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Summary
- Cancer incidence is rising in England. In contrast the trend in cancer incidence for Hampshire has been stable since 2001/2003.
- The directly age standardised incidence rate for all types of cancers (excluding non-melanoma skin) in Hampshire for 2008/10 was 367.8 per 100,000 population. This is lower than the England and South East England rates which were 386.9/100,000 and 368.3 respectively. The incidence rate was higher in men (389.7/100,000) than women (354.4/100,000).
- The trends in incidence of lung, bowel and breast cancers in Hampshire mirror the England trend but the incidence of prostate cancer in Hampshire is reducing while the England trend is upward.
- In 2011/12 there were 26,741 people on Hampshire GP cancer registers. This is 2% of the registered population. It is higher than the England and SE prevalence (1.8%) and has increased from 1.6% in 2009/10.
- As fewer people are being diagnosed with cancer and more are surviving, the needs of cancer survivors are becoming increasingly important.
- Cancer is linked to numerous risk factors. It has been estimated that 43% of new cases of cancer are linked to lifestyle and environmental factors, with smoking alone accounting for almost 20% of new cases (23% in men and 16% in women).
- After smoking, dietary factors, being overweight or obese and harmful alcohol use are the biggest risk factors.
- The most recent international comparisons show that England still has worse cancer survival rates than many countries, including Canada, Australia, Sweden and Norway. We appear to be closing the gap in breast cancer, but not for colorectal and ovarian cancer and the gap has widened slightly for lung cancer. The gap for disadvantaged groups is even greater.

Recommendations
- Increase the focus on preventing cancer by continuing work to reduce the known modifiable risk factors for cancer – smoking, obesity, unhealthy diet, alcohol and lack of physical activity.
- To reduce mortality rates we need to increase the early diagnosis of cancer by increasing awareness of the early symptoms of cancer in the population and amongst healthcare professionals.
- Review emergency presentations of cancer in Hampshire and explore ways in which they can be reduced as they are associated with a poorer prognosis.
- Improve screening uptake and coverage across all the cancer screening programmes.
- Ensure that cancer waiting time targets continue to be met.
- Review services for cancer survivors, including the provision of secondary prevention, and ensure that their needs are being met.
- To reduce inequalities in cancer outcomes we need to ensure that services are accessible to those groups of people at the highest risk of cancer and those who have poorer outcomes from treatment.
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1. Introduction

There are around 1.8 million people in England living with and after cancer. This number is likely to grow by 3% a year reflecting the increasing incidence of cancer, improved survival and increasing life expectancy. 

Cancer is a disease caused by normal cells changing so that they grow in an uncontrolled way forming a tumour. If untreated, the tumour can cause problems by:

- spreading into normal tissues nearby
- causing pressure on other body structures
- spreading to other parts of the body through the lymphatic system or bloodstream.

There are over 200 different types of cancer because there are over 200 different types of body cells. In 2009, around 265,000 cancers were diagnosed in England. Cancers of the lung, bowel, breast and prostate accounted for over half the total number of cases.

More than three in five cancers occur in people aged 65 and over. A recent report from Macmillan Cancer Support estimates that by 2020 almost 1 in 2 of us will develop cancer during our lifetime but almost 4 in 10 will not die from it. There have been significant rises in lung cancer and uterine cancer in women, prostate cancer in men, and in melanoma skin cancer, liver cancer, kidney cancer and cancers of the mouth and salivary glands in both sexes. Although death rates from cancer are falling, cancer still accounts for around a quarter of deaths in England. (Figure 1).

Figure 1: Cancer – long term trends in incidence and mortality in the UK (1975 - 2008)

![Graph showing trends in incidence and mortality](image-url)

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1 [http://www.ncsi.org.uk/]
2 [What cancer is : Cancer Research UK : CancerHelp UK](http://www.cancerresearchuk.org/aboutcancer)
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Cancer is linked to numerous risk factors. It has been estimated that 43% of new cases of cancer are linked to lifestyle and environmental factors, with smoking alone accounting for almost 20% of new cases (23% in men and 16% in women). After smoking, dietary factors, being overweight or obese and harmful alcohol use are the biggest risk factors.5

Cancer outcomes reflect differences in lifestyle-related risk factors, health seeking behaviour, early cancer detection and effectiveness of service provision. Cancer outcomes in England lag behind those of some EU-15 and other comparable countries. UK survival rates for lung, breast, colorectal, and ovarian cancers have improved but still lag behind those of Australia, Canada, Denmark, Norway and Sweden.6

1.1 Inequalities in Cancer

Inequalities in cancer are complex. Incidence and mortality are generally higher in deprived groups compared with affluent groups, older compared with younger people and men compared with women. Conversely, breast cancer and prostate cancer have a higher incidence in more affluent groups. There is no association between deprivation and the incidence of colorectal cancer. However, for colorectal and breast cancer mortality is higher in less affluent groups.

The picture for ethnic minority groups varies according to cancer type and ethnic group. In general, incidence is lower amongst ethnic minority groups, although there are some important exceptions (incidence of prostate cancer is greater amongst Black African and Black African-Caribbean men, liver cancer in South Asians, and mouth cancer in Bangladeshis).

Between 2000 and 2004, in the most affluent areas of England, 345 in every 100,000 people were diagnosed with cancer compared with 399 in every 100,000 in the most deprived areas - a difference of 16 per cent. Levels of public awareness of cancer signs and symptoms are generally low, but even lower in some groups, such as deprived communities, some BME groups and men. This may contribute to lower uptake of screening and later presentation when symptoms arise. Lifestyle factors almost certainly account for most of the variance in cancer incidence between the most and least deprived.

Part of the variance in mortality rates can be attributed to delayed diagnosis amongst deprived groups, older people (at least for breast cancer) and certain BME groups (at least for breast cancer). The precise contribution of delayed diagnosis to poorer survival rates and higher mortality amongst men than women is still uncertain. Poorer uptake of screening, diagnostic and treatment services, the presence of significant co-morbidities, and/or variations in the quality and effectiveness of treatment services are also likely to contribute.7

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Improvements in mortality have been slower in older people than in younger people. Older people with cancer receive less intensive treatment than younger people. In many cases this may be clinically appropriate. However, there is increasing evidence that under-treatment of older people may occur.

