Public Health England

Protecting and improving the nation's health

National Cancer Registration and Analysis Service

Be Clear on Cancer: National breast cancer in women over 70 awareness campaigns 2014 and 2015

Final evaluation results

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Corporate member of Plain English Campaign
Committed to clearer communication
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1. Foreword

I am very pleased to introduce this final evaluation report on the national breast cancer in women over 70 awareness campaigns that ran in 2014 and 2015 as part of the Be Clear on Cancer programme. This report is based on evaluation metrics which are published on the National Cancer Registration and Analysis Service (NCRAS) website. I would like to thank staff in PHE, the Department of Health and Social Care (DHSC) and NHS England (NHSE) – together with significant contributions from partner organisations, particularly Cancer Research UK – for their hard work in acquiring, presenting, analysing and interpreting these metric data. The data is very wide ranging, from evaluation of changes in number of GP attendances to survival rates. This has facilitated the evaluation of the impact of the national breast cancer in women over 70 awareness campaigns across the patient pathway.

This document examines the evaluation metrics published on the NCRAS website and takes a close look at the findings in the wider context of what we know about breast cancer and early diagnosis. The results are of great interest, though not straightforward to interpret. On the one hand, the campaigns were successful in marketing terms as members of the public were aware of campaign materials and the main messages were clearly reaching the target audience. The campaigns also motivated older women to go to their GP which resulted in more GP referrals for suspected cancer and diagnoses of breast cancer. However, it has not been possible to demonstrate the impact of the campaigns on other outcomes, such as the number of breast cancers treated with surgery. In addition, there were mixed results across the two campaigns when looking at the number of cancers caught at an earlier stage. These outcomes are discussed at some length later in the last chapter of the report under final discussion, conclusions and recommendations.

Since its creation in 2010, Be Clear on Cancer has become a well-established, award-winning brand, working to improve cancer outcomes and reduce health inequalities. The Independent Cancer Taskforce supported our work in the 2015 Strategy for England, recognising how Be Clear on Cancer is making a real difference to people's lives by improving outcomes and increasing awareness of the fact that many cancers are treatable if caught early. Early diagnosis is crucial to improving outcomes from cancer and other serious diseases. Be Clear on Cancer is part of the national drive to tackle cancer, contributing towards making earlier diagnosis a reality for the thousands of people diagnosed with cancer each year.

The Be Clear on Cancer programme is run by PHE in partnership with DHSC and NHSE, working closely with Cancer Research UK, clinical colleagues and the wider academic and charity sectors.

PHE has been responsible for the development, marketing and evaluation of all campaigns run since April 2013. They have carried out careful evaluation, often using bespoke analyses of complex datasets in order to establish as best they can the impact of the campaigns.

Professor Chris Harrison
National Clinical Director for Cancer, NHS England
Chair of the Be Clear on Cancer Steering Group (April 2006 to September 2018)

Note: Structure of report

This report has been written with a wide range of audiences in mind and includes many sets of individual results and analyses. If read in full, it is very long. It has therefore been divided into clear sections, not all of which will be of interest to every reader. The Executive Headlines summarise all the major findings, followed by the main body of the report which gives details of individual results and discusses the extent of campaign impact within the context of the overall patient pathway.

NCRAS also provides a separate paper, Be Clear on Cancer evaluation metrics: methodology, which may be of interest as a reference source to some readers.

2. Executive summary

2.1 The problem

According to NCRAS data, approximately a third of women in England diagnosed with breast cancer are aged 70 and over. About 5,400 women over 70 die from breast cancer each year which equates to around 15 women per day. Survival rates are far higher if breast cancer is diagnosed early. But breast cancer survival rates are lower in older women, possibly because they are less knowledgeable about breast cancer symptoms and because they may delay presenting to their General Practitioner (GP) when they do discover symptoms.

2.2 History of campaigns

The national breast cancer in women over 70 awareness campaigns were launched in response to this problem. First, local pilot campaigns ran from January to March 2012. They were evaluated positively. For example, there were increases in the number of urgent referrals for breast symptoms in women aged over 70, and in the number of breast cancers diagnosed following urgent referral. On this basis, regional campaigns ran from January to March 2013. Again, results were positive, and referrals of women aged 70 to 79 for breast cancer increased.

Based on the success of the local pilot and regional campaigns, the first national breast cancer in women over 70 awareness campaign ran from **3 February to 16 March 2014**. The two core messages were, '*1 in 3 women who get breast cancer are over 70, so don't assume you're past it*' and '*A lump isn't the only sign of breast cancer*'. The second national breast cancer in women over 70 awareness campaign ran from **13 July 2015 to 6 September 2015**. The two core messages were reiterated, and campaign materials reinforced that early diagnosis makes breast cancer more treatable and that anyone worried about changes to their breasts should tell their doctor straight away.

Activity related to the two national campaigns included television, press and out-of-home advertising on pharmacy bags and screens in GP waiting rooms; online advertising; direct mail of a letter and leaflet (specifically first campaign); public relations (PR) activity to communicate the core messages; leaflets and posters in GP surgeries and other venues; and a campaign website. Translated, easy-to-read, and sign language versions of materials were produced. Both national campaigns were aimed primarily at women aged 70 years and over, but a secondary audience were

those in a position to encourage older women with symptoms to visit their GP, such as daughters, referred to as ‘influencers’.

2.3 Summary of evaluation metric data

This evaluation report focuses on the first and second national breast cancer in women over 70 awareness campaigns and is based on nine metrics, results from which are briefly summarised here. For more detailed analysis, see the main body of this report.

2.4 Campaign recognition and public awareness

The first national campaign appears to have raised public awareness of breast cancer in women over 70. In total 81% of respondents had seen at least one of the campaign adverts which is in line with recognition of other Be Clear on Cancer national campaigns when run for the first time. There was a significant increase in the proportion of respondents who mentioned women over 70 as being the age group most at risk of developing breast cancer, from 6% pre-campaign to 18% post-campaign. Similarly, the campaign’s core message was clearly understood by the public; for example, the proportion of women mentioning ‘1 in 3 women who get breast cancer are over 70’ rose significantly from 19% pre-campaign to 24% post-campaign.

Regarding the second national campaign, the number of respondents who had seen at least one of the campaign adverts was about the same as for the first national campaign at almost 78%, which was in line with other Be Clear on Cancer national campaigns when run for the second time. As in 2014, the most commonly recalled message among those who had seen or heard some publicity was to visit the GP if they became aware of relevant symptoms. There was a significant increase in awareness of the link between age and breast cancer pre-campaign (8%) to post-campaign (16%). There was no change in beliefs and attitudes, but these were already highly positive. For example, around nine in ten women aged 70 and over disagreed that they would be too embarrassed to go to their GP with symptoms, that their GP would be difficult to talk to, or that they would be worried about wasting their GP’s time.

2.5 GP attendances

The first national campaign seems to have had a positive effect on GP attendances:

The number of GP attendances for breast symptoms, for women aged 70 and over, was higher during the campaign than for each previous period (between 22% and 53%

higher). It was also slightly higher in the 2014 post-campaign period than in the periods prior to the 2014 campaign (between 7% and 34% higher).

The number of GP attendances during the campaign was higher than during all the other periods combined: 289 visits compared to an average of 216.6 visits.

There was an increase of 36% in the average number of attendances per week for breast symptoms during the campaign period, compared to the same period in 2013, whereas the change for control symptoms was much smaller at only 5%.

There were statistically significant increases in the number of attendances during the campaign period both for women aged under 70 and for women aged 70 and over, suggesting that the campaign impacted on women under 70, as well as women aged 70 and over.

Data on the effect of the second national campaign on GP attendances indicates that the second campaign seems to have led to a statistically significant increase in the number of GP attendances by women aged 70 years and older with breast symptoms. This should, however, be treated with some caution because these increases are less than those seen in the period following the first national campaign and may reflect long-term variability in GP attendances as opposed to being the result of the second campaign.

2.6 Cancer Waiting Times (CWT) data

The CWT data for the first national campaign indicates the following:

The number of urgent GP referrals for suspected breast cancer and the number of breast symptom referrals for women aged 70 and over increased significantly in the first national campaign period. Breast referrals combined increased by 67% when comparing February to April 2014 with the same months in 2012. By contrast, there was only a 31% increase in the control group (urgent GP referrals for suspected head and neck cancers).

For women aged 70 and over, the first national campaign appeared to result in a smaller but still substantial increase in the number of breast cancer diagnoses via an urgent GP referral for suspected breast cancer and breast symptom referrals. This equates to a 24% increase when comparing February to April 2014 with the same months in 2012.

The first national campaign appears to have caused a decrease, further to the long-term trend, in the conversion rate[1] for referrals of women aged 70 and over.

There was a statistically significant increase of 31% in cancer diagnoses recorded in the CWT database, for women aged 70 and over, comparing March to May 2014 with the same period in 2012.

In women aged 70 and over there was a 5% decrease in the detection rate[2] for breast cancer diagnoses or breast symptoms from urgent GP referrals for suspected breast cancer during the first national campaign.

The CWT data for the second national campaign indicates the following:

For women aged 70 and over in England there was a 26% increase in urgent GP referrals for suspected breast cancer when comparing July 2015 to September 2015 with the same months in 2014. There was also a 19% increase in breast symptom referrals, resulting in a combined increase of 24%. In comparison, there was a smaller increase of only 11% in the control group (number of urgent GP referrals for other suspected cancers) over the same period.

The second national campaign may have had an impact on the number of breast cancer diagnoses resulting from urgent GP referrals for suspected breast cancer, but not on the number of diagnoses resulting from breast symptom referrals, for women aged 70 and over. However, it is difficult to isolate these results from seasonal peaks in previous years. There may have been an increase in the number of diagnoses from March 2015 onwards.

The second national campaign appears to have had some impact on conversion rates from urgent GP referrals for suspected breast cancer and breast symptom referrals for women aged 70 and over. Conversion rates were lower at the end of the campaign period (September 2015) than would be expected given underlying trends.

The second national campaign appears to have had some impact on breast cancer diagnoses following an urgent GP referral, as there was a statistically significant

[1] Percentage of urgent GP referrals (for suspected breast cancer or breast symptoms) resulting in a diagnosis of breast cancer

[2] Percentage of breast cancer diagnoses recorded in the CWT database which resulted from an urgent GP referral for suspected breast cancer or breast symptoms

increase in cancer diagnoses recorded in the CWT database for women aged 70 and over.

The second national campaign does not appear to have had an impact on breast cancer detection rates from urgent GP referrals, as there was no statistically significant difference in breast cancer detection rates from urgent GP referrals for suspected breast cancer or breast symptom referrals, for women aged 70 and over.

2.7 Emergency presentations

Comparing the months during and following the campaign to the same months in 2012 for the first campaign and 2014 for the second campaign, there were no significant differences in the monthly proportions of women with breast cancer diagnosed via emergency presentation as a result of the first or second campaign.

2.8 Diagnostics in secondary care

During or following the first national campaign, there were statistically significant increases of 25% in the number of breast ultrasounds and mammograms for women aged over 70, and 13% for women of all ages, compared to the same period the year before.

During or following the second national campaign, there was a statistically significant 9% increases in the number of breast ultrasounds and mammograms for women aged 70 and over, and a non-significant 4% increase for women of all ages, when compared with the same period the year before.

2.9 Cancers diagnosed

Both the first and second national campaigns appear to have had a positive impact on breast cancer diagnoses in women aged 70 and over by increasing the number of new cancers diagnosed above the expected number of newly diagnosed cases.

2.10 Early stage at diagnosis

The second national campaign may have had an impact on the proportion of breast cancers diagnosed at an early stage (stage 1 or 2) in women aged 70 and over, however there was no evidence to suggest an impact on this proportion for the first national campaign.

2.11 Surgical interventions

There is no evidence to suggest that either the first or second national campaigns had an impact on the proportion of women aged 70 and over, diagnosed with breast cancer, who underwent surgery for lumpectomy or mastectomy.

2.12 Survival rates

Neither the first or second national campaigns appear to have had an impact on one - year survival for women aged 70 and over diagnosed with breast cancer.

2.13 Overall conclusions

In sum, the campaigns appear to have had a significant impact in terms of raising awareness of breast cancer in the target population of women over 70, and in motivating more women to see their GP. As a result, more diagnostic tests for breast cancer were conducted, including breast ultrasounds and mammograms, and more new cancers were diagnosed. However, the campaigns do not seem to have resulted in many more cancers being caught or treated at an earlier stage and there was no impact on short-term survival rates for women aged 70 and over diagnosed with breast cancer. These findings and their significance are presented and discussed in detail in the main body of this report.

3. Background to the campaigns

3.1 Breast cancer in women over 70

According to NCRAS data, around 41,200 women in England are diagnosed with breast cancer each year, of which about a third (around 13,400) are aged 70 or over. Approximately 5,400 women aged 70 and over die from breast cancer each year which equates to around 15 women per day. If breast cancer is diagnosed at the earliest stage in women aged 70 and over, 93% will survive for at least five years. This figure is just 13% for the most advanced stage (stage 4) of the disease. Breast cancer survival is lower in older women, possibly because knowledge of non-lump breast cancer symptoms is poorer amongst older women and because they may be more likely to delay presenting to their General Practitioner (GP) if they discover breast cancer symptoms.

The national breast cancer in women over 70 awareness campaigns were therefore implemented to increase awareness of breast cancer symptoms to encourage women to present to their GP if they discovered symptoms.

3.2 Local and regional pilot campaigns

The campaigns were evaluated locally and regionally by Cancer Research UK before being rolled out nationally by the Department of Health and Social Care (formerly the Department of Health).

The local breast cancer over 70 pilot campaign ran from January to March 2012. Evaluation of the results was encouraging. Based on five pilot campaigns, there was no shift in unprompted awareness of breast symptoms, but two pilot campaigns observed statistically significant increases in prompted awareness of non-lump breast cancer symptoms. There was an 8% increase in urgent referrals (2,002 to 2,154) for both non-suspected breast cancer symptoms and suspected breast cancer in over 70s in the pilot area compared with a 5% increase (14,062 to 14,695) in the control area. There was no statistically significant change in the number of breast cancers diagnosed following an urgent referral for non-suspected cancer symptoms in women over 70 in the pilot area (4% increase) or the control area (2% increase). There was no statistically significant change in the number of breast cancers diagnosed following an urgent referral for suspected breast cancer in women over 70 in either the pilot area (3% decrease) or the control area (2% increase).

Based on the success of the local pilot campaign, the regional breast in women over 70 campaign ran from January to March 2013. Again, evaluation of the results was encouraging. The number of women aged 40 and over who believed that women in their 70s are more likely to develop breast cancer rose from 7% pre-campaign to 25% post-campaign, which is a statistically significant increase. Recall of a direct mail sent to an individual at home was significantly higher in the pilot areas (43%) than the control areas (31%).

Combined urgent GP referrals for women aged 70 and over, for both suspected breast cancer and for breast symptoms when cancer was not initially suspected, increased by a statistically significant 11% in the regional campaign areas as opposed to a 5% increase in control areas. During January to April 2013 there was a 7% increase in the number of breast cancers diagnosed following an urgent referral for suspected breast cancer or breast symptoms when cancer was not initially suspected in women over 70, when compared to the same period in the previous year. There was a decrease in the conversion rate, from 24% to 23%.

Overall 37% of women over 70 recalled receiving a direct mail pack if sent one and for women aged 70 to 79 there was a 13% significant increase in referrals for suspected breast cancer in the pilot region.

3.3 National campaign materials

First national campaign

Based on the evaluation results of the local pilot and regional campaigns, the first national breast cancer in women over 70 awareness campaign was launched. The campaign ran from 3 February to 16 March 2014. The campaign was primarily targeted at women over 70 and a secondary audience for the campaign was ‘influencers’, those in a position to encourage older women with symptoms to visit their GP, such as daughters.

The campaign had two main aims: to remind women over 70 that they are still at risk of breast cancer and to raise awareness that a lump is not the only sign of breast cancer. The campaign’s core message was, ‘1 in 3 women who get breast cancer are over 70, so don’t assume you’re past it’. The secondary messaging was, ‘A lump isn’t the only sign of breast cancer. If you notice any changes to your breasts, tell your doctor straight away. Finding it early makes it more treatable and could save your life.’

The campaign activity included television, press and some out-of-home advertising on pharmacy bags and screens in GP waiting rooms. It also included some online advertising. A direct mail comprising a letter and leaflet was sent to around 1.2 million women aged 65 and over. Following recommendations made after the regional campaign, which ran from January to March 2013, there was no radio element within the main campaign. PR activity was used to communicate the core messages with the support of case studies, clinical spokespersons and well-known women who had a connection with breast cancer. Leaflets and posters were displayed in GP surgeries and other venues and the campaign website was updated.

There was also some activity aimed specifically at older Indian and black Caribbean women. This included television, radio and press advertising in specialist ethnic minority media in south Asian languages, targeted PR activity and outreach events. The following images are examples of press advertising and PR activity for the first national campaign (Figure 1).

Figure 1: Examples of images used for the first national campaign

Second national campaign

The second national breast cancer in women over 70 campaign ran from 13 July 2015 to 6 September 2015. The main target audience was the same, women aged 70 and

over, with the secondary audience being ‘influencers’, such as daughters, who are in a position to encourage older women with symptoms to visit their GP. The core message was the same as in the first national campaign and campaign materials reinforced that early diagnosis makes breast cancer more treatable and that anyone worried about changes to their breasts should tell their doctor straight away.

The second campaign again included television, press, digital and out-of-home advertising and PR activity. Although this campaign ran for longer than the first, as this was the second time the campaign ran nationally, television advertising had a lower intensity than for the first national campaign.

Press advertising included display adverts in newspapers and women’s magazines, together with advertorials in titles such as Woman’s Weekly and Woman’s Own, through a media partnership with a publishing house. The printed marketing material (such as posters, press adverts) featured a different breast cancer survivor and the campaign leaflet and website were updated. Given that older women are increasingly using social media and the internet, the channel mix included advertising on Facebook, as well as paid-for search.

Out of home advertising was used on screens in GP waiting rooms and pharmacy bags. Posters and leaflets were also displayed in GP waiting rooms and other settings. Activity similar to the first national campaign was used to target older Indian and Black Caribbean women, including television, radio and press advertising in specialist ethnic minority media and outreach events. Direct mail was not used for the second campaign.

The following image is an example of imagery used to support public relations activity for the second national campaign (Figure 2).

Figure 2: An example of an image used for the second national campaign

4. Evaluation metrics

4.1 List of evaluation metrics

The evaluation of the national breast cancer in women over 70 awareness campaigns is based on the metric analyses shown in Table 1. The ICD10 codes (1) listed in this table are the international standard diagnostic classification system for all general epidemiological and many health management purposes.

A full definition and explanation of all metrics, along with details of methodology used, can be found in the National Cancer Registration and Analysis Service Be Clear on Cancer evaluation metrics: methodology document. 95% confidence intervals are included in some charts where appropriate.

Table 1: List of campaign evaluation metrics and their descriptions

Metric	Description	Metric specific codes
Campaign recognition and public awareness	Public awareness and recognition of the campaigns and public knowledge regarding breast cancer in women aged 70 and over	N/A
GP attendances	Number of visits to their GP by women aged 70 and over for breast cancer	Read codes (2) (see Table 20: List of breast campaign related symptom Read codes)
Cancer Waiting Times (CWT) data:		
Urgent GP (Two Week Wait) referrals	Number of urgent GP referrals for suspected breast cancer or for breast symptoms, also known as Two Week Wait (TWW) referrals	N/A
Cancer diagnoses resulting from urgent GP referrals	Number of breast cancer diagnoses resulting from urgent referrals for suspected breast cancer or breast symptoms also known as: Two Week Wait (TWW) cancers, 62-day waits and 62-day cancers	ICD10 C50, D05

	Conversion rates	Percentage of urgent GP referrals for suspected breast cancer or breast symptoms resulting in a diagnosis of breast cancer	
	Diagnoses in CWT database	Number of breast cancer diagnoses recorded in the CWT database, also known as: CWT cancers, 31-day waits and 31-day cancers	
	Detection rates	Percentage of breast cancer diagnoses recorded in the CWT database which resulted from an urgent GP referral for suspected breast cancer or breast symptoms	
Emergency presentations		Proportion of women diagnosed with breast cancer who first presented as an emergency	ICD10 C50
Diagnostics in secondary care		Number of imaging tests, including ultrasound and mammogram tests (including x-rays and excluding Magnetic Resonance Imaging scans), for suspected breast cancer	Imaging codes (3) (see appendix 7.1)
Cancers diagnosed		Number of breast cancers diagnosed in women aged 70 and over	ICD10 C50
Stage at diagnosis		Proportion of breast cancers diagnosed at an early stage (at stage 1 or 2)	
Surgical interventions		Numbers of lumpectomies and mastectomies performed	OPCS4 codes (see appendix 6.2)
One-year survival		One-year survival for patients with breast cancers diagnosed	ICD10 C50

4.2 Campaign recognition and public awareness

This section considers whether the first national campaign had an impact on public awareness and knowledge of breast cancer. Information on each of the national breast campaigns was collected through pre- and post-campaign surveys conducted face to face with a representative sample of women aged 70 and over. These were carried out by a specially commissioned market research agency (Kantar (4)) and questionnaires were tailored to extract information about each specific campaign.

