



Public Health  
England

Protecting and improving the nation's health

# **National Cancer Registration and Analysis Service**

## **Be Clear on Cancer: Skin cancer awareness local pilot campaign 2014**

Final evaluation results

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**National Cancer Registration and Analysis Service (NCRAS)**  
**Be Clear on Cancer: Skin cancer awareness local pilot campaign 2014**

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**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 Summary outlines 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. The paper is available on [the NCRAS Be Clear on Cancer webpage](#).



# 1. Executive summary

Potential skin cancer referrals constitute the predominant and a disproportionate number of dermatology referrals from primary care in the United Kingdom. Against the background of austerity measures and a resource-constrained National Health Service (NHS), dermatology and pathology departments in the U.K. are struggling to cope with this rising demand for diagnostic and treatment services <sup>(1)</sup>. The incidence of skin cancer is rapidly increasing both for melanoma<sup>(2)</sup> and for squamous cell carcinoma (SCC), with incidence of the latter almost doubling over the last decade.<sup>(3)</sup> Early identification of skin cancer is essential because in general, the earlier the diagnosis the higher the likelihood of achieving a cure through surgical excision alone.

## 1.1. Aim of the Be Clear on Cancer skin cancer awareness campaign

The objective of the Be Clear on Cancer (BCoC) local pilot skin cancer awareness campaign was to encourage more people to recognise symptoms that might be an early indication of skin cancer and to see their General Practitioner (GP) sooner, leading to earlier diagnosis and ultimately improved outcomes. This campaign was targeted at people aged 50 years and over, who are at greater risk of developing cancer. The BCoC local pilot campaign to raise awareness of the signs of skin cancer ran from 16 June to 27 July 2014 in Devon, Cornwall and Somerset<sup>a</sup>. The core message was 'A change to a mole isn't the only sign of skin cancer – if you notice any unusual or persistent changes to your skin, go to your doctor.' Briefing sheets were developed for healthcare professionals and for local authorities and community groups, to help them prepare for the campaign.

## 1.2. Campaign recognition and public awareness

Public surveys were used to measure whether the campaign raised awareness of signs/symptoms of skin cancer. The campaign achieved a high level of public awareness of skin cancer. Seven in ten people had seen one or more forms of the campaign activities which resulted in recall of core messages including skin changes (27%) or acting early (22%). The campaign successfully raised awareness of signs and symptoms of skin cancer that do not specifically involve moles. Confidence in knowledge of signs and symptoms of skin cancer increased by a statistically significant amount comparing pre- and post- campaign periods. Approximately one in four people surveyed said they had taken some form of action as a result of the campaign.

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<sup>a</sup> Devon, Cornwall and Somerset refers to the area covered by the Devon, Cornwall and Somerset PHE area. It covers these three counties as a whole (excluding North Somerset and Bath and North East Somerset).

A small qualitative study with healthcare practitioners revealed positive responses to the campaign with GPs and dermatologists reporting an increase in legitimate patient enquiries in relation to skin cancer.

### 1.3. Urgent GP referrals for suspected skin cancer

In the local campaign area of Devon, Cornwall and Somerset, there was a statistically significant 41% increase in the number of urgent GP referrals for suspected skin cancer from 4,463 in June to August 2013 compared to 6,300 in June to August 2014. This was larger than the statistically significant 22% increase observed in the control area for the same time period, from 64,651 referrals to 79,141 referrals.

### 1.4. Cancer diagnoses resulting from an urgent GP referral for suspected cancer

Statistically significant increases of 33% for melanoma, and 17% for nonmelanoma skin cancer (NMSC) diagnoses resulting from an urgent GP referral for suspected skin cancer were seen in the campaign area between June to August 2013 and June to August 2014. In comparison, for the control area, there were smaller but still statistically significant increases of 11% for melanoma and 7% for NMSC diagnoses.

The campaign does appear to have had an impact on the number of melanoma diagnoses resulting from an urgent GP referral for suspected skin cancer. It may have had an impact on the number of NMSC diagnoses, although for NMSC this increase may have started prior to the campaign.

### 1.5. Conversion rate of urgent GP referrals for suspected skin cancers

There is a gradual downward trend in the conversion rate<sup>b</sup> of urgent GP referrals for suspected skin cancers for both melanoma and non-melanoma skin cancer (NMSC – comprising SCC and rare skin cancers) between June to August 2014 and June to August 2013. For melanoma, the campaign does not appear to have affected the conversion rate more than the long-term trend.

### 1.6. Cancer diagnoses recorded in the Cancer Waiting Times Dataset

The local pilot skin campaign may have had an impact on the number of melanoma and NMSC diagnoses recorded in the Cancer Waiting Times database. Statistically significant increases of 23% and 13% respectively were seen between July to

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<sup>b</sup> Conversion rate: percentage of urgent GP referrals (for suspected skin cancer symptoms) resulting in a diagnosis of skin cancer

September 2013 and July to September 2014 in the local pilot area. In comparison, for the control area, a statistically significant increase of 4% was seen for NMSC diagnoses only.

Statistically significant increases were also seen in the number of NMSC diagnoses recorded in the Cancer Waiting Times database for those aged 80 and over (18%) and for men (24%).

### 1.7. Detection rate of skin cancers recorded in the Cancer Waiting Times (CWT) Database

There was a gradual upward trend in the detection rate<sup>c</sup> of melanoma, NMSC and all skin cancers diagnoses for several years prior to the campaign. During the campaign there was a small increase in detection rates consistent with this trend. No significant changes in detection rates were noted as a result of the campaign.

### 1.8. Cancers diagnosed

The number of new melanoma cases diagnosed was the same as or higher than the median for 8 consecutive weeks commencing within the campaign period, suggesting the campaign appears to have impact. However, caution must be applied due to the small numbers involved. During this 8-week period, an additional 44 cases were diagnosed; 196 diagnoses compared to 152 expected (based on 8-week median) .

### 1.9. Early stage at diagnosis

The skin cancer awareness local pilot campaign appears to have had an impact on the proportion of malignant melanoma diagnosed at AJCC stages IA to IIB. The proportion of malignant melanoma diagnosed at an early stage was the same as or higher than the median for 6 weeks, commencing within the campaign period. However, caution must be applied as the numbers were very small. During this 6-week period, the proportion of malignant melanoma diagnosed at an early stage was 8%-points higher than the median 88% (98 out of 111 staged cancers) compared to 80% expected (based on 6-week median).

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<sup>c</sup> Detection rate: percentage of skin cancer diagnoses recorded in the CWT-database which resulted from an urgent GP referral for suspected skin cancer or skin symptoms

### 1.10. One-year survival

There was no evidence to suggest that the skin cancer awareness local pilot campaign had an impact on one-year survival for patients aged 50 and over diagnosed with skin cancer. However, caution must be applied as the number of patients was very small. One-year survival for persons diagnosed with melanoma during the analysis period was 97.0% compared with 96.8% for those diagnosed in the comparison period.

### 1.11. Overall conclusions

There is evidence that the BCoC local pilot skin cancer campaign increased public recognition of the campaign messages. There were increases in urgent referrals for suspected skin cancer from GPs to secondary care, and in the number of malignant melanoma diagnoses which resulted from these referrals. The campaign may have impacted on the number of new malignant melanoma cases diagnosed during and immediately after the campaign, and on the proportion of melanoma diagnosed at American Joint Committee on Cancer (AJCC) stages IA to IIB; however, caution must be applied to these findings as the numbers of skin cancers identified were small making it difficult to determine impact on outcomes, suggesting future work should focus on wider implementation of this campaign and greater engagement with the Dermatologists.

## 2. Background to the campaign

### 2.1. Skin cancer

There are two main types of skin cancer: melanoma, and non-melanoma skin cancer (NMSC). The term non-melanoma skin cancer has historically referred to the two predominant skin cancers – basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) but modern terminology recommends that these are now referred to as keratinocyte skin cancers (because of their cell of origin). For the purposes of this review however, the term non-melanoma skin cancers (NMSC) will be used to collectively include all skin cancers which are not melanoma, including SCC and BCC, as coding for these does not separate out these skin cancer types.

### 2.2. Incidence of skin cancer

In 2018, 14,824 individuals were diagnosed with melanoma of the skin in England which equates to approximately 41 individuals per day<sup>(4)</sup>. Incidence rates are slightly higher in men than women. Melanoma incidence rates in men have increased almost 3-fold from 10.2 to 30.4 per 100,000 person-years between 1995 and 2018. Among women there has been a 2-fold increase from 12.3 to 26.4 per 100,000 person-years during the same period<sup>(4)</sup>. The incidence of melanoma increases with age, around 80% of cases are diagnosed among patients aged 50 years and over<sup>(4)</sup>. Melanoma skin cancer is the 5th most common cancer in England, accounting for 5% of all new cancer cases in 2018<sup>(4)</sup>.

In 2018, there were 129,002 new NMSC cases diagnosed in England, of which 72,757 were men and 56,245 were women<sup>(4)</sup>, however this is likely to be a gross underestimate as it is not mandatory to report these cancers and only the first NMSC is commonly reported<sup>(5)</sup>. Over the last decade, NMSC incidence rates in both men and women have increased by around three-fifths (62% and 65%, respectively) in England<sup>(5)</sup>. BCCs occur more commonly than SCCs and recent UK data show a mean reported annual percentage increase of 5% between 2013 and 2015 for both NMSC<sup>(6)</sup>.

### 2.3. Mortality

Melanoma of the skin is more likely to cause death than NMSC and accounted for 78% of skin cancer deaths in 2015 in England<sup>(7, 8)</sup>. In 2017, there were 1,984 melanoma skin cancer deaths in England, 1,119 men and 865 women, which is approximately 5 deaths every day<sup>(7)</sup>; it is the 20<sup>th</sup> most common cause of cancer death in the UK<sup>(8)</sup>, accounting for 1% of all cancer deaths in 2017 in England<sup>(7)</sup>.

Over the last decade, mortality rates due to melanoma of the skin have increased by 11% in men (3.7 in 2007 to 4.1 per 100,000 person-years in 2017) and 3% in women (3.0 in 2007 to 3.1 per 100,000 person-years in 2017) <sup>(7)</sup>.

There were 580 NMSC deaths in England in 2015<sup>d</sup>, which equates to approximately 2 deaths per day <sup>(8)</sup>. NMSC is not among the top 20 most common causes of cancer death and only accounts for less than 1% of all cancer deaths <sup>(8)</sup>.

## 2.4. Survival

Melanoma of the skin has extremely good survival if identified in the early stages; this cancer has the highest 1- and 5- year net-survival estimates for both men and women in comparison to other cancers (excluding NMSC) <sup>(9)</sup>. The high net-survival for melanoma of the skin is due to the high proportion of patients diagnosed at an early stage (77.6% and 82.0% are diagnosed at Stage 1 or 2 in men and women, respectively). However, 1-year net survival for patients diagnosed at stage 4 is almost half that of patients diagnosed at stage 3; falling from 93.6% to 47.6% in men, and 95.7% to 51.0% in women.

Non-melanoma skin cancers are not reported robustly in England therefore survival estimates are difficult to provide, although mortality rates are generally low <sup>(5, 10)</sup>.

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<sup>d</sup> There was a coding issue with NMSC mortality data in 2016 and 2017, which makes the UK data for NMSC deaths in those years unreliable. This report therefore uses the most recent information reported (for 2015), to avoid misinterpretation.

## 3. Skin cancer awareness local pilot campaign

### 3.1. History and aims of the Be Clear on Cancer skin cancer awareness local pilot campaign

Local pilot campaigns such as this are the first stage in developing the roll out of BCoC campaigns. They are used to test whether the proposed approach works, particularly in terms of how the target audience responds to the campaign, and to understand the impact a larger campaign will have on NHS services. However, they may not always show an impact on patient outcomes due to low numbers at local pilot level.

The BCoC local pilot campaign to raise awareness of the signs of skin cancer ran from 16 June to 27 July 2014 in Devon, Somerset and Cornwall<sup>e</sup>. Identifying skin cancer early increases the likelihood of achieving cure through standard surgical excision of the skin cancer alone. The campaign was aimed at men and women aged 50 years and over; the age group most likely to be diagnosed with the most serious form of skin cancer, malignant melanoma. The core message was 'A change to a mole isn't the only sign of skin cancer – if you notice any unusual or persistent changes to your skin, go to your doctor.'