This chapter considers the epidemiology, prevention, diagnosis and treatment of cancer. It focuses on breast, lung, bowel and prostate cancer in adults as these four cancers account for over half of all new cancers. There is a short section on cancer screening programmes.

2. Level of need in the population

2.1 Fixed risk factors
Age and sex and for some cancers, ethnicity, are the most important fixed risk factors for cancer. Cancer incidence and mortality increase with age, males 75 years or older are most likely to die from cancer than any other group. Men are more likely to have and die from cancer than women, although the gender gap in cancer incidence is reducing. Genetic predisposition and family history are two other fixed risk factors that are important in the development of some cancers. There are specific gene markers for some cancers e.g. BrCa1 and BrCa2 for breast cancer. Family history, without specific gene markers, is a risk factor for a number of cancers e.g. bowel.

2.2 Modifiable risk factors
Smoking is the single biggest preventable risk factor for cancer. The main contributor to cancer deaths is lung cancer. 90% of lung cancer can be attributed to smoking or passive smoking. Smoking is also a risk for other cancers including: mouth; throat; voice box (larynx); food pipe (oesophagus); liver; pancreas; stomach; kidney; bladder; leukaemia; lymphoma and cervix. Other risk factors for cancer include alcohol, a diet high in fat and low in fruit and vegetables, obesity, lack of exercise and exposure to ultraviolet light.

2.3 Incidence
Incidence is the number or rate of new cancers in a given time period. Cancer incidence is rising in England. In contrast the trend in cancer incidence for Hampshire has been stable since 2001/2003 (figure 2). The directly age standardised incidence rate for all types of cancers (excluding non-melanoma skin) in Hampshire for 2008/10 is 367.8 per 100,000 population. This is lower than the England and South East England rates which are 386.9/100,000 and 368.3 respectively. The incidence rate is higher in men (389.7/100,000) than women (354.4/100,000).

Interpretation of the trend in all cancer incidence is difficult as cancer is not a single disease. Overall cancer incidence reflects the incidence patterns in all cancer types. The trends in incidence of lung, bowel and breast cancers in Hampshire mirror the England trend but the incidence of prostate cancer in Hampshire is reducing while the England trend is upward.
Figure 2: All cancer incidence (persons) trend in 3 yearly moving averages for Hampshire compared to England and the South East

Changes in the causative factors, some of which are increasing, for example obesity and some which are generally decreasing, for example smoking; changes in detection rates due to the impact of screening programmes and changes in clinical practice, for example early detection and diagnosis in primary care and in investigations for example for prostate cancer will all affect the incidence rate.

There is variation in incidence across Hampshire, which can be seen between the local authorities (figure 3). Hart is the only local authority that has seen a significant increase in cancer incidence between 2000/02 and 2009/11. The rate in Rushmoor is significantly lower than the rate for England. The reasons for these patterns are not fully understood - we might expect a higher incidence in Rushmoor due to the relatively higher rates of deprivation. Differences in the age profile of the populations are not the explanation as the rates are age standardised.

Incidence by CCG shows that North East Hampshire and Farnham CCG have a significantly lower incidence of cancer and this has been the picture for this population since 2000/2002. The differences in the incidence between Hart and Rushmoor are averaged out when the CCG is looked at as a whole.

Further work is needed to understand the incidence rate in Hampshire, including obtaining the data for a comparative analysis with our statistical neighbours.
2.4 Prevalence
Prevalence is the proportion of a population that has a disease in a specified time period. Local information about cancer prevalence is from GP cancer registers. The prevalence is not standardised for the age or sex make up of the population. In 2011/12 there were 26,741 people on Hampshire GP cancer registers. This is 2% of the registered population. It is higher than the England and SE prevalence (1.8%) and has increased from 1.6% in 2009/10. The difference may be real or due to the older age structure of the Hampshire population or due to differences in recording practices.
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Cancer prevalence is lowest in North East Hampshire and Farnham CCG as we would expect as this population has had a lower cancer incidence since 2000/2002 (figure 4). Prevalence is highest in New Forest, Fareham and Havant. This is likely to be due to the older population in the New Forest and higher levels of deprivation in Havant (figure 5).

As incidence is stable the high prevalence is likely to reflect improved survival from cancer and overall increased life expectancy – people who have survived cancer are living for many years after treatment.

**Figure 4: Cancer prevalence by CCG 2011/12**

![Cancer prevalence by CCG 2011/12](image)

**Figure 5: Cancer prevalence by local authority 2011/12**

![Cancer prevalence by local authority 2011/12](image)
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2.5 Survival
Cancer survival rates in England are improving. The latest ONS data show that the trend of increasing survival continued for patients diagnosed during 2006/2010. Survival is generally lower among older patients than younger patients, even taking account of higher background mortality, with the exceptions of breast and prostate cancers where five year survival is better in the older age groups.

Five-year survival is over 80% for cancers of the breast (women), prostate and testis, and for Hodgkin lymphoma and melanoma of skin. Five-year survival for cancers of the brain, lung, oesophagus, pancreas and stomach in both sexes is below 21%; with survival for pancreatic cancer the lowest in both sexes. The one year survival rate for all cancers in Hampshire is just above the England rate: 67.8% compared to 66.5%.

The most recent international comparisons show that England still has worse cancer survival rates than many countries, including Canada, Australia, Sweden and Norway. We appear to be closing the gap in breast cancer, but not for colorectal and ovarian cancer and it has widened slightly for lung cancer. The gap for disadvantaged groups is even greater.

If England was to achieve the European average cancer survival rates, then 5,000 lives would be saved each year. If we achieved the best survival rates then 10,000 lives would be saved.

Diagnosing cancer at a late stage is generally agreed to be the single most important reason for England’s lower survival rates. The National Awareness and Early Diagnosis Initiative (NAEDI) has been set up to promote early diagnosis of cancer, improve survival rates and reduce cancer mortality.