A range of topics were covered in the evaluation of the breast cancer in women over 70 campaigns: awareness of cancer advertising and symptoms, beliefs and attitudes towards cancer and early diagnosis, and knowledge and recognition of the relevant campaign material. The aim of the evaluation was to look at changes in campaign recognition and knowledge between pre- and post-campaign interviews. Where possible, a test and control approach was used to allow comparisons between areas with and without campaign activity.

First national campaign

For the first national campaign, pre- and post-campaign evaluation surveys were conducted among women aged 70 and over and the secondary target audience of women aged between 40 to 69 living in England. Pre-campaign interviews were conducted from 18 December 2013 to 26 January 2014 and post-campaign interviews from 19 March to 1 April 2014. In total approximately 700 face-to-face interviews were conducted at both pre- and post-campaign stages (Table 2).

Table 2: Interviews undertaken with women for evaluation of first national campaign

	Total	Women aged 40 to 69	Women aged 70 and over
Pre-campaign	695	359	336
Post-campaign	731	311	420

Regarding campaign awareness and recognition, for the first national campaign, high levels of awareness of general cancer advertising were evident. Three quarters of women (76%) were aware of general cancer advertising and publicity before the campaign and this increased to around eight in 10 (82%) afterwards. Awareness was lower among older women at both stages. Women who claimed to have seen general cancer advertising were asked to state which type of cancer was the focus of what they had seen or heard; breast cancer was the type of cancer most frequently recalled and this increased significantly from pre- to post-stage. This increase was seen among both

key age groups, from 39% to 60% among those aged 40 to 69, and from 38% to 51% among those aged over 70.

When asked which age group or groups are most likely to develop breast cancer, the most common response before and after the campaign was ‘all age groups equally’ (39% pre-campaign, 37% post-campaign). However, post-campaign the proportion who selected older age groups increased (from 6% to 18% for those in their 70s and from 5% to 8% for those in their 80s) suggesting that the campaign message concerning older women being at risk was having an impact. This was particularly the case for older women, where there was a decline in the number who thought that those in their 40s and 50s were most at risk and an increase in the number who thought those in their 70s were most at risk. This indicates a shift in age perceptions among the key age group.

Eight in ten (81%) respondents had seen at least one of the campaign adverts, which is in line with recognition of other Be Clear on Cancer national campaigns on first airing. As usual, this was driven by recognition of the television advert (73%). Four in ten (41%) had seen an advert in the press and three in ten (28%) had seen a campaign leaflet. Just over one in ten (13%) recalled receiving the direct mail. Recognition of both the press advert and leaflet were higher than previous Be Clear on Cancer campaigns, which may reflect the consistency of branding in these channels.

Regarding knowledge of signs and symptoms of breast cancer, for the first national campaign, at both pre- and post-campaign stages, eight in ten spontaneously mentioned a lump as a possible sign of breast cancer. Two thirds were able to describe at least one non-lump symptom, such as discharging nipples or breast changing shape. While mentions of a lump were slightly lower among older women (76% of the 70 and over age group compared with 83% of the 40 to 69 age group at the post-campaign stage), there was a larger gap between the two age groups in terms of spontaneous knowledge of non-lump symptoms (48% of over 70s compared with 73% of 40 to 69s at the post-campaign stage). Furthermore, mentions of non-lump symptoms fell significantly pre- to post-campaign among the 70 and over age group (from 56% to 48%).

Around three quarters of women were confident in their knowledge of breast cancer symptoms at both the pre- and post-campaign stage (72% pre-campaign and 76% post-campaign). Encouragingly, there was an increase in those who were very confident in their knowledge (from 19% to 26%). This was mainly driven by the 40- to 69-year-old women (increase from 21% to 29%) and overall confidence was higher among this age group at both stages. Levels of confidence were substantially higher

(for both age groups) than those recorded for other Be Clear on Cancer campaigns, both pre- and post-campaign, most likely due to the high profile of breast cancer.

Knowledge that a lump in your breast is a warning sign of breast cancer was high, with over nine in ten stating that this was a probable or definite warning sign both before (90%) and after (92%) the campaign. Over half at both pre- and post-stages (54% and 56%) thought it was definitely a warning sign. Respondents were generally less likely to know that a range of other symptoms, including changes to the skin of your breasts or changes to the shape (30%) or size of your breasts (31%), were definitely warning signs for breast cancer.

Regarding the impact of the first national campaign, the campaign's call to action messages were received positively by most women. Seven in ten (71%) agreed that the adverts would prompt them to visit their GP if they had any of the symptoms and six in ten (60%) agreed that the advertising would prompt them to talk to somebody close to them to make sure they looked out for symptoms. Women in the influencer group (40 to 69) were more likely to agree strongly with the latter statement (34% compared with 23% of 70 and over) which indicates that this group are indeed more likely to take on the influencer role.

Some form of action was taken by 15% of those who recognised the campaign, with both age groups equally likely to have done something. This is low compared with other Be Clear on Cancer campaigns. However, the most common form of action taken was to make an appointment with a GP (5%) which is broadly in line with other campaigns.

Regarding knowledge of breast cancer and age, the correct belief that one in three women diagnosed with breast cancer are over 70 increased significantly post-campaign from 19% to 24%, mainly driven by those aged 40 to 69. There was an increase post-campaign in the number who thought women in their 70s or 80s were the most likely age groups to develop breast cancer. Women aged 70 and over were less likely to believe that this was most likely to affect women in their 40s or 50s following the campaign, demonstrating a change in perceptions of the risk at an older age.

Only a quarter of women strongly agreed that treatment for breast cancer is just as successful for older women as it is for younger women and this belief was less likely to be held by the older age group (20% compared with 27% of the 40 to 69 age group). However, over half of women (55%) strongly agreed that early diagnosis of breast cancer made it more treatable with younger women more positive (58% compared with 47% in the 70 and over age group).

Around six in ten women said that they would see their GP on the same day that they noticed a lump in their breast (60% pre- and 63% post-campaign). Slightly fewer women said that they would visit their doctor on the same day if they noticed a change to their breasts other than a lump at both the pre- and post-stage (53% pre- and 57% post-campaign), indicating the importance of continuing to reinforce the non-lump message.

Second national campaign

The same survey methodology was used for the evaluation of the second national campaign as was used for the first national campaign. Pre- and post-campaign evaluation surveys were conducted among the primary audience of women aged 70 and over living in England. Pre-campaign stage fieldwork was conducted from 19 June 2015 to 5 July 2015 and post-stage fieldwork from 9 to 20 September 2015. At the pre-stage, 431 interviews were achieved and at the post-stage, 433.

Regarding campaign awareness and recognition, before the campaign almost three quarters of women aged 70 and over (73%) were aware of general cancer advertising or publicity which was higher than before the 2014 campaign (64%) and this did not change significantly post-campaign (68%). Breast cancer was the type of cancer most frequently recalled among those who had seen something, both pre-campaign (38%) and post-campaign (47%), showing similar levels to 2014, and a similar increase post-campaign.

As in 2014, the traditional call to action message of the Be Clear on Cancer campaign (to encourage people to see their GP) was the most commonly recalled message among those who had seen or heard some publicity (52% post-campaign). Raising awareness of the link between age and breast cancer showed an increase pre-campaign (8%) to post-campaign (16%).

Almost eight in ten (78%) recognised at least one of the campaign adverts, which was in line with the 2014 campaign and with recognition of other Be Clear on Cancer national campaigns on their second airing. Over half of these recognised adverts in more than one medium (40% of respondents). As usual, recognition was driven by the television advert (71%). A third (32%) had seen an advert in the press and a fifth (21%) had seen the new advertorials. The only significant difference from 2014 was a decrease in recognition of the leaflet from 24% to 16%. Relatively few remembered seeing an online advertisement (6%) or an advertisement on social media (5%) which reflects relatively low use of the internet and social media by women aged 70 and over, with only around one in five women aged 70 and over using each.

Regarding belief and attitudes there was no change in overall attitudes, which are highly positive, with around nine in ten women aged 70 and over disagreeing that they would be too embarrassed to go to their GP with symptoms, that their GP would be difficult to talk to or that they would be worried about wasting their GP's time. Over nine in ten agreed that if breast cancer is diagnosed early it is more likely to be treatable and that going to a GP early with symptoms provides reassurance.

Two in three disagreed that they could not cope with having cancer treatment at their age (67% post-campaign) but this was lower for those aged 80 and over, suggesting a greater need for reassurance for this older age group. Three in four agreed that treatment for breast cancer is just as successful for older women – the same as in 2014 – and while this was lower among women aged 80 and over pre-campaign, it was no longer the case post-campaign, suggesting some impact on this older age group.

Breast cancer is most prevalent among women aged 50 to 70 but there was little awareness of this as 43% thought it to be equally prevalent at all ages. There was an increase in the belief that it is most prevalent in your 70s post-campaign (to 16%, from 6% before the 2014 campaign, recovering from a dip between campaigns) and, while this is not entirely true, it reflects well on a campaign aiming to raise awareness that people in their 70s are still susceptible to breast cancer. In fact, one in three women diagnosed with breast cancer are over 70, but women aged 70 and over are likely to underestimate this proportion, with 19% getting this right post-campaign, and no change from pre-campaign or 2014.

Spontaneous awareness of a lump as a symptom of breast cancer remained high at three in four (73% post-campaign) but spontaneous awareness of non-lump symptoms fell from 48% after the 2014 campaign to 41% after the 2015 campaign. This suggests lower levels of success for the secondary aim of increasing awareness of the less well-known symptoms. After prompting, there was no change in recognition of symptoms, suggesting non-lump symptoms are simply less prominent in people's minds.

Around two-thirds felt confident in their knowledge of breast cancer symptoms at both pre- and post-campaign stages (66%), with no significant change from 2014. However, confidence was lower among those aged 80 and over. These are the highest levels of confidence for any cancer covered in a Be Clear on Cancer campaign, making it harder to achieve an improvement.

4.3 GP attendances

First national campaign

For the first national campaign, the independent software company Mayden was commissioned to collect a bespoke extract of primary care attendance data. Data on GP attendances for breast and control symptoms was collected from 265 practices. The control symptoms were headache or migraine; knee, shoulder or neck pain; and urinary tract infection. Data was collected for nine defined periods between December 2011 and May 2014. These periods were the 8-week pre-campaign period (9 December 2013 to 2 February 2014), the 6-week campaign period (3 February to 16 March 2014) and the 8-week post-campaign period (17 March to 11 May 2014), and the same weeks in the previous two years. Data was adjusted to account for bank holidays and the number of weeks in each period.

The average numbers of GP attendances per week per practice (Figure 3) show a fluctuation between 0.12 to 0.16 visits with the highest at 0.18 visits per week per practice during the 2013/14 campaign period. The average number of GP attendances per week per practice was still slightly higher in the 2013/14 post-campaign period than in the periods prior to the campaign. In the period immediately prior to the campaign (2013/14 pre-campaign period), the average number of visits per week per practice was similar to previous periods (2012/13).

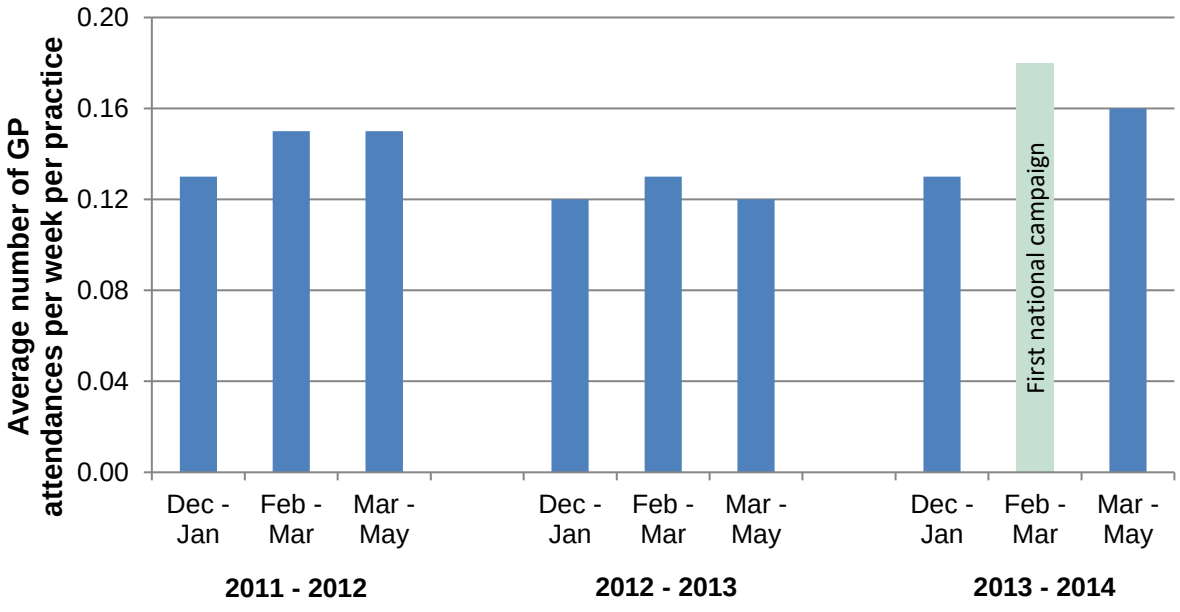


Figure 3: Average number of GP attendances for breast symptoms per week per practice for women aged 70 and over during the pre-, campaign and post-campaign periods compared to the previous two years

For women aged 70 years and over, there was a 36% increase in the average number of GP attendances per week per practice for breast symptoms for the 2013/14 campaign period compared to the same period in 2012/13 (Figure 4). This equated to an increase of 0.05 visits per practice per week. In compared, there was a 5% increase for the control symptoms. The increase in the post-campaign period was still high at 34% for breast symptoms compared to 5% for the control symptoms.

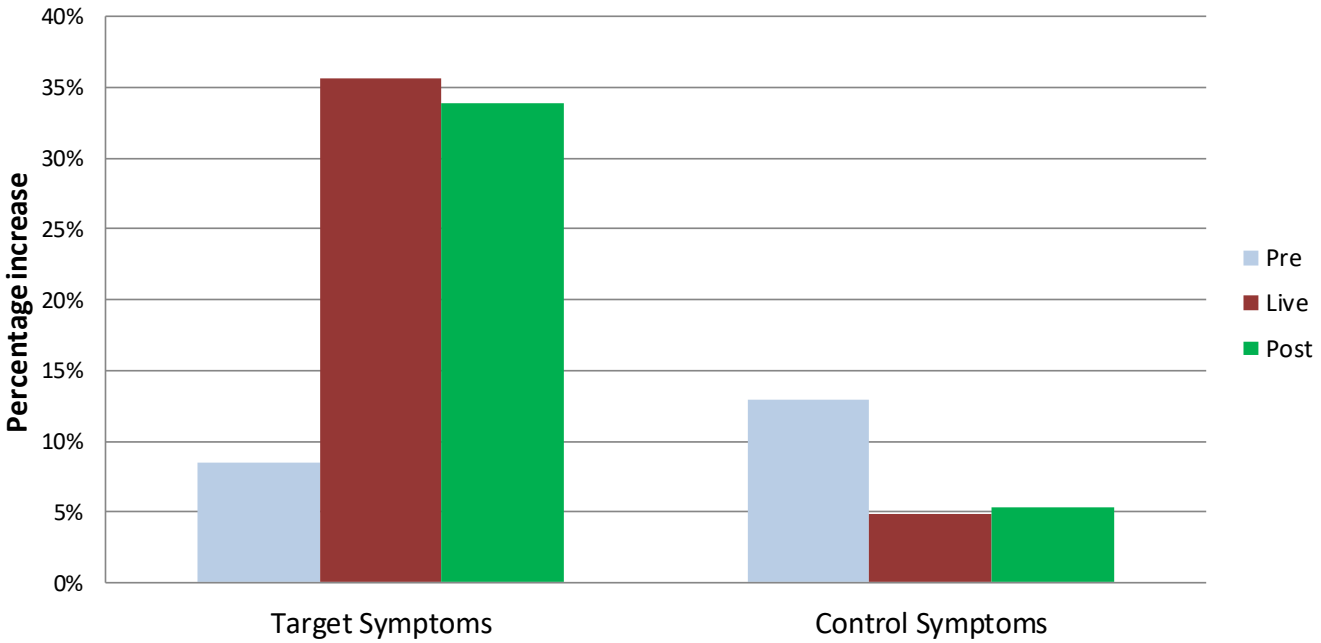


Figure 4: Percentage increases, between 2012/13 and 2013/14, in the number of attendances per week for the target and control symptoms, women aged 70 and over, by period

Most GP attendances for breast symptoms are for women aged under 70; for example, during the 2013/14 campaign period, 90% of attendances for breast symptoms were for women aged under 70. Although smaller than for those aged 70 and over, there was a 9% increase in the average number of attendances per practice per week during the 2013/14 campaign period compared to the same period in 2012/13 (Figure 5). The increases in the number of attendances during the 2013/14 campaign period were statistically significant for both the under 70 group ($p=0.001$), and the 70 and over group ($p<0.001$). This means that both age groups, and not only women aged 70 years and over, had statistically significant increases in the number of attendances for breast symptoms during the campaign period.