The campaign activity included advertising, direct mail, face to face events and public relations (PR). Advertising ran on local radio, in newspapers and out of home settings for instance in bus shelters, leisure centres and on pharmacy bags. Advertising also ran online. A direct mail letter and leaflet were sent to around 110,000 people in the target audience in the area. PR activity was used to communicate the core messages, with the support of case studies and clinical spokespeople, and face to face events ran in settings such as shopping centres and 'do it yourself' stores. A campaign website was developed ([nhs.uk/skincancer](http://nhs.uk/skincancer)), and posters and leaflets were displayed in GP surgeries and other venues in the area.

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<sup>e</sup> Devon, Cornwall and Somerset refers to the area covered by the Devon, Cornwall and Somerset Sustainability Transformation Partnerships. It covers these three counties as a whole (excluding North Somerset and Bath and North East Somerset).





Figure 1: Examples of images used for the campaign

### 3.2. Evaluation metrics

The evaluation of the skin cancer awareness local pilot campaign is based on the metric analyses defined in Table 1<sup>f</sup>.

Table 1: List of campaign evaluation metrics and their descriptions

Metric	Description	Codes used
Campaign recognition and public awareness	Public awareness and recognition of the local pilot campaign on knowledge of skin cancer	N/A
Cancer Waiting Times (CWT) data:		
Urgent GP (Two Week Wait) referrals	Number of urgent GP referrals for suspected skin cancer or for skin symptoms, also known as Two Week Wait (TWW) referrals	ICD-10 C43, C44
Cancer diagnoses resulting from urgent GP referrals	Number of skin cancer diagnoses resulting from urgent referrals for suspected skin cancer or for skin symptoms also known as: Two Week Wait (TWW) cancers, 62 day waits and 62-day cancers	
Conversion rate	Percentage of urgent GP referrals for suspected skin cancer or skin symptoms resulting in a diagnosis of skin cancer	
Diagnoses in CWT database	Number of skin cancer diagnoses recorded in the Cancer Waiting Times (CWT) database, also known as: CWT cancers, 31 day waits and 31-day cancers	

<sup>f</sup> Number of people attending a GP with campaign related symptoms was not evaluated for this campaign due to the small numbers available from The Health Improvement Network (THIN) database (representing 6% of primary care records in the UK) at the local pilot area level.



Detection rate	Percentage of skin cancer diagnoses recorded in the CWT database which resulted from an urgent GP referral for suspected skin cancer or skin symptoms	
New cancers diagnosed	Number of skin cancers diagnosed	ICD-10 C43
Early stage at diagnosis	Proportion of skin cancers diagnosed at an early stage (AJCC stage 1A to IIB)	
One-year survival rate	One-year age-specific net survival was calculated using the methodology outlined in the <b>Office for National Statistics: Cancer Survival Statistical Bulletins</b> <sup>(11)</sup> using data from the National Cancer Registration and Analysis Service. Persons were followed up until December 2016 to obtain their last known vital status	

### 3.3. Campaign recognition and public awareness

Each BCoC campaign collects information through pre- and post-campaign surveys, which are conducted face-to-face with a representative sample of the target population. These are carried out by a specially commissioned market research agency (Kantar) and questionnaires are tailored to extract information about each specific campaign.

A range of topics are covered including 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 is to look at changes in campaign recognition and knowledge between pre- and post-campaign interviews. Where possible, a test and control approach has been used to allow for comparisons between areas with and without campaign activity.

For the skin cancer awareness local pilot campaign, the research was conducted through pre and post-campaign surveys in the local pilot and control areas. The local pilot area was Devon, Cornwall and Somerset, and the control area was Anglia and Essex.

Campaign recognition and public awareness was evaluated for this campaign using four separate pieces of research:

- Pre- and post-campaign tracking among the aged 50 years and over population
- A survey of GPs before and after the campaign
- A pop-up survey on the nhs.uk/skincancer website
- Qualitative research with healthcare practitioners and local authority personnel post-campaign

Summaries and details of each survey are included below.

### 3.3.1. Public pre- and post-campaign tracking survey

A face-to-face survey was conducted among a representative sample of adults aged 50 years and over in both the local pilot and control regions. Samples of approximately 220 adults aged 50 years and over were interviewed in the local pilot and control areas at both pre- and post-campaign points.

Awareness of general cancer advertising was high in the local pilot region at both stages (73% pre and 75% post) of the research. Skin cancer was the most frequently recalled cancer publicity among those in the local pilot region at the post stage, with recall increasing substantially pre- to post-campaign (from 27% to 48% of those who had seen recent cancer publicity). The same effect was not seen in the control region, suggesting that the campaign was instrumental in raising awareness in the local pilot region.

Recognition of the campaign advertisements was high. Seven in ten of all respondents in the local pilot region (70%) had seen one or more forms of campaign activity and this was driven predominantly by recognition of the radio (49%) and press/out of home advertising (43%). Around one quarter of people (23%) had seen the BCoC skin cancer leaflet and around one in seven (14%) had seen the online advertisements.

#### *Campaign communication*

After being shown the campaign advertisements, the call to action message to go to the doctor or get checked was most frequently described among both the local pilot (68%) and control (39%) samples. People in the local pilot region (compared with the control region) were more likely to recall a number of core messages such as skin changes (27% compared with 13%) or acting early (22% compared with 13%), indicating that these campaign advertisements help to reinforce these messages.

As seen with previous BCoC campaigns, almost all respondents in the local pilot region agreed that it is important that advertisements like these are shown (97%) and that the advertisements were clear and easy to understand (95%). Around half in the pilot region agreed that the advertisement told them something new (52%).

Encouragingly, less than one in ten (8%) people in the local pilot region said that they were fed up with seeing this kind of cancer advertising, indicating that the advertising format is not yet approaching the point where it 'wears out' (consumers become so used to an advertisement that they stop paying attention to it).

### *Knowledge of signs and symptoms of skin cancer*

Knowledge of mole-related symptoms as a sign of skin cancer was static following the campaign (63% to 66% in the local pilot region). However, it is encouraging that knowledge of non-mole-related symptoms increased in the local pilot region (from 36% to 47%), while remaining static amongst those in the control region (36% pre and 35% post). This indicates that the campaign successfully raised awareness of signs and symptoms of skin cancer that do not specifically involve moles.

Among the people in the local pilot region who mentioned non-mole related signs (47%), changes in skin colour or changes in skin appearance were the most frequently mentioned symptoms.

A direct question was asked to ascertain whether people knew about other signs and symptoms of skin cancer apart from changing moles; in the local pilot area there was a statistically significant increase in awareness from 68% pre-campaign to 81% at post-campaign point; in the control area 69% claimed to be aware of this fact with no change at the post-campaign point.

Confidence in knowledge of signs and symptoms of skin cancer increased statistically significantly in the local pilot area from pre- to post-campaign points, from 56% to 69% (very/fairly confident). There was no similar trend recorded in the control area.

### *Campaign impact*

Among those who recognised the campaign advertisements, the most common action taken as a result was to make an appointment with a GP (8%), with a similar proportion of people talking to friends or family to advise them (7%) or about their own symptoms (6%). It is encouraging that the most frequently taken actions involved taking steps towards skin cancer diagnosis (for example making an appointment with a GP) rather than only thinking about doing this.

In total, one quarter of people who recognised one or more campaign advertisements (24%) said that they had taken some form of action as a result of seeing them. Again, this is a positive result and conforms to the average result expected among comparable local BCoC pilot campaigns (25%).

#### **3.3.2. GP survey**

A survey was conducted among a sample of GPs both before and after the campaign in order to assess the impact of the campaign on the levels of awareness of patients presenting with signs and symptoms of skin cancer, and to assess the level of awareness of the campaign among GPs. A local pilot versus control area approach was also undertaken to give an indication of the level of presentations to be expected if there had been no campaign activity,

and to serve as a comparison for the level of presentations observed in the local pilot area following activity.

This telephone survey was conducted by Kantar among a sample of approximately 100 GPs in both the local pilot and control regions at both pre- and post-campaign points.

### *Awareness of the campaign*

Awareness of the campaign was high among GPs; three quarters (75%) of GPs in the local pilot region reported that they had seen or heard the skin cancer campaign – a substantially higher figure than that observed in the control region (19%). Almost three in ten (28%) GPs who had heard of the BCOC skin cancer campaign correctly identified that PHE was responsible for it.

### *Receipt of skin cancer communications*

There was an increase from 20% to 32% in the local pilot area from pre- and post-campaign of GPs who recalled receiving some sort of communication (emails, factsheets, letters etc.) about skin cancer in the last month.

In the local pilot area, the breakdown was:

- 13% from public health colleagues
- 12% from Clinical Commissioning Group
- 11% from central body
- 9% from a charity
- 8% from professional body
- 8% from BCOC programme

In the control area 26% of GPs recalled receiving skin cancer communications and this remained stable between both pre-campaign and post-campaign points.

GPs were positive about the skin cancer campaign, with over nine in ten (93%) agreeing that the advertisements would encourage people to visit their GP earlier with relevant symptoms. A similar proportion (89%) agreed that the advertisements would help to raise awareness regarding the signs and symptoms of the disease.

### *Patients mentioning skin cancer publicity in the last month*

In the local pilot area, there was a statistically significant increase in GPs reporting a rise in the proportion of patients mentioning the campaign with 44% of GPs reporting they had at least one occasion of patients mentioning the recent publicity (a rise from 13% pre-campaign). 21% of GPs claimed that they had experienced at least three or more occasions of patients

mentioning the campaign (increased from 3% at the pre-campaign stage). There was no observed increase in reporting in the control area.

### *Estimated patient presentations/referrals*

GPs were asked to indicate whether the number of patients presenting with possible skin cancer symptoms over the last two months was more, the same as usual or less than they expected for the time of year. Two in five (41%) GPs in the local pilot region thought that they had seen more patients than usual, and this was higher than the comparable result in the control region. This is encouraging news and suggests that the campaign was effective in persuading people to visit their GP with symptoms.

### **3.3.3.NHS Choices website evaluation**

A pop-up survey was conducted on the NHS Choices website during the campaign and for a week after the end of the campaign to evaluate reactions to the website and video content. In total 357 questionnaires were completed.

Two thirds (66%) said they had been directed to the website from a campaign source, primarily by the online advertisements (47%) with most visitors using the website for personal use (85%).

The overall reaction to the website was extremely positive, with the vast majority of people agreeing that it was clear (93%), relevant (83%), gave them new information (77%) and made them more confident that they would spot changes to their skin (87%).

The response was similar for the animation and testimonial videos. There was high agreement that the videos were important (animation 97%, testimonial 92%), clear (animation 96%, testimonial 92%), relevant (84% for both), provided them with new information (80% animation, 75% testimonial) and made them more likely to go to the doctor with symptoms (animation 90%, testimonial 94%). The animation had slightly higher uptake, with one in three (32%) having watched it compared with a quarter (25%) for the testimonial.

Seven in ten (69%) said they intended to act following their website visit and this rose to eight in ten (78%) for those aged 50 years and over in the local pilot region. The most common intended action was to make an appointment to talk to the GP or doctor (27%). This finding is supported by the results from the GP survey.

### 3.3.4. Qualitative research with healthcare practitioners and local authority personnel post-campaign

After the skin cancer awareness local pilot campaign had finished, PHE commissioned Research Works to conduct a qualitative research project to evaluate the impact of the campaign amongst local healthcare professionals and local authority representatives. The fieldwork took place in September 2014.

Twenty face-to-face in-depth interviews were conducted with GPs, community pharmacists, consultant dermatologists and local authority contacts.

### 3.3.5. Summary Findings

The majority of GPs, dermatologists, pharmacists and local authority personnel were aware of the skin cancer awareness campaign. GPs, pharmacists and dermatologists had noted campaign materials displayed in their local areas. Dermatologists had noted patients referring to the campaign in consultations. Local authorities had been briefed by the Regional PHE Lead.

Both GPs and dermatologists reported that the campaign had had a significant impact on public behaviour during the campaign period. GPs and dermatologists described an increase in patient enquiries, and subsequent referrals to secondary care. These referrals were considered both legitimate and unlikely to have occurred without patients being prompted by seeing the campaign materials.

More generally, responses to the campaign were very positive.

- The core campaign message was perceived as both helpful (comprising a number of different skin cancer symptoms) and tonally appropriate (conveying a balance between reassuring and motivating).
- Campaign materials and challenges were seen as well-chosen for the target audience, offering an effective combination of traditional (leaflets and posters) and more modern options (online hub). The use of radio as a medium to raise awareness was considered to be particularly effective.

## 3.4. Impact of campaign on referrals and diagnosis of skin cancer

This section considers whether the local skin cancer awareness campaign had an impact on the number of urgent GP referrals for suspected skin cancers, the number of skin diagnoses recorded in the Cancer Waiting Times (CWT) database, the number of melanoma diagnoses in the cancer registry, stage at diagnosis and survival.

