Cancer in Kent: Equity Review

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Kent & Medway Public Health Servatory

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1. Summary

This Cancer Equity Review provides an overview of cancer in Kent, with a particular focus on the extent to which inequalities exist in either levels of need, or the level of service provided. The report covers all cancers combined, as well as separate in-depth analysis for three key cancer sites: breast, colorectal and lung. It should be noted that this document has <u>not</u> been prepared for the purposes of performance management, but rather as a narrative on inequalities in Kent.

1.1 Key Recommendations & Call To Action

Alongside cardiovascular disease, cancer is one of the biggest killers in Kent, with cancer recorded as the underlying cause of death in 29% of mortalities in 2014. Amongst the under 75's cancer is by far the biggest killer, recorded as the underlying cause of death in 43% of premature mortalities in 2014.

In 2013, more than 7,500 new cancer cases were diagnosed in Kent. It has been estimated that, as of the end of 2010, more than 40,000 people in Kent were living with and beyond cancer up to 20 years after diagnosis¹. Projection models estimate that between 60,000 and 80,000 people in Kent will be living with and beyond cancer by 2030².

Key Recommendations

- 1. Focus on men
 - There are marked outcome inequalities by gender, with incidence, mortality and years of life lost all higher for men in Kent than women.

2. Reduce Inequalities by deprivation

- There are also marked outcome inequalities by deprivation, with mortality and years of life lost higher amongst more deprived groups for all cancers combined, and for lung cancer.
 - Lung cancer mortality rates are increasing quickest amongst the most deprived groups. This indicates that inequalities are widening between the most and least deprived groups.
- Emergency presentation rates are also higher for more deprived groups indicating that people from more deprived communities may have cancer care continuity deficits when compared with cancer care for patients in less deprived communities.

3. Improve early detection

- Early stage (stage 1 & 2) diagnosis performance in Kent is slightly below the England average. Early stage cancer detection is key to cancer survival prospects.
- Cancer survival rates and in particular one year survival prospects differ across CCG's with Swale and Thanet CCGs having a concerning combination of low survival rates and low rates of survival improvement trends.
- Urgent GP referral rates vary markedly across the County, with the East Kent CCGs having higher referral rates than elsewhere.

¹ Source: (Local Cancer Intelligence)(a collaboration between Macmillan Cancer Support and Public Health England's National Cancer Intelligence Network (NCIN))

² Source: (Local Cancer Intelligence). Two prevalence estimates have been provided. Scenario 1 assumes people will continue to get and survive cancer at increasing rates in line with recent trends, and the general population will continue to grow and age. Scenario 2 assumes people will continue to get cancer at the rate they do today, and that survival rates will remain as they are.

Call to Action

Public Health England

 Gender inequalities indicate that further action is required to target health promotion/prevention and cancer risk awareness messaging among the male population. Consideration should also be given to ensuring that such action is delivered in ways that are likely to be effective among at risk male groups.

NHS England

- Reinforcement to GPs of the importance of early diagnosis in achieving improved survival rates and their central role in achieving this. A particular focus may be required in Swale and Thanet, where one-year survival rates are not only lower than elsewhere in Kent, but are also improving at a slower rate.
- Reinforcement to GPs of the role of urgent referrals in efforts to improve early cancer diagnosis
 - A list of 60 GPs in Kent with low referral rates is available for targeted activity
 - Practices with low referral rates are more likely to be single-handed and less likely to be seeing high rates of cancer patients
- Communication of the need to particularly focus on at risk male patients and those from more deprived backgrounds

NHS Ashford CCG

- Communication of the need to focus on male patients and those from more deprived backgrounds to manage higher need levels and improve outcomes is required.
 - o Inequalities by deprivation in Kent for lung cancer appear to be widening.
- Reinforcement of the importance of early diagnosis in achieving improved survival rates and reducing emergency presentations.
 - The data suggests that only 55% of all cancer cases in Ashford are detected at an early stage (1 or 2) and just 19% of lung cancer cases.³
 - In Ashford, the proportion of colorectal cancers diagnosed early (30%) is lower than the England average, and the emergency presentation rate is higher.
- Work is needed to help support efforts to improve uptake of bowel cancer screening. There is a link between GP practices with low approval ratings from patients and low screening rates.
- Further work is needed to understand the high levels of urgent GP referrals seen in the East Kent CCGs, including Ashford.