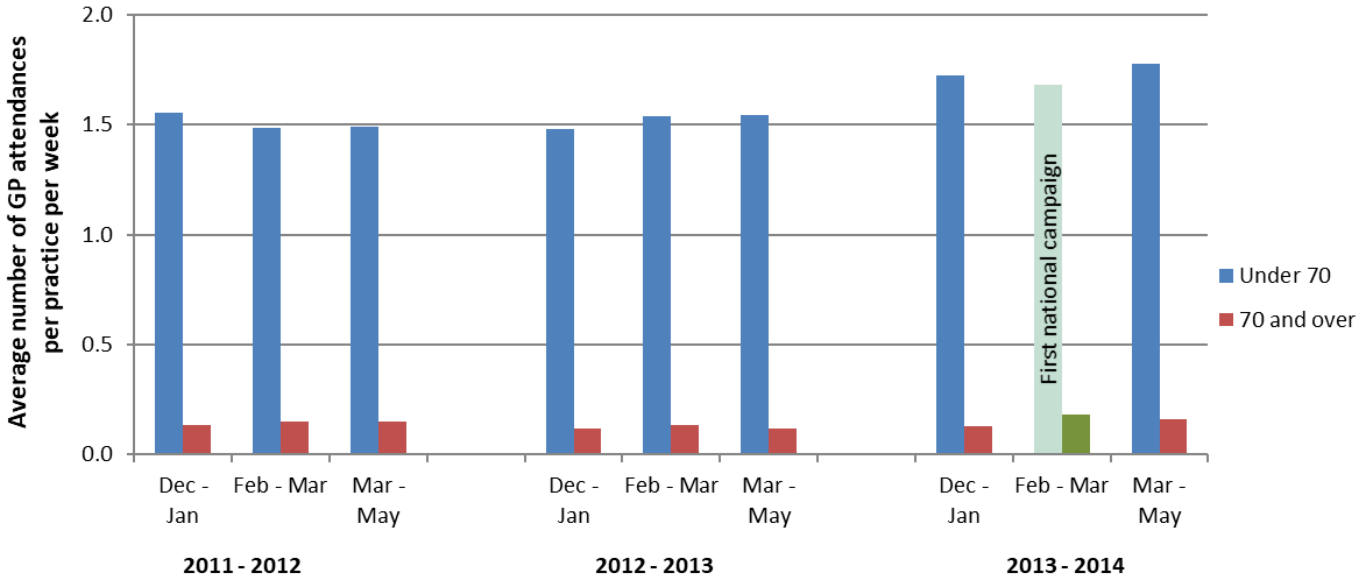


Figure 5: Number of GP attendances for breast symptoms per practice per week (adjusted for bank holidays) during the pre-, campaign and post-campaign periods, by broad age

Second national campaign

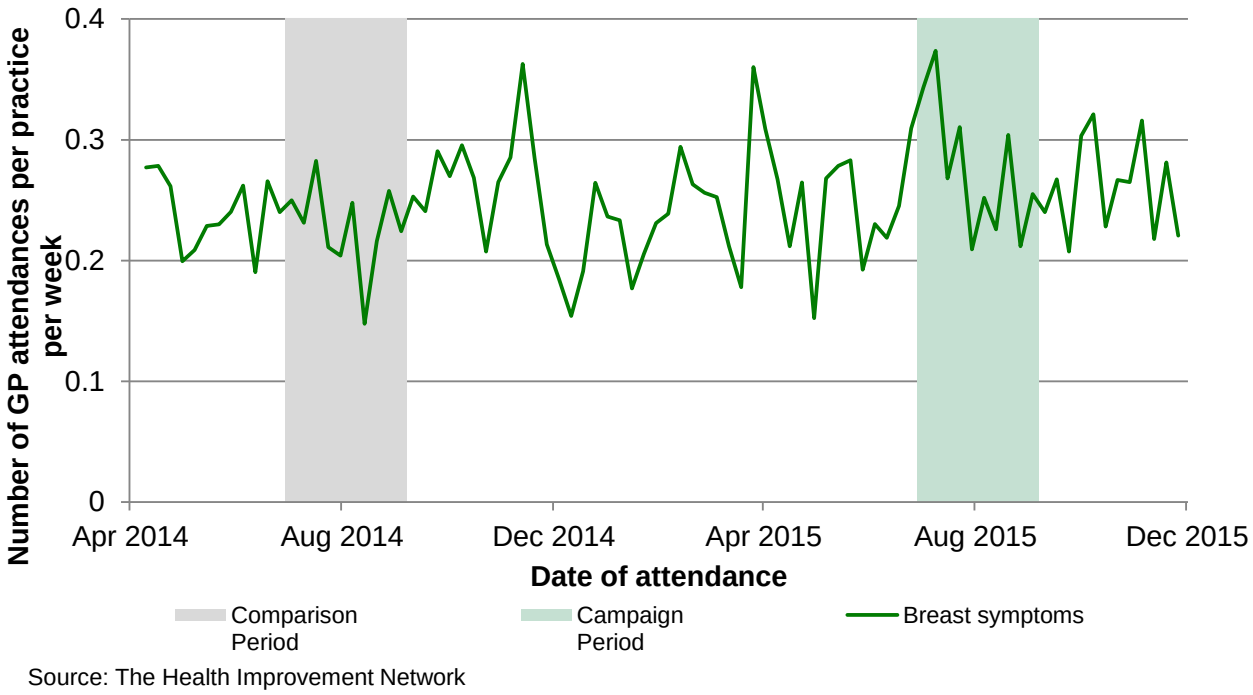
Data on GP attendances with breast symptoms and a control symptom (back pain) were sourced from The Health Improvement Network (THIN) (5) database for the period 7 April 2014 to 13 December 2015. The data was grouped into weekly samples and adjusted to account for bank holidays. Data were also extracted on the number of GP practices submitting data each week (which decreased from 370 to 222 practices over the period considered) to enable the calculation of the average number of attendances per practice per week.

Analyses considered three periods: a 12-week pre-campaign period (20 April 2015 to 12 July 2015); a 10-week campaign period (13 July 2015 to 20 September 2015); and a 12-week post-campaign period (21 September to 13 December 2015). The average number of GP attendances per practice per week during these periods in 2015 were compared with the same periods one year earlier, in 2014.

During the 2015 campaign period, for women aged 70 and over, the average number of attendances for breast symptoms showed a statistically significant increase of 21.4% ($p<0.001$) when compared to the same period in 2014, (from 0.23 visits per practice per week in 2014 to 0.28 visits per practice per week in 2015). In comparison, results for the control symptom (back pain) showed a small decrease which was not statistically significant (2.4% decrease, $p=0.35$), from 1.12 visits per practice per week in 2014 to

1.1 visits per practice per week during the 2015 campaign period. There was no statistically significant change in the number of visits per practice per week for breast symptoms during the post campaign period, compared to the same period in 2014.

The trend in the average number of attendances per practice per week for women aged 70 and over shows a good deal of week-to-week variability (Figure 6). This average peaked during the first few weeks of the second national breast campaign, but similar peaks had occurred previously, in November 2014 and April 2015.



Source: The Health Improvement Network

Figure 6: Average number of GP attendances, per practice per week, for breast symptoms, women aged 70 years and over, 7 April 2014 to 13 December 2015

During the 2015 campaign period, compared to the same period in 2014, there were statistically significant increases in the average number of attendances per practice per week for breast symptoms for women aged under 70. This included a 21.8% increase ($p<0.001$) in attendances for women aged 60 to 69, from 0.26 visits per practice per week in 2014 to 0.31 visits per practice per week during the 2015 campaign period. The number of attendances per practice per week increased for both the 2014 and 2015 campaigns, though was noticeably larger for the 2015 campaign. This difference may be due in part to the different methodologies applied to each campaign's evaluation for this metric, but still clearly shows the impact of the campaign on both occasions.

There was a statistically significant increase in the number of GP attendances with breast symptoms during the second national breast cancer campaign for women aged 70 years and over.

4.4 Cancer Waiting Times (CWT) data

Cancer Waiting Times (CWT) data were obtained from the National CWT Monitoring Dataset, provided by NHS England. For a list of metrics based on CWT data and their description see Table 1: List of campaign evaluation metrics and their descriptions. Notes on methodology specific to the first and second national campaigns, respectively, are made below.

4.4.1 CWT data for first national campaign

Methodological notes

Analyses consider the two types of urgent referrals related to breast cancer: urgent GP referrals for suspected breast cancer, and breast symptom referrals. It also considers breast cancer diagnoses (ICD10 C50, D05). Results are reported for a 'post-campaign period', which is the three or four months immediately following the 'campaign period'. As the campaign ran from 3 February to 16 March 2014, the comparison, campaign, post-campaign and post-campaign comparison periods were defined as follows (Table 3).

Table 3: Comparison, campaign, post-campaign and post-campaign comparison periods for CWT data analysis, first national campaign

	Comparison period	Campaign period	Post-campaign comparison	Post-campaign
- Urgent GP referrals - Cancer diagnoses resulting from an urgent GP referral - Conversion rate	February to April 2012	February to April 2014	May to August 2012	May to August 2014
- Cancer diagnoses recorded in the CWT database - Detection rate	March to May 2012	March to May 2014	June to September 2012	June to September 2014

As the regional campaign affected the number of referrals and related figures for January 2013 onwards, data for the first national campaign (2014) is compared to that for the same period two years previously (2012). This comparator is not ideal considering the large impact of the more general trend for increasing referral, but the months affected by the regional campaign were considered too closely aligned for a one-year comparison to be meaningful. The number of urgent referrals has continued to increase year-on-year and so it is likely that some changes in the number of referrals will be due to this underlying trend.

Urgent GP referrals

To provide an indication of the additional increase in referrals associated with the campaign rather than the underlying trend, results for urgent GP referrals for suspected breast cancer and breast symptom referrals were compared to results for urgent GP referrals for suspected cancer in the control group (head and neck cancers).

Whilst there has been an upward trend in the number of urgent GP referrals for suspected breast cancer and breast symptom referrals for women aged 70 and over, the beginning of the first national campaign coincided with clear, sharp increases in the number of referrals, with much bigger increases than would be expected from the long-term trend (Figure 7). Although there was a similar upward trend in the number of urgent GP referrals for suspected head and neck cancers in women aged 70 and over, there was not a similar spike from February 2014. This suggests that the large increase in the number of urgent GP referrals for suspected breast cancer and breast symptom referrals for women aged 70 and over which coincided with the start of the campaign was due to the campaign.

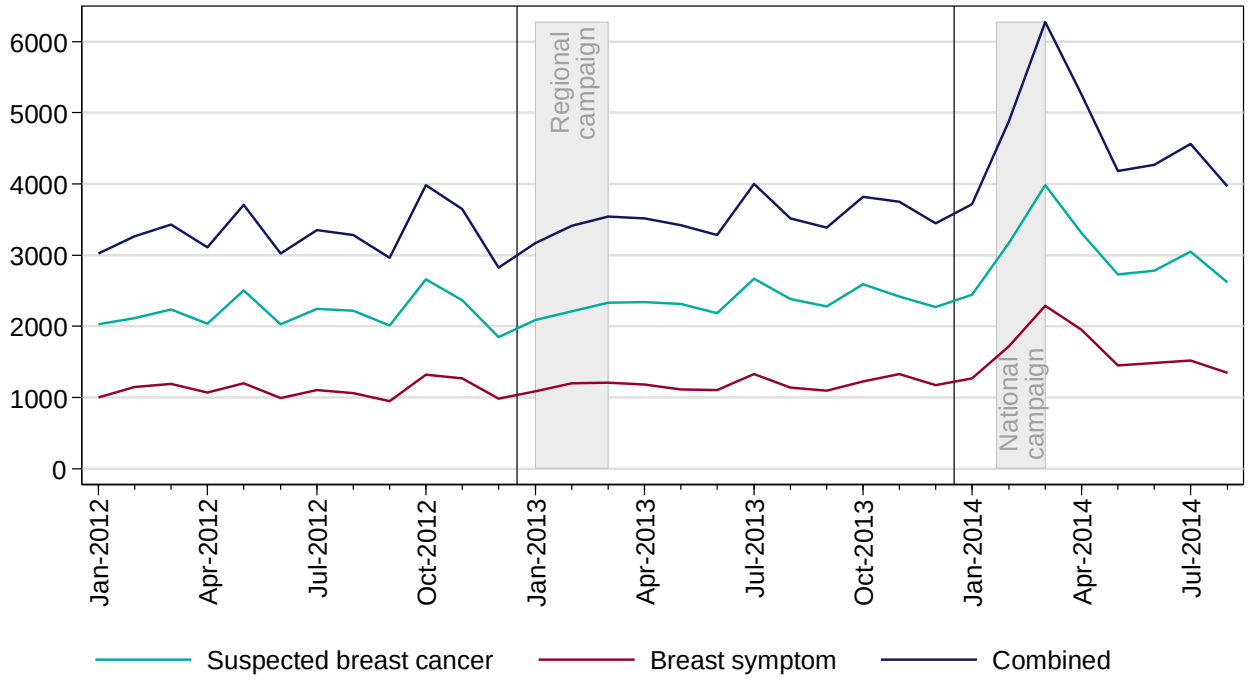


Figure 7: Monthly number of urgent GP referrals for suspected breast cancer, breast symptom referrals and combined, women aged 70 years and over

For example, in February to April 2014 there were 64% more urgent GP referrals for suspected breast cancer for women aged 70 and over than there were in February to April 2012. This is a statistically significant increase of 4,062 referrals from 6,395 to 10,457. Similarly, there was a statistically significant increase in breast symptom referrals: a 75% increase of 2,547 referrals, from 3,408 to 5,955 (Table 4).

Table 4: Number of urgent GP referrals for suspected breast cancer, breast symptom referrals and combined, with referral rate and percentage change in number of referrals, women aged 70 and over

Referral type	Feb to April	Referrals	% Change in number	P-value	Referral rate	
					Estimate	95% CI
Suspected breast cancer	2012	6,395	64	<0.001	745	(727, 764)
	2014	10,457			1,257	(1,233, 1,282)
Breast symptom	2012	3,408	75	<0.001	410	(396, 424)
	2014	5,955			738	(719, 757)
Combined	2012	9,803	67	<0.001	1,155	(1,132, 1,178)
	2014	16,412			1,995	(1,965, 2,026)

By contrast, there was a much smaller increase in the number of referrals for suspected head and neck cancers in women aged 70 years and over, a 31% increase from 3,694 to 4,827 referrals (Table 5).

Table 5: Number of urgent GP referrals for suspected head and neck cancers, with referral rate and percentage change in number of referrals, women aged 70 and over

February to April					
				Referral rate	
Year	Number of referrals	% change in number	P-value	Estimate	95% CI
2012	3,694	31%	<0.001	431	(417, 446)
2014	4,827			576	(559, 592)

The increase in the number of urgent GP referrals for suspected breast cancer and breast symptom referrals was smaller in the months following the end of the campaign than during the campaign. For example, there were 24% more urgent GP referrals for suspected breast cancer in England in the period May to August 2014 than in the period May to August 2012, an increase of 2,177 from 9,002 to 11,179. This increase was only slightly greater than the number of urgent GP referrals for suspected head and neck cancers for women aged 70 and over in England over the same period (22% increase from 6,186 to 7,561).

For women aged under 70 years, trends provided some evidence of an increase in referrals during the campaign period. However, the 39% increase in suspected breast cancer referrals, 23% increase in breast symptom referrals and 31% increase in

combined breast referrals, were much smaller than the increases for those aged 70 and over. They were more comparable to the 34% increase in referrals for suspected head and neck cancers.

The campaign appears to have led to a large increase in the number of urgent GP referrals for suspected breast cancer and in the number of breast symptom referrals for women aged 70 and over, during the campaign. However, the longer-term impact of the campaign on the number of such referrals for women aged 70 years and over appears limited.

Cancer diagnoses resulting from urgent referrals

For women aged 70 and over, there were clear increases in the number of breast cancer diagnoses resulting from urgent GP referrals for suspected breast cancer and breast symptom referrals in the campaign months of February to April 2014, compared with the period February to April 2012. There were particularly large increases in March 2014 (Figure 8).

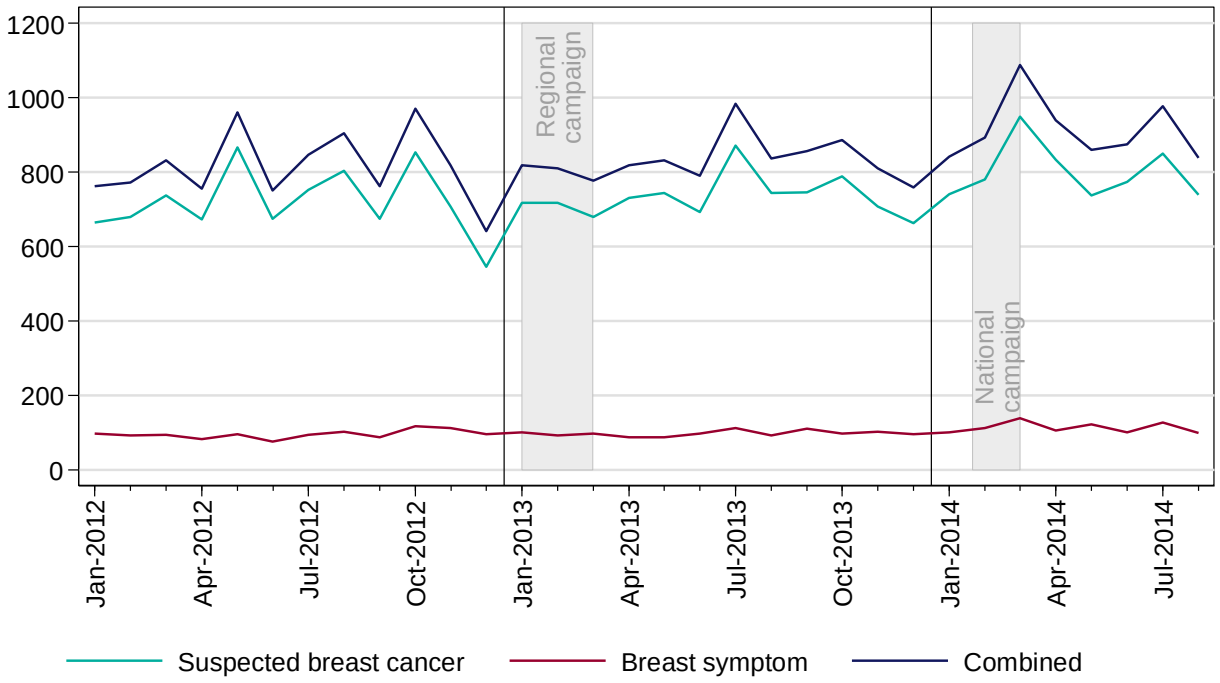


Figure 8: Monthly number of breast cancer diagnoses resulting from an urgent GP referral for suspected breast cancer, breast symptom referrals and combined from January 2012 to August 2014, England, women aged 70 and over

The number of breast cancer diagnoses resulting from an urgent GP referral for suspected breast cancer in women aged 70 years and over increased by 23% from 2,090 to 2,564. Similar relative increases were observed in breast cancer diagnoses resulting from a breast symptom referral (Table 6).

Table 6: Number of breast cancer diagnoses resulting from urgent GP referrals for suspected breast cancer, breast symptoms, and combined, with percentage change in number of cancers, England, women aged 70 and over

Referral type	February to April		% Change in number	P-value
	Breast cancer diagnoses resulting from an urgent GP referral			
	2012	2014		
Suspected breast	2,090	2,564	23	<0.001
Breast symptom	270	357	32	<0.001
Combined	2,360	2,921	24	<0.001

The increase in the number of breast cancer diagnoses resulting from urgent GP referrals for suspected breast cancer did not continue into the months following the campaign. However, there may have been a small sustained impact on diagnoses following a breast symptom referral because there were 22% more such diagnoses in May to August 2014 than in May to August 2012, an increase from 367 to 449 diagnoses.

For women aged under 70 years, there were much smaller increases during the campaign period with a 5% increase in the number of breast cancer diagnoses resulting from either an urgent GP referral for suspected breast cancer or a breast symptom referral. This increase was not statistically significant, and neither were changes for diagnoses from either route. There were no statistically significant changes in the number of such diagnoses following the end of the campaign for women aged under 70.

The first national campaign appeared to have an impact on the number of breast cancer diagnoses resulting from urgent GP referrals for suspected breast cancer and breast symptom referrals during the campaign months in women aged 70 and over. However, the impact does not seem to have been sustained after the first national campaign, and the campaign had little impact on women under 70 years.

Conversion rate

For urgent GP referrals for suspected breast cancer and breast symptom referrals, the breast cancer conversion rates in women aged 70 and over have been slowly decreasing since at least January 2012 (Figure 9). This decrease reflects the steadily increasing trend in referrals combined with the relatively stable number of cancers resulting from these referrals.