## Methods

A full definition and explanation of all metrics, along with details of statistical methodology used, can be found in the [National Cancer Registration and Analysis Service Be Clear on Cancer evaluation metrics: methodology document](#) <sup>(12)</sup>, with the following campaign-specific notes:

Outcomes of interest were defined as urgent GP referrals for suspected skin cancers; diagnoses of melanoma (ICD10 C43), NMSC (ICD10 C44, including squamous cell carcinoma, rarer types of skin cancer and possibly a small number of basal cell carcinomas) and all skin cancers (ICD10 C43, C44<sup>9</sup>) recorded in the CWT database. For cancers diagnosed, early stage at diagnosis and survival, only diagnoses of melanoma (ICD10 C43) were considered. Early stage malignant melanoma was defined as AJCC stage IA to IIB.

The campaign ran from 16 June to 27 July 2014; therefore, the analysis and comparison periods were defined as follows:

**Table 2: Analysis and comparison periods used in analysis for each metric**

Metric	Period	
	Analysis	Comparison
<ul style="list-style-type: none"> <li>- Urgent GP referrals for suspected cancer</li> <li>- Cancer diagnoses resulting from an urgent GP referral for suspected cancer</li> <li>- Conversion rate</li> </ul>	June to August 2014	June to August 2013
<ul style="list-style-type: none"> <li>- Cancer diagnoses recorded in the CWT database</li> <li>- Detection rate</li> </ul>	July to September 2014	July to September 2013
-Cancers diagnosed	30 June to 22 September 2014	Median number of cancers diagnosed February 2014 to January 2015
-Early stage at diagnosis	30 June to 22 September 2014	Median number of cancers diagnosed February 2014 to January 2015

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<sup>9</sup> Basal cell carcinomas are excluded from the monitoring of Cancer Waiting Times. Therefore, the C44 diagnoses recorded in the Cancer Waiting Times data will mainly be squamous cell carcinomas and other rarer types of NMSC, possibly including a small number of basal cell carcinomas.



<b>-One-year survival</b>	01 July 2014 to 30 September 2014	01 January to 30 June 2014 and 01 October to 31 December 2014
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The local pilot campaign ran in Devon, Somerset and Cornwall. The control area for this campaign was defined as England excluding the local pilot area.

### *Statistical analysis*

The percentage change in the number of cases between the comparison and analysis periods was calculated for: the number of urgent GP referrals, numbers of cancers diagnosed from an urgent GP referral, conversion rate, number of cancers diagnosed in the CWT database and detection rate. A likelihood ratio test is used to assess the statistical significance of a change between the analysis and comparison periods.

For cancers diagnosed and early stage at diagnosis: The campaign was considered to have a possible impact if a) the numbers of cases/proportion 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.

For survival: One-year age-specific net survival was calculated using the methodology from the Office for National Statistics: Cancer Survival Statistical Bulletin <sup>(11)</sup>. Net survival refers to the probability of surviving cancer accounting for other causes of death.

#### **3.4.1. Urgent GP referrals for suspected skin cancer**

In the local campaign area of Devon, Cornwall and Somerset there was a statistically significant 41% increase in the number of urgent GP referrals for suspected skin cancer, from 4,463 in June to August 2013 to 6,300 in June to August 2014 (Table 3). This was larger than the 22% increase in the control area, from 64,651 referrals to 79,141 referrals, and larger than the increases observed in both local campaign area and control area when comparing June to August 2013 with June to August 2012.

There was a clear spike in the number of urgent GP referrals for suspected skin cancers in the local pilot area in July 2014 (Figure 1), and while a similar spike was observed in the control area it was less pronounced (Figure 2).

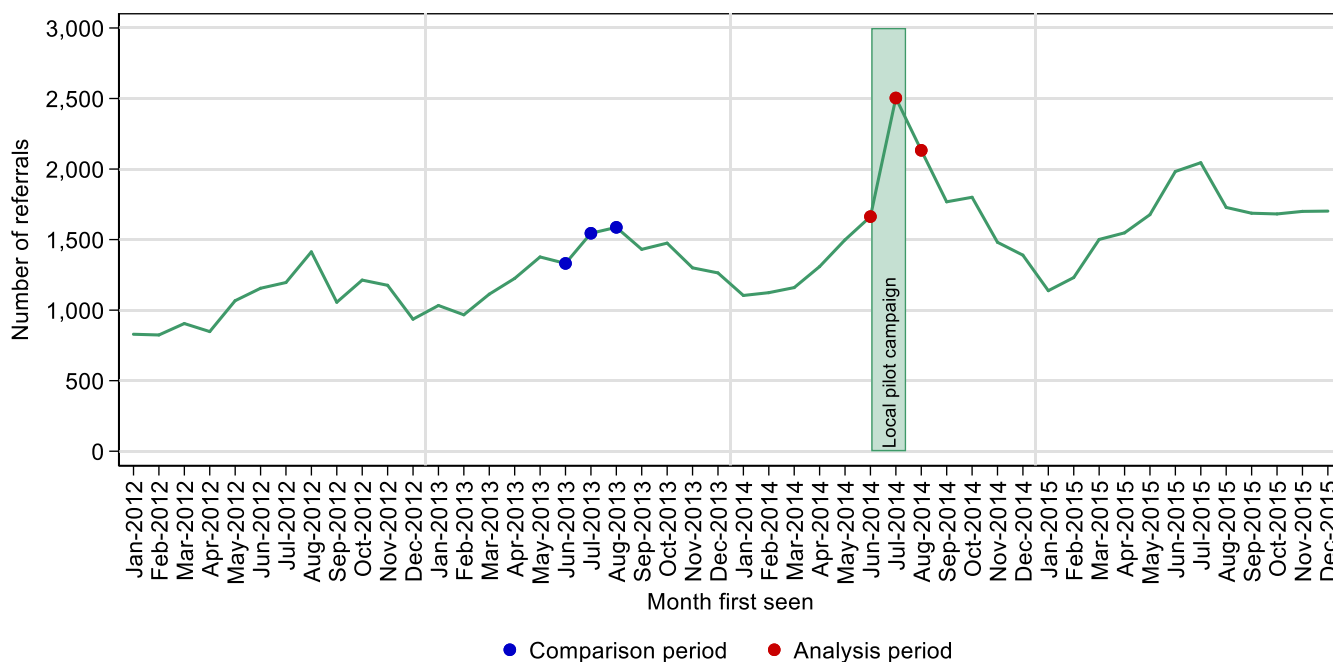
The number of urgent GP referrals for suspected cancer has continued to increase year-on-year, and so it is highly likely that some changes in the number of referrals will be due to this underlying trend. The number of GP referrals for suspected skin cancers demonstrate a clear seasonal pattern, therefore as an alternative to an “other referrals” comparator, a comparison



was made to the previous year-on-year increase in skin referrals for the campaign months, that is the increase between June to August 2012 and June to August 2013 (Figure 3). This should provide some indication of the general (non-campaign related) increase in skin referrals.

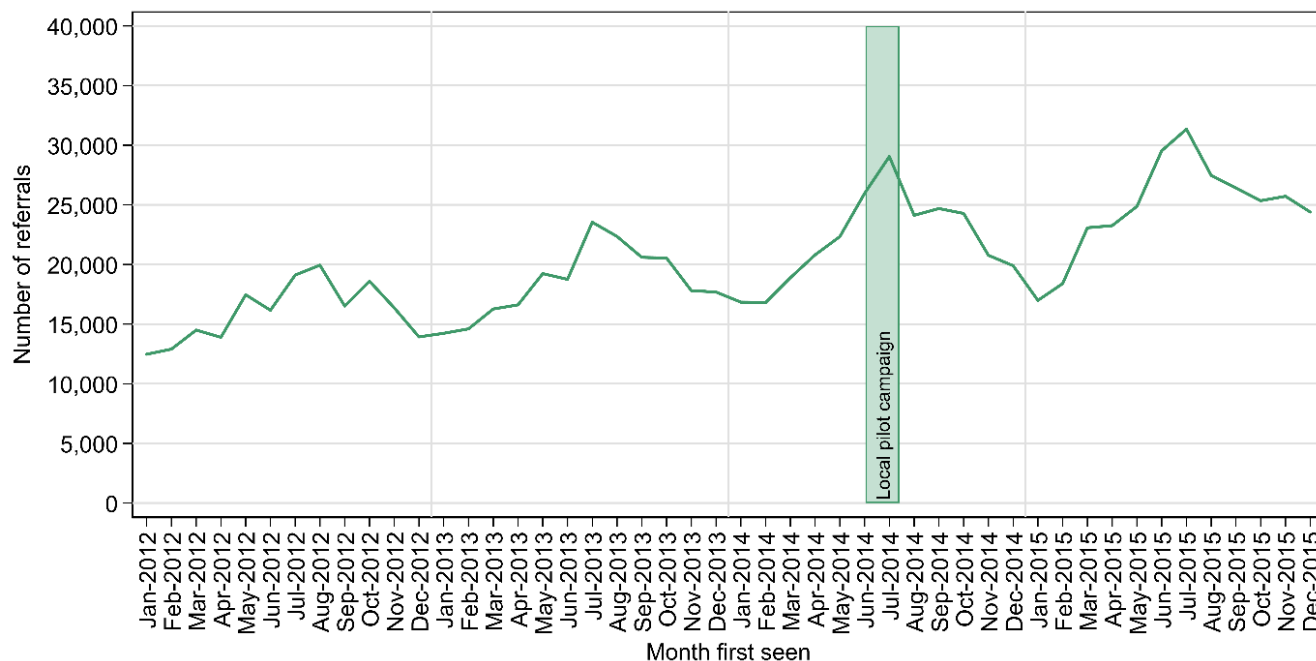
**Table 3: Number of urgent GP referrals for suspected skin cancers, with referral rate and percentage change in number of referrals, from June to August 2013 and June to August 2014, local pilot area and control area**

Region	Year	June to August				
		Referrals	% change in number	P-Value	Referral Rate	
					Estimate	95% CI
Local pilot area	2013	4,463	41.2	<0.001	757.5	(735.1, 780.4)
	2014	6,300			1,057.9	(1,031.5, 1,084.8)
Control area	2013	64,651	22.4	<0.001	535.5	(531.4, 539.7)
	2014	79,141			646.6	(642.1, 651.2)



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 2: Monthly number of urgent GP referrals for suspected skin cancers from January 2012 to December 2015, local pilot area**



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 3: Monthly number of urgent GP referrals for suspected skin cancers from January 2012 to December 2015, control area**

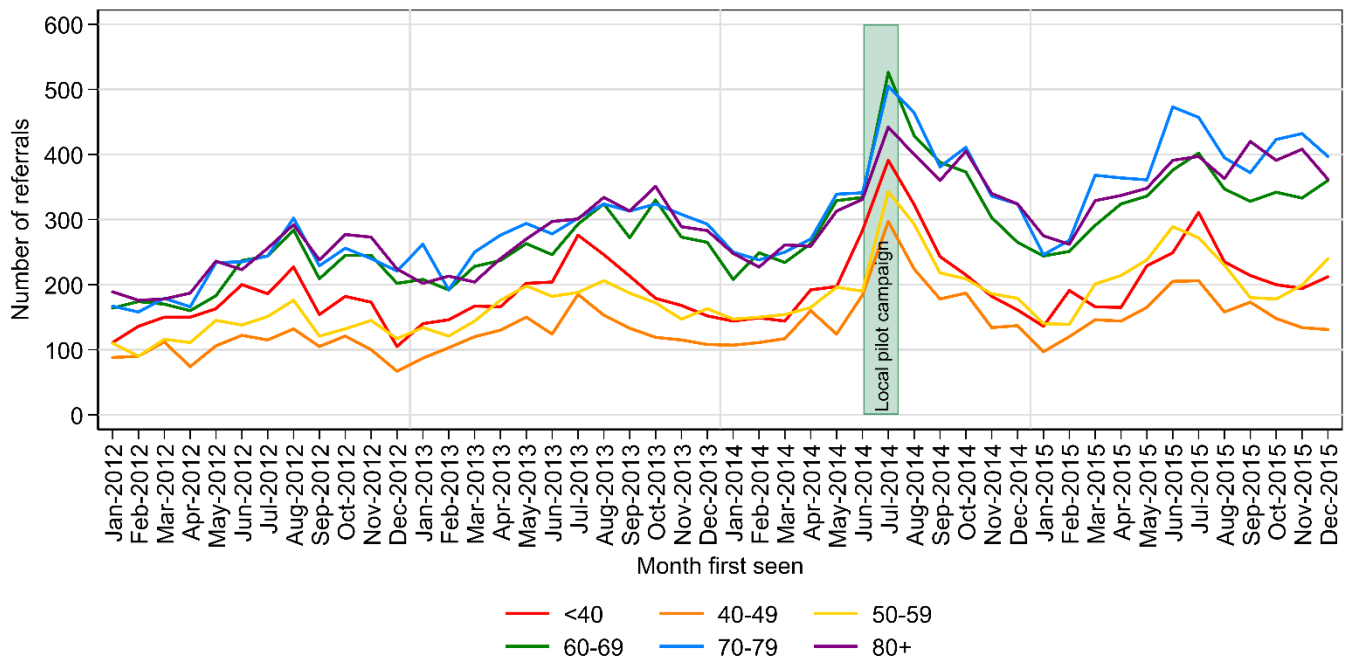
**Table 4: Number of urgent GP referrals for suspected skin cancers, with referral rate and percentage change in number of referrals, from June to August 2012 and June to August 2013, local pilot area and control area**

Overall		June to August				
		Referrals	% Change in number	P-value <sup>h</sup>	Referral rate	
					Estimate	95% CI
Local pilot area	2012	3,764	18.6	<0.001	653.0	(632.0, 674.6)
	2013	4,463			757.5	(735.1, 780.4)
Control area	2012	55,220	17.1	<0.001	468.3	(464.3, 472.2)
	2013	64,651			535.5	(531.4, 539.7)

Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

Large increases in the number of referrals were observed for each age group in the local pilot area. The largest increase was for the 40 to 49 years age group, with an increase of 53% from 462 to 705 referrals (Figure 4).