³ Based only on those cases with staging data recorded

NHS Canterbury & Coastal CCG

- Communication of the need to focus on male patients and those from more deprived backgrounds to manage higher need levels and improve outcomes is required.
 - o Inequalities by deprivation in Kent for lung cancer appear to be widening.
- Reinforcement of the importance of early diagnosis in achieving improved survival rates and reducing emergency presentations.
 - The data suggests that only 58% of all cancer cases in Canterbury & Coastal are detected at an early stage (1 or 2) and just 27% of lung cancer cases.⁴
- Work is needed to help support efforts to improve uptake of bowel cancer screening. There is a link between GP practices with low approval ratings from patients and low screening rates.
- Further work is needed to understand the high levels of urgent GP referrals seen in the East Kent CCGs, including Canterbury & Coastal.

NHS Dartford, Gravesham & Swanley CCG

- Communication of the need to focus on male patients and those from more deprived backgrounds to manage higher need levels and improve outcomes is required.
 - o Inequalities by deprivation in Kent for lung cancer appear to be widening.
- Reinforcement of the importance of early diagnosis in achieving improved survival rates and reducing emergency presentations.
 - The data suggests that only 48% of all cancer cases in Dartford, Gravesham & Swanley are detected at an early stage (1 or 2) and just 24% of lung cancer cases.⁵
 - In Dartford, Gravesham & Swanley, the overall emergency presentation rate is higher than the Kent and England averages and the early diagnosis rate lower. The proportion of urgent GP referrals seen within 2 weeks is also lower than the England average.
- Work is needed to help support efforts to improve uptake of bowel cancer screening, with screening rates lower in Dartford, Gravesham & Swanley than the England average. There is a link between GP practices with low approval ratings from patients and low screening rates.

⁴ Based only on those cases with staging data recorded

⁵ Based only on those cases with staging data recorded

NHS South Kent Coast CCG

- Communication of the need to focus on male patients and those from more deprived backgrounds to manage higher need levels and improve outcomes is required.
 - o Inequalities by deprivation in Kent for lung cancer appear to be widening.
- Reinforcement of the importance of early diagnosis in achieving improved survival rates and reducing emergency presentations.
 - The data suggests that only 51% of all cancer cases in South Kent Coast are detected at an early stage (1 or 2) and just 29% of lung cancer cases.⁶
 - In South Kent Coast, the proportions of breast and colorectal cancers diagnosed early are both lower than the England average.
- Work is needed to help support efforts to improve uptake of bowel cancer screening. There is a link between GP practices with low approval ratings from patients and low screening rates.
- Further work is needed to understand the high levels of urgent GP referrals seen in the East Kent CCGs, including South Kent Coast.

NHS Swale CCG

- Communication of the need to focus on male patients and those from more deprived backgrounds to manage higher need levels and improve outcomes is required.
 - o Inequalities by deprivation in Kent for lung cancer appear to be widening.
- Reinforcement of the importance of early diagnosis in achieving improved survival rates and reducing emergency presentations.
 - The data suggests that only 42% of all cancer cases in Swale are detected at an early stage (1 or 2) and just 11% of lung cancer cases.⁷
 - One-year survival and early diagnosis rates in Swale are amongst the lowest in the country, and well below the England averages.
- Work is needed to help support efforts to improve uptake of bowel cancer screening. There is a link between GP practices with low approval ratings from patients and low screening rates.

⁶ Based only on those cases with staging data recorded

⁷ Based only on those cases with staging data recorded

NHS Thanet CCG

- Communication of the need to focus on male patients and those from more deprived backgrounds to manage higher need levels and improve outcomes is required.
 - o Inequalities by deprivation in Kent for lung cancer appear to be widening.
- Reinforcement of the importance of early diagnosis in achieving improved survival rates and reducing emergency presentations.
 - The data suggests that only 49% of all cancer cases in Thanet are detected at an early stage (1 or 2) and just 23% of lung cancer cases.⁸
 - One-year survival and early diagnosis rates in Thanet are well below the England averages.
- Work is needed to help support efforts to improve uptake of bowel cancer screening, with screening rates lower in Thanet lower than the England average.
- Further work is needed to understand the high levels of urgent GP referrals seen in the East Kent CCGs, including Thanet.

