

VARIATION IN RATES OF SURGERY TO THE PRIMARY TUMOUR IN WOMEN WITH METASTATIC BREAST CANCER AT DIAGNOSIS IN ENGLAND AND WALES

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Background

Breast cancer is the most common female cancer in the UK, with just over 55,000 new cases diagnosed per annum¹. The majority of patients will have early stage disease at diagnosis, but global figures suggest around 5-10% will present with metastatic breast cancer (MBC)². Locoregional therapy in the form of surgery to the primary tumour (PT) in MBC has traditionally been reserved for palliative purposes, but evidence from recent retrospective studies has suggested it may improve survival outcomes. However, with conflicting evidence from several RCTs, the utility of surgery to improve oncological outcomes for patients with MBC remains unclear. Variation in treatment practices can arise when the efficacy of a procedure is uncertain. We aimed to understand the variation in rates of surgery to the PT for women with MBC aged 50+ in England and Wales, and to identify the clinical/histopathological factors which may influence receipt of surgery.

Methods

This study was conducted as part of the National Audit of Breast Cancer in Older Patients (NABCOP) (www.nabcop.org.uk). Detailed information on the NABCOP cohort is described in the audit's Annual Reports³. This study included women who were aged 50+ diagnosed with MBC at presentation between 2014 to 2018 in England and Wales. Inclusion and exclusion criteria are demonstrated in **Figure 1**. Data were obtained from national cancer registry datasets provided by the National Cancer Registration and Analysis Service and the Wales Cancer Network, for English and Welsh patients respectively. Linked information on surgical procedures (using Office of Population Censuses and Surveys [OPCS] codes for breast conserving surgery and mastectomy) within 1 year of date of diagnosis and comorbidities (using International Classification of Diseases 10th edition [ICD-10] codes to generate a RCSEng Charlson Score) were retrieved from English Hospital Episode Statistics (HES) data and the Patient Episode Database for Wales (PEDW). Data on English patient and tumour characteristics were augmented with the Cancer Outcomes and Services Dataset (COSD). Kaplan Meier estimates and 'time-to-event' analyses were used to study receipt of surgery up to 3 years from diagnosis. Surgery rates were also examined according to patient age, according to year of diagnosis and for each of the 20 Cancer Alliances in England and Wales. Flexible parametric modelling was used to understand the relationship between key variables and receipt of surgery.

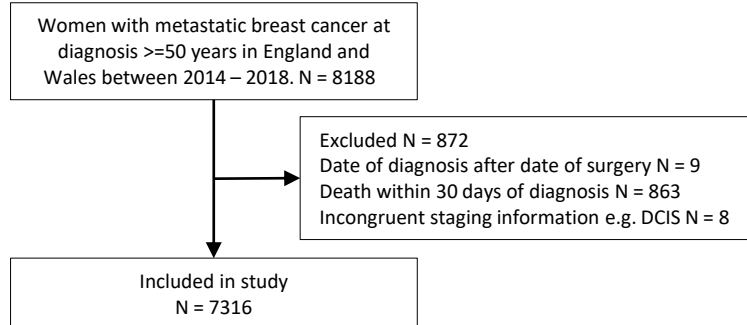


Figure 1. Flow diagram for study cohort.

Results

- Between 1st January 2014 and 31st December 2018, 7316 women with MBC at presentation were included in the study.
- The majority of women were diagnosed in England (96.6%) compared with Wales (3.4%). Median age for the whole cohort was 72 years (IQR 62 – 80 years).
- 1366 (18.7%) women with MBC at presentation received surgery to the PT within 1 year from diagnosis (**Table 1, Figure 3**).
- Median time to surgery was 41 days (95% CI 39-42 days).
- Rates of surgery varied from 11.6% to 32.3% between regions in England and Wales (**Figure 2**).
 - In women aged 50–69 years: rates were between 15.5% to 43.6%
 - In women aged 70+ years: rates were between 5.7% to 23.6%
- Patients were more likely to receive surgery within 1 year from diagnosis if they were/had:
 - In a younger age group (aged <79) compared with older women (aged 80+)
 - Stage T1/T2
 - Positive nodal stage
 - Tumour Grade 3
 - No comorbidities (RCSEng Charlson Score 0) compared with women with 1 or more comorbidities
 - Less frail compared with women with mild to severe frailty indices
- Overall rates of surgery reduced over time, from 23.7% in 2014 to 15.7% in 2018. This varied by age group:
 - In women aged 50–69 years, rates of surgery were 34.8% in 2014 compared to 21.1% in 2018.
 - In women aged 70+ years, rates of surgery were 15.6% in 2014 compared to 11.5% in 2018.