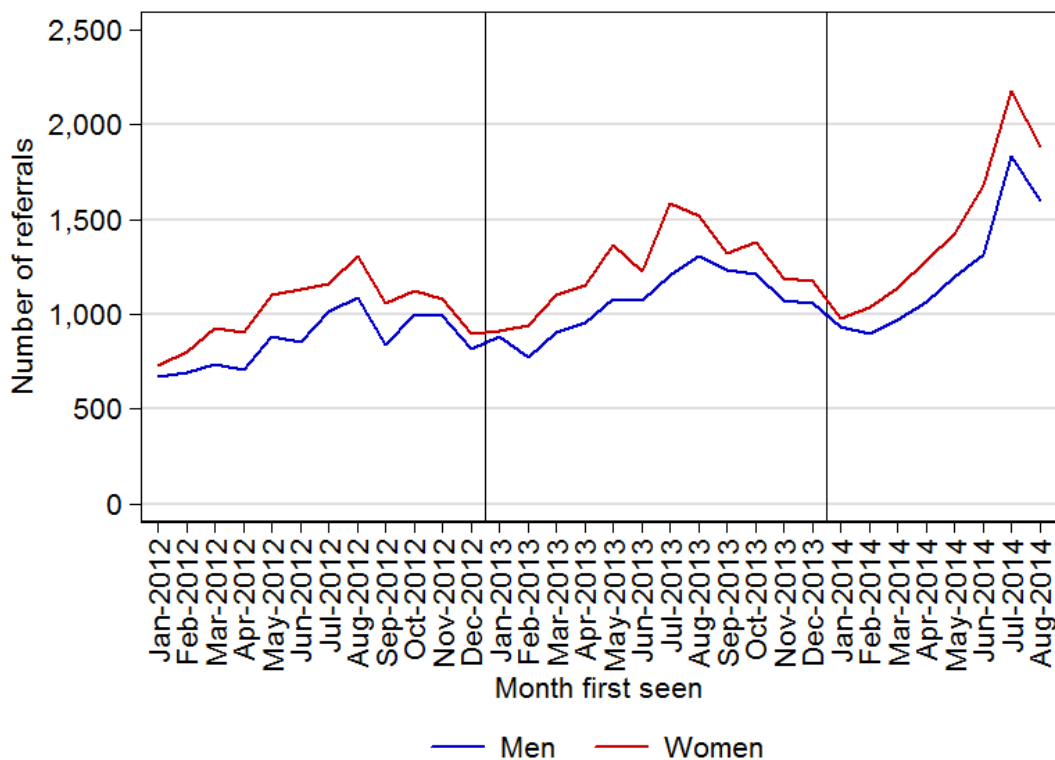
<sup>h</sup> p-value obtained from a likelihood ratio test, with the null hypothesis that the number of urgent GP referrals for suspected skin cancers for June to August 2013 and June to August 2014 came from the same Poisson distribution



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 4: Monthly number of urgent GP referrals for suspected skin cancers from January 2012 to December 2015, local campaign area, by age**

Comparing men and women, the increase in number of patients referred in the local campaign area was 43% in men and 40% in women, both increases being statistically significant (both  $p < 0.001$ ). The number of referrals in the control area (England minus the local campaign area) were also higher for women than men (Figure 5).



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 5: Monthly number of urgent GP referrals for suspected skin cancers from January 2012 to August 2014 England, by sex**

### 3.4.2. Skin cancer diagnoses resulting from an urgent GP referral for suspected cancer

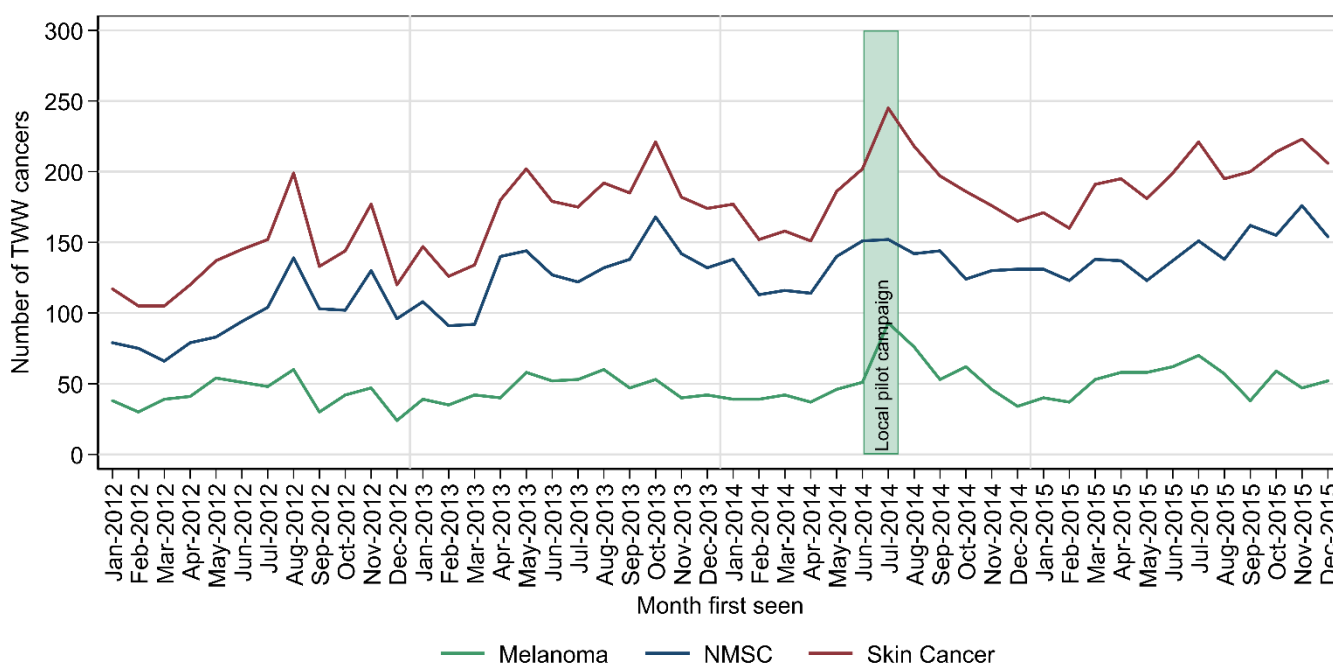
There was a statistically significant 33% increase in the number of melanoma diagnoses resulting from an urgent GP referral for suspected skin cancers in the local campaign area compared to 11% in the control area, when comparing June to August 2014 with June to August 2013 (Table 5, Figure 6).

For NMSC<sup>i</sup>, there was a larger increase in the number of diagnoses resulting from an urgent GP referral for suspected skin cancers in the local pilot area (17%) than in the control area (7%) when comparing the same time periods.

<sup>i</sup> For the purposes of this review, the term ‘NMSC’ is used to collectively include all skin cancers which are not melanoma, including SCC and BCC.

**Table 5: Number of melanoma, NMSC and skin cancer diagnoses resulting from an urgent GP referral for suspected skin cancers, with percentage change in number of cancers, from June to August 2013 and June to August 2014, local pilot area and control area**

Site	Region	June to August			
		TWW Cancers		% Change in number 2013 to 2014	P-value <sup>j</sup>
		2013	2014		
Melanoma	Local pilot area	165	220	33.3	0.005
	Control area	2117	2346	10.8	<0.001
NMSC	Local pilot area	381	445	16.8	0.026
	Control area	2948	3153	7.0	0.009
Skin cancer	Local pilot area	546	665	21.8	<0.001
	Control area	5065	5499	8.6	<0.001



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

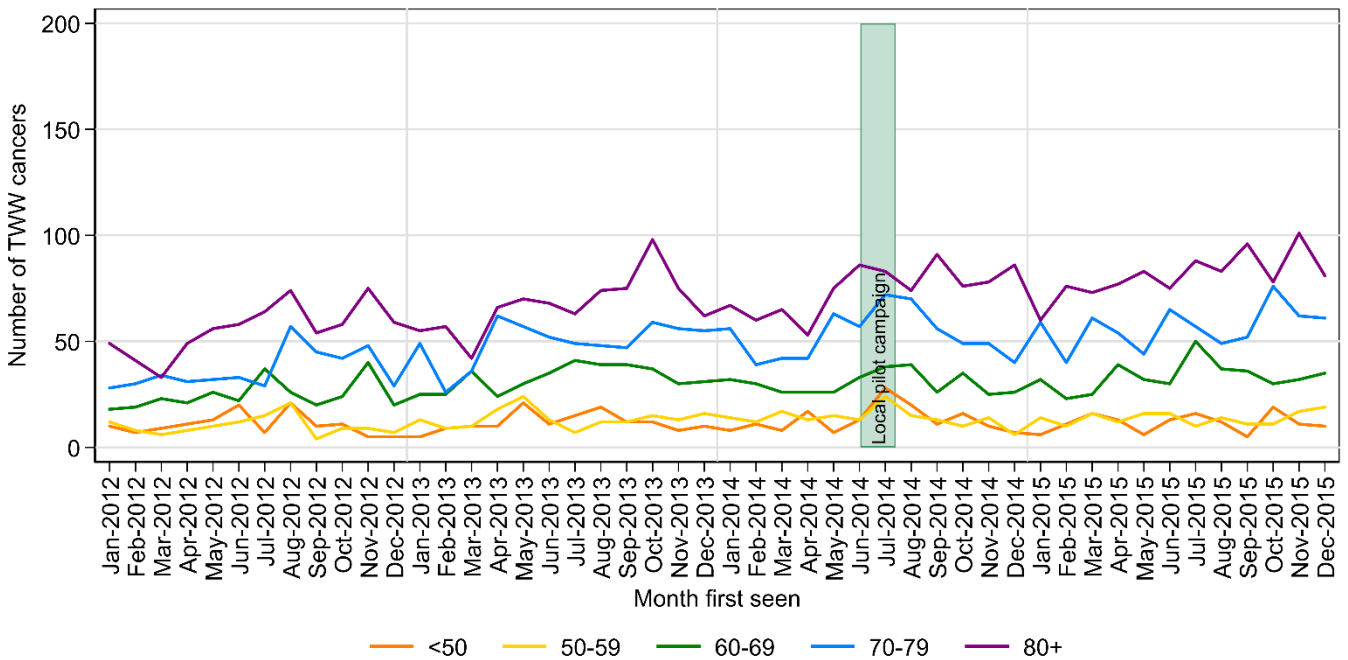
**Figure 6: Monthly number of melanoma, NMSC and combined skin cancer diagnoses resulting from an urgent GP referral for suspected skin cancers from January 2012 to December 2015, local pilot area**

As shown in Figure 6, a peak above the long-term trend in the number of melanoma diagnoses resulting from an urgent GP referral for suspected skin cancer can be seen in July 2014. The number of NMSC diagnoses shows a long, flatter peak from May to

<sup>j</sup> P-value obtained from a likelihood ratio test, with the null hypothesis that the number of urgent GP referrals for suspected skin cancers for June to August 2013 and June to August 2014 came from the same Poisson distribution

September 2014. The skin cancer awareness local pilot campaign does appear to have had an impact on the number of melanoma diagnoses resulting from an urgent GP referral for suspected skin cancer and may also have had an impact on the number of NMSC diagnoses – although this increase may have started prior to the campaign.