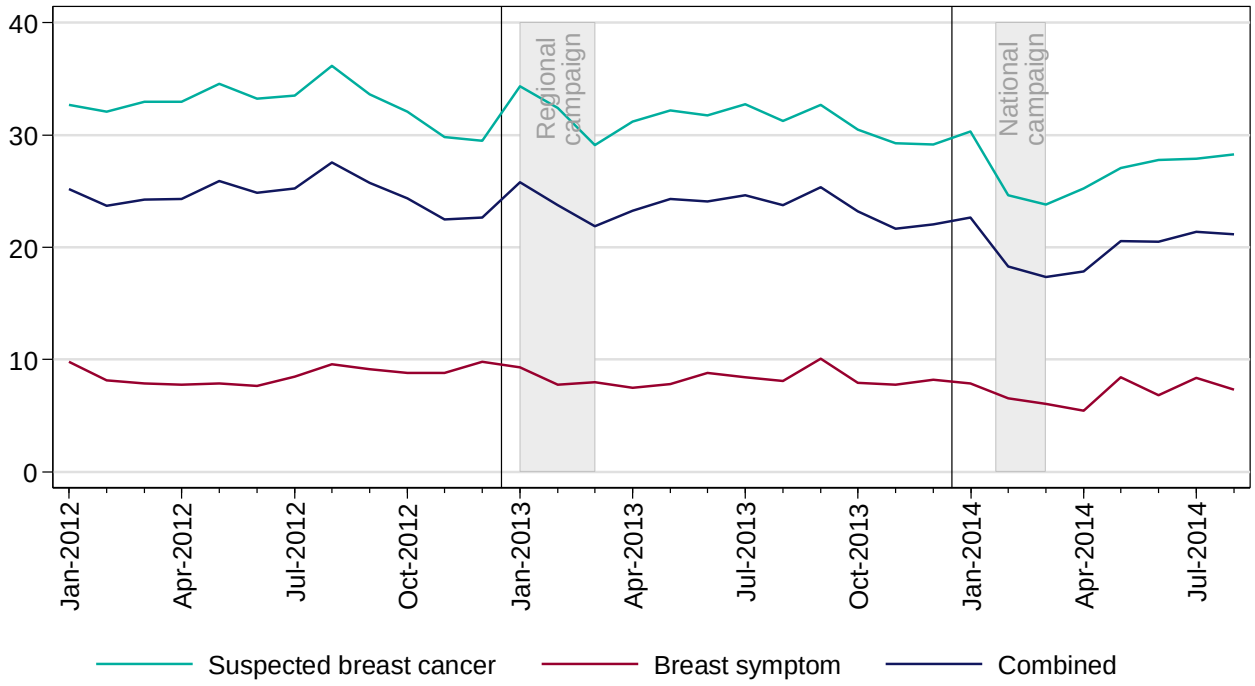


Figure 9: Monthly breast cancer conversion rates for urgent GP referrals for suspected breast cancer, breast symptoms, and combined, England, women aged 70 and over

The very large increase in urgent GP referrals for suspected breast cancer coinciding with the start of the first national campaign caused a clear fall in the conversion rate during the campaign months. The breast cancer conversion rate of urgent GP referrals for suspected breast cancer in women aged 70 and over fell by 8% from 33% in February to April 2012 to 25% in February to April 2014. The breast cancer conversion rate of breast symptom referrals for women aged 70 and over was much lower than the conversion rate of urgent GP referrals for suspected breast cancer. During the campaign, 25% of urgent GP referrals for suspected breast cancer in women aged 70 and over resulted in a breast cancer diagnosis compared with just 6% of breast symptom referrals (Table 7).

Table 7: Breast cancer conversion rates for urgent GP referrals for suspected breast cancer, breast symptoms and combined, with change, England, women aged 70 and over

Referral type	February to April					
	2012		2014		%-Point Change	P-value
	Conversion Rate (%)	95% CI	Conversion Rate (%)	95% CI		
Suspected breast	33	(32, 34)	25	(24,25)	-8	<0.001
Breast symptom	8	(7, 9)	6	(5, 7)	-2	<0.001
Combined	24	(23, 25)	18	(17,18)	-6	<0.001

In the months following the campaign, the conversion rates for women aged 70 years and over began to return to the long-term trend and appeared to be in line with this long-term trend by July 2014 or August 2014. The breast cancer conversion rate of urgent GP referrals for suspected breast cancer in women aged 70 and over in May 2014 to August 2014 was 28%, 3% higher than during the campaign period.

For women aged under 70 years, the breast cancer conversion rates of urgent GP referrals for suspected breast cancer and breast symptom referrals reduced slightly during the campaign. They were 0.8% lower in February to April 2014 (at 3.1%) than in February 2012 to April 2012 (at 3.9%). There was a similar reduction seen in the months following the end of the campaign.

Cancer diagnoses recorded in the CWT database

There appears to have been a slight upward trend in the number of CWT database-recorded breast cancer diagnoses in women aged 70 and over since January 2012. However, in the campaign months, particularly April 2014, there was a considerable increase in the number of CWT database-recorded breast cancer diagnoses above the long-term trend. This fell off after the campaign months, but the number of CWT database-recorded diagnoses may still have been raised until at least September 2014 (Figure 10).

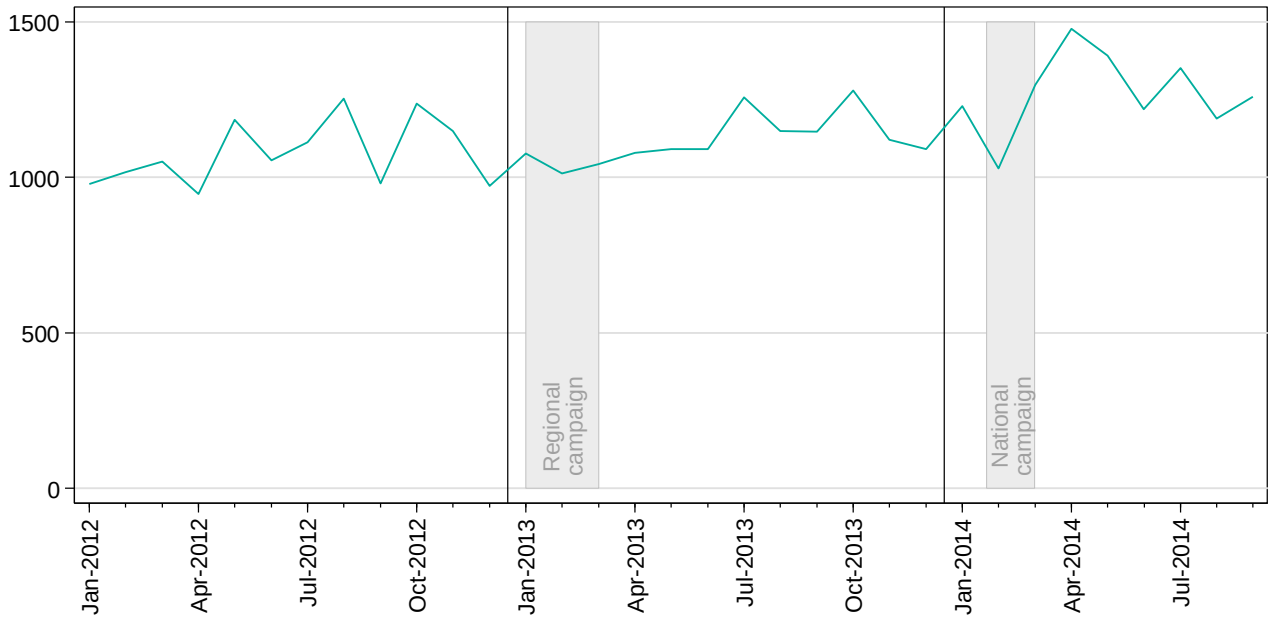


Figure 10: Monthly number of breast cancer diagnoses recorded in the CWT database, England, women aged 70 and over

For example, in the campaign months March 2014 to May 2014 there was a 31% increase in the number of CWT database-recorded breast cancer diagnoses in women aged 70 years and over when compared to March 2012 to May 2012, from 3,179 to 4,164. In the months following the campaign, June to September 2014, there was a 14% increase in the number of CWT database-recorded breast cancer diagnoses in women aged 70 and over when compared to June to September 2012, from 4,399 to 5,016.

For women aged under 70 years, there was no statistically significant change in the number of breast cancer diagnoses recorded in the CWT database in the campaign months, March to May 2014, compared to March to May 2012. Although in the months following the end of the campaign, June to September 2014, there were 9% more breast cancer diagnoses in women aged under 70 recorded in the CWT database than two years earlier, it is not clear that this was related to the campaign.

The increases in the number of breast cancer diagnoses recorded in the CWT database for those aged 70 and over appeared larger than might have been expected from the long-term trend, particularly for the campaign period. These results indicate a probable impact of the first national campaign on this metric.

Detection rate

The detection rate for breast cancer diagnoses in women aged 70 years and over was relatively stable between January 2012 and September 2014 with suggestion of a slightly decreasing trend. The first national campaign coincided with a fall in the detection rate (Figure 11).

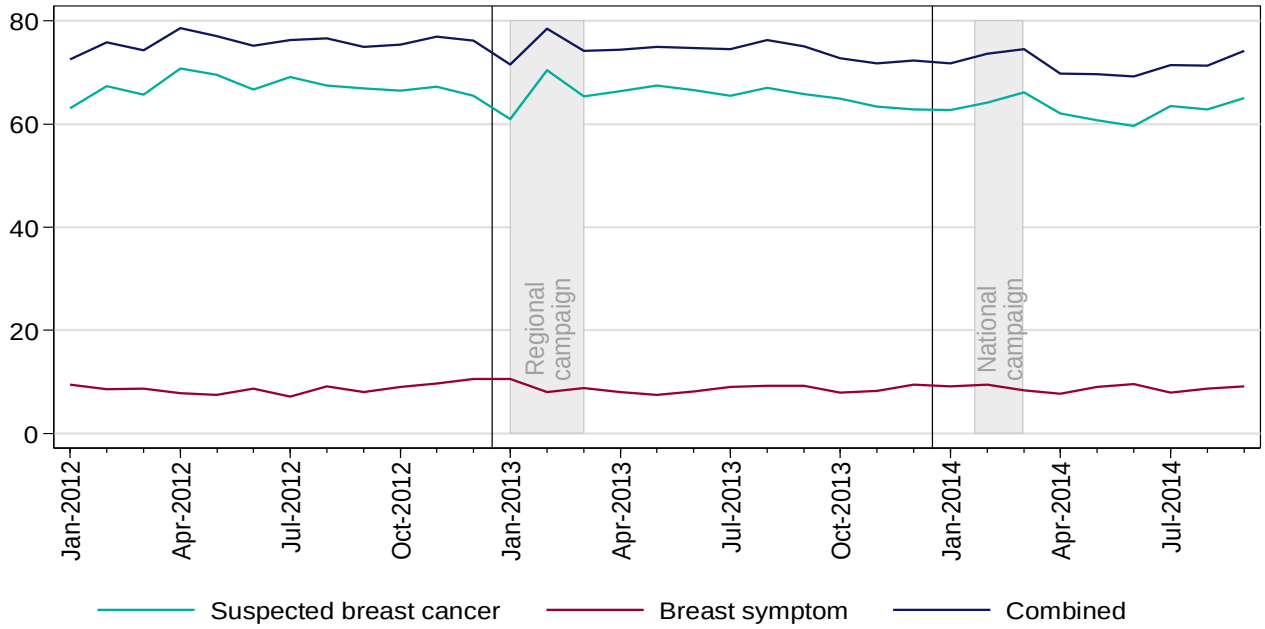


Figure 11: Monthly detection rate for breast cancer diagnoses by urgent GP referral for suspected breast cancer, breast symptoms and combined, England, women aged 70 and over

The detection rate for breast cancer diagnoses by urgent GP referral for suspected breast cancer in women aged 70 years and over was 69% in March to May 2012 but reduced by 6% to 63% in March to May 2014.This reduction in detection rate occurred because of increases in diagnoses through other routes (e.g. screening), with a larger increase in the number of cancers recorded in the CWT database (detection rate denominator) than in the number of cancers resulting from an urgent GP referral for suspected breast cancer (detection rate numerator). However, there was no apparent change in the detection rate for breast cancer diagnoses by breast symptom referral in women aged 70 and over, which remained approximately 8% in both March to May 2012 and March to May 2014 (Table 8).

Table 8: Detection rate for breast cancer diagnoses by urgent GP referral for suspected breast cancer, breast symptoms and combined, with change, England, women aged 70 and over

Referral type	March to May					
	2012		2014		%-Point Change	P-value
	Detection Rate (%)	95% CI	Detection Rate (%)	95% CI		
Suspected breast cancer	69	(67, 70)	63	(61, 64)	-6	<0.001
Breast symptom	8	(7, 9)	8	(8, 9)	0	0.561
Combined	77	(75, 78)	71	(70, 73)	-5	<0.001

Also, between March to May 2012 and March to May 2014 there were no statistically significant changes in the detection rate for breast cancer in women aged under 70 years, neither by urgent GP referral for suspected breast cancer nor by breast symptom referral.

4.4.2 CWT data for second national campaign

Methodological notes

Analysis considers the two types of urgent referrals related to breast cancer: urgent GP referrals for suspected breast cancer and breast symptom referrals. It also considers breast cancer diagnoses (ICD10 C50, D05). As the campaign ran from 3 February to 16 March 2014, the campaign, post-campaign and comparison periods were defined as follows (Table 9).

Table 9: Campaign, post-campaign and comparison periods for CWT data analysis, second national campaign

	Comparison period	Campaign period	Post-campaign comparison	Post-campaign
- Urgent GP referrals - Cancer diagnoses resulting from an urgent GP referral - Conversion rate	July 2014 to September 2014	July 2015 to September 2015	October 2014 to November 2014	October 2015 to November 2015
- Cancer diagnoses recorded in the CWT database - Detection rate	August 2014 to October 2014	August 2015 to October 2015	November 2014 to February 2015	November 2015 to February 2016

Urgent GP referrals

Since at least January 2013, there has been a general upward trend in the number of urgent GP referrals for suspected breast cancer and breast symptom referrals for women aged 70 years and over. There has also been a general upward trend in urgent GP referrals for other suspected cancers for women in this age group. Nonetheless, between July 2014 to September 2014 and the second national campaign period months of July 2015 to September 2015, there were increases in the number of urgent GP referrals for suspected breast cancer, breast symptoms and combined referrals (Figure 12).

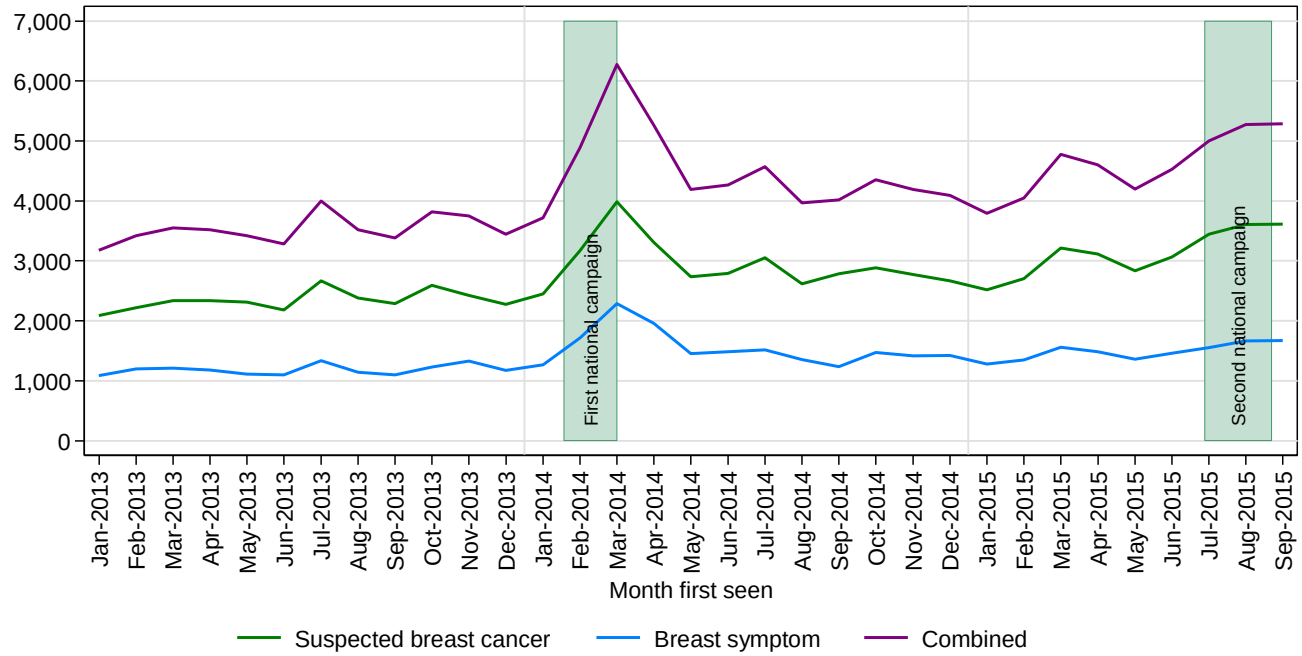


Figure 12: Monthly number of urgent GP referrals for suspected breast cancer, breast symptom referrals and combined referrals, women aged 70 and over

For women aged 70 years and over in England, there was a 26% increase in urgent GP referrals for suspected breast cancer from 8,452 referrals in July 2014 to September 2014 to 10,666 referrals in July 2015 to September 2015. There was also a 19% increase in the number of breast symptom referrals, from 4,101 to 4,887. This resulted in a 24% increase in combined referrals (Table 10).

Table 10: Number of urgent GP referrals for suspected breast cancer, breast symptoms and combined referrals, with referral rate and percentage change in number of referrals, England, women aged 70 and over

Referral type	July to Sept	Referrals	% Change in number	P-value	Referral rate	
					Estimate	95% CI
Suspected breast cancer	2014	8,452	26	<0.001	925	(905, 945)
	2015	10,666			1,178.6	(1,156, 1,202)
Breast Symptom	2014	4,101	19	<0.001	461	(447, 476)
	2015	4,887			555	(539, 571)
Combined	2014	12,553	24	<0.001	1,386	(1,362, 1,411)
	2015	15,553			1,733	(1,706, 1,761)

These increases were larger than the increase for other suspected cancers which only increased by 11%, from 23,646 to 26,231 (Table 11).

Table 11: Number of urgent GP referrals for other suspected cancers, with referral rate and percentage change in number of referrals, England, women aged 70 and over

July to Sept	July to September				
	Referrals	% Change in number	P-value	Referral rate	
				Estimate	95% CI
2014	23,646	11	<0.001	2,543	(2,510, 2,576)
2015	26,231			2,834	(2,799, 2,869)

The second national campaign may have had a small impact on the number of urgent GP referrals for suspected breast cancer for women aged under 70 years. However, the numbers appeared similar to those which might have been expected from long term trends.

From these results the second national campaign appears to have had some impact on the number of urgent GP referrals for suspected breast cancer and in the number of breast symptom referrals for women aged 70 years and over. Nonetheless, this impact is substantially smaller than that of the first national campaign.

Cancer diagnoses resulting from urgent referrals

There has been a slight upward trend in breast cancer diagnoses resulting from an urgent GP referral for suspected breast cancer for women aged 70 years and over in England since January 2013, with an increase particularly from March 2015 onwards (Figure 13).

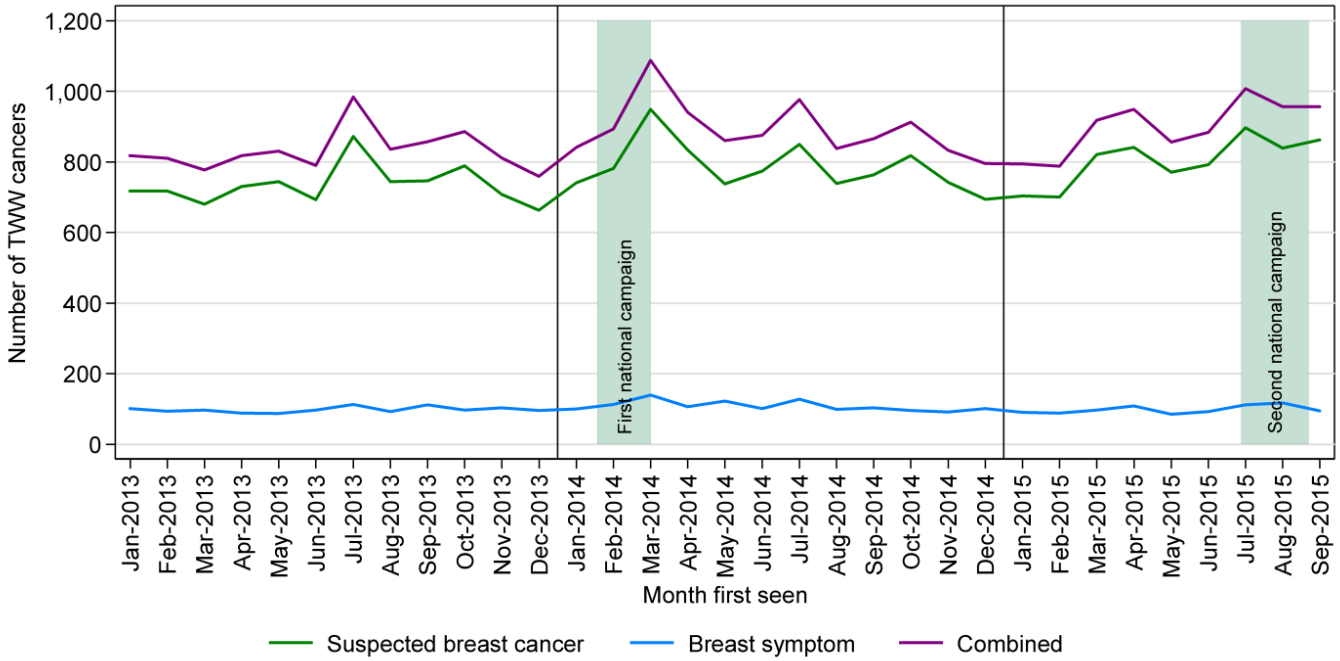


Figure 13: Monthly number of breast cancer diagnoses resulting from urgent GP referrals for suspected breast cancer, breast symptom referrals and combined referrals, England, women aged 70 and over

For women aged 70 and over in England, there was a 10% increase in the number of breast cancer diagnoses resulting from an urgent GP referral for suspected breast cancer between July 2014 to September 2014 and July 2015 to September 2015, from 2,352 to 2,598 (Table 12).