2.6 Survivorship
Improved survival and mortality rates mean that many people live with and beyond cancer for long periods of time. Cancer is now recognised as a long term condition. In the UK there are approximately two million cancer survivors (3.2% of the entire population). It is important that they receive the right care to enable them to live a healthy life for as long as possible.

A recent report from the National Cancer Survivorship Initiative (NCSI) highlights the unmet needs of cancer survivors at the end of treatment and with the consequences of treatment that could be either avoided or managed. The key areas identified for action are:

8 http://www.ons.gov.uk/ons/dcp171778_283644.pdf
9 National Cancer Intelligence Network
11 Cancer Outcomes Strategy 2011
12 Routes to diagnosis -NCIN data briefing 2010, National Cancer Intelligence Network
http://www.ncin.org.uk/publications/data_briefings/routes_to_diagnosis
13 Awareness and Early Diagnosis : Cancer Research UK
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- Information and support from the point of diagnosis;
- Promoting recovery;
- Sustaining recovery;
- Managing the consequences of treatment; and
- Supporting people with active and advanced disease.

2.7 Mortality

The overall trend for mortality between 2006/08 and 2009/11 in Hampshire is downwards although this does not reach statistical significance. There were 3,341 deaths from cancer in Hampshire in 2011. The diagram in figure 6 illustrates the deaths by cancer type. About 40% of deaths were accounted for by four cancer types: lung cancer (566) bowel cancer (371) breast cancer (240) and prostate cancer (245).

Figure 6 Cancer deaths in Hampshire in 2011 by cancer type

All cancer all age mortality for Hampshire is less than the England average and in North East Hampshire and Farnham and West Hampshire CCGs (figure 7). The mortality rate is in line with the England rate in the following districts: Basingstoke and Deane, Gosport, Havant, Rushmoor and the Farnham area of Waverley. The other Hampshire districts have a mortality rate significantly below the England rate (figure 8).
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The mortality rate is higher in Rushmoor and, therefore, in North East Hampshire and Farnham CCG than we would expect from the lower incidence rate. This suggests poor survival rates which may be related to late presentation and diagnosis and/or poor outcomes from treatment.

Figure 7: All age all cancer mortality by CCG and mortality trend 2006/2011
The picture is similar for premature mortality (those aged under 75). The rate of cancer deaths is significantly higher in males than females in Hampshire and across all the CCGS.

2.8 Carers
When considering the needs of people with cancer, it is important to take account of the needs of their carers. See separate chapters on End of life and Carers

2.9 Main cancers

2.9.1 Lung Cancer
Lung cancer is the second most common cancer in the United Kingdom (excluding non melanoma skin cancer) after breast cancer. Around 33,000 people are diagnosed in England each year. It kills more men and women than any other form of cancer. Lung cancer affects people of all ages but is most common in those who are over 50, with 8 out of 10 cases occurring in people over 60.

Although the majority of cases occur in smokers, around one in eight people with lung cancer has never smoked. Stopping smoking before middle age avoids most of the risk of smoking-related lung cancer. In non-smokers living with someone who smokes increases the risk of lung cancer by about a quarter.

A small proportion of lung cancer cases are caused by heavy exposure to industrial carcinogens and air pollutants, including diesel exhaust, asbestos, non-ferrous metals, silica, polycyclic aromatic hydrocarbons and nitrogen oxides.
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Lung cancer has always been more common in men than women but the gap has narrowed significantly. This is a reflection of the change in men and women’s smoking habits.

Lung cancer (associated with smoking) is more common in the most deprived groups in both sexes, largely due to the higher rates of smoking. In both sexes 5 year survival is low (less than 10%) and there is no clear trend across the deprivation groups.

2.9.1.1. Lung cancer incidence

For the five year period 2006-2010 there were on average 676 new diagnoses of lung cancer each year in Hampshire. The incidence of lung cancer in Hampshire is lower than the England average (33.6/100,000 compared to 45.8/100,000 in 2008/10). The rate is 1.5 times higher in men than in women. The trend in incidence in women is flat and the trend for men is slightly downward.

Figure 9 shows that the local authority areas with the areas of higher deprivation – Eastleigh, Havant, Gosport and Rushmoor have the highest incidence rates with lower rates in the more affluent authorities of East Hampshire, Fareham and Hart. There has been no significant change in incidence in any local authority between 2000/02 and 2009/11. In Gosport and Rushmoor incidence in women was significantly above the England rate until recently.

Figure 9: Lung Cancer incidence by local authority and CCG

* 2008-2010 reported for England & South East

Local Authority

- England
- South East
- Basingstoke and Deane
- East Hampshire
- Eastleigh
- Fareham
- Gosport
- Hart
- Havant
- New Forest
- Rushmoor
- Test Valley
- Winchester

Data Source: South West Cancer Register, ONS, UKCIS.
2.9.1.2 Lung cancer survival

Survival rates for lung cancer in England are generally low compared to other developed countries. Overall, of all the people diagnosed with all types of lung cancer in the UK, about 29 out of 100 men and about 33 out of 100 women will live for at least 1 year after diagnosis. About 8 out of every 100 men diagnosed (8%) and 9 out of every 100 women (9%) will live for at least 5 years after diagnosis. Estimates of the proportion of patients who survive their cancer for one and five years for Hampshire show that one year relative survival for lung cancer in Hampshire is 28.4% - this is not significantly different from the England rate of 29.7%. However, the 5 year relative survival rate of 6.9% for Hampshire is worse than the England rate of 8%, although this does not quite reach significance.

Relative survival provides an estimate of the percentage of people still alive after the specified years from their diagnosis whilst taking into account the background mortality in the general population. The estimates are not age standardised. The five year survival rate in Hampshire will be the result of a range of factors which may include more advanced stage at diagnosis; delays in diagnosis and treatment; and treatment variation and co-morbidity, particularly in older people.