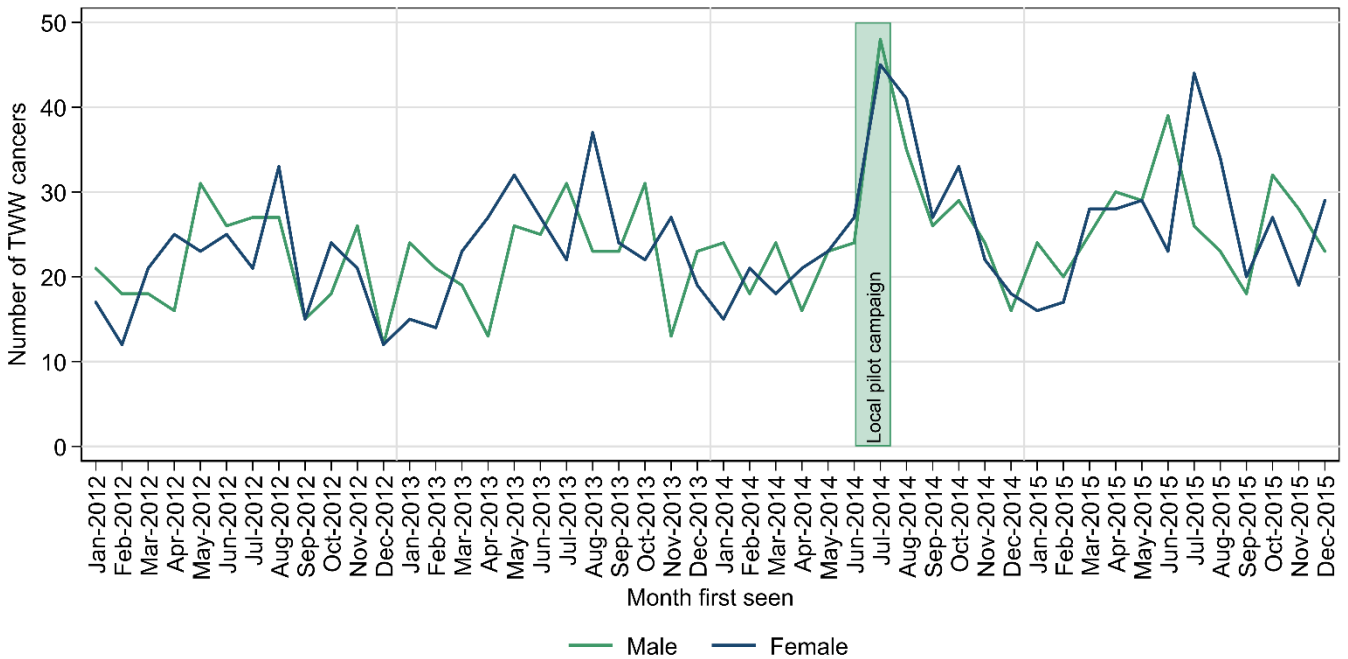
Reviewing results broken down by age group, a statistically significant increase of 95% was seen in the number of melanoma diagnoses resulting from an urgent GP referral for those aged 50-59 ( $p=0.015$ ) and an increase of 50% for those aged under 50 years ( $p=0.057$ ). For NMSC, a statistically significant increase of 35% in the number of diagnoses resulting from an urgent GP referral for suspected skin cancer was seen for those aged 70-79 ( $p=0.015$ ). For each individual age group, however, the number of skin cancer diagnoses resulting from an urgent GP referral for suspected skin cancer was small, and there was a substantial amount of month-to-month variation (Figure 7). Because of this, relatively large proportional changes do not provide robust information about the possible impact of the campaign, particularly for the younger age groups.



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 7: Monthly number of skin cancer diagnoses resulting from an urgent GP referral for suspected skin cancers from January 2012 to August 2014, local pilot area, by age**

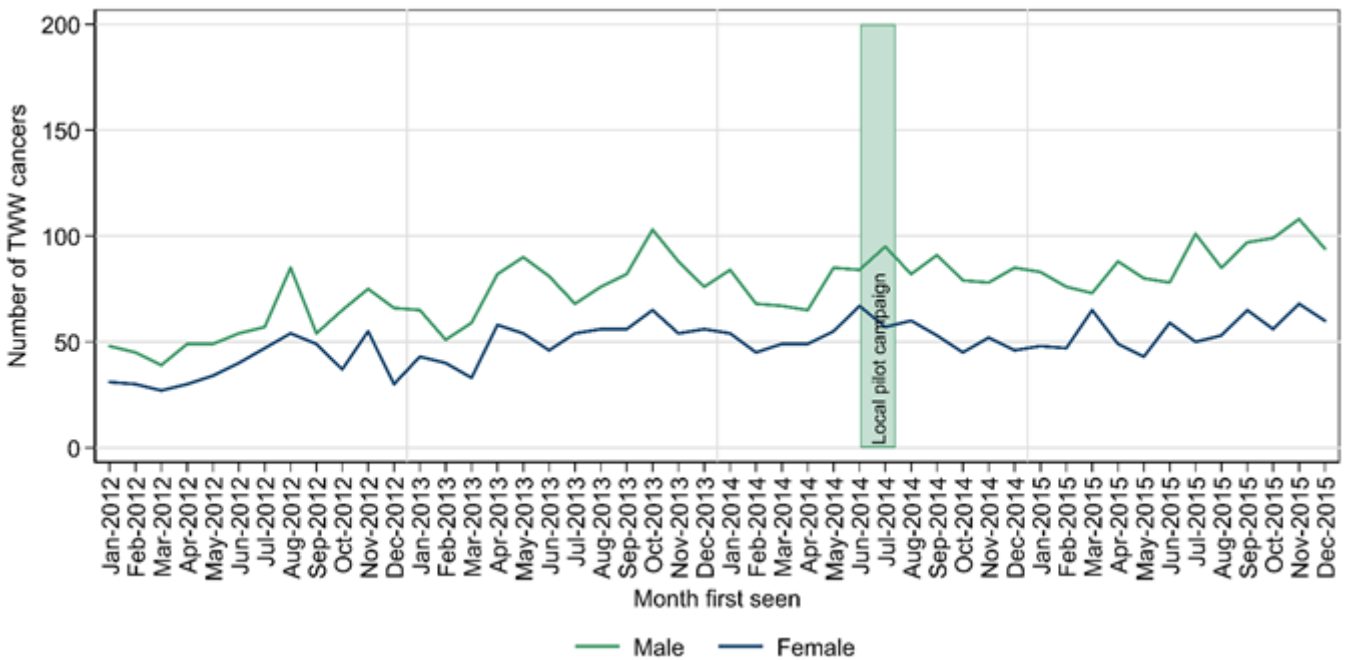
For men, there was a larger apparent increase in the number of melanoma diagnoses resulting from an urgent GP referral for suspected skin cancer (35%,  $p=0.040$ ) than for women (31%,  $p=0.055$ ) when comparing June to August 2014 with June to August 2013. However, this difference in increase may be at least partly explained by an unusually large difference between the number of diagnoses for men and women in the comparison period, June to August 2013 (Figure 8).



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 8: Monthly number of melanoma diagnoses resulting from an urgent GP referral for suspected skin cancers from January 2012 to December 2015, local pilot area, by sex**

No statistically significant changes in the number of NMSC diagnoses resulting from an urgent GP referral were seen for men or women (Figure 9).



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 9: Monthly number of NMSC diagnoses resulting from an urgent GP referral for suspected skin cancers from January 2012 to August 2014, local pilot area, by sex**

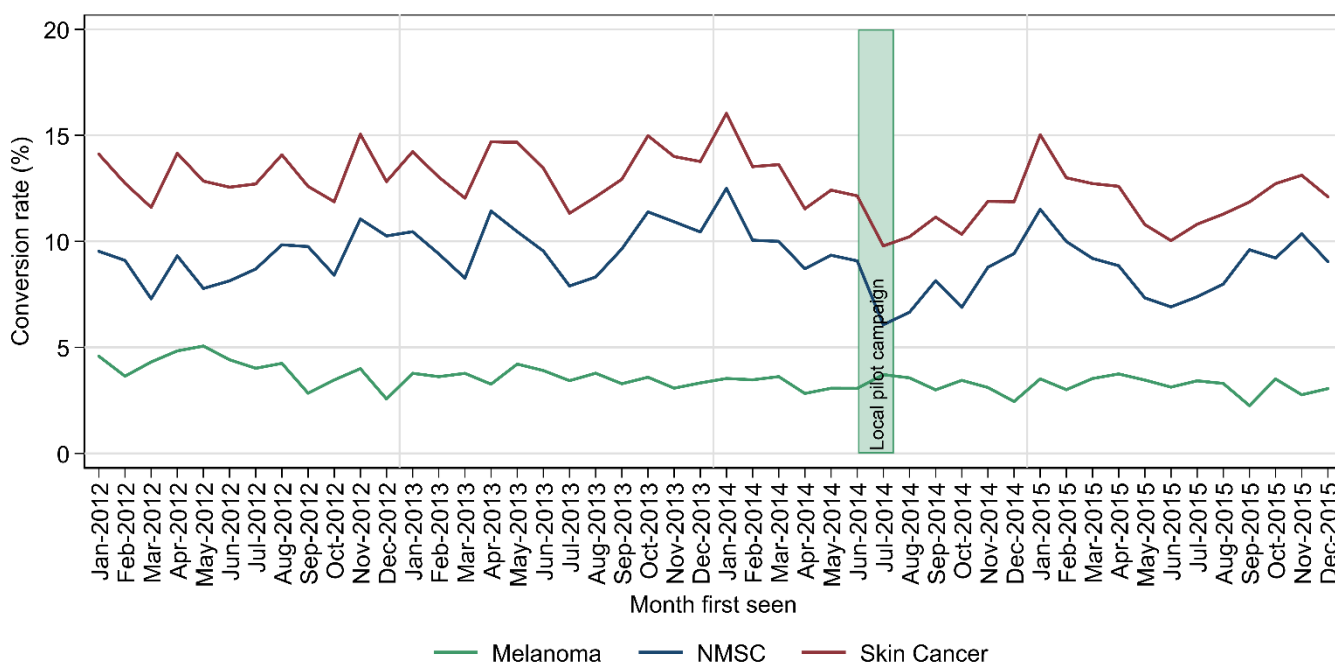


### 3.4.3. Conversion rate

There have been gradual downward trends in the conversion rate<sup>k</sup> of urgent GP referrals for suspected skin cancers for both melanoma and NMSC, and for skin cancers overall (Figure 10). Historically, the conversion rate for urgent GP referrals for suspected skin cancers has been higher in the local pilot area than in the control area, particularly for NMSC.

There was no statistically significant change in the conversion rate for melanoma, with similar decreases in both the local pilot area and the control area when comparing June to August 2014 and June to August 2013 (Table 6).

For NMSC, there were statistically significant decreases in the conversion rate in both the local pilot and control areas. The decrease in the local pilot area was slightly larger (1.5 percentage points, from 8.5% to 7.1%) than in the control area (0.6 percentage points, from 4.6% to 4.0%), which may at least in part have been due to the higher initial conversion rate in the local pilot area.



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 10: Monthly melanoma, NMSC and skin cancer conversion rates for urgent GP referrals for suspected skin cancers from January 2012 to December 2015, local pilot area**

<sup>k</sup> The conversion rate is the percentage of urgent GP referrals for suspected skin cancers resulting in a diagnosis of skin cancer and is presented by month first seen.

