-2009, 2010-2014, 2015-2019 respectively ($p < 0.001$). Some breast center characteristics correlated with better performance (Midwest geographic region, for-profit hospital systems, and low volume centers) and some with poorer performance (high volume centers, metropolitan areas and academic centers).

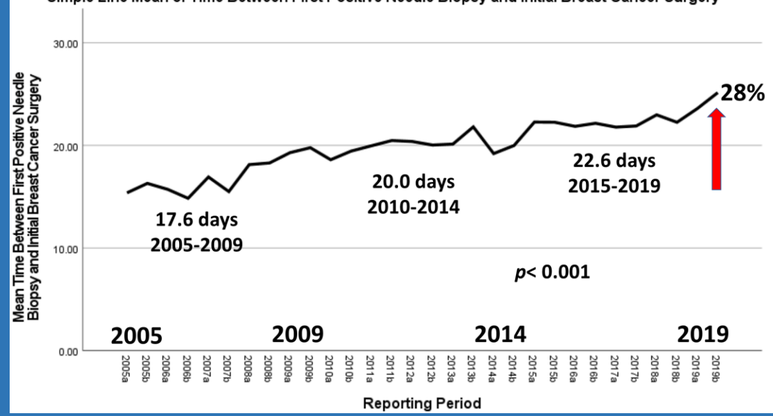
CONCLUSIONS: The time between positive breast biopsy and initial breast cancer surgery has increased by 28% ($p < 0.001$) over 15 years (2005-2019). Each 5-year period has been longer than the previous period ($p < 0.001$). Certain breast center characteristics are associated with either high or low performance. These results provide a valuable set of current comparisons that may aid in identifying impediments of timeliness to surgery.

Results from the NQMBC: The National Quality Measures for Breast Centers

Time Needle Biopsy to Surgery

2,842 observations from 373 facilities over 30 six-month time periods

Simple Line Mean of Time Between First Positive Needle Biopsy and Initial Breast Cancer Surgery



Why Measure Timeliness?

- Measure timeliness without exclusions for comparison
- Recognize variable factors which influence timeliness
- Provides provocative questions to improve care
- Demonstrate how timely care may change over time
- Encourages improvement by like-comparisons

What is NQMBC?

- This is a **voluntary quality program,** 43 measures to pick
- Submissions requested **every six months** (2x /year)
- All submissions are **averages for the six-month period**
- This analyzed data is (pre COVID) from 2005 – 2019
- Multiple regression analysis of data and post hoc analysis of categorical variables

Breast Center Characteristics (n=373)

- Geographic location (4 Regions, 9 Divisions)
- Center Type (Screening, Diagnostic, Treatment, etc)
- NQMBC Certification Level (QBCOE, QBC, Cert Part.)
- Population Density (Metro, urban, suburban, rural)
- Ownership (For/Non-profit, Hosp., Hosp. System,)
- Screening / Diagnostic Mammogram volume
- Breast Cancer Volume

Variables Associated with Timeliness to Surgery

Shorter Time Periods	Longer Time Periods
Midwest Region (18.5 d)	Northeast Region (22.6 d)
West North Central Division (17.0 d)	Middle Atlantic Division (23.1 d)
Low Screening Volume (17.4 d)	High Screening Volume (23.0 d)
Low Diagnostic Volume (17.4 d)	High diagnostic Volume (23.7 d)
Low Cancer Volume (18.0 d)	High Cancer Volume (22.4 d)
Rural Size Town (17.8 d)	Metropolitan City (23.3 d)
For-profit hospital system (18.0 d)	Academic Center (24.4 d)