NHS West Kent CCG

- Communication of the need to focus on male patients and those from more deprived backgrounds to manage higher need levels and improve outcomes is required.
 - o Inequalities by deprivation in Kent for lung cancer appear to be widening.
- Reinforcement of the importance of early diagnosis in achieving improved survival rates and reducing emergency presentations.
 - The data suggests that only 54% of all cancer cases in West Kent are detected at an early stage (1 or 2) and just 25% of lung cancer cases.⁹
- Work is needed to help support efforts to improve uptake of bowel cancer screening. There is a link between GP practices with low approval ratings from patients and low screening rates.

1.2 CCG-Level Summaries

Graphical CCG-Level summaries are provided in Annex A.

⁸ Based only on those cases with staging data recorded

⁹ Based only on those cases with staging data recorded

2. Cancer in Kent: All Cancers

2.1 Introduction

Alongside cardiovascular disease, cancer is one of the biggest killers in Kent, with cancer recorded as the underlying cause of death in 29% of mortalities in 2014. Amongst the under 75's cancer is by far the biggest killer, recorded as the underlying cause of death in 43% of premature mortalities in 2014.

In 2013, more than 7,500 new cancer cases were diagnosed in Kent. It has been estimated that, as of the end of 2010, more than 40,000 people in Kent were living with and beyond cancer up to 20 years after diagnosis¹⁰.

Cancer prevalence is predicted to increase significantly over the next 20 years. Projection models estimate that between 60,000 and 80,000 people in Kent will be living with and beyond cancer by 2030¹¹.

2.2 Need

The chart below provides a summary of a range of measures of the level of need in relation to cancer in Kent, in comparison with England as a whole.

Chart 2.2(i)



There is evidence to suggest that incidence, mortality and years of life lost are all slightly lower in Kent than is the case for England as a whole. However, it is also the case that survival rates are slightly lower, and prevalence rates slightly higher¹².

¹⁰ Source: (Local Cancer Intelligence)(a collaboration between Macmillan Cancer Support and Public Health England's National Cancer Intelligence Network (NCIN))

¹¹ Source: (Local Cancer Intelligence). Two prevalence estimates have been provided. Scenario 1 assumes people will continue to get and survive cancer at increasing rates in line with recent trends (except for prostate cancer), and the general population will continue to grow and age, and predicts a 94% increase in cancer prevalence by 2030. Scenario 2 assumes people will continue to get cancer at the rate they do today, and that survival rates will remain as they are. The estimates are therefore driven by a growing and ageing population only, and predict a 52% increase in cancer prevalence by 2030.

¹² As measured by the QoF.

Data notes:

1. Cancer prevalence (crude rate), 2012/13 – Source: (Health and Social Care Information Centre) (from QOF)

2/3. Incidence of cancer (Directly age-standardised registration rates (DSR) per 100,000, ICD10 C00-C97 excl. C44), 2010-12 - Source: (Health and Social Care Information Centre)

4/5. Mortality from cancer (Directly age-standardised rates (DSR) per 100,000, ICD10 C00-C97), 2013, 2011-13 - Source: (Health and Social Care Information Centre)

6. Years of life lost due to mortality from cancer (Directly age-standardised rates (DSR) per 10,000, ICD10 C00-C97, Under 75's), 2010-12 - Source: (Health and Social Care Information Centre)

7. Survival following diagnosis of cancer (5-Year directly age-standardised net survival rates), Patients diagnosed 2008 (followed up to 31 December 2013) – Source: (ONS: Index of Cancer Survival)

The chart below compares these same summary metrics by gender, where data availability allows¹³.



Chart 2.2(ii)

In Kent, both incidence and mortality rates for all cancers are far lower for women than men. Years of life lost are also lower for women.