2.9.1.3 Lung cancer mortality

Lung cancer accounts for the highest number of cancer deaths in Hampshire each year. There were 566 deaths from lung cancer in 2011 – about 17% of all cancer deaths.

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Figure 10: Lung Cancer mortality trend (persons)

The mortality rate from lung cancer in Hampshire is 19.9/100,000 - significantly lower than the England rate (25.7/100,000) and the overall trend is downward (figure 10). The trends for males and females show that the mortality rate is declining in males but not in females. This is likely to reflect historical smoking patterns in women as lung cancer takes many years to develop.

2.9.2 Bowel Cancer

Bowel or colorectal cancer is the 3rd most common cancer in the UK. Most bowel cancers are in the colon, with just over 1 in 3 in the rectum. In most people, the exact cause of bowel cancer is unknown but a diet low in fruit, vegetables and fibre, drinking above the recommended amount of alcohol, being overweight or obese and not being physically active are all considered to increase the risk of developing bowel cancer. About 1 in 20 cases of bowel cancer are caused by inherited conditions. Nine out of ten bowel cancers are diagnosed in people over 50 years old.

There is a national screening programme for bowel cancer that is covered in the section on cancer screening programmes. There is no association between deprivation and the incidence of colorectal cancer, but there are significant associations between increasing deprivation and poorer survival. The reasons for this could include later stage at presentation, poorer access to or uptake of screening, diagnostic and treatment services, the presence of significant comorbidities, and/or variations in the quality and effectiveness of treatment services.

2.9.2.1 Bowel cancer incidence

The incidence of bowel cancer in Hampshire in 2008/10 was 47.7/100,000; in line with the England average (47.9/100,000). Bowel cancer is more common in men than women in Hampshire – the rate is about 1.5 times higher. There is a rising trend in incidence in both men and women. The variation in incidence rates between local
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authorities is not statistically significant (figure 11). North East Hampshire and Farnham CCG has the lowest rate of bowel cancer. In 2010 934 people in Hampshire were diagnosed with bowel cancer – 425 women and 509 men.

2.9.2.2 Bowel cancer survival
Survival rates for bowel cancer in England are generally low compared to other developed countries. As with many other types of cancer, the outcome of colon or rectal cancer depends on how advanced it is (the stage of the cancer) when it is diagnosed.

Of all the people in England and Wales diagnosed with colon or rectal cancer, more than 50 out of every 100 live for at least 5 years after their diagnosis. Recent estimates show that about 46 out of every 100 people with rectal cancer and nearly 50 out of every 100 with colon cancer live for at least 10 years. This has improved considerably over the past 30 years.¹⁷

One and five year relative survival rates for bowel cancer in Hampshire are 77% and 57.9% respectively. These are significantly better than the England rates of 74.8% and 53.1%. Although the Hampshire survival rates are better than the England rate we still have a lot to do to achieve the survival rates in the best performing countries in Europe.

Figure 11: Bowel cancer trend incidence by local authority and CCG

2.9.2.3 Bowel cancer mortality

Bowel cancer accounts for the second highest number of cancer deaths in Hampshire each year. There were 371 deaths in 2011 – about 11% of cancer deaths. The Hampshire mortality rate (8.38/100,000) is significantly lower than the England rate (9.9/100,000) and the overall trend is downward in both males and females.

Figure 12: Bowel cancer mortality trend (persons)
2.9.3 Breast Cancer

Breast cancer is the most common cancer in the UK and 99% of cases affect women. It does not cause the greatest number of cancer deaths in women and many women live with and beyond a breast cancer diagnosis. Breast cancer risk increases with age. 81% of cases occur in women aged 50 years and over while nearly half (48%) of all cases of breast cancer are diagnosed in the 50-69 age group. There are some hormonal factors that increase the risk of breast cancer: starting periods early and having a late menopause; having no children or having them late in life and taking hormone replacement therapy or the contraceptive pill. Lifestyle factors increase the risk, particularly alcohol intake and increased body weight. 18

Breast cancer risk is increased if you have had breast cancer before or if someone in your family has. It is particularly increased for women carrying one of the identified breast cancer genes BRAC1, BRAC2, TP53 or PTEN. About 10-15% of breast cancers are thought to be due to a genetic abnormality. Breast cancer is more common in the most affluent groups as many risk factors for breast cancer are more common in more affluent women, but survival is poorer in more deprived groups. There is a national screening programme for breast cancer that is covered in the section on cancer screening programmes later in the chapter.

2.9.3.1 Breast cancer incidence

The incidence of breast cancer in Hampshire in 2008/10 was 124.5/100,000 and is the same as the England average. The trend in Hampshire has been slightly downwards since 2004-06. There is variation in incidence rates between local authorities as we would expect but this does not reach significance.

Fareham has seen a significant increase in incidence between 2000/02 and 2009/11. North East Hampshire and Farnham CCG has a significantly lower rate of breast cancer than the other Hampshire CCGs. In 2010 1,054 women were diagnosed with breast cancer in Hampshire.

2.9.3.2 Breast cancer survival

Age-standardised relative survival rates for breast cancer in England during 2005/2009 show that 95.8% of women are expected to survive their disease for at least one year, falling to 85.1% surviving five years or more. A common misconception is to treat five-year survival rates as ‘cure’ rates. For breast cancer, survival continues to fall beyond five years after diagnosis and ten year survival is 77%.

Breast cancer survival varies by age at diagnosis. For most cancers relative survival decreases with age but breast cancer is unusual in that women diagnosed in their 50s and 60s have consistently higher survival rates than either younger or older women. It has been suggested that survival rates for younger women diagnosed with

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breast cancer are lower because the types of breast cancer diagnosed in pre-menopausal women tend to be more aggressive.\(^\text{19}\)

**Figure 13: Breast cancer incidence by local authority and CCG**

Estimates of one and five year relative survival rates for breast cancer in Hampshire are 77% and 57.9% respectively. These are significantly better than the England rates of 74.8% and 53.1%. Relative survival for breast cancer in England is improving and is generally attributed to faster diagnosis improvements in treatment, raised awareness and the NHS Screening Programme. However, there is still scope for improvement.