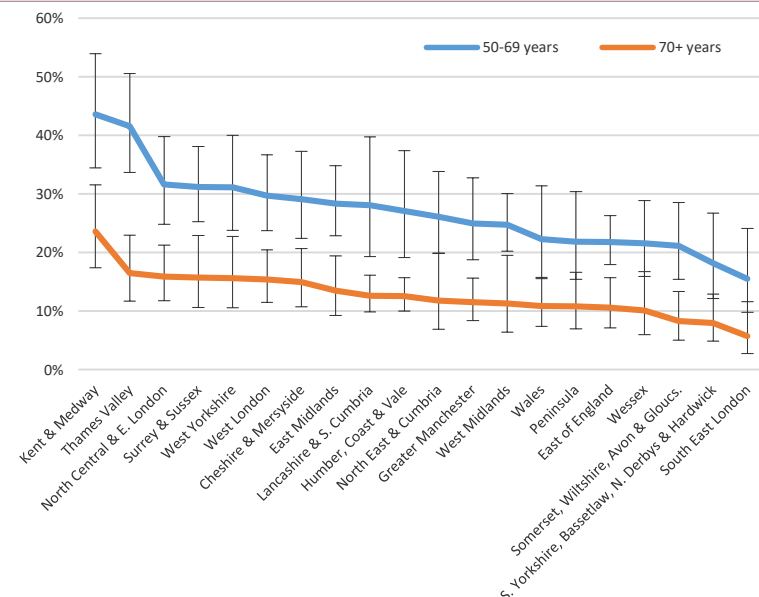


Figure 2. Percentage of women receiving surgery to the primary tumour by Cancer Alliance and age group (50–69 years vs 70+ years) presented with 95% confidence intervals.

Time from diagnosis (months)	Proportion of women receiving surgery Cumulative rate (%)
1	6.0
3	12.9
6	14.8
9	17.9
12	18.7

Table 1. Cumulative rate of surgery to the PT within 12 months from diagnosis.

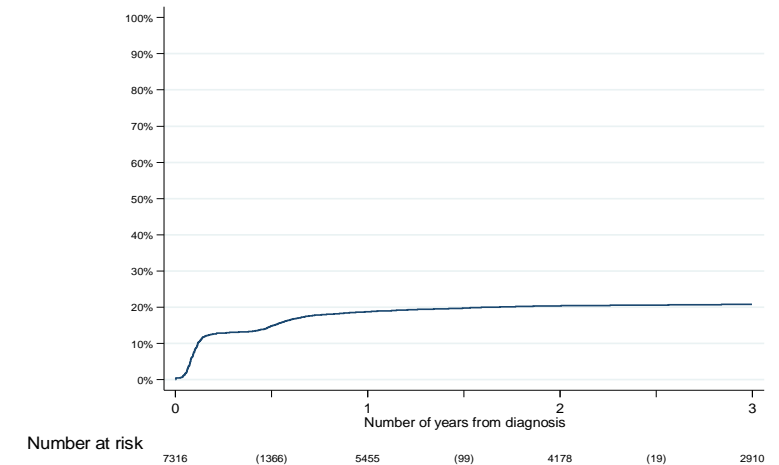


Figure 3. Kaplan Meier estimates of time to receipt of surgery to the PT, within 3 years from diagnosis.

Conclusions

- Over the 5-year study period, almost 20% of women newly diagnosed with MBC underwent surgery to the PT, although our evidence suggests use has decreased in recent years.
- The short duration from diagnosis to surgical treatment could indicate some women will have been upstaged to stage 4 disease after the receipt of surgery (due to high risk pathological results) but may also suggest the decision to operate is not reliant on response to initial systemic therapy.
- Variable rates of surgery between regions in England and Wales, may indicate the clinical uncertainty surrounding the efficacy of locoregional treatment in MBC.
- Sources of variation in surgery rates are likely to be multifactorial. As decision making in women with MBC is highly individualised, our results do not allow us to make assumptions on an appropriate rate of surgery.
- Further research is required to understand why treatment variation exists as well as to generate better evidence on the value of surgery in patients with MBC. Steps to address the uncertainty around locoregional therapy are being taken, in the form of randomised controlled trials⁴.

References

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Ethical considerations: This study is exempt from UK National Research Ethics Committee approval as it involved secondary analysis of an existing dataset of pseudonymised data.

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For more information about the NABCOP, please visit our website: www.nabcop.org.uk