¹³ This has not been possible for Prevalence or 5-year survival.

2.2.1 Incidence

Key Points:

- The historic long-term trend in incidence rates is upward
 - However, there is some evidence to suggest that incidence rates may now be stabilising, or even decreasing (for men particularly)
- In terms of equity, cancer incidence rates are higher amongst:
 - o Men
 - Those living in more deprived areas
 - Older people

The chart below shows trends in directly standardised incidence rates for all cancers in Kent (excluding non-melanoma skin cancers) by sex.

Chart 2.2.1(i)



Cancer incidence rates for all cancers are higher for men than women. In 2012, the directly standardised incidence rate FOR men in Kent was almost a third higher than for women. For both men and women in Kent the historic long-term trend is upward. However, there is some evidence to suggest that incidence rates may now be stabilising, or even decreasing (for men particularly).

For both men and women, cancer incidence rates in Kent are lower than the England averages.

In terms of international comparisons, data is available on incidence rates for all cancers except nonmelanoma skin cancers (ICD10: C44). Whilst the UK average is well below the European Union average for men, the reverse is true for women (i.e. incidence rates amongst women in the UK are far higher than the European Union average). The chart below provides a similar analysis for those under the age of 75¹⁴.

Chart 2.2.1(ii)



Whilst it is still true that incidence rates are higher for men, the gap between men and women is far less pronounced for the under 75's, although there is evidence to suggest that the gap has widened. The directly age-standardised incidence rate for men aged under 75 in Kent was 18% higher than for women for 2010-12 (but just 7% higher for 2007-09).

There is evidence to suggest that incidence rates in Kent are increasing amongst the under 75s.

The chart below shows incidence rates amongst the under 75's at District-level¹⁵ for 2009-11 and 2010-12.



Chart 2.2.1(iii)

The level of variation is not particularly pronounced, though incidence rates for Dover and Thanet are significantly higher than several other Districts.

Figures for 2007-09 and 2008-10 are available broken down to PCT-level, and suggest that incidence rates amongst the under 75's were probably higher for Eastern & Coastal Kent PCT than for West Kent PCT.

¹⁴ Please note that data is only available as 3-year rolling averages.

¹⁵ Analysis is not currently available by CCG.

Using Ward-level data from the Kent & Medway Cancer Network, analysis of age-standardised incidence rates by deprivation (using Ward-level IMD estimates) shows the degree of variation in incidence by deprivation quintile (Chart 2.2.1(iv))¹⁶.



Note the data for Chart 2.2.1(iv) above include non-melanoma skin cancer (ICD10: C44).

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for all-age mortality of 234 (with a 95% confidence interval of 120 to 348), and a Gini coefficient of 2.6%.

This is suggestive of a deprivation related equity gradient, with more deprived population groups having modestly higher incidence rates. The age-standardised incidence rate for the most deprived quintile in Kent for all cancers, including non-melanoma skin cancer, is 13% higher than for the least deprived.

¹⁶ Please note that throughout this report, analyses by deprivation using IMD are subject to ecological fallacy (i.e. that group data is being used to draw conclusions about individuals).

The chart below shows how crude incidence rates for all cancers (excluding non-melanoma skin cancer) vary by age.

Chart 2.2.1(v)

similar by gender.



This shows how incidence increases sharply with age, reflecting the natural epidemiology of the disease process.

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a large Gini coefficient of 64.4%¹⁷.

The chart below provides an analysis of standardised incidence rates by cancer type.



Chart 2.2.1(vi)

¹⁷ Since there is clearly a non-linear relationship between age and crude incidence rates, it is not appropriate to consider the Slope Index of Inequality.

2.2.2 Mortality

Key Points:

- The overall trend in mortality rates is downward
 - However, there is some evidence to suggest that cancer mortality rates in Kent started rising again in 2013
- In terms of equity, cancer mortality rates are higher amongst:
 - o Men
 - Those living in more deprived areas
 - o Older people
- There is also evidence to suggest that cancer mortality rates are higher in Thanet than some other Kent CCGs
- Further analysis of equity by age and sex demonstrates that, whilst crude mortality rates across all cancers are higher for men than women in the 55+ age range, the reverse is true for those aged under 55. Amongst this younger age group, women have higher mortality rates than men.
- Deprivation related pre-mature mortality gradients are particularly marked.
- For men, standardised mortality rates are highest for lung cancer (despite incidence levels being highest for prostate cancer), followed by prostate cancer and colorectal cancer.
- For women, it is also the case that the highest mortality rates are seen for lung cancer (despite incidence levels being highest for breast cancer), followed by breast cancer and colorectal cancer.