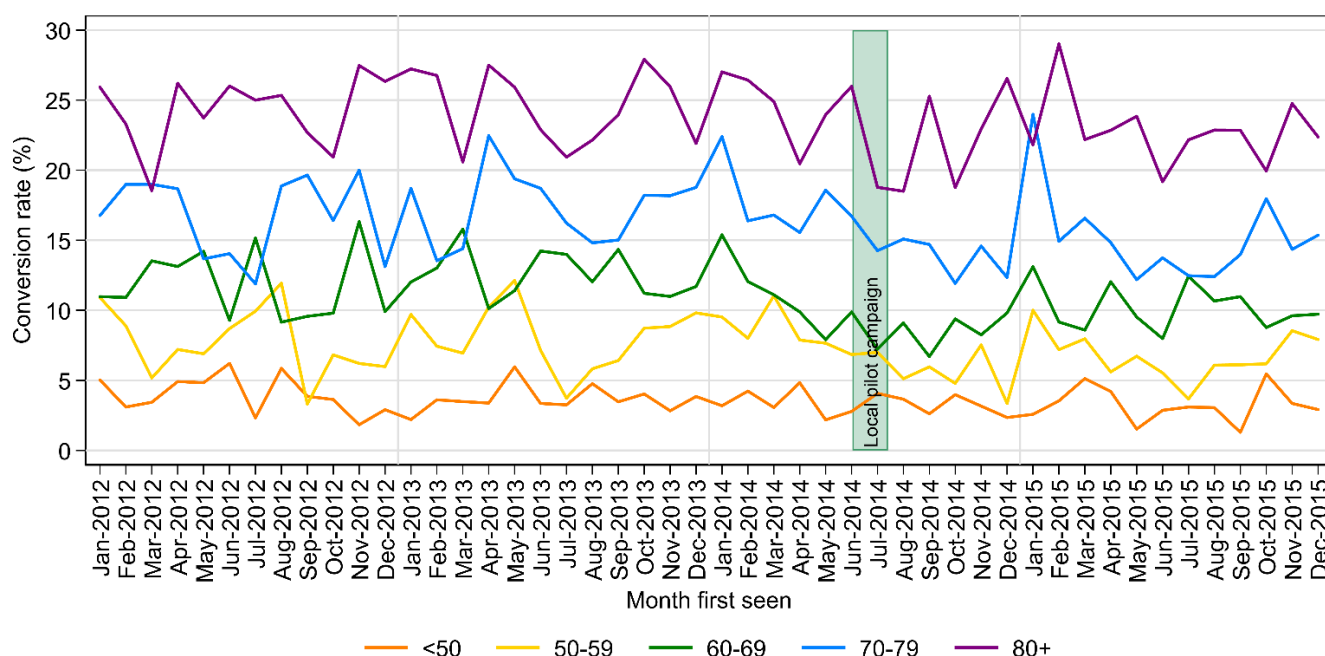


**Table 6: Melanoma, NMSC and total skin cancer conversion rates for urgent GP referrals for suspected skin cancers, with change, from June to August 2013 and June to August 2014, local pilot area and control area**

Cancer	Region	June to August					
		2013		2014		% point change	P-Value
		Conv. Rate (%)	95% CI	Conv. Rate (%)	95% CI		
Melanoma	Local pilot area	3.7	(3.2, 4.3)	3.5	(3.1, 4.0)	-0.2	0.573
	Control area	3.3	(3.1, 3.4)	3.0	(2.8, 3.1)	-0.3	<0.001
NMSC	Local pilot area	8.5	(7.8, 9.4)	7.1	(6.5, 7.7)	-1.5	0.005
	Control area	4.6	(4.4, 4.7)	4.0	(3.8, 4.1)	-0.6	<0.001
Skin Cancer	Local pilot area	12.2	(11.3, 13.2)	10.6	(9.8, 11.3)	-1.7	0.007
	Control area	7.8	(7.6, 8.0)	6.9	(6.8, 7.1)	-0.9	<0.001

Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

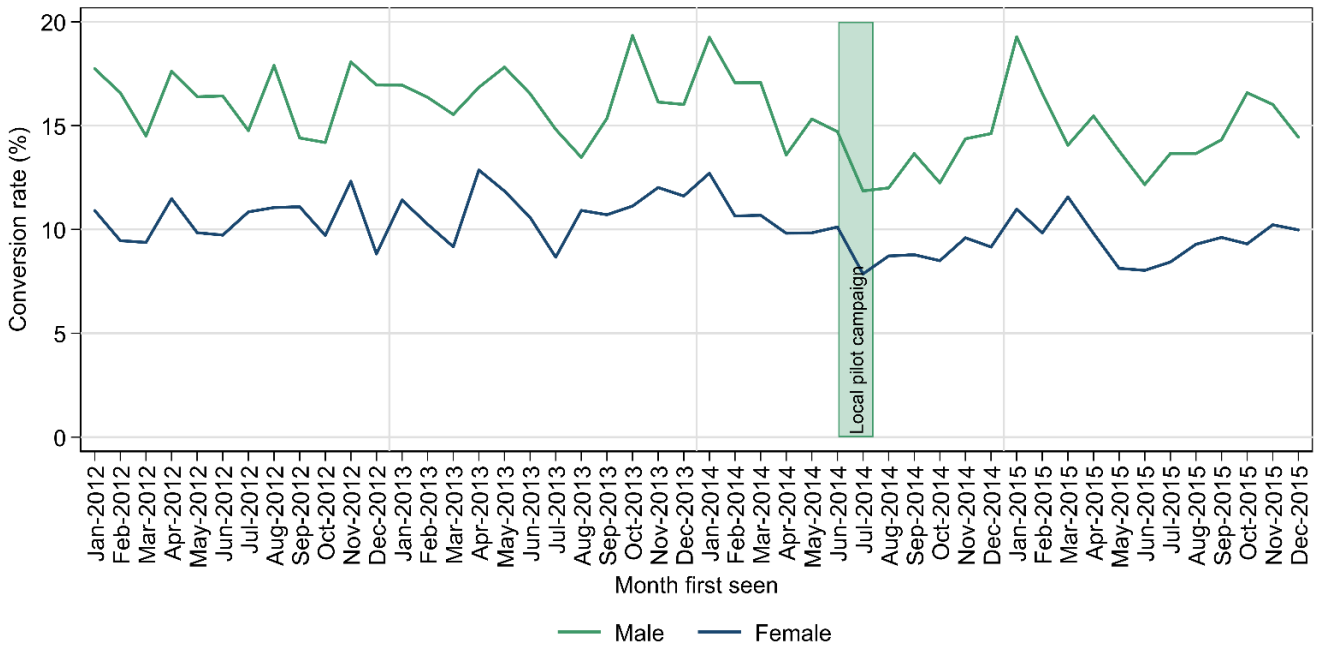
By age: the only statistically significant decreases seen were in those aged 60-69 for melanoma (1.9% decrease, p=0.046) and NMSC (2.9% decrease, p=0.004) (Figure 11).



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 11: Monthly conversion rates to skin cancer for urgent GP referrals for suspected skin cancers from January 2012 to December 2015, local pilot area, by age**

By sex: for men there was a statistically significant decrease of 2.1% in the conversion rate for NMSC ( $p=0.017$ ), while for women there was a statistically non-significant decrease of 1.0% ( $p=0.105$ ) (Figure 12). For melanoma no statistically significant changes were seen by sex.



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 12: Monthly conversion rates to skin cancer for urgent GP referrals for suspected skin cancers from January 2012 to August 2014, local pilot area, by sex**

### 3.4.4. Skin cancer diagnoses recorded in in the Cancer Waiting Times database

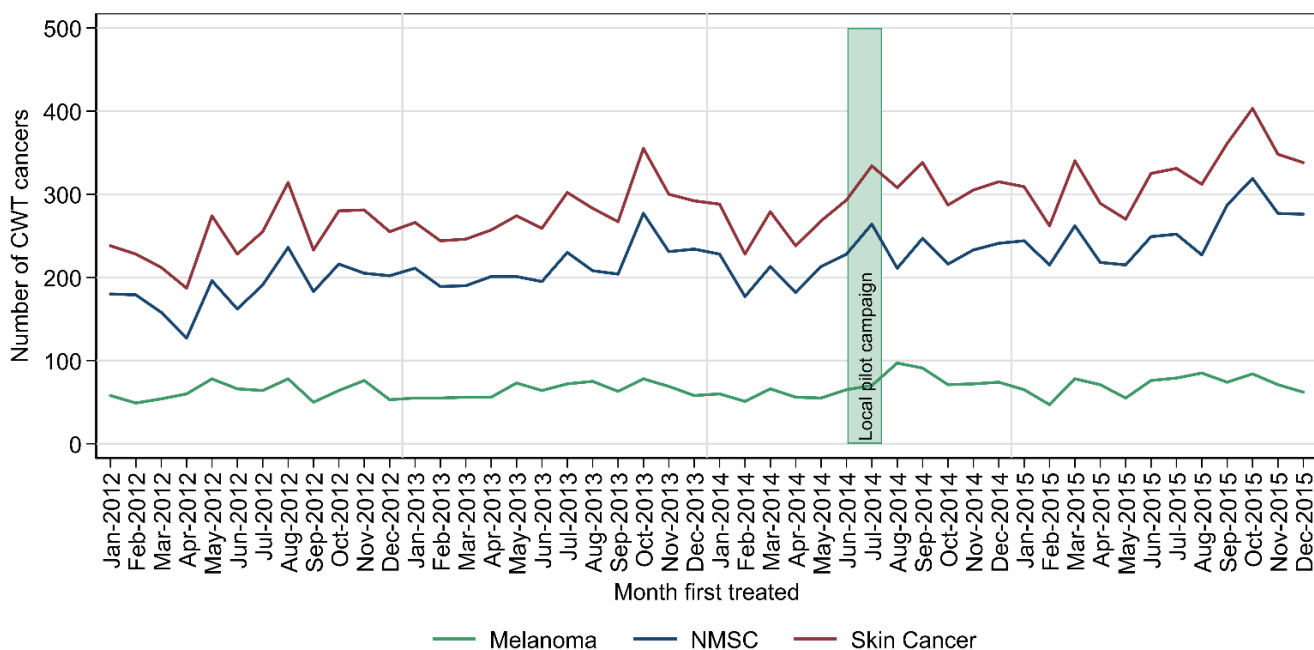
Statistically significant increases of 23% and 13% were seen in the number of melanoma and NMSC diagnoses recorded in the CWT database in the local pilot area, comparing July to September 2013 with July to September 2014 (Table 7). In comparison, for the control area, there was a statistically significant increase for NMSC diagnoses only, of 4%.

The skin cancer awareness local pilot campaign may have had an impact on the number of melanoma and NMSC diagnoses recorded in the Cancer Waiting Times database, although a gradual increasing trend in the number of melanoma and NMSC diagnoses recorded in the CWT database can also be seen in both the local pilot area and the control area (Figure 13), with changes for the local pilot area around the time of the campaign appearing to be in line with long-term trends.

**Table 7: Number of melanoma, NMSC and total skin cancer diagnoses recorded in the Cancer Waiting Times database, with percentage change in number of skin cancers, from July to September 2013 and July to September 2014, local pilot area and control area**

Cancer	Region	July to September			
		CWT Cancers		% change in number	P-value
		2013	2014		
Melanoma	Local pilot area	210	258	22.9	0.026
	Control area	2895	2999	3.6	0.176
NMSC	Local pilot area	642	722	12.5	0.030
	Control area	6206	6442	3.8	0.036
Skin Cancer	Local pilot area	852	980	15.0	0.003
	Control area	9101	9441	3.7	0.013

Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 13: Monthly number of melanoma, NMSC and total skin cancer diagnoses recorded in the CWT database, from January 2012 to December 2015 local pilot area**

A statistically significant 18% increase in the number of NMSC diagnoses recorded in the CWT database was seen for those aged 80 years and over ( $p=0.038$ ). There was also an increase of 20% for those aged 70-79, though this was not statistically significant ( $p=0.054$ ). (Table 8)

No statistically significant changes were seen in the number of melanoma diagnoses recorded in the CWT database, although there were some large percentage increases based on small numbers.