One-year relative survival rates have been used as an indicator of early diagnosis, since death before one year is likely to be due to the disease being diagnosed at a

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late stage. While relative survival rates are still influenced by early diagnosis after five years, they are also strongly dependent on the success of treatment.

2.9.3.3 Breast cancer mortality
Breast cancer accounted for the fourth highest number of cancer deaths in Hampshire in 2011. There were 240 deaths - about 7% of cancer deaths. The mortality rate from breast cancer in Hampshire is 20/100,000 -in line with the England rate and the overall trend is downward.

Figure 14: Breast cancer mortality trend

![Breast cancer mortality trend](image)

Key - Primary data represents Hampshire mortality rate: Reference data represents England rate. Source: South West Public Health Observatory from Office for National Statistics data

2.9.4 Prostate cancer
Prostate cancer is now the most common cancer in men in the UK (excluding non melanoma skin cancer). Age is the most significant risk factor. More than half of all cases are diagnosed in men over 70. It is rare in men under 50. Other risk factors include a family history of prostate or breast cancer (the genes associated with breast cancer are linked to a higher risk of prostate cancer), ethnicity (prostate cancer is more common in black and mixed race men than white or Asian men) and there is a possible link to diet and exercise.

Prostate cancer is very slow growing and many cancers will never cause any symptoms. About one in six men will develop prostate cancer during their lifetime and one in thirty-six will die from it.

The UK National Screening Committee does not recommend screening for prostate cancer as currently there is no clear evidence that screening does more good than

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harm.\textsuperscript{21} There is no single effective screening test for early prostate cancer in healthy men. There is considerable demand for the test that is available – the Prostate Specific Antigen (PSA) test - amongst men worried about the disease. In response to this, the Prostate Cancer Risk Management Programme was introduced in September 2002\textsuperscript{22}. The use of the PSA blood test does not reliably detect prostate cancer and cannot distinguish between prostate cancers that will be the cause of death and those that won't. \textsuperscript{23}

A lot of research has been carried out into prostate cancer screening in recent years. A review of 6 large prostate cancer screening trials reported in 2010. It found that screening increased the number of men diagnosed with early stage prostate cancer, but screening did not reduce deaths from prostate cancer or help men to live longer. A 20 year Swedish study reported in 2011 and also found that prostate cancer screening in the general population has very limited benefit.\textsuperscript{24}

2.9.4.1 Prostate cancer incidence

The incidence of prostate cancer in Hampshire is 98.3/100,000 lower than both the England (106.4/100,000) and South East (104.95/100,000) rates. In 2010 almost 900 (899) men were diagnosed with prostate cancer. The age standardised incidence varies between local authorities – rates tend to be higher in Hart, New Forest and Winchester and lower in Havant, Gosport and Rushmoor. The trend has been rising in England but is declining in Hampshire.

\textbf{Figure 15: Incidence of prostate cancer}

![Incidence of prostate cancer](http://www.cancerresearchuk.org/cancer-help/type/prostate-cancer/about/prostate-cancer-risks-and-causes)

\textsuperscript{21} http://www.cancerresearchuk.org/cancer-help/type/prostate-cancer/about/prostate-cancer-risks-and-causes
\textsuperscript{22} About the Prostate Cancer Risk Management Programme
\textsuperscript{23} Ablin RJ The great prostate mistake New York Times March 2010
\textsuperscript{24} Screening for prostate cancer : Cancer Research UK : CancerHelp UK
Differences in incidence are likely to be partly due to differences in the way that men present with symptoms that could be due to prostate cancer and local clinical practice of PSA testing.

There are no routinely collected data in the UK with which to monitor the extent to which men are being tested for prostate cancer. The Cancer Screening Evaluation Unit investigated the rate of PSA testing in asymptomatic men in primary care and found that the overall annual rate of testing in men with no prior diagnosis of prostate cancer was 6.0 per 100 men. The rate decreased with increasing social deprivation, and increasing proportions of black and Asian populations. The overall rate of PSA testing increased significantly from 1999 to 2002. If the recommendations of the NHS Prostate Cancer Risk Management Programme were applied, 14 per cent of asymptomatic tests and 23 per cent of symptomatic tests would have led to referral. As the rate of PSA testing is rising and there are uncertainties about the benefit of screening there will be implications for workload and costs in general practice and hospitals.

2.9.4.2 Prostate cancer mortality
Prostate cancer accounts for the third highest number of cancer deaths in Hampshire with 245 deaths in 2011. The mortality rate (7.67/100,000) is broadly in line with the England rate and the trend is downwards (figure16).

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http://www.cancerscreening.nhs.uk/prostate/prostate-testing-england-wales.html
3. Projected service use

By 2030 it is anticipated that there will be 3 million people in England living with and beyond cancer. Nearly two thirds of survivors are over 65. The latest research by Macmillan (June 2013) estimates that by 2020 almost one in two (47%) people living in the UK will get cancer in their lifetime (an increase of more than a third over the last 20 years) but more than one in three (38%) will not die from it. Macmillan describes this as a ‘Herculean’ challenge for the NHS but there will be impacts across health and social care and wider society.

As age is a major risk factor for cancer the growth in the number of people getting cancer is largely due to the improvement in life expectancy and as the Hampshire population ages we can expect a rise in the number of cancers. The reduction in the proportion of those diagnosed who die of their cancer is because of a greater focus on early diagnosis, advances in cancer treatments and better cancer care.

However, the risk factors for specific cancers are increasing and this is likely to impact on cancer incidence. For example the rising trend in obesity and alcohol misuse are likely to lead to increased numbers of cancers but it is difficult to forecast the impact. Lifestyle risk factors disproportionately affect deprived groups who have less favourable outcomes from cancer and this means that we may well see an increase in cancer inequalities.

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As new cancer screening programmes are established incidence may increase in the short term as well as need for treatment.