The chart below shows trends in directly standardised mortality rates for cancer in Kent by sex.





Whilst the historic long-term trend in mortality from cancer is downward, there is some evidence to suggest that mortality rates in Kent started rising again in 2013 (despite an apparent slowing down in the historic increases in incidence). Data for the rest of the country is only available up to 2012, so it is not yet possible to determine whether or not this reflects a national trend.

What is clear is that there is a gap between men and women in respect of mortality from cancer, with men in Kent far more likely to die from the disease than women, particularly in the older age groups.

Using 2012 as the basis for comparison, mortality rates from cancer in Kent are lower than the England average for both men and women. In comparison with European averages, cancer mortality rates for men in the UK are lower than the EU average, but far higher for women.

The charts below show how mortality rates for all cancers vary by CCG.



Chart 2.2.2(ii)

Chart 2.2.2 (ii) above suggests that all-age and premature mortality rates may be higher in Thanet than most of the other Kent CCGs.

Chart 2.2.2(iii) on the following page shows a similar analysis of mortality rates by CCG separately for males and females. On the basis of this analysis, there is evidence to suggest that mortality rates may be higher in Thanet than in many other Kent CCGs for both men and women.



The charts below show how crude mortality rates from cancer vary by age.





Chart 2.2.2(iv) shows how mortality rates increase sharply with age, reflecting the natural epidemiology of the disease process.

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a large Gini coefficient for 2014 of 75.5%¹⁸.

Chart 2.2.2(v) on the following page shows a similar analysis of mortality rates by age separately for men and women.

¹⁸ Since there is clearly a non-linear relationship between age and crude mortality rates, it is not appropriate to consider the Slope Index of Inequality.

Chart 2.2.2(v)





Further analysis using the (Public Health England Inequalities Analysis Tool), suggests a slightly higher Gini coefficient for men than women (78.8% vs 72.2%), suggesting that a slightly higher level of inequality exists for men.

This analysis also shows that, whilst crude mortality rates across all cancers are higher for men than women in the 55+ age range, the reverse is true for those aged under 55. Amongst this younger age group, women have higher mortality rates than men. This holds true across all Kent CCGs except Swale and Thanet, were mortality rates are higher for men for both age groups.

The charts below show how age-standardised mortality rates from cancer vary by deprivation quintile.

Chart 2.2.2(vi)



Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for all-age mortality of 101 (with a 95% confidence interval of 41 to 160), and a Gini coefficient of 5.7%. The Slope Index of Inequality (SII) for premature mortality is 51 (with a 95% confidence interval of 7 to 96), and a Gini coefficient of 5.9%.

This is suggestive of a deprivation related equity gradient, with more deprived population groups having higher mortality rates. The age-standardised all-age mortality rate for the most deprived quintile in Kent is 39% higher than for the least deprived (with the disparity 56% when only premature deaths from cancer are considered).

Charts 2.2.2(vii) on the following page show a similar analysis of mortality rates by deprivation separately for men and women. This suggests that there is an equity issue in relation to deprivation for both genders, but with a steeper gradient for men.



Source: PCMD, prepared by KMPHO (LL-Y), Feb 2015 *2014 figures are standardised using 2013 population estimates

Source: PCMD, prepared by KMPHO (LL-Y), Feb 2015

It has not been possible to conduct analysis of mortality rates by ethnicity.



The chart below provides an analysis of mortality rates by cancer type.