**Table 8: Number of skin cancer diagnoses recorded in the Cancer Waiting Times database, with percentage change in number of cancers, from July to September 2014 to July to September 2014, local pilot area, by age**

Cancer	Age	July-September			
		CWT Cancers		% change in number	P-Value
		2013	2014		
Melanoma	<50	36	49	36.1	0.158
	50-59	25	38	52.0	0.100
	60-69	58	69	19.0	0.329
	70-79	51	51	0.0	1.000
	80+	40	51	27.5	0.248
NMSC	<50	12	10	-16.7	0.670
	50-59	31	22	-29.0	0.215
	60-69	93	90	-3.2	0.824
	70-79	207	248	19.8	0.054
	80+	299	352	17.7	0.038
Skin Cancer	<50	48	59	22.9	0.287
	50-59	56	60	7.1	0.710
	60-69	151	159	5.3	0.650
	70-79	258	299	15.9	0.082
	80+	339	403	18.9	0.019

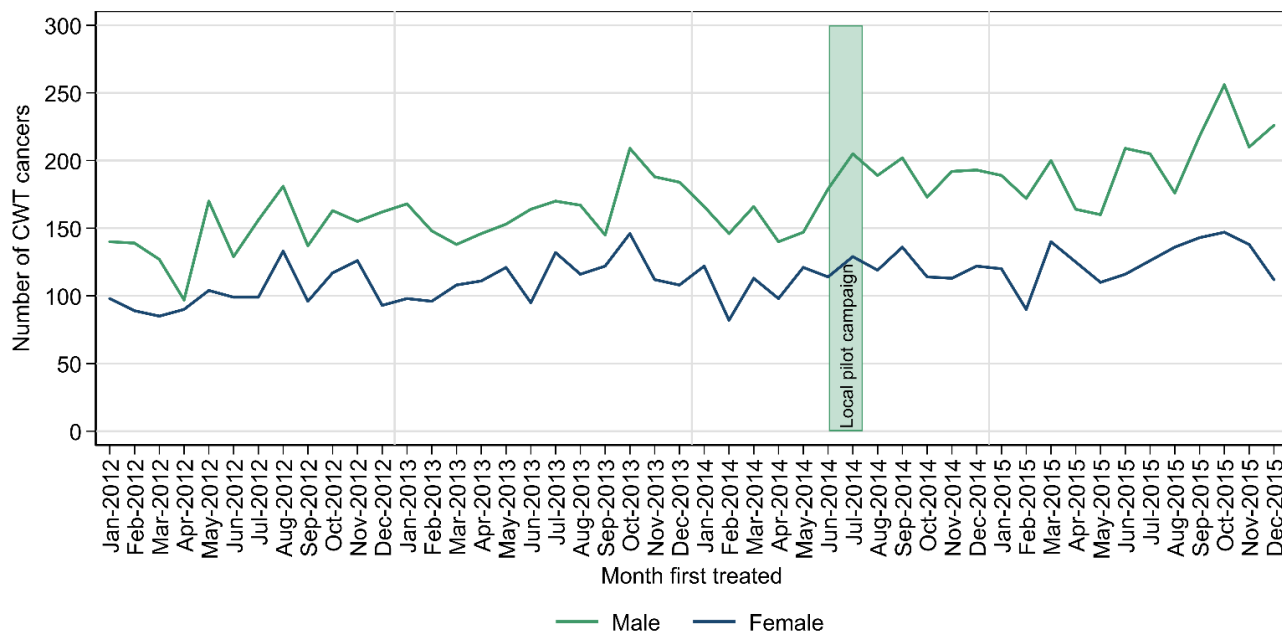
Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

There was a statistically significant increase of 23% in the number of NMSC diagnoses for men ( $p=0.002$ ), in comparison to a statistically non-significant decrease of 3% for women ( $p=0.692$ ). No statistically significant changes were seen for melanoma in either men or women (Table 9). A similar pattern of changes was observed in the number of combined skin cancer diagnoses (Figure 14).

**Table 9: Number of skin cancer diagnoses recorded in the Cancer Waiting Times database, with percentage change in number of cancers, from July-September 2013 and July-September 2014, local pilot area, by sex**

Cancer	Sex	July-September			
		CWT Cancers		% change in number	P-value
		2013	2014		
Melanoma	Men	103	128	24.3	0.100
	Women	107	130	21.5	0.135
NMSC	Men	379	468	23.5	0.002
	Women	263	254	-3.4	0.692
Skin Cancer	Men	482	596	23.7	<0.001
	Women	370	384	3.8	0.610

Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 14: Monthly number of skin cancer diagnoses recorded in the CWT database, from January 2012 to December 2015, local pilot area, by sex**

### 3.4.5. Detection rate

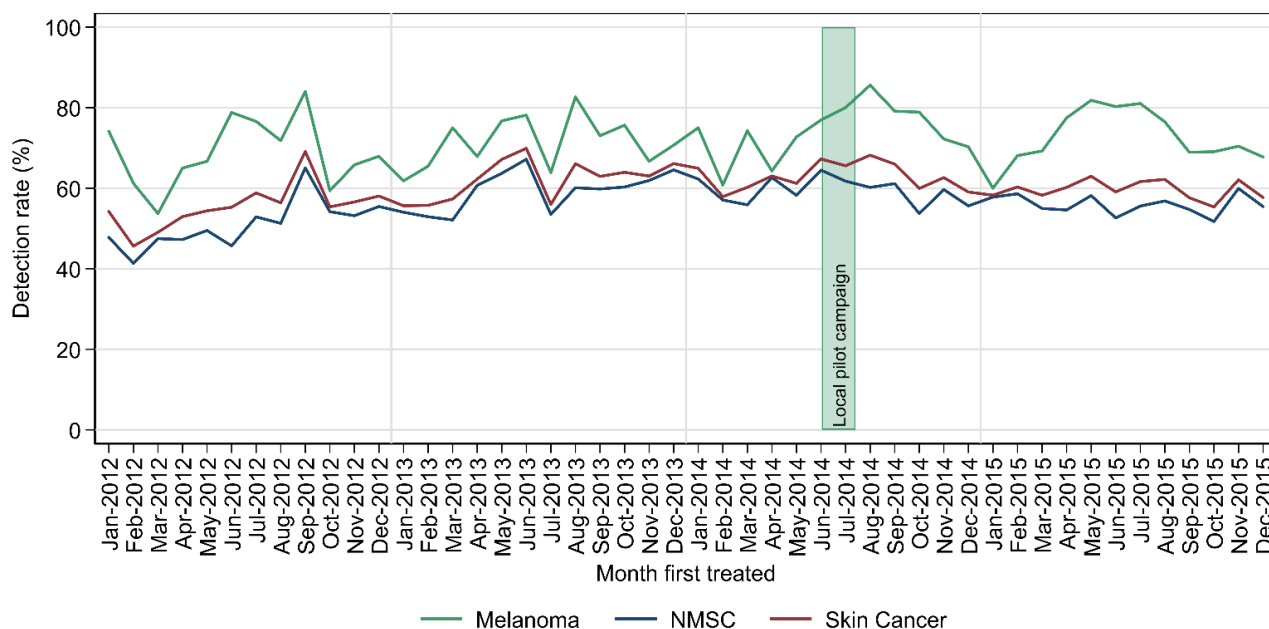
There has been a gradual upward trend in the detection rate of melanoma, NMSC and combined skin cancer diagnoses for several years, in the local pilot area (Figure 15). Comparing July to September 2013 with July to September 2014, there was a statistically significant increase of 8% in the detection rate for melanoma for the local pilot area between July to September 2013 and July to September 2014; no statistically significant change was seen for NMSC for the local pilot area (Table 10). For the control area, there was no statistically significant change in the detection rate for melanoma, but there was a statistically significant increase of 2% in the detection rate for NMSC. Detection rate increases for melanoma, NMSC and combined skin cancer diagnoses in the local pilot area appeared consistent with the long-term trend (Figure 15).

The skin cancer awareness local pilot campaign may have had an impact on the detection rate of melanoma in the local pilot area.

**Table 10: Detection rates for melanoma, NMSC and combined skin cancer diagnoses, with percentage point change, from July to September 2013 and July to September 2014, local pilot area and control area**

Cancer	Region	July to September					
		2013		2014		% point change	P-Value
		Det. Rate (%)	95% CI	Det. Rate (%)	95% CI		
Melanoma	Local pilot area	73.3	(67.0,78.9)	81.8	(76.6,86.0)	8.4	0.028
	Control area	74.3	(72.7,75.9)	74.2	(72.6,75.7)	-0.1	0.901
NMSC	Local pilot area	57.6	(53.8,61.4)	61.1	(57.5,64.6)	3.4	0.195
	Control area	48.0	(46.8,49.2)	49.8	(48.6,51.0)	1.8	0.045
Skin Cancer	Local pilot area	61.5	(58.2,64.7)	66.5	(63.5,69.4)	5.0	0.025
	Control area	56.4	(55.4,57.4)	57.5	(56.5,58.5)	1.1	0.115

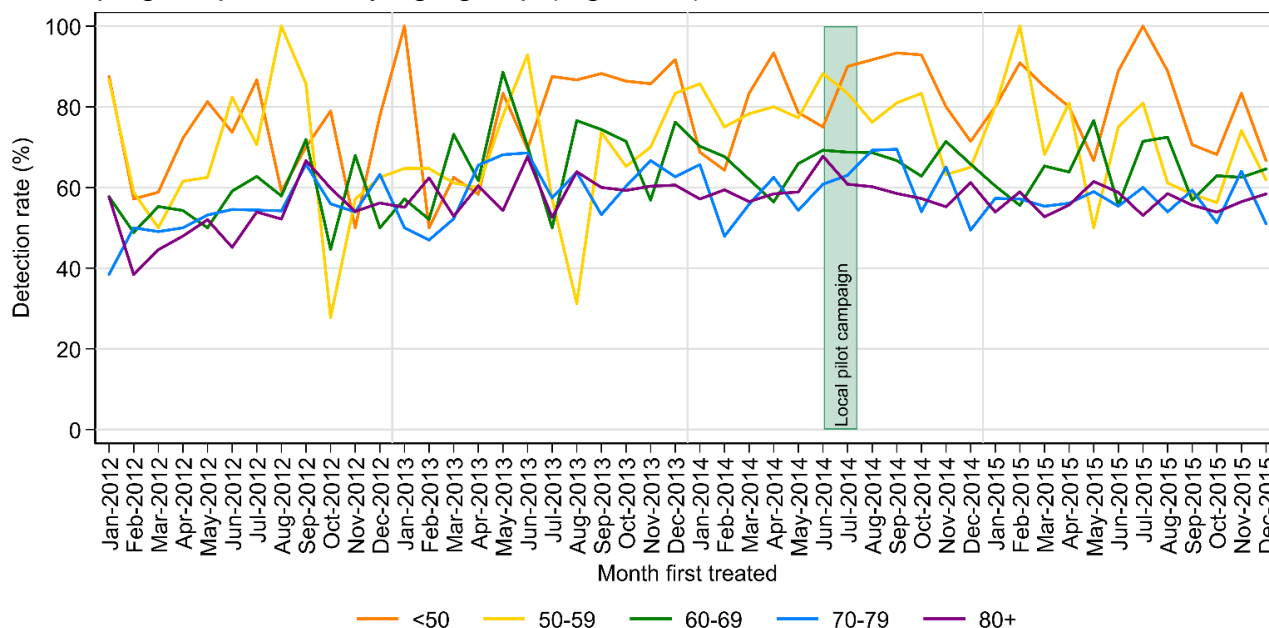
Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 15: Monthly detection rate for melanoma, NMSC and combined skin cancer diagnoses, from January 2012 to December 2015, local pilot area**

By age the detection rates were highly variable, with the few statistically significant changes appearing to reflect this natural variation and the long-term trend. There was no clear evidence of campaign impact for any age group (Figure 16).



Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital

**Figure 16: Monthly detection rates for skin cancer diagnoses, from January 2012 to December 2015, local pilot area, by age**

There was no evidence of a change in the detection rate for men for melanoma, NMSC or skin cancer when comparing July to September 2014 with July to September 2013 (Table 11). For women, there was a statistically significant increase of 11 percentage points in the melanoma detection rate, from 72% to 83%.