Table 12: Number of breast cancer diagnoses resulting from urgent GP referrals for suspected breast cancer, breast symptoms and combined, with percentage change in number of cancers, women aged 70 and over

Referral Type	July to September			
	TWW Cancers		% Change in number	P-value
	2014	2015		
Suspected breast cancer	2,352	2,598	11	<0.001
Breast symptom	329	322	-2	0.784
Combined	2,681	2,920	9	0.001

For women aged under 70 years underlying trends in breast cancer diagnoses resulting from urgent GP referrals for suspected breast cancer, breast symptom referrals and

combined referrals appear to have been stable though with some monthly variation. There was a peak in the number of suspected breast cancer referrals in July 2015 but there had also been peaks in July in both 2013 and 2014. Between July 2014 to September 2014 and July 2015 to September 2015 there was a 7% increase in the number of breast cancer diagnoses resulting from urgent GP referrals for suspected breast cancer referrals for women aged under 70, from 2,986 to 3,200.

From these results it appears that the second national campaign may have had some impact on the number of breast cancer diagnoses resulting from urgent GP referrals for suspected breast cancer, but not on the number of diagnoses resulting from breast symptom referrals, for women aged 70 and over.

Conversion rate

Conversion rates are the percentage of urgent GP referrals for suspected breast cancer or breast symptoms resulting in a diagnosis of breast cancer. Although clear decreasing trends in these conversion rates can be seen since at least January 2013 there is evidence that rates were still lower at the end of the campaign period (September 2015) than would be expected from the underlying trends (Figure 14).

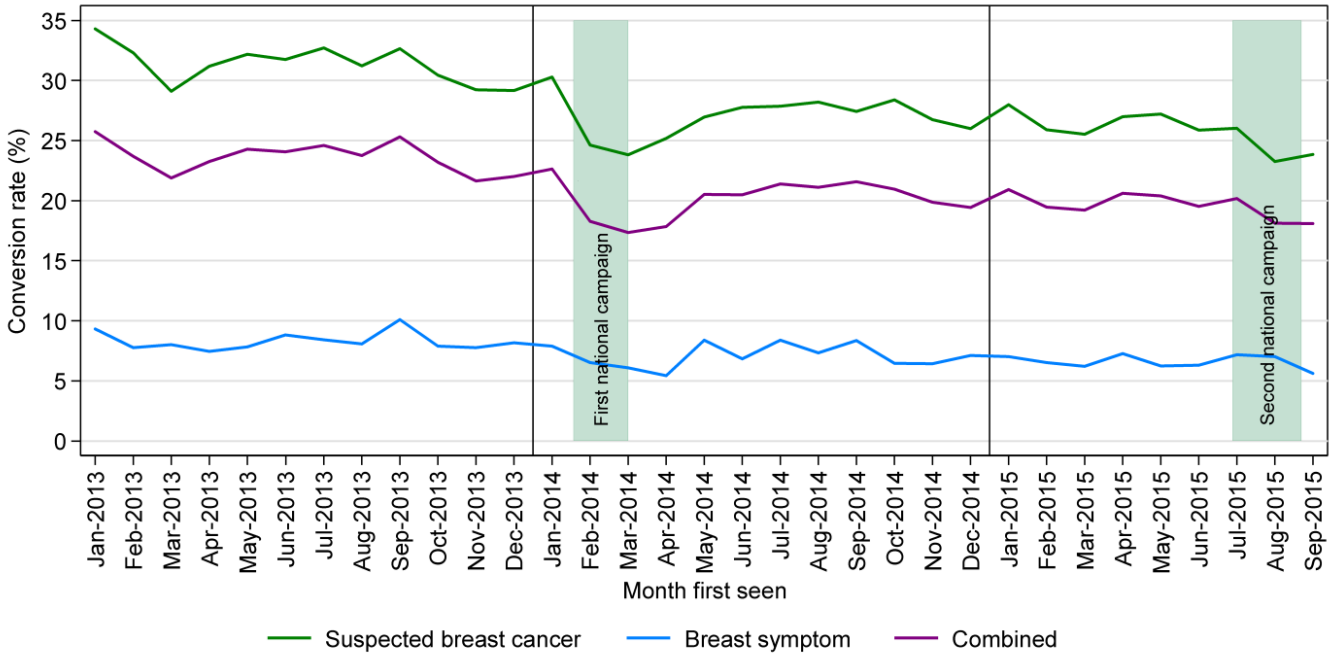


Figure 14: Monthly conversion rates for urgent GP referrals for suspected breast cancer, breast symptoms and combined, women aged 70 and over

The conversion rates for women referred with suspected breast cancer and breast symptoms referrals in July 2015 to September 2015 for women aged 70 and over were

statistically significantly lower than during the same months in 2014. There was a 3.5 percentage point decease in suspected breast cancer referrals and a smaller 1.4 percentage point decrease in breast symptom referrals (Table 13).

Table 13: Conversion rates for urgent GP referrals for suspected breast cancer, breast symptoms and combined, with change, women aged 70 and over

Referral Type	July to September					
	2014		2015		%-Point Change	P-value
	Conversion Rate (%)	95% CI	Conversion Rate (%)	95% CI		
Suspected breast cancer	28	(27, 29)	24	(24, 25)	-4	<0.001
Breast symptom	8	(7, 9)	7	(6, 7)	-1	0.009
Combined	21	(21, 22)	19	(18, 19)	-3	<0.001

For women aged under 70, conversion rates for urgent GP referrals for suspected breast cancer were statistically significantly lower in July 2015 to September 2015 than during the same months in 2014 although only by 1%.

These results suggest that the second national campaign had a small negative impact on conversion rates from urgent GP referrals for suspected breast cancer and breast symptom referrals for women aged 70 years and over. This result is to be expected because, on average, the additional women being referred (who would not normally have been referred) are less likely to have cancer than the cohort of women who would normally be referred.

Cancer diagnoses recorded in the CWT database

From at least January 2013, there has been an upwards trend in the number of CWT database recorded breast cancer diagnoses in England for women aged 70 years and over (Figure 15).

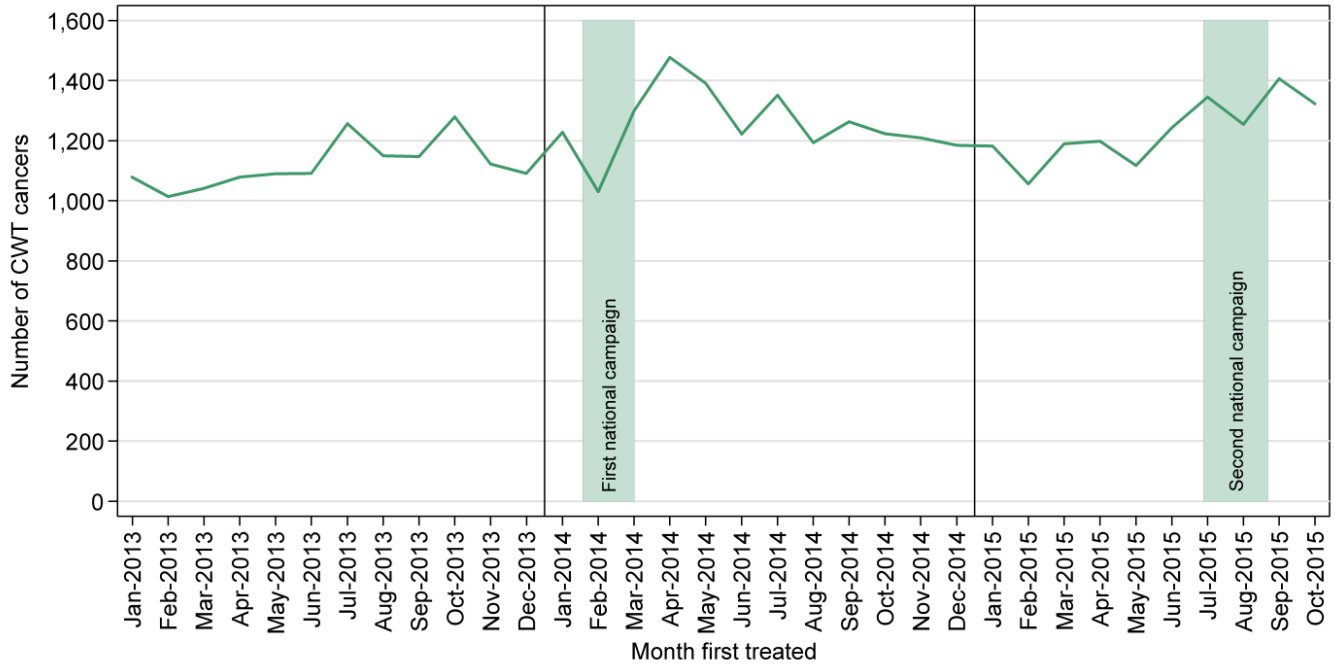


Figure 15: Monthly number of breast cancer diagnoses recorded in the CWT database, England, women aged 70 years and over

In England, there was a statistically significant increase in the number of CWT-recorded breast cancer diagnoses between August to October 2014 and the same months in 2015 of 8%, from 3,679 to 3,984 (Table 14).

Table 14: Number of breast cancer diagnoses recorded in the CWT database, with percentage change in number of cancers, women aged 70 years and over

Region	August to October			
	CWT Cancers		% Change in number	P-value
	2014	2015		
England	3,679	3,984	8	<0.001

There were no statistically significant changes in the number of CWT-recorded breast cancer diagnoses between August to October 2014 and the campaign period months for women aged under 70 years

The data therefore suggests that the second national campaign may have had some impact on the number of breast cancer diagnoses recorded in the CWT database for women aged 70 years and over.

Detection Rate

The second national campaign does not appear to have had an impact on breast cancer detection rates for women aged 70 years and over (Figure 16).

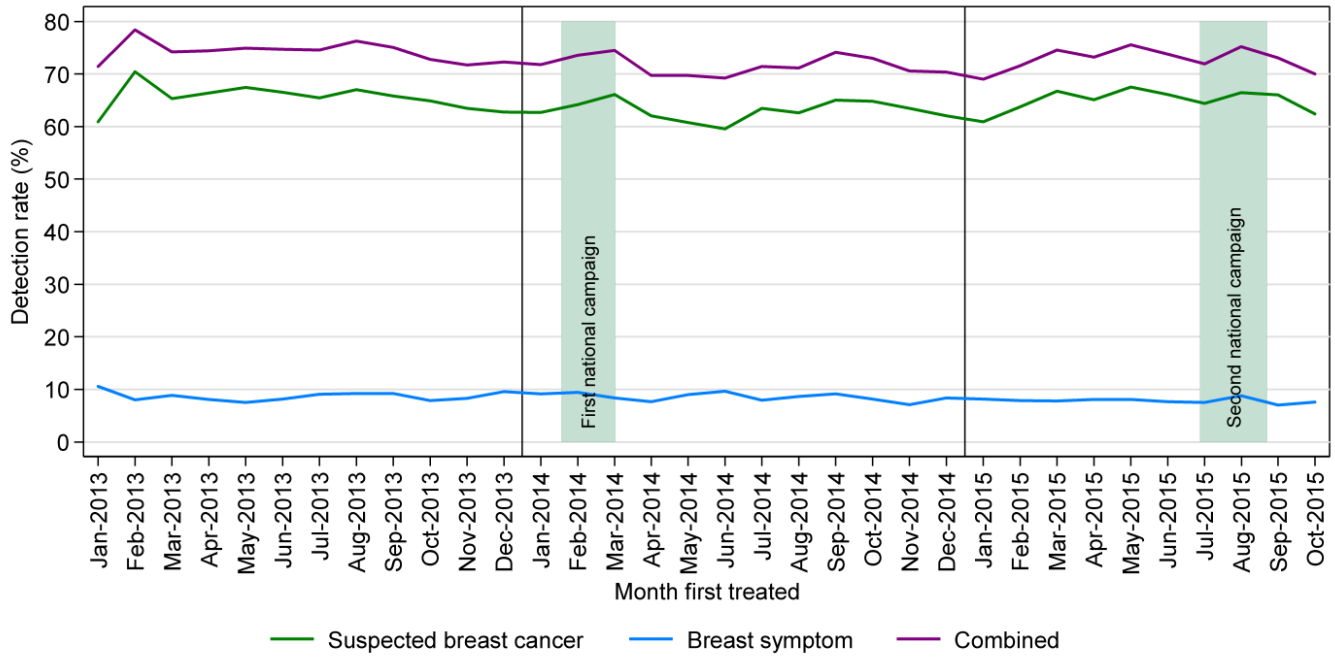


Figure 16: Monthly detection rates for breast cancer diagnoses, from urgent GP referrals for suspected breast cancer, breast symptom referrals and combined referrals, women aged 70 and over

Between August to October 2014 and the same months in 2015, there were no statistically significant changes in detection rates for breast cancer diagnoses from either suspected breast cancer referrals or breast symptom referrals (Table 15).

Table 15: Detection rates for breast cancer diagnoses from urgent GP referrals for suspected breast cancer, breast symptom referrals and combined referrals, with change, women aged 70 and over

Referral Type	August to October					
	2014		2015		%-Point Change	P-value
	Detection Rate (%)	95% CI	Detection Rate (%)	95% CI		
Suspected breast cancer	64	(63, 66)	65	(64, 66)	1	0.473
Breast symptom	9	(8, 10)	8	(7, 9)	-1	0.157
Combined	73	(71, 74)	72	(71, 74)	-0	0.941

For women aged under 70 years, there were statistically significant increases in breast cancer detection rates from urgent GP referrals of suspected breast cancer of 2.3% in England and 2.7% in the control area between August to October 2014 and the same months in 2015. However, the detection rate for August to October 2015 appears consistent with the underlying trend.

The regional campaign ran in the East and West Midlands (Three Counties, Arden, Pan Birmingham, Greater Midlands and Anglia former cancer network areas) from January to March 2013. Residents of this area were likely to have already seen, and possibly reacted to, the campaign materials (including television and radio adverts). This meant that the first and second national campaign may have had a different impact in this area as it was more of a reminder campaign than an initial awareness campaign. Therefore, the impact of the campaign in the East and West Midlands regional area was compared to its impact in England excluding both the regional campaign area and the local pilot area (control area).

Results were similar to the England figures presented above. In some instances, the change in these metrics was only statistically significant for the control area, however this is likely due to the small numbers within the regional campaign area. However, some differences in the strength of impact within the regional campaign and control areas were apparent. For the first national campaign, the increase in the number of TWW cancers from a suspected breast cancer referral was slightly larger in the regional campaign area compared to the control area (25% vs 21%). For the second national campaign, there were clear differences between the regional campaign area and control area. The increase in the number of TWW referrals statistically significantly increased in both areas, however this increase was much larger in the regional

campaign area compared to the control area (32% vs 25% for suspected breast cancer referrals and 27% vs 20% for breast symptom referrals). The increase in the number of TWW cancers from a suspected breast cancer referral was much larger in the regional campaign area compared to the control area (25% vs 7%, both statistically significant). The increase in the number of CWT cancers increased in both the regional campaign and control areas for both symptoms, however this was only significant for the regional campaign area.

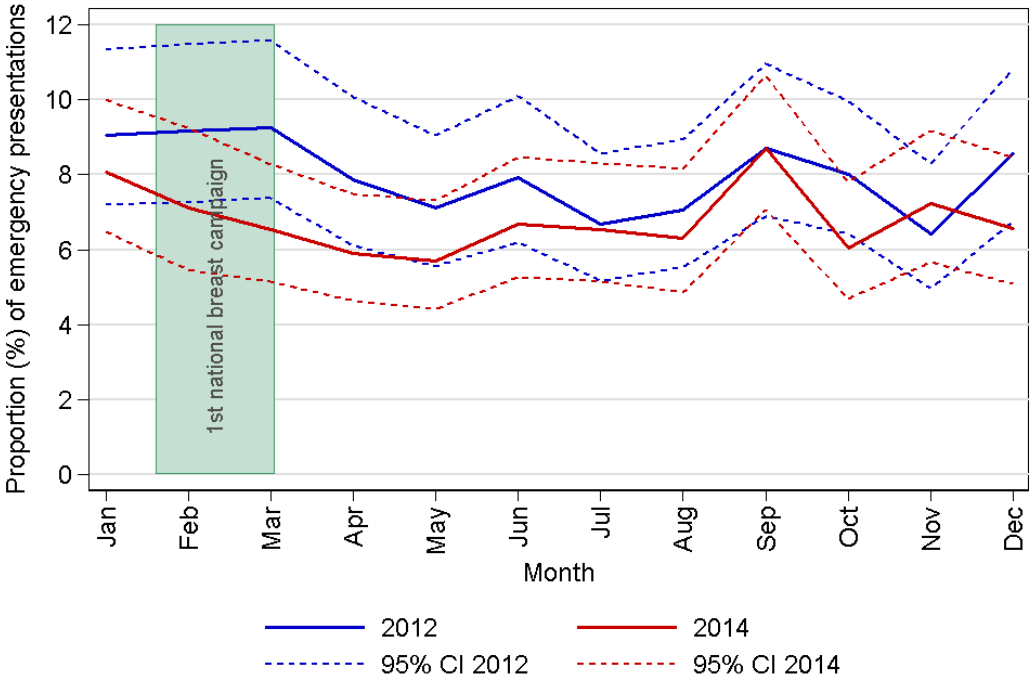
4.5 Emergency presentations

The Hospital Episode Statistics (HES) derived emergency presentation metric is calculated from inpatient data and measures the proportion of women aged 70 years and over resident in England diagnosed with breast cancer (ICD-10 C50) who first presented as an emergency. Data was extracted on 19 October 2016 for both national campaigns.

To evaluate the first national campaign, numbers of women admitted in the campaign year of 2014 were compared with 2012 rather than 2013 (because that was the year the regional campaign ran). To evaluate the second national campaign, numbers of women admitted in the campaign year of 2015 were compared with 2014. Numbers do not include women diagnosed via other routes such as outpatient or general practice settings.

The rates of emergency admissions quoted here may be higher than those published elsewhere because other publications also include common non-invasive breast cancers in their cohorts. Non-invasive breast cancers are very unlikely to produce an emergency admission as a first admittance to hospital for these patients.

Regarding the first national campaign, 9,445 women were first admitted with breast cancer in 2012 and 749 were diagnosed through emergency presentation. In 2014, there were 10,967 and 742 respectively. There were no significant differences in the proportions of women with breast cancer diagnosed via emergency presentation in England in 2014 compared to 2012. The proportions of women with breast cancer diagnosed via emergency presentation were 7.1% in February and 6.5% in March 2014 compared to 9.2% and 9.3% for the same months in 2012 (Figure 17).