Due to improved diagnosis and treatment overall survival is high for children and young people who develop cancer. This means that there are growing numbers of children, young people and adults who have survived childhood cancer who will have specific needs.27

An increasing number of people are now surviving cancer or living with it for many years and some will develop second and even third primary cancers. There is growing evidence that many cancer patients do not return to full health after intensive treatments and are left with the serious physical and psychological side effects of the disease and treatment. These survivors have needs that are often not met by traditional cancer services. Future services will need to be developed to ensure that cancer survivors receive the care and support that they need to maintain their independence.

An increase in the number of people getting cancer means an increase in the number of people caring for someone with cancer. Many carers are likely to be older and some will be in poor health themselves. There will be an increased need for support services for carers.

The cancer incidence projections project funded by Cancer Research UK is recreating the projections that were published in 2011 to take account of updated cancer registration data from 2011 and is expected to report revised projections very soon.

4. Current services in relation to need

4.1 Prevention

About four in ten cancers could be prevented through lifestyle changes such as not smoking, keeping a healthy body weight, cutting back on alcohol, eating a healthy balanced diet, keeping active, avoiding certain infections, such as HPV, staying safe in the sun and reducing cancer-related workplace risks (Research for the Health and Safety Executive estimates that over 8,000 cancer deaths per year in Britain are related to occupational exposure).

Prevention offers the most cost effective long term strategy for the control of cancer and requires a whole society approach. Smoking is the single largest preventable risk factor and is addressed in the JSNA chapter on tobacco control. The diagram in figure 17 devised by Cancer Research UK28 illustrates the proportion of cancers that could be prevented by changing known lifestyle and environmental factors.

Infection with the Human Papilloma Virus (HPV) is the major cause of cervical cancer. A national programme of HPV vaccination to protect girls from getting

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cervical cancer (see chapter on immunisation) began in 2008. It is important to maximise and maintain good uptake of the HPV vaccine.

4.2 Secondary Prevention
There is increasing evidence that lifestyle changes can reduce the risk of recurrence for cancer survivors, the impact of side effects of treatment and so improve quality of life and reduce costs to the NHS and the benefits system. The clearest evidence is for physical activity in survivors of breast, bowel and prostate cancer.  

We do not have any local data about how many cancer survivors receive advice about lifestyle changes or how many are referred to lifestyle interventions. It is important that evidence based secondary prevention is part of the cancer care pathway.

4.3 Diagnosing cancer earlier
The risk of dying from cancer and survival rates from most cancers can be improved by early diagnosis (Outcomes Strategy). Awareness of symptoms and prompt access to healthcare services are key for increasing early diagnosis for cancers. The Hampshire health economy has been working together with the Central South Coast Network to support the National Awareness and Early Diagnosis Initiative (NAEDI).

4.4 Screening
Cancer screening is an important way to detect cancer early and for cervical cancer, to prevent cancer. Over 5% of cancers are detected through screening. Not everyone who could benefit from screening accesses services and we know that often the people at the highest risk are the least likely to take it up. National screening programmes call people for screening who are registered with a GP so individuals who are not registered will not be invited. This may include some of the most vulnerable groups, such as gypsies and travellers thus increasing health inequalities. 

There are three cancer screening programmes in the UK for cervical, breast and bowel cancer. On 1 April 2013, Public Health England (PHE) assumed responsibility for the national elements of the cancer screening programmes including Quality Assurance. PHE commissions NHS England to commission the local screening programmes. Local authorities have a responsibility to support, review and where necessary, challenge delivery of NHS screening programmes. Hampshire CCGs and GP practices will continue to support cancer screening programme as part of their key role in preventing premature mortality and reducing health inequalities.

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**Figure 17: The Proportion of Cancers in the UK Linked to 14 Lifestyle and Environmental Factors**

Although there are some things we can’t control about our cancer risk, decades of research have clearly shown that by living a healthier life, people can reduce the risk of developing the disease. But how many cancers in the UK are really caused by things we can change?

This diagram shows the results of new research funded by Cancer Research UK, which aims to show the number of cancer cases in the UK that could be prevented by lifestyle and environmental factors, like being a non-smoker, keeping a healthy weight, drinking less alcohol, eating a healthy, balanced diet, and avoiding being exposed to certain infections or radiation.

The sizes of the boxes show the total number of cancers of each type from the latest UK incidence figures, and the larger bars in the centre of each line show the proportion of these cases that could be prevented in men and women. Around the outside, you’ll see the lifestyle and environmental factors that are linked to each cancer type. On the left is the contribution of each lifestyle factor to cancer overall.
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4.4.1 Cervical Screening
About 2,900 women are diagnosed with cervical cancer in the UK each year. Of every 100 cancers diagnosed in women 2 are cervical cancers. It is the most common cancer in women under 35 years old. Cervical cancer incidence is related to age but with two peaks in the age-specific incidence rates: the first in women aged 30-34 (at 21.2 per 100,000 women) and the second in women aged 80-84 (at 14 per 100,000 women). Over three quarters of cervical cancers occur in women aged 25-64.

Human papilloma virus (HPV) is the major cause of the main types of cervical cancer. Almost all women who get cervical cancer have had past infections with HPV but most women infected with HPV do not develop cervical cancer. Other risk factors include smoking, a weakened immune system (eg HIV/AIDS or immunosuppressive drugs), taking the contraceptive pill, having a large family (> 7 children) and giving birth young (under 17), and family history.

Cervical cancer incidence rates have decreased dramatically since the late 1980s following the introduction of the national NHS cervical screening programme in 1988. Rates reached a plateau in the early 2000s.

In Hampshire there are on average 67 cases of cervical cancer each year and 21 deaths (0.6% of all cancer deaths). The numbers are too small for meaningful analysis at a smaller geography.

Cervical Cancer Screening Programme
The NHS cervical cancer screening programme aims to prevent women who are screened developing invasive cervical cancer and reduce the number of women who die from it. Early detection and treatment can prevent 75% of cancers. All women between the ages of 25 and 64 are eligible for a free cervical screening test every three to five years. To improve the effectiveness of the programme, screening is offered at different intervals depending on age. Women aged 25-49 are screened 3 yearly and women aged 50-64 are screened 5 yearly. Women over 60 are screened if they have not been screened since the age of 50 or have had recent abnormal smears.