Chart 2.2.2(viii)

The chart shows that, for men, standardised mortality rates are highest for lung cancer (despite incidence levels being highest for prostate cancer), followed by prostate cancer and colorectal cancer. For women, the highest mortality rates are seen for lung cancer (despite incidence levels being highest for breast cancer), followed by breast cancer and colorectal cancer. (Excluding breast, ovarian and cervical cancer) mortality rates are much higher for men than women for most of the major cancer types (the exceptions being melanoma and stomach cancer).

The chart below shows a similar analysis for premature mortality.



Chart 2.2.2(ix)

As is the case for all-age mortality, premature mortality rates for men are highest for lung cancer. When premature mortality is considered, lung cancer is followed by oesophageal cancer as well as prostate cancer and colorectal cancer. For women, premature mortality rates are highest for lung and breast cancer, but this is followed by ovarian cancer as well as colorectal cancer. As is the case for all-age mortality (excluding breast, ovarian and cervical cancer) premature mortality rates are generally higher for men than women for the major cancer types (the exceptions being melanoma and stomach cancer).

2.2.3 Years of Life Lost

Key Points:

- The overall trend in years of life lost is downward
 - However, there is some evidence to suggest that years of life lost due to cancer in Kent started rising again in 2013
- In terms of equity, years of life lost due to cancer are higher amongst:
 - o Those living in more deprived areas
 - o Older people
- There is also evidence to suggest that years of life lost due to cancer are higher in Thanet than some other Kent CCGs
- For men, years of life lost are highest for lung cancer (in line with mortality rates), followed by colorectal cancer and oesophageal cancer.
- For women, it is also the case that the highest levels of years of life lost are seen for breast cancer, followed by lung cancer, and then colorectal cancer and ovarian cancer.

There are a number of possible approaches to the calculation of years of life lost. This section adopts an approach designed to mirror that used by the (Health and Social Care Information Centre) in the years of life lost information published on their indicator portal. Rates are shown per 10,000, as per the HSCIC approach.

The chart below shows trends in years of life lost due to mortality from cancer in Kent by sex.



As with mortality rates, the trend in years of life lost is not completely clear. The long-term trend in years of life lost due to mortality from cancer is downward, but there is some evidence to suggest that this may no longer be the case (based on 2013 and 2014 figures).

Chart 2.2.3(i)

Historically there has been a clear gap between men and women with regard to years of life lost due to cancer mortality, with more years of life lost amongst men than women. The latest data suggest that this trend may no longer be the case. Due to the volatile nature of this measure, it is unclear how the trend in years of life lost and the differences between the male and female trend will play out in the future. It should also be noted that a relatively small change in premature death rates among younger age groups can disproportionately influence the overall years of life lost measure, thus distorting its interpretation. In 2014 there were 31 cancer deaths amongst women aged under 40, and 273 deaths amongst women aged under 60, compared with 22 and 209 cancer deaths respectively amongst men within these age groups. In 2013 the same number of men under 40 died from cancer as women (27), and slightly more men under 60 (231 compared with 219 women aged under 60). In the case of females, this subtle change in the mortality age distribution is what has driven the shift in direction for 2014.

The charts below show how standardised rates of years of life lost due to cancer vary by CCG.



Chart 2.2.3(ii)



The lack of consistency in the trend charts make it difficult to draw any robust conclusions in respect of differences across CCGs. However, it appears that years of life lost due to mortality from cancer may be higher in Thanet than some other Kent CCGs.

The charts below show how age-standardised years of life lost due to mortality from cancer vary by deprivation quintile.



Chart 2.2.3(iii)



Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for years of life lost due to mortality from cancer of 94 (with a 95% confidence interval of 60 to 128), and a Gini coefficient of 9.6%.

This suggests that there is an equity issue in relation to deprivation in respect of years of life lost. The age-standardised rate of years of life lost for the most deprived quintile in Kent is 62% higher than for the least deprived.



The chart below provides an analysis of years of life lost by cancer type.

Chart 2.2.3(iv)

Chart 2.2.3(iv) shows that, for men, years of life lost are highest for lung cancer (in line with mortality rates), followed by colorectal cancer and oesophageal cancer. For women, years of life lost are highest for breast cancer, followed by lung cancer, colorectal cancer and ovarian cancer. (Excluding breast, ovarian and cervical cancer) years of life lost are generally higher for men than women