1st national breast campaign 03 Feb - 16 Mar 2014
Source: NCRAS Cancer Analysis System & the PHE Admitted Patient Care HES database

Figure 17: Proportion of emergency presentations and 95% confidence intervals for breast cancer by month, first national campaign, England, 2012 and 2014

Regarding the second national campaign, 10,967 women were first admitted with breast cancer in 2014 and 742 were diagnosed through emergency presentation. In 2015, there were 10,689 and 718 respectively. There were no significant differences in the proportions of women with breast cancer diagnosed via emergency presentation in England in 2015 compared to 2014. The proportions of women with breast cancer diagnosed via emergency presentation were 7.0% in July and 6.7% in August 2015 compared to 6.5% and 6.3% for the same months in 2014 (Figure 18).

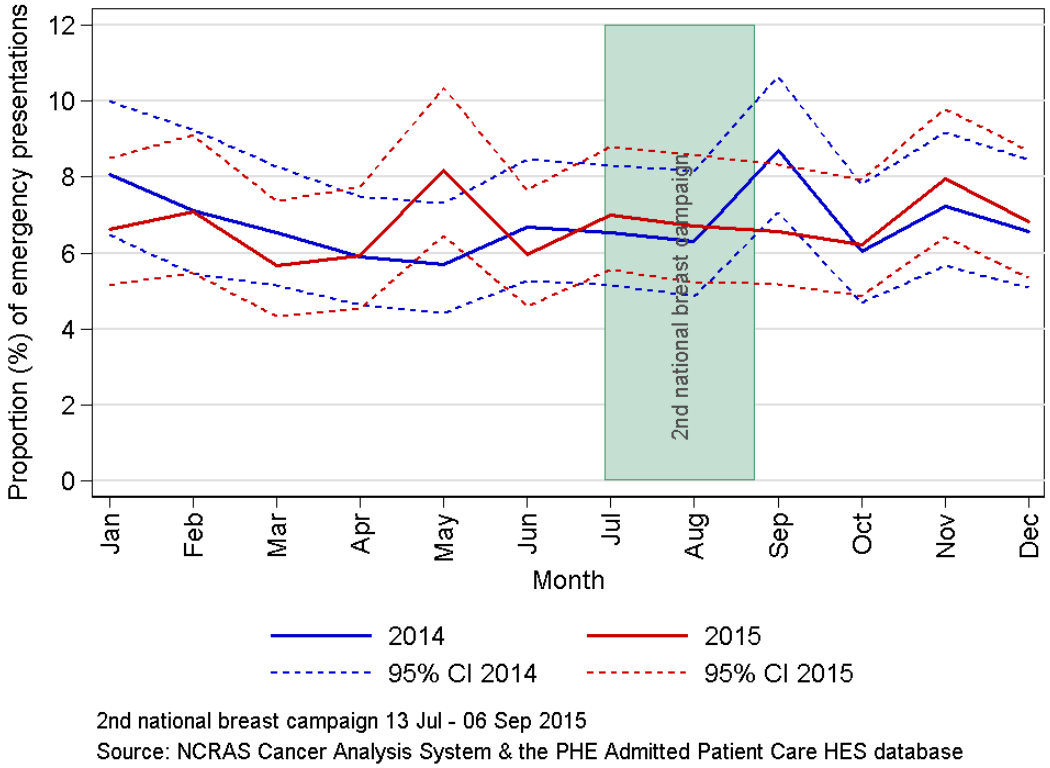


Figure 18: Proportion of emergency presentations and 95% confidence intervals for breast cancer, second national campaign, England, 2014 to 2015

In sum, the data indicates that neither the first nor the second national campaign had a significant impact on the proportion of women with breast cancer diagnosed via emergency presentation.

4.6 Diagnostics in secondary care

This metric considers whether the national campaigns had an impact on the number of ultrasound and mammogram tests conducted by the NHS for suspected breast cancer and other medical conditions. The data was obtained from the Diagnostic Imaging Dataset (DID) held on NHS Digital's iView system (6) which does not include imaging tests arising from the NHS breast screening programme. The data contains details of referrals by GPs, consultants and other referral types.

Comparing the months February to May 2014 with February to May 2013, there was a statistically significant increase of 25% (p=0.024) in the number of breast ultrasounds and mammograms for women over 70 during the first national campaign period, and a 13% (p=0.005) increase in the number of ultrasounds and mammograms for women of all ages (Table 16).

Table 16: Number of ultrasounds and mammograms, England

Age group	February to May 2013	February to May 2014	Percentage change
Women aged 70 and over	40,890	50,980	25
Women of all ages	277,755	314,875	13

Looking at the trend in the number of ultrasounds and mammograms in 2013 and 2014, there was an increase around the time of the first national campaign both for women aged 70 years and over, and women of all ages (Figures 19 and 20).

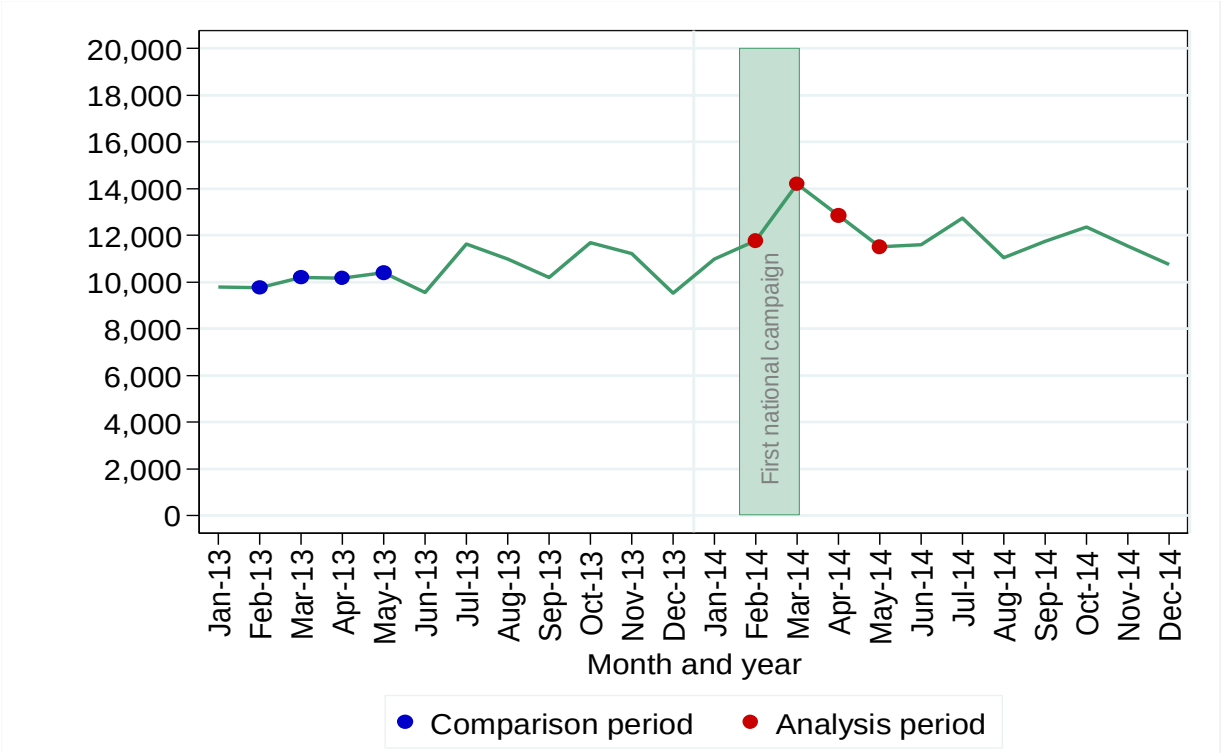


Figure 19: Monthly number of ultrasounds and mammograms, England, women aged 70 and over

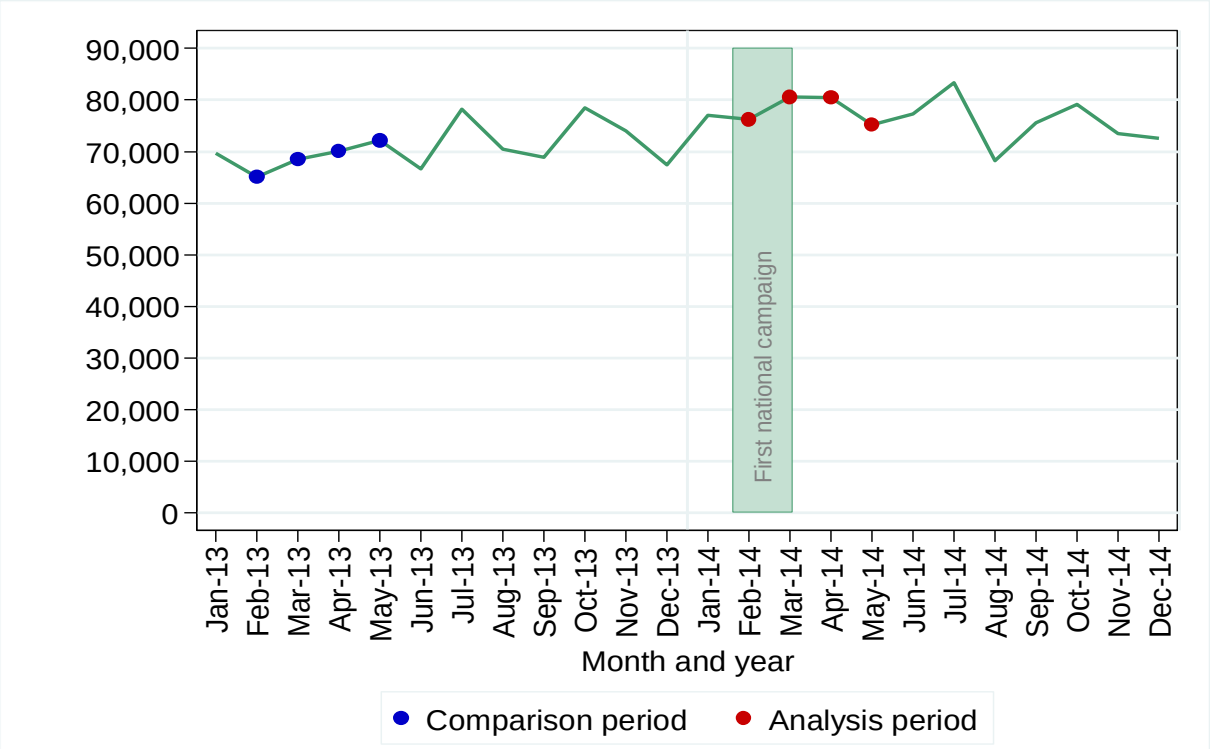


Figure 20: Monthly number of ultrasounds and mammograms, England, women of all ages

Comparing the months July 2015 to October 2015 with July 2014 to October 2014 there was a statistically significant 9% increase in the number of breast ultrasounds and mammograms for women aged 70 and over (p=0.029) around the time of the second national campaign. There was a 4% increase in the number of breast ultrasounds and mammograms for women of all ages (Table 17), however, this change was not statistically significant.

Table 17: Number of ultrasounds and mammograms in July 2014 to October 2014 and July 2015 to October 2015, England

Age group	July 2014 to October 2014	July 2015 to October 2015	Percentage change
Women aged 70 and over	48,550	53,140	9
Women of all ages	308,945	321,610	4

The trend in the number of ultrasounds and mammograms was fairly stable from January 2014 to December 2015 both for women aged 70 years and over, and for women of all ages (Figures 21 and 22).

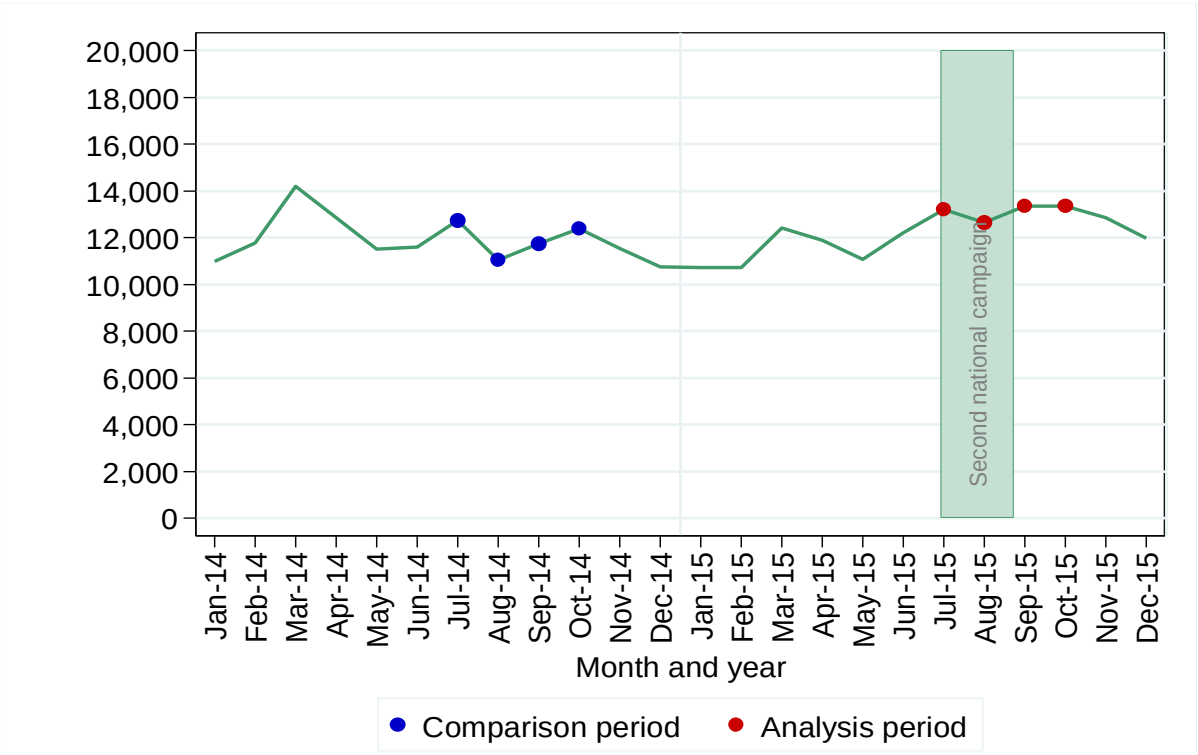


Figure 21: Monthly number of ultrasounds and mammograms, England, Women aged 70 and over

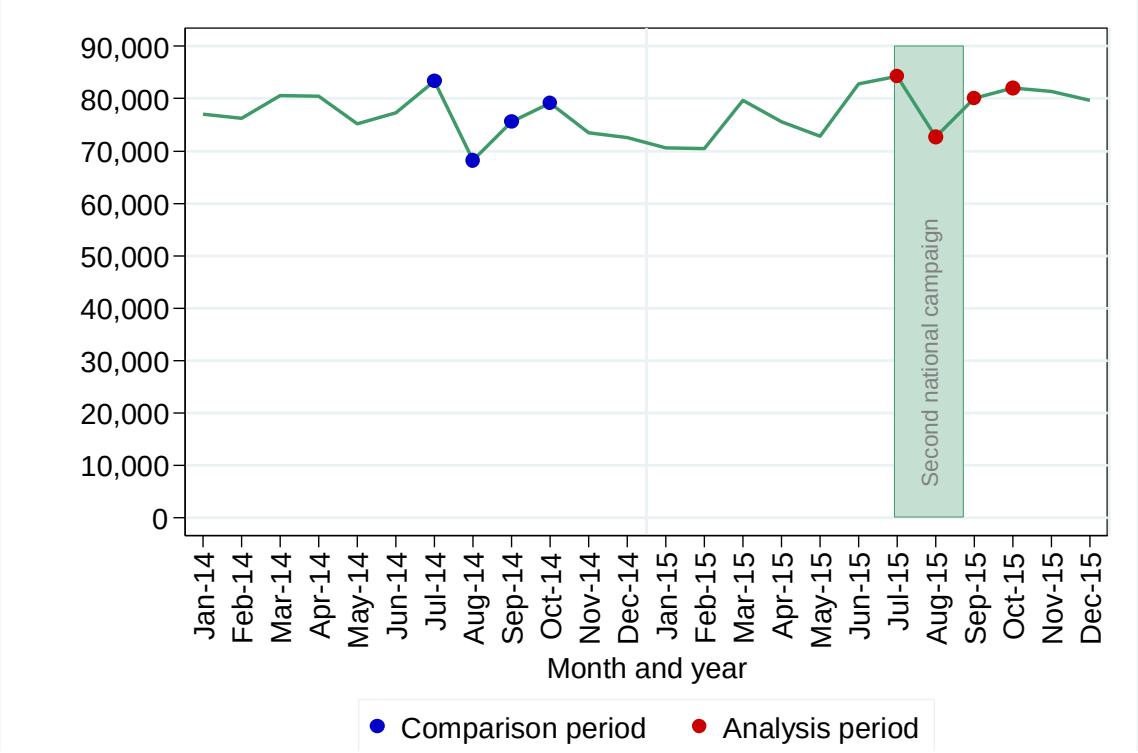


Figure 22: Monthly number of ultrasounds and mammograms in January 2014 to December 2015, England, Women of all ages

To summarise, there was a statistically significant increase in the number of breast ultrasounds and mammograms for women aged 70 and over, during and following both the first and second national breast cancer campaigns. There was also a statistically significant increase for women of all ages during and following the first national breast cancer campaign, however, there was no statistically significant change in the number of breast ultrasounds and mammograms for women of all ages during or following the second national breast cancer campaign

4.7 Cancers diagnosed

This metric considers whether the national campaigns had an impact on the number of newly diagnosed cases of breast cancer (ICD-10 C50) in women aged 70 years and over.

Regarding the first national campaign, data were extracted from cancer registry data held by NCRAS within the Cancer Analysis System (CAS)[1] for the diagnosis period October 2012 to September 2014. The analysis period was defined as two weeks after the start of the campaign (week 8 of 2014) to two months after the end of the campaign (week 20 of 2014). The numbers of cases diagnosed per week during the analysis period were compared with the overall median for October 2013 to September 2014. The campaign was considered to have a possible impact if a) the numbers of cases per week were the same or higher than the median for five or more consecutive weeks and b) this sustained period started during the analysis period.

There was a 16-week period, weeks 8 to 23, where the weekly numbers of breast cancers diagnosed were higher than the 2013 to 2014 median. During this 16-week period an additional 888 cases were diagnosed compared to the expected number based on the median (4,904 cases) (Figure 23).

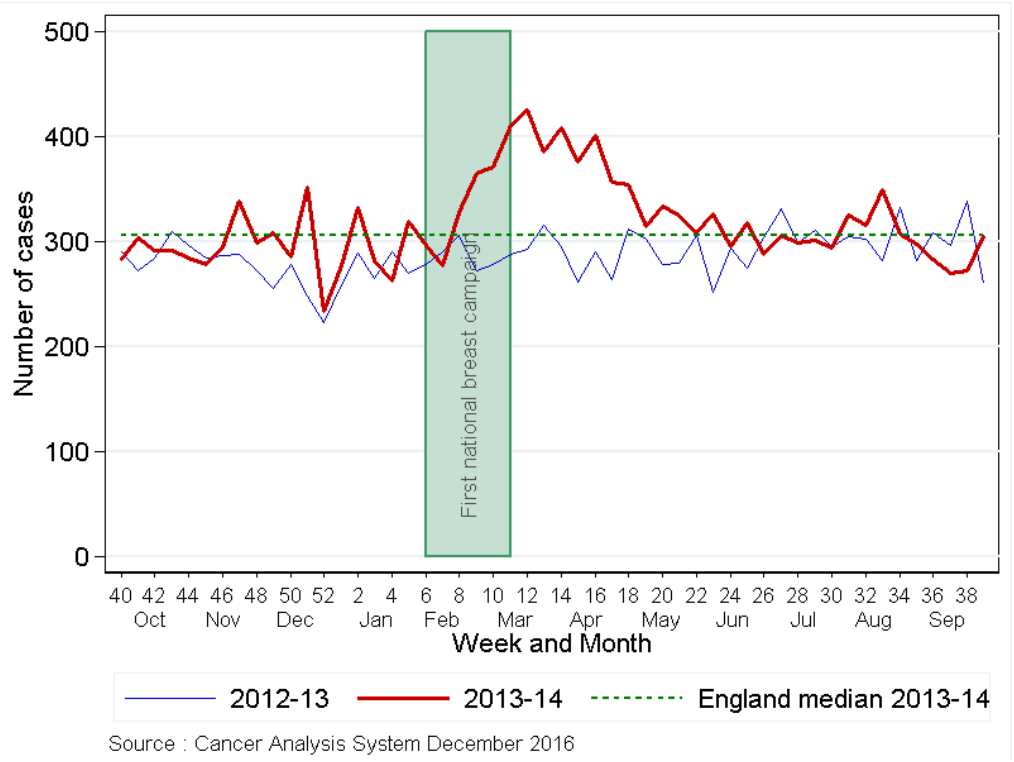


Figure 23: Number of newly diagnosed cases of breast cancer by week, women aged 70 and over, England

The data suggest that the first national campaign appears to have had an impact on the numbers of breast cancers diagnosed during and following the campaign.