Improving Outcomes: A Strategy for Cancer (Jan 2011) announced the roll out of HPV testing across England as triage (sorting) for women with mild or borderline cervical screening test results and as a test of cure for treated women. Where HPV testing is used, women whose test shows mild dyskaryosis or a borderline test result are tested for HPV. This can speed up referral where required and avoid referral where HPV is not found. HPV testing was introduced into the Hampshire screening programmes in 2012.

For the 3 years to March 2012 overall cervical screening coverage in Hampshire was 78.5%, below the national target rate of 80% but above the England rate of 75.4%. This is of concern. Due to the demographic profile of Hampshire we would expect cervical screening coverage to be at or above the target rate. West Hampshire CCG has the highest coverage at 79.5% (figure 18). Nationally and locally the trend in coverage has been stable and below the target rate for at least two years.
Coverage differs by age group: coverage in the 50-64 age group exceeds the target at 81.6% (79.9% in England) while coverage for women age 25-44 is 77% (73.4% in England). North Hampshire CCG has the lowest coverage in younger women at 75%. There is variation in coverage between GP practices with a range between 66.6% and 86.5%.

Maintaining high coverage is essential for the effectiveness of the programme—evidence suggest that if overall coverage of 80% is achieved it is possible to prevent 95% of deaths from cervical cancer.

4.4.2 Breast Cancer Screening

The aim of the NHS Breast Cancer Screening Programme is to reduce breast cancer mortality through early detection of breast cancers. Eligible women aged 50 to 70 years are routinely invited for screening every 3 years. The national screening programme is being extended to include women aged 47 to 73 years.

There has been much debate about the benefits of breast screening. The national review to look at the benefits and harms of breast cancer screening commissioned by the Department of Health was published in October 2012. It estimated that, based on current screening coverage, screening prevents about 1,300 deaths per year but results in approximately 4,000 women aged 50-70 years having unnecessary treatment and that for each breast cancer death averted about three women will be over diagnosed and treated. The review received a lot of media attention and generated debate regarding the benefits of breast screening to the individual. It is important that GPs and practice nurses are familiar with the findings to support informed choice for patients.

The success of a local programme is measured by screening coverage and uptake rates. Coverage is defined as the percentage of women in the population who are eligible for screening at a particular point in time, who have had a test with a recorded result within the preceding 3 years. The minimum standard for coverage is

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70%. Uptake is defined as the percentage of eligible women in the population who have had an adequate screen in the preceding 12 months within 6 months of invitation.

Coverage for the 3 year period to March 2012 was 73.6% across Hampshire, just above the England rate of 72.5%. Coverage was above the England rate for all CCGs, with 77% of practices achieving the minimum coverage target of 70%. West Hampshire CCG had the lowest coverage at 72.6%. (Figure 19) There is wide variation in coverage within each CCG and despite the relatively high coverage there were 46,469 eligible women in Hampshire who were not screened. The numbers of women screened and not screened by CCG are set out in the table in figure 20.

Figure 19: Breast Cancer Screening Coverage by CCG

Figure 20: Breast Cancer Screening coverage – number of women screened and not screened by CCG for 36 month coverage period to March 2012

<table>
<thead>
<tr>
<th></th>
<th>Number of eligible women</th>
<th>Number of women screened (%)</th>
<th>Number of women not screened (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hampshire</td>
<td>175,997</td>
<td>129,528 (73.6)</td>
<td>46,469 (26.4)</td>
</tr>
<tr>
<td>Fareham &amp; Gosport CCG</td>
<td>27,063</td>
<td>20,077 (74.2)</td>
<td>6,986 (25.8)</td>
</tr>
<tr>
<td>North East Hampshire &amp; Farnham CCG</td>
<td>25,500</td>
<td>19,056 (74.7)</td>
<td>6,444 (25.3)</td>
</tr>
<tr>
<td>North Hampshire CCG</td>
<td>26,241</td>
<td>19,849 (75.6)</td>
<td>6,392 (24.4)</td>
</tr>
<tr>
<td>South Eastern Hampshire CCG</td>
<td>28,774</td>
<td>21,062 (73.2)</td>
<td>7,712 (26.8)</td>
</tr>
<tr>
<td>West Hampshire CCG</td>
<td>74,061</td>
<td>53,780 (72.6)</td>
<td>20,281 (27.4)</td>
</tr>
</tbody>
</table>

Uptake in Hampshire for the 12 months to March 2012 was 77.3% and above the England average of 74.3% in all CCGs although there is variation within individual CCGs. Uptake was above 80% in 25 practices but less than 70% in 72 practices, including 25 practices where uptake was less than 50%.
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Screening uptake in women aged 50-52 in Hampshire is noticeably lower than for other age groups (figure 21). Uptake among women aged 50-52 was lower than in women aged 53-70 years in North, North East and South Eastern Hampshire CCGs, with a downward trend in North East Hampshire and Farnham. This is consistent with national findings and may reflect the fact that more women in this age group are likely to be working in paid employment and may have practical challenges in attending for screening. The results of a review of screening women out of hours commissioned by the NHS Breast Screening Centre are expected this year.32

**Figure 21: Breast Cancer Screening uptake in Hampshire by Age Group**

Analysis of screening coverage by Hampshire GP practice deprivation quintile shows a general relationship between increased deprivation and decreased coverage (figure 22). This is consistent with what is known nationally.33 Greater levels of deprivation are associated with poor screening uptake.

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Although breast cancer incidence is higher amongst affluent groups outcomes are poorer for women in deprived groups and early diagnosis and treatment is important for good outcomes in all women.

4.4.3 Bowel cancer screening

The aim of the NHS bowel cancer screening programme is to detect early signs of bowel cancer in the asymptomatic population aged 60 –74 years. Men and women are offered screening using a self-administered Faecal Occult Blood testing kit every two years. Evidence suggests that implementation of bowel cancer screening should reduce bowel cancer mortality by around 16% in the screened population.