**Table 11: Detection rates for skin cancer diagnoses, with change, from July to September 2013 and July to September 2014, local pilot area, by sex**

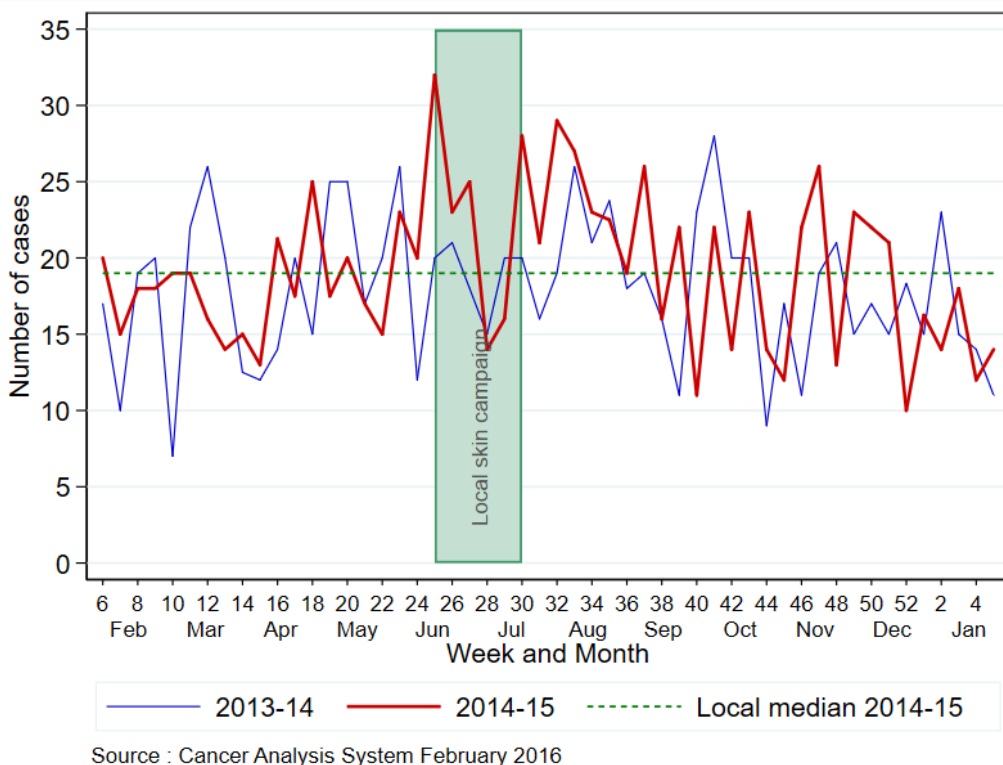
Cancer	Sex	July-September					
		2013		2014		% Point Change	P-Value
Det. Rate (%)	95% CI	Det. Rate (%)	95% CI				
Melanoma	Men	74.8	(65.6, 82.2)	80.5	(72.8, 86.4)	5.7	0.298
	Women	72.0	(62.8, 79.6)	83.1	(75.7, 88.6)	11.1	0.040
NMSC	Men	55.9	(50.9, 60.9)	58.3	(53.8, 62.7)	2.4	0.483
	Women	60.1	(54.1, 65.8)	66.1	(60.1, 71.7)	6.1	0.153
Skin Cancer	Men	60.0	(55.5, 64.2)	63.1	(59.1, 66.9)	3.1	0.293
	Women	63.5	(58.5, 68.3)	71.9	(67.2, 76.1)	8.4	0.014

Source: NCRAS, PHE. Cancer Waiting Times data provided by NHS England and NHS Digital



### 3.4.6. Cancers diagnosed

The numbers of melanoma diagnosed were the same as or higher than the 2014 to 2015 median for the weeks 30 to 37 of 2014 (Figure 17). During this eight-week period, an additional 44 cases were diagnosed compared with the expected number based on the median (152 cases over the eight-week period based on a median of 19 cases per week).



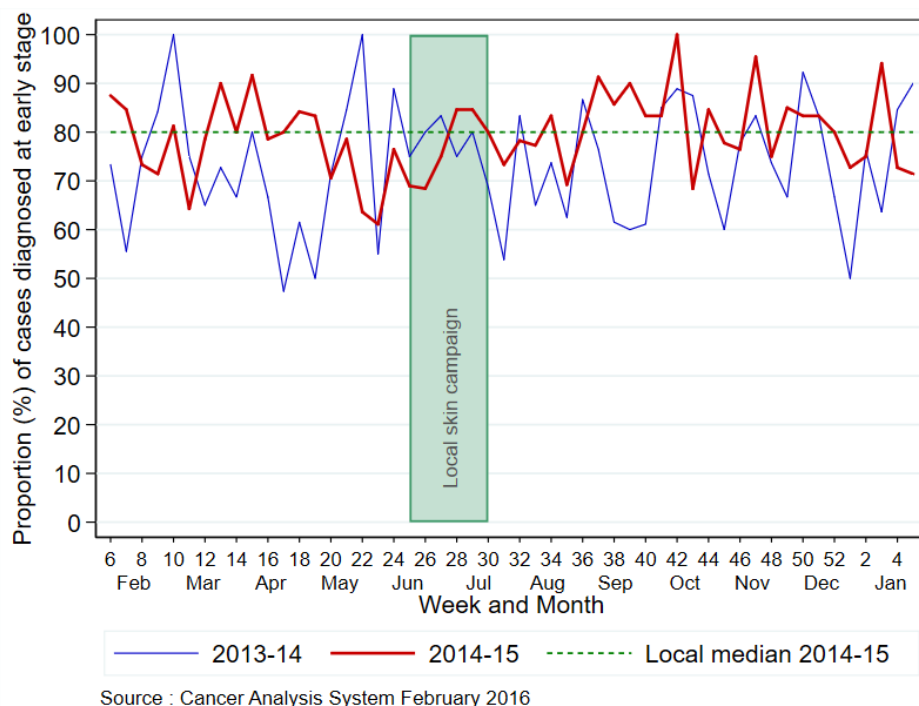
**Figure 17: Number of newly diagnosed cases of melanoma by week, Devon, Somerset and Cornwall, February 2013 to January 2015, all ages**

### 3.4.7. Stage at diagnosis

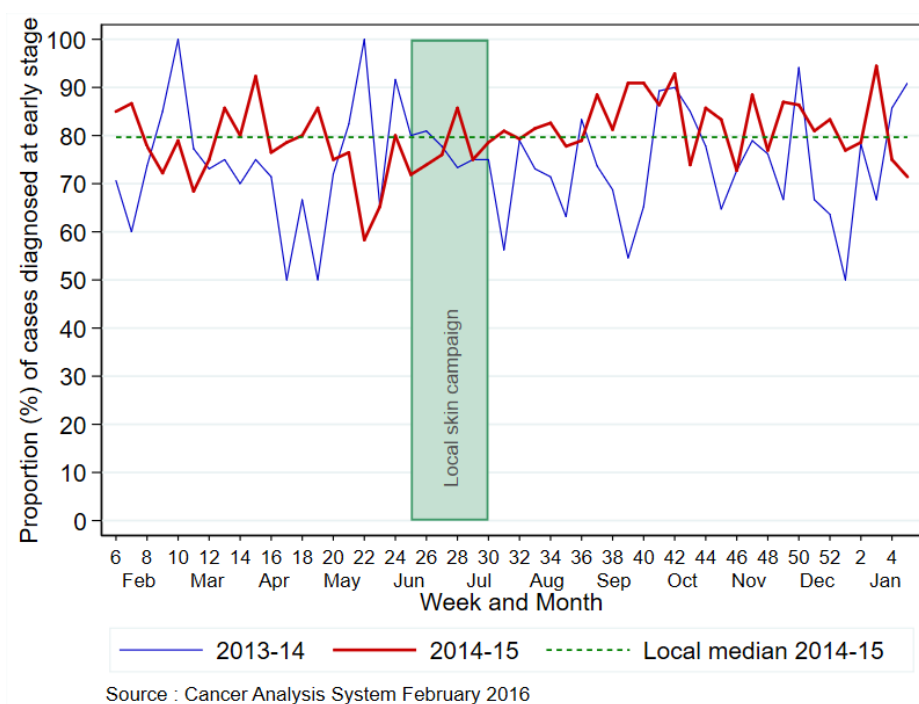
For persons aged 50 years and over the proportion of malignant melanomas diagnosed at AJCC stages IA to IIB was the same as, or higher than, the 2014 to 2015 median from week 36 to week 42 in 2014. During this 7-week period, the proportion of malignant melanoma diagnosed at an early stage was 88% compared to that which was expected based on the median (80%) (Figure 18a).

For persons of all ages, the proportion of malignant melanomas diagnosed at AJCC stages IA to IIB was the same as, or higher than, the 2014 to 2015 median from week 37 to week 42 in 2014. During this 6-week period, the proportion of malignant melanoma diagnosed at an early stage was 88% compared to that which was expected based on the median (80%) (Figure 18b).

**a) 50 years and over**



**b) All ages**



**Figure 18: Proportion of malignant melanoma diagnosed at AJCC stage IA to IIB by week, Devon, Somerset and Cornwall, February 2013 to January 2015, a) 50 years and over, b) all ages**

There were sustained periods where the proportion of early stage melanoma was the same as or higher than 2014 to 2015 median (Figure 18a and b), indicating that the skin

cancer awareness local pilot campaign appears to have had an impact on the proportion of melanoma diagnosed at an early stage (stages IA to IIB). However, caution should be applied to interpretation of these results as they are based on small numbers (an average of 15 patients each week).

### 3.4.8. One-year survival

There were no significant differences in one-year survival for men, women or persons aged 50 years and over diagnosed with melanoma between the analysis period (July 2014 to September 2014) and comparison period (January to June, October to December 2014), respectively (Table 12).

One-year survival for persons diagnosed with melanoma during the analysis period was 97.0% compared with 96.8% for those diagnosed in the comparison period. Due to the small number of patients, the confidence intervals for these estimates are very wide, reflecting uncertainty in their precision.

**Table 12: One-year net survival (%) for men, women and persons aged 50 years and over diagnosed with melanoma during the analysis period, 1 July to 30 September 2014, compared with the rest of 2014**

<b>Skin cancer</b>	<b>Sex</b>	<b>Comparison period (01/01/2014 to 30/06/2014, 01/10/2014 to 31/12/ 2014)</b>	<b>Analysis period (01/07/2014 to 30/09/2014)</b>
<b>Melanoma</b>	<b>Men</b>	95.3% (95% CI: 91.9 - 98.7)	97.8% (95% CI: 93.0 -102.7)
	<b>Women</b>	98.5% (95% CI: 95.8 - 101.1)	95.7% (95% CI: 91.0 -100.4)
	<b>Persons</b>	96.8% (95% CI: 94.5 - 99.0)	97.0% (95% CI: 93.6 -100.4)

Source: Cancer Analysis System, September 2017

It should be noted that the one-year survival figures include patients with malignant melanoma diagnosed at all stages; clinically it is reported that most deaths within one year from malignant melanoma are related to a diagnosis of AJCC stage IV and, based on the small numbers of patients within the pilot area diagnosed at stage IV (an average of 2 patients each week), it is unlikely that campaign impact would be seen.

There was no evidence that the skin cancer awareness local pilot campaign had an impact on one-year net survival for patients aged 50 years and over diagnosed with malignant melanoma.

## 4. Conclusion

The skin cancer awareness local pilot skin campaign appears to have been successful in terms of raising public awareness of the signs of skin cancer. Recall of skin cancer symptoms increased from 27% to 48% pre- and post-campaign in the local pilot group. Overall seven out of ten people surveyed had seen one or more forms of campaign activity although only 23% had seen the BCoC skin cancer leaflet and 14% had seen online advertisements. 95% felt that the advertisements were clear and easy to understand. 68% recalled the 'call to action' message to go to the doctor or to get their skin checked. Core messages such as identifying skin changes or acting early were only recalled by 27% and 22% respectively, suggesting further work could be done to refine messages to make them more effective for future campaigns.

The message around non-mole signs was successful with 47% recalling non-mole related signs. Knowledge about these signs increased by 12% which is encouraging given the general lack of knowledge regarding non-melanocytic skin cancers and amelanotic melanoma (this remains an important message to disseminate). There were good levels of action taken (24%) as a result of the campaign which is in keeping with other BCoC campaigns.

GPs were positive about the campaign but there was only a 12% increase in recall regarding receiving communications about skin cancers in the last month. Given that up to 25% of consultations in GP practices are skin related there may have been an opportunity to provide more communication to GPs regarding the campaign, particularly during summer months when the presentation of skin cancers is recognised to be higher.

There was a 41% increase in the number of urgent GP referrals for suspected skin cancers during and around the time of the campaign. Interpretation of the data was challenging because skin cancer referrals are recognised to be affected by seasonal variation<sup>(13)</sup> (as illustrated by some of the results shown) and because there is a gradual upward trend in skin cancer incidence across the UK<sup>(3)</sup> and worldwide.<sup>(2)</sup>

It is important to note that skin cancer awareness activities are fairly frequent in the South West of England due to the high incidence of skin cancer in the area. This may have raised the awareness baseline, particularly for GPs, potentially leading to a smaller effect observed following the campaign than might have otherwise been observed in other parts of the country. In addition, there are likely to be confounding factors such as socio-economic differences in the South West compared to other populations in the UK. It is well recognised that people in more deprived areas have lower cancer symptom awareness and less likely to consult with healthcare, so these results may underestimate potential benefits that could be observed in other populations.

The increase in public awareness and knowledge as a result of the campaign are important to highlight. Based on the metrics evaluated there was no evidence that the campaign had an impact on conversion rate or detection rate, but may have had an effect on the number of skin cancer diagnoses recorded in the Cancer Waiting Times database, the number of newly diagnosed cases of melanoma and the proportion of melanoma diagnosed at an early stage. Although the small number of cases, which is to be expected in a pilot campaign such as this, make it difficult to draw firm conclusions, this report suggests future work should focus on wider implementation of this campaign and greater engagement with the Dermatologists.

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