Regarding the second national campaign, data were extracted from the national Cancer Analysis System for the diagnosis period March 2014 to February 2016. The analysis period was defined as two weeks after the start of the campaign (week 31 of 2015) to two months after the end of the campaign (week 46 of 2015). The numbers of cases diagnosed per week during the analysis period were compared with the overall median for March 2015 to February 2016.

There was a 9-week period, weeks 31 to 39, where the weekly numbers of breast cancers diagnosed were higher than the 2015 to 2016 median. During this 9-week period, an additional 261 cases were diagnosed compared to the expected number based on the median (2,779 cases) (Figure 24). As with the first campaign, the second campaign was considered to have a possible impact if a) the numbers of cases per week were the same or higher than the median for five or more consecutive weeks and b) this sustained period started during the analysis period.

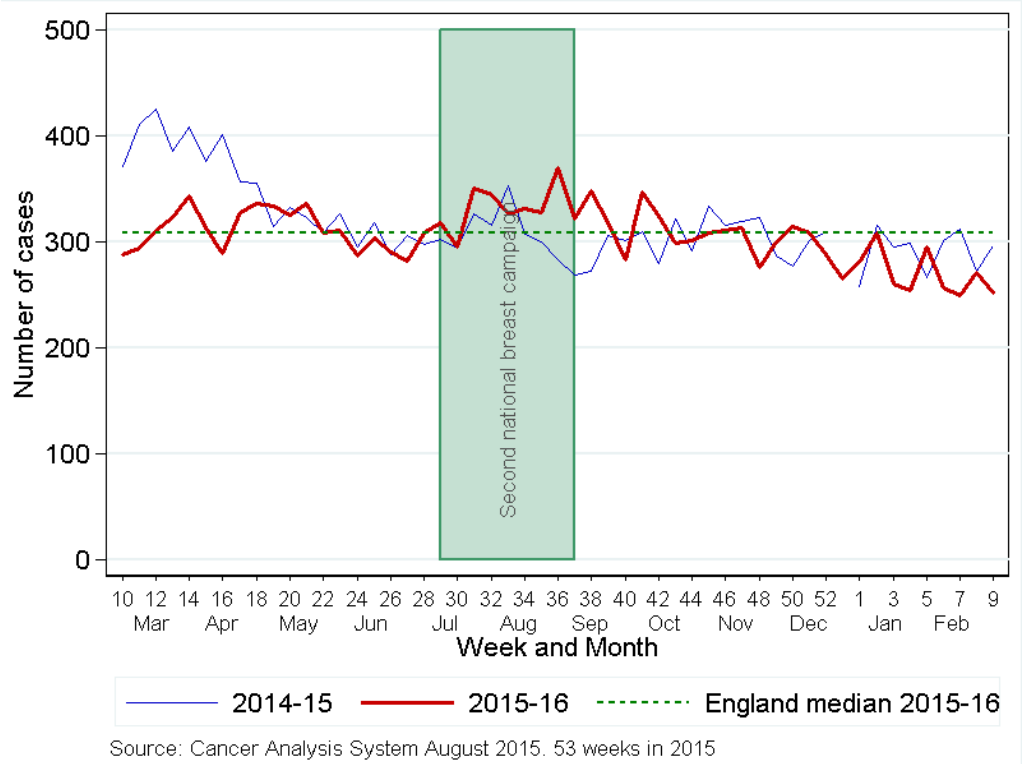


Figure 24: Number of newly diagnosed cases of breast cancer by week, women aged 70 and over, England

The data suggests that the second national campaign appears to have had an impact on the numbers of breast cancers diagnosed during and following the campaign, but this was much lower than seen after the first national campaign.

4.8 Early stage at Diagnosis

This metric considers whether the national campaigns had an impact on the proportion of breast cancer (ICD-10 C50) diagnosed early at stage 1 or 2 in women aged 70 years and over.

The methodology was the same as that used for new cancer diagnosed but used the proportion of early stage 1 to 2 cases in place of the number of cases.

The data suggest that the first national campaign did not appear to have an impact on the proportion of breast cancer diagnosed at an early stage in women aged 70 and over. There were no sustained periods where the proportion of breast cancer diagnosed at an early stage was higher than the 2013 to 2014 median during the analysis period (Figure 25).

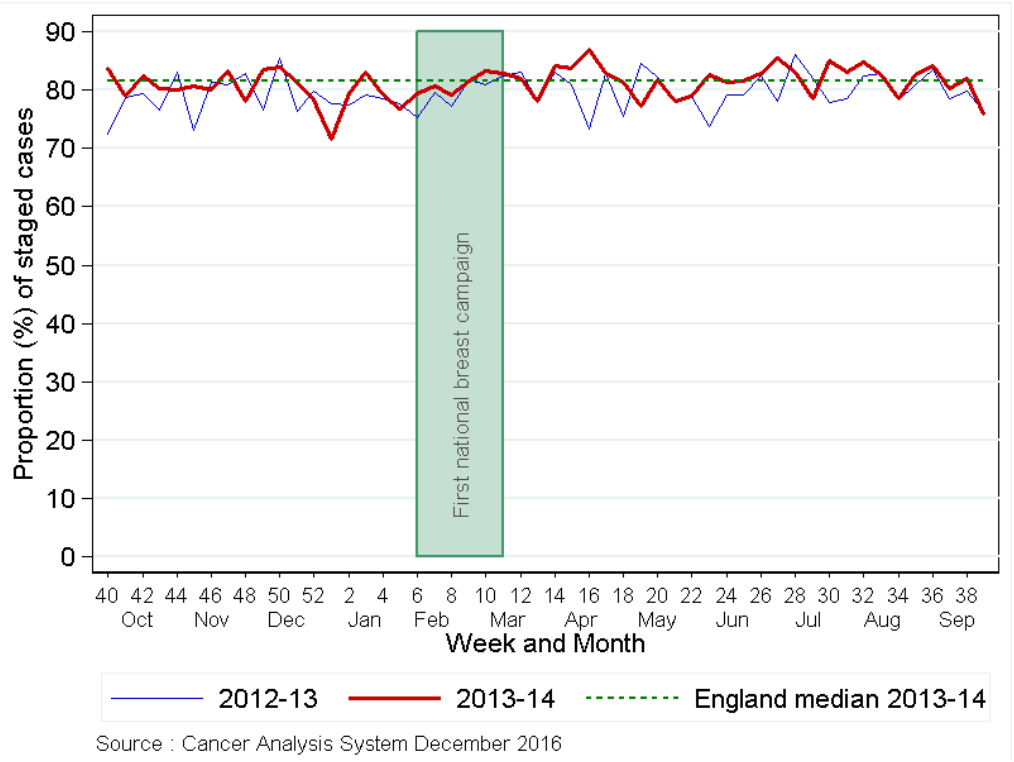


Figure 25: Proportion of breast cancer diagnosed at stage 1 or 2 by week, women aged 70 and over, England

Regarding the second national campaign, data were extracted from the national Cancer Analysis System for the diagnosis period March 2014 to February 2016. The analysis period was defined as two weeks after the start of the campaign (week 31 of 2015) to two months after the end of the campaign (week 46 of 2015). The proportion of early stage cases per week during the analysis period was compared with the overall median for March 2015 to February 2016. The campaign was considered to have a possible impact if a) the proportion per week was the same or higher than the median for five or more consecutive weeks and b) this sustained period started during analysis the period.

The second national breast campaign may have had an impact on the proportion of breast cancer diagnosed at an early stage in women aged 70 years and over (Figure 26), as the proportion of early staged breast cancers was the same as or higher than the 2015 to 2016 median from week 32 to 36 in 2015.

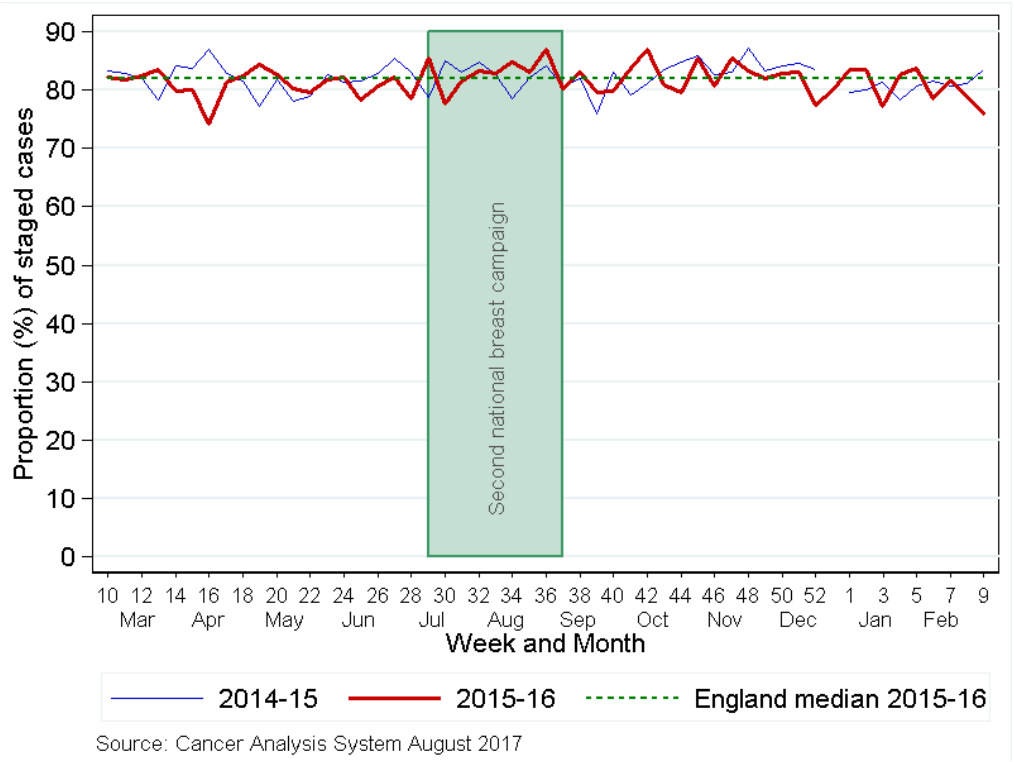


Figure 26: Proportion of breast cancer diagnosed at stage 1 or 2 by week, women aged 70 and over, England

The data suggests that the second national campaign may have had an impact on the proportion of breast cancer diagnosed at an early stage in women aged 70 years and over.

4.9 Surgery: lumpectomies and mastectomies

This metric measures the impact of the campaigns on the proportion of women aged 70 years and over diagnosed with breast cancer who underwent surgery within six months of their diagnosis. The key surgical interventions were lumpectomy and mastectomy, although it should be noted that some women may not be clinically suitable for, or may choose not to have, surgical interventions.

Regarding the first national campaign, data on lumpectomies and mastectomies was extracted from the national Cancer Analysis System, for women diagnosed with breast cancer for the first time in 2012 and 2014. The monthly proportion of women diagnosed with breast cancer who had a lumpectomy or mastectomy within six months of their diagnosis was calculated, with 95% confidence intervals using the Wilson score method. The proportions for those diagnosed in February to June 2014 were compared with those diagnosed in the same months in 2012.

There were no statistically significant differences in the proportions of women aged 70 years and over diagnosed with breast cancer who had a lumpectomy (Figure 27) or a mastectomy (Figure 28).

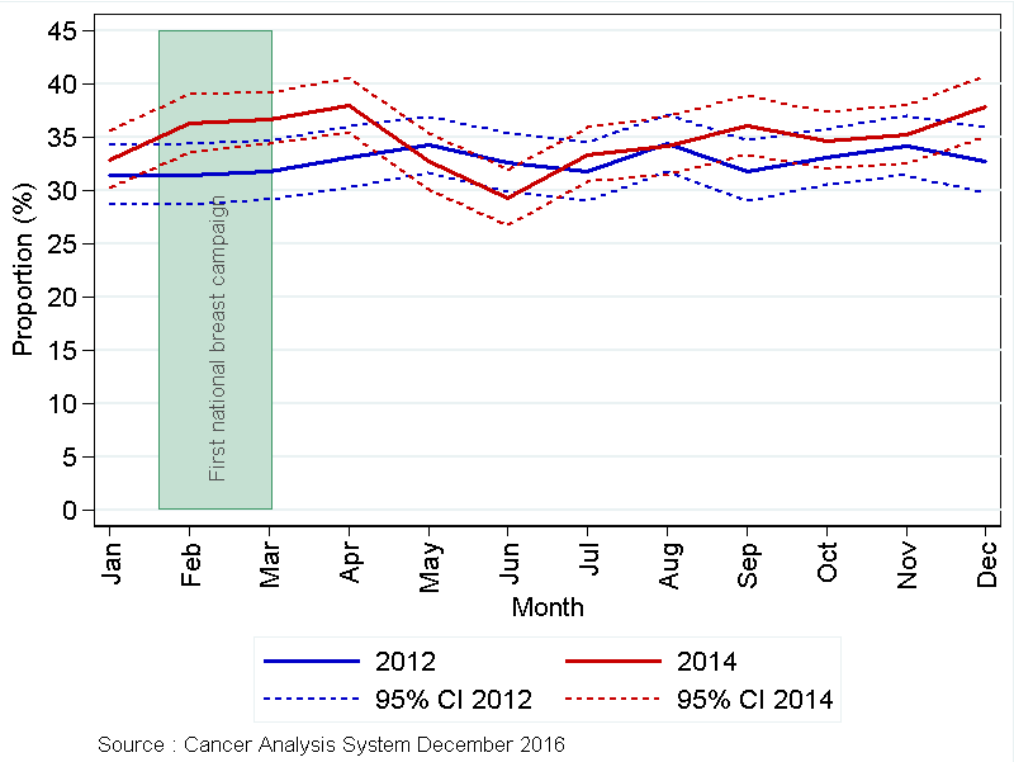


Figure 27: Proportion of women aged 70 and over, diagnosed with breast cancer, who had a lumpectomy, per month of diagnosis, 2012 and 2014, England

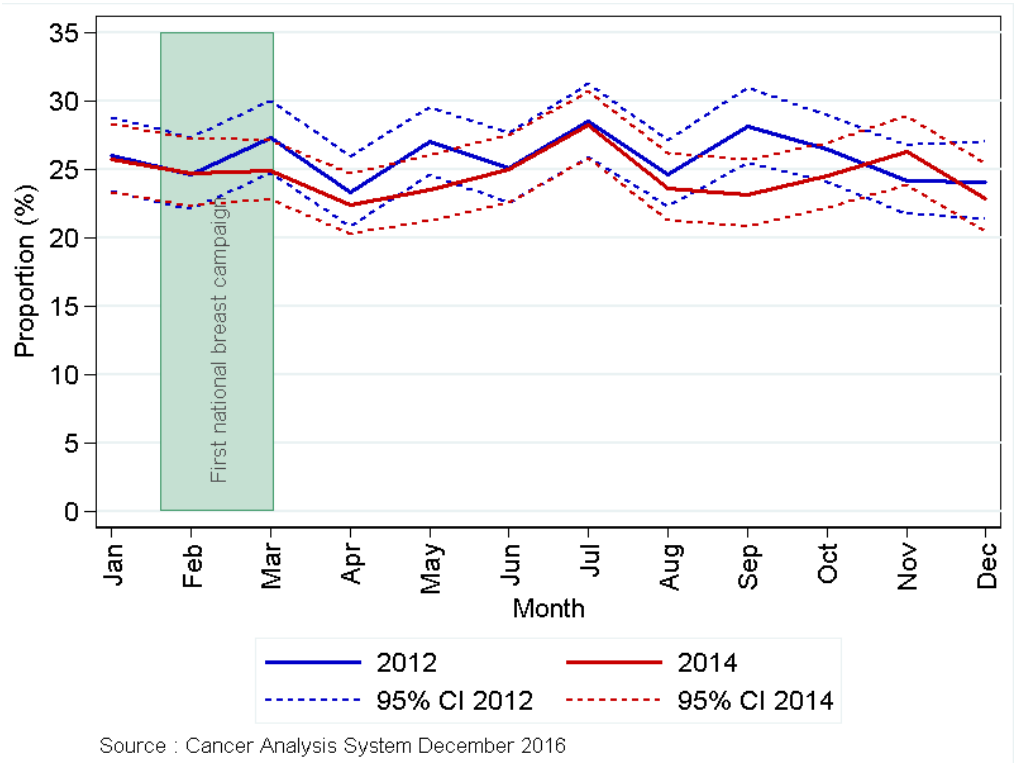


Figure 28: Proportion of women aged 70 and over, diagnosed with breast cancer, who had a mastectomy, per month of diagnosis, 2012 and 2014, England

Regarding the second national campaign, data on lumpectomies and mastectomies was extracted from the national Cancer Analysis System, for women diagnosed with breast cancer for the first time in the years 2014 and 2015. The monthly proportion of women diagnosed with breast cancer, who had a lumpectomy within six months of their diagnosis was calculated, with 95% confidence intervals using the Wilson score method. Results for those diagnosed in July 2015 to October 2015 were compared with those diagnosed the same months in 2014.

There were no statistically significant differences in the proportions of women aged 70 and over diagnosed with breast cancer who had a lumpectomy (Figure 29) or a mastectomy (Figure 30).