Coverage for the period to March 2012 was 61.1% across Hampshire against a target of 60% and much higher than the England rate of 52.1%. Although the target was met across Hampshire one in four (84,251) eligible people missed out on screening. There is variation in coverage between the CCGs (figure 23). The highest coverage is in West Hampshire CCG (63.4%) while coverage in North East Hampshire and Farnham, North Hampshire and South Eastern CCGs falls below the target rate.

Coverage was below 60% in Rushmoor, Gosport, Havant, Basingstoke and Deane and Waverley. We might expect this picture as these are the local authority areas with higher levels of deprivation. No local authority had a coverage rate below the England rate. Almost 55% of practices (82) had a coverage rate of at least 60%. The coverage rate was less than 50% in 9 practices.
Uptake in Hampshire for the 12 months to March 2012 was 61.2% compared to the England rate of 55.3%. Previous analyses and mapping of bowel screening uptake showed that uptake tended to be lower in areas of deprivation and the screening programmes have undertaken focused work to improve uptake in these areas.

This work requires updating and a health equity audit of bowel screening would enable us to identify any improvement in uptake and help identify the areas and population groups who are not taking up screening.

4.5 Ensuring better treatment
It is important that people with suspected and diagnosed cancer have appointments, tests and treatments in a timely fashion both to improve their outcomes and their experience of health services. There are a number of specific pathways that have been introduced to support timely care for cancer and those with suspected cancer. In 2011/12 the targets showed that the population of Hampshire had good access to these services.

4.5.1 Two week waits
To improve early diagnosis of cancer all people who are referred for investigation of suspected cancer should be seen within two weeks (the two week wait rule). In Hampshire in 2011/12 97.7% of people referred in this way were seen within 2 weeks. This is better than the England average of 96.3%. Across all cancers, 25% of patients are being diagnosed through the Two Week Wait.

4.5.2 Emergency presentation
People who have their cancer diagnosed as a result of an emergency hospital admission have a worse one year survival rate than those who present through other routes. Nationally 23% of newly diagnosed cancers present as emergencies. The proportion of emergency presentations varies widely between cancer types (e.g. melanoma 3%; brain and central nervous system 58%) and by age. People aged

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34 Cancer Waiting Times | National Cancer Action Team Routes to Diagnosis
35 Cancer Waiting Times | National Cancer Action Team Routes to Diagnosis
under 25 and over 75 were the most likely to present as emergencies. A socio-economic gradient was also observed, with more affluent people being less likely to present as emergencies.\textsuperscript{34}

There is variation in emergency presentation rates between CCGs (22.3\% in North Hampshire to 25.6\% in South Eastern Hampshire) with wider variation between practices from 3.5\% to 45.8\%. Some of this variation will be due to small numbers of new cancers in individual practices but some will be due to variations in clinical practice.\textsuperscript{29} The rate of emergency hospital presentation of new patients with cancer provides a useful indication of the extent of early/late diagnoses in a population.

5. User and provider views

Up to March 2013 clinical involvement and advice to commissioners and public and patient involvement was secured through the Cancer Network Site Specific Groups for each tumour site, and through generic groups run by the network, all of which involve patient participation. User views are also captured through GP patient participation groups and CCG engagement events.

6. Evidence of what works

- The National Institute for Health and Care Excellence (NICE) has produced many evidence based cancer guidelines, covering areas from referral for suspected cancers through diagnosis to treatment for specific cancer.\textsuperscript{36}
- The National Cancer Outcomes Strategy produced by the Department of Health outlines the Government’s plans for improving cancer outcomes.\textsuperscript{37}
- National Awareness and Early Diagnosis Project (NAEDI) is supporting research into what works to improve early diagnosis.\textsuperscript{38}

There are many cancer-specific evidence based publications and research studies underway, for example:

- Commissioning Toolkit for Skin Cancer Prevention and Early Diagnosis Programmes Guidance for Primary Care Trusts and others involved in the commissioning process. Public Health England (SWPHO) 2009\textsuperscript{39}
- Improving diagnosis of cancer. A toolkit for general practice 2012\textsuperscript{40}
- Cochrane Review 2011. Interventions targeted at women to encourage the uptake of cervical screening.\textsuperscript{41}
- NIHR HTA research programme. Strategies to increase cervical screening uptake at first invitation (STRATEGIC). Research underway, due to report in 2017.\textsuperscript{42}

\textsuperscript{36} National Institute for Health and Care Excellence
\textsuperscript{37} The national cancer strategy - Publications - side Government - GOV.UK
\textsuperscript{38} Partners in Cancer Research - www.ncri.org.uk - National Cancer Research Institute
\textsuperscript{39} http://www.swpho.nhs.uk/skincancerhub/resource/view.aspx?QN=COTK_DEFAULT
\textsuperscript{40} http://www.rcgp.org.uk/clinical-and-research/clinical-resources/~media/Files/CIRC/Cancer/Improving%20Cancer%20Diagnosis%20-%20A%20Toolkit%20for%20General%20Practice%20(2).ashx
\textsuperscript{41} http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002834.pub2/abstract;jsessionid=41A60CAA65D46802792A361E7F47234.d01t01
\textsuperscript{42} http://www.hta.ac.uk/2542
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7. Recommendations

- Increase the focus on preventing cancer by continuing work to reduce the known risk factors for cancer – smoking, obesity, unhealthy diet, alcohol and lack of physical activity.
- To reduce mortality rates we need to increase the early diagnosis of cancer by increasing awareness of the early symptoms of cancer in the population and amongst healthcare professionals.
- Review emergency presentations of cancer in Hampshire and explore ways in which they can be reduced as they are associated with a poorer prognosis.
- Improve screening uptake and coverage across all the cancer screening programmes.
- Ensure that cancer waiting time targets continue to be met.
- Review services for cancer survivors, including the provision of secondary prevention, and ensure that their needs are being met.
- To reduce inequalities in cancer outcomes we need to ensure that services are accessible to those groups of people at the highest risk of cancer and those who have poorer outcomes from treatment.