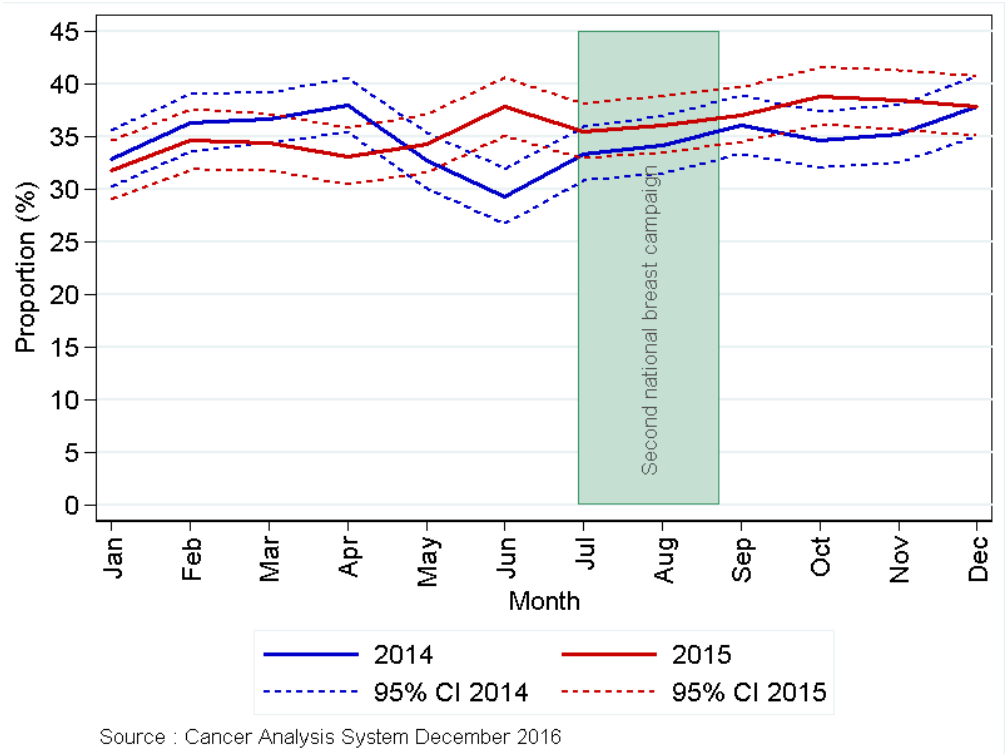


Figure 29: Proportion of women aged 70 and over, diagnosed with breast cancer, who had a lumpectomy, per month of diagnosis, 2014 and 2015, England

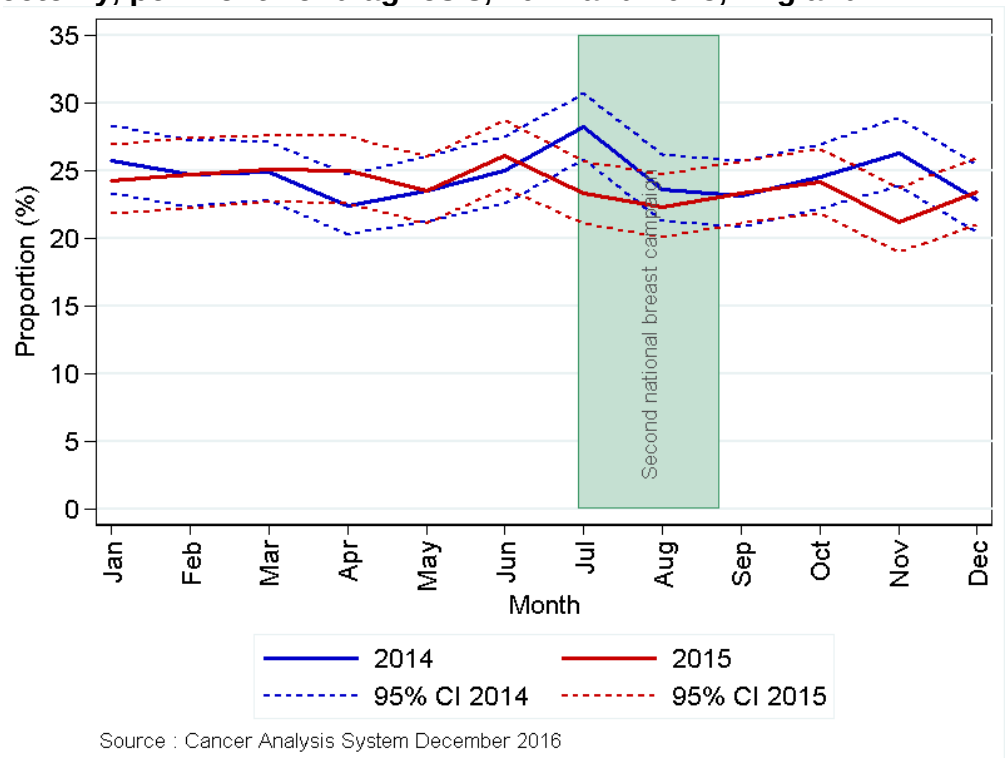


Figure 30: Proportion of women aged 70 and over, diagnosed with breast cancer, who had a mastectomy, per month of diagnosis, 2014 and 2015, England.

To summarise, there is no evidence to suggest that either the first or second national campaign had an impact on the proportion of women aged 70 years and over, diagnosed with breast cancer, who had a surgical intervention in the form of a lumpectomy or mastectomy.

4.10 One-year survival rate

This metric considers whether the national campaigns had an impact on one-year survival for women aged 70 years and over whose first breast cancer (ICD-10 C50) was diagnosed during and following the campaign periods. Data were extracted from the national Cancer Analysis System. Women were followed up until December 2016 to obtain their last known vital status. Net survival refers to the probability of surviving cancer accounting for other causes of death.

Regarding the first national campaign, the analysis period was defined as two weeks from the start of the campaign (20 February 2014) to two months from the end of the campaign (31 May 2014). The comparison period was one-year survival for women diagnosed from 1 January to 19 February 2014, before the campaign, and from 1 June to 31 December 2014, after the campaign.
One-year net survival for women diagnosed with breast cancer during the analysis period was 91% compared with 92% for those diagnosed in the comparison period (Table 18). This indicates that there was no significant impact on one-year survival for women aged 70 years and over diagnosed with breast cancer as a result of the first national campaign.

Table 18: One-year net survival (%) for women aged 70 and over diagnosed with breast cancer during the analysis period compared with the rest of 2014

Comparison period (01/01/2014 to 19/02/2014, 01/06/2014 to 31/12/2014)	Analysis period (20/02/2014 to 31/05/2014)
91.6% (95% CI: 90.9 to 92.3)	91.4% (95% CI: 90.3 to 92.4)

Source: Cancer Analysis System, September 2017

Regarding the second national campaign, the analysis period was defined as two weeks from the start of the campaign (1 August 2015) to two months from the end of the campaign (30 October 2015). The comparison period was one-year survival for women diagnosed from 1 January 2015 to 31 July 2015 and from 31 October 2015 to 31 December 2015.

One-year survival for women diagnosed with breast cancer during the analysis period was 93% compared with 92% for those diagnosed in the comparison period (Table 19). This indicates that there was no significant impact on one-year survival for women aged 70 and over diagnosed with breast cancer as a result of the second national campaign.

Table 19: One-year net survival (%) for women aged 70 and over diagnosed with breast cancer during the analysis period, compared with the rest of 2015

Comparison period (01/01/2015 to 31/07/2015 and 31/10/2015 to 31/12/2015)	Analysis period (01/08/2015 to 30/10/2015)
92.1% (95% CI: 91.4 to 92.8)	92.8% (95% CI: 91.7 to 93.9)

Source: Cancer Analysis System, September 2017

5. Discussion and conclusions

5.1 Framing the evaluation

This evaluation of the campaigns is based on an analysis of the metric data presented in the previous chapters of the report. In addressing this, two themes emerge which will be labelled the awareness and clinical aims of the campaigns, respectively.

5.2 Awareness aims

The major awareness aim of the campaign was to make women aged 70 and over better informed about breast cancer. Primary objectives were to remind women over 70 that they are still at risk of breast cancer, to raise awareness that a lump is not the only sign of breast cancer, and to motivate health behaviour change by encouraging women to visit their GP if they noticed signs and/or symptoms of the disease.

This evaluation provides evidence for impact on women's awareness of breast cancer by both campaigns. In particular, the public recognised campaign materials and the message of the campaigns was understood. This is notable given that generally there is a good deal of publicity around breast cancer which makes it relatively difficult to show the added value of a campaign about this condition.

Similarly, the results suggest that the campaigns motivated behaviour change as significantly more women went to see their GP with breast symptoms after both campaigns. This led to more women getting an urgent referral from their GP for suspected breast cancer.

5.3 Clinical aims

The clinical aim of the campaigns was to achieve improved health outcomes related to breast cancer in older women. Treatment options and outcomes for breast cancer are improved by early diagnosis so it was hoped that the campaign would lead to an increase in the proportion of diagnoses made at stages 1 or 2 of the disease.

The analysis has shown that overall more women were diagnosed with breast cancer during and following both campaigns, but that only the second campaign showed a possible increase in the proportion of breast cancers diagnosed at an earlier disease stage. Likewise, the campaigns do not appear to have had an impact on the number of

surgical interventions (lumpectomies or mastectomies) performed, nor was there any evidence of an impact on one-year survival rates.

5.4 Discussion

There are two main ways in which it might be argued that the campaigns were a success overall. The first is that in successfully raising awareness of breast cancer in women aged 70 and over, leading to health behaviour change and increased relevant GP referral patterns, the campaigns achieved their primary stated aim amongst their target audience.

The second indication of campaign success is that as well as raising awareness of breast cancer among the target audience, evidence from the evaluation suggests that the campaign messages had an impact on women aged under 70 years, resulting in a statistically significant increase in the number of women aged under 70 years visiting their GPs with breast symptoms. This group is important for two reasons. Firstly, women under 70 years are considered to be ‘influencers’ because they can help the target population of women aged 70 years and over to achieve the aims of the campaigns. For example, daughters under the age of 70 can influence their mothers to look for signs and symptoms of breast cancer and go to their GP. Secondly, in the future these ‘influencers’ will themselves be over 70 years of age and so will hopefully retain the key messages regarding the risk of breast cancer when older.

Although there was an increased number of diagnoses of breast cancer in women aged 70 and over for both campaigns, the evaluation did not show population evidence of better clinical outcomes. Consideration should therefore be made of the potential for ‘harm’ to be caused to a patient who experiences increased anxiety as a result of their diagnosis where an improved outcome could not be shown on an individual basis, or from causing worry to women who are referred by their GP for suspected breast cancer but who are not subsequently diagnosed. It is possible that lack of evidence for improved clinical outcomes was partially caused by factors such as limitations of the data, and additional aspects of human behaviour which are not within the remit of the campaign aims, as described below.

The evaluation of the campaigns is subject to data limitations, because it used existing routinely collected datasets; these are more time- and cost-effective than a bespoke dataset but are clearly not designed to answer the specific research question.

Other clinical trials occurring at the same time as the campaign may also have impacted on the campaign clinical outcomes – for example the AgeX trial[3] (which extended the age group of women invited for breast cancer screening) may have influenced the number of cancers diagnosed within the evaluation period.

Human behaviour introduces several factors which may impact on the clinical outcomes of an awareness campaign. For example, a woman may report awareness of campaign messages yet still choose not to report symptoms to their GP. Similarly, a patient who is diagnosed with breast cancer may be clinically unsuitable for, or choose not to have, a surgical treatment.

The metric relating to 4.8 Early stage at Diagnosis is important because treatment for breast cancer is more effective the earlier it is provided. The first national campaign did not appear to have an impact on the proportion of breast cancer diagnosed at an early stage, but the second campaign may have because there was a five-week period when the proportion of early staged breast cancer cases was higher than expected. What cannot be determined from this evaluation, is the length of time women had experienced breast cancer symptoms before being motivated by the campaign to attend their GP. A proportion of women diagnosed may have had symptoms for a lengthy period before being mobilised by the campaign message - there may therefore not have been an opportunity for such women to be diagnosed at an earlier disease stage as a result of the campaign. Conversely, bringing forward the diagnosis date for a woman who has later stage disease may still provide benefits to the patient in terms of longer-term management of her disease and improved quality of life, though this evaluation did not seek to investigate this factor.

The metric relating to survival rates (4.12) is also of interest here. The usually long natural history of breast cancer means that changes in survival outcomes can take many years to become apparent and so it’s unlikely that a short campaign and evaluation of this nature would show immediate changes in short-term survival outcomes. The evaluation also cannot demonstrate whether women motivated by the campaign were diagnosed at an earlier point in time, if not necessarily at an earlier disease stage - than they would have been otherwise.

[3] For more information please see: http://www.agex.uk/

5.5 Two further considerations: impact over time and NHS services

This report covers two national campaigns, so it is important to consider the impact of the campaigns over time. Where metric data can be compared between the two campaigns their impact was similar in many respects. Specifically, there were no striking disparities in the evaluation of the two campaigns and neither campaign had a significant impact in terms of emergency presentations, stage at diagnosis, surgical interventions or survival rates.

Nonetheless, the campaigns did impact somewhat differently in some respects. For some metrics the evidence suggests that both campaigns had an impact, but the first campaign seemed more effective than the second. This has been the case with all Be Clear on Cancer national campaigns. In particular, the gap between the number of new cancers diagnosed and the median is much higher for the first as opposed to the second campaign. Likewise, the increase in urgent GP referrals for suspected breast cancer was much higher during the first as opposed to the second campaign. Furthermore, metric data on diagnostics in secondary care shows that there was a statistically significant increase in the number of breast ultrasounds and mammograms for women aged 70 and over for the first campaign but not for the second campaign. However, the second campaign appeared to have an impact on the number of cancers diagnosed at an early stage, whereas the first campaign did not.

Where both campaigns had an impact, the first campaign's impact was greater than the second's, and for one metric the first campaign had a statistically significant effect but the second did not. The picture that emerges is one of reducing impact in the first versus repeated campaigns. This is not particularly surprising since presumably the effect of the first campaign on some women would not be repeated for those same women in the second campaign. For example, if the first campaign motivated a woman aged 70 or over to see her GP, she would be unlikely to revisit her GP on account of the second campaign. It should also be noted that there is no strong evidence that the effects of the campaigns were sustained.

The other thing to consider here is the increased demand on the health service as a result of the campaigns. A good illustration is GP attendances for the first national campaign. Whilst the increase in GP attendances during the campaign is statistically significant, the average number of attendances per week per practice remained low at less than two. Similarly, on average the impact on each NHS Trust affected by the campaign was approximately six extra referrals per week for suspected breast cancer and five extra referrals per week for breast symptoms.

On the other hand, there was a substantial impact on the absolute number of women who engaged with relevant diagnostic services during the campaign periods. For example, nearly 10,000 more ultrasounds and mammograms were carried out for the first national campaign, and over 4,600 more for the second national campaign, when comparing the campaign periods with the same period the year before. This is clear evidence of a substantial increase in the number of imaging tests undertaken around the time of the campaigns.

So, in sum, the campaigns affected demand on NHS services to varying degrees with the impact on an individual GP practice or Trust perhaps being more manageable, but the collective national impact being more substantial. This is a particularly acute issue given that the two campaigns were relatively more effective in terms of awareness, behaviour change, referral patterns and diagnosis, than they were in terms of stage of diagnosis, treatment in the form of surgery, or one-year survival rates. With this said, those women requiring diagnostic tests via the urgent referral system must, by definition, have reported relevant symptoms which met the referral guidelines and so may well have suffered another non-malignant condition which still required treatment, even if they did not subsequently receive a diagnosis of cancer. Consideration should therefore be given to completing a formal health economic assessment of future Be Clear on Cancer campaigns.

5.6 Conclusions

The evidence from this evaluation indicates that the campaigns were effective in raising awareness, motivating behaviour change and increasing the number of breast cancer diagnoses in women aged 70 and over, but that there was no evidence within the evaluation period of a change to the stage at which the cancers were diagnosed, or in one-year survival rates.

There is also evidence of diminishing impact from the campaigns because the second national campaign was either no better than, or was outperformed by, the first national campaign, as has been the case for other repeated national BCoC campaigns.

6. Appendix

Table 20: List of breast campaign related symptom Read codes

Breast symptoms	
Code	**Description**
1424.00	H/O: * breast
1596.00	H/O: breast problem
1A8.00	Breast lump symptom
1A82.00	Breast lump present
1A83.00	Breast lump detected by clinician examination
1A84.00	Breast lump detected by mammogram
1A85.00	Breast lump detected by partner
1A86.00	Breast lump detected by self-examination
1A8Z.00	Breast lump symptom NOS
1A9.00	Nipple discharge symptom
1A92.00	Nipple discharge present
1A9Z.00	Nipple discharge NOS
26B4.00	O/E - peau d'orange
26B7.11	Breast irregular nodularity
26B7.12	Lumpy breasts
26BA.00	Deformation of breast
26BB.00	Contour of breast distorted
26BD.00	Intractable breast pain
26BH.00	Breast tenderness
26C2.00	O/E - retraction of nipple
26C2.11	O/E - retracted nipple
26C3.00	O/E - cracked nipple
26C3.11	Sore nipple
26C3.12	Painful nipple
26C4.00	Nipple eczema
26D..00	O/E - nipple discharge
26D1.00	O/E - no nipple discharge
26D2.00	O/E - nipple discharge - clear
26D3.00	O/E - nipple discharge - milky
26D4.00	O/E-nipple discharge-blood-red
26D5.00	O/E - nipple disch.-blood-dark
26D6.00	O/E - nipple discharge - pus

26DZ.00	O/E - nipple discharge NOS
26E..00	O/E - breast lump palpated
26E..11	O/E - breast lump position
26E2.00	O/E-breast lump-nipple/central
26E3.00	O/E-breast lump-upper in-quad
26E4.00	O/E -breast lump-lower in-quad
26E5.00	O/E-breast lump-upper out-quad
26E6.00	O/E-breast lump-lower out-quad
26E7.00	O/E-breast lump- axillary tail
26EZ.00	O/E - breast lump palpated NOS
26F..00	O/E - breast lump size
26F1.00	O/E - breast lump - pea size
26F2.00	O/E - breast lump - plum size
26F3.00	O/E-breast lump-tangerine size
26F4.00	O/E - breast lump-orange size
26FZ.00	O/E - breast lump size NOS
26G..00	O/E - breast lump consistency
26G1.00	O/E - breast lump soft
26G2.00	O/E - breast lump cystic
26G3.00	O/E - breast lump hard
26GZ.00	O/E - breast lump consist. NOS
26H..00	O/E - breast lump regularity
26H..11	O/E - breast lump - outline
26H1.00	O/E - breast lump smooth
26H2.00	O/E - breast lump irregular
26HZ.00	O/E-breast lump regularity NOS
26I..00	O/E - breast lump tethering
26I1.00	O/E - breast lump not tethered
26I2.00	O/E -breast lump fixed to skin
26IZ.00	O/E - breast lump tethered NOS
6862.00	Breast neoplasm screen
7131211	Lumpectomy of breast
7131300	Wire guided excision of breast lump under radiolog control
7131600	Wire guided wide local excision breast lump radiolog control
7131B11	Lumpectomy NEC
7136300	Reconstruction of the nipple or areolar complex unspecified
7136500	Eversion of nipple
7N12.00	[SO]Breast
7N12100	[SO]Upper outer quadrant of breast

7N72000	[SO]Skin of breast
9OHE.00	Patient breast aware
K300.00	Solitary cyst of breast
K312.00	Fissure of nipple
K312.11	Cracked nipple
K317.00	Breast signs and symptoms
K317000	Mastodynia - pain in breast
K317011	Breast soreness
K317100	Lump in breast
K317111	Breast mass
K317200	Induration of breast
K317300	Inversion of nipple
K317400	Nipple discharge
K317500	Retraction of nipple
K317700	Skin thickening of breast
K317z00	Breast signs and symptoms NOS
K31y.00	Other breast disorders OS
Kyu7100	[X]Other signs and symptoms in breast
R022.00	[D]Local superficial swelling, mass or lump
R022200	[D]Lump, localized and superficial
R022600	[D]Localized swelling, mass and lump, multiple sites
R022700	[D]Axillary lump
R022z00	[D]Local superficial swelling, mass or lump NOS
R066.00	[D]Swelling, mass and lump of chest
R066100	[D]Chest lump
R066z00	[D]Swelling, mass or lump of chest NOS

6.1 DID Imaging code list used in the analysis of the impact on diagnostic imaging

Ultrasounds

NICIP	UMAMB	US Breast Both
NICIP	UMAML	US Breast Left
NICIP	UMAMR	US Breast Right
SNOMED	47079000	US Breast
SNOMED	47079001	US Breast

Mammograms

NICIP	XMAMB	XR Mammogram Both
NICIP	XMAML	XR Mammogram Left
NICIP	XMAMR	XR Mammogram Right
SNOMED	43204002	Bilateral Mammogram
SNOMED	572701000119102	Mammogram Left
SNOMED	566571000119105	Mammogram Right
SNOMED	71651007	Mammogram

6.2 OPCS4 procedure code list (extracted from HES)

Lumpectomy

- B281 Quadrantectomy of breast
- B282 Partial excision of breast NEC
- B283 Excision of lesion of breast NEC
- B284 Re-Excision of breast margins
- B285 Wire guided partial excision of breast
- B286 Excision of accessory breast tissue
- B287 Wire guided excision of lesion of breast
- B288 Other specified other excision of breast
- B289 Unspecified other excision of breast
- B323, B328 Wire guided biopsy of lesion of breast, other specified biopsy of breast
- B341 Subareolar excision of mammary duct
- B342 Excision of mammary duct NEC
- B343 Excision of lesion of mammary duct
- B344 Microdochotomy

- B352 Excision of nipple
- B353 Extirpation of lesion of nipple
- B374 Capsulectomy of breast
- B378 Other specified other operations on breast
- B401 Interstitial laser destruction of lesion of breast
- B408 Other specified destruction of lesion of breast
- B409 Unspecified destruction of lesion of breast

Mastectomy

- B271 Total mastectomy and excision of both pectoral muscles and part of chest wall
- B272 Total mastectomy and excision of both pectoral muscles NEC
- B273 Total mastectomy and excision of pectoralis minor muscle
- B274 Total mastectomy NEC
- B275 Subcutaneous mastectomy
- B276 Skin sparing mastectomy
- B278 Other specified total excision of breast
- B279 Unspecified total excision of breast

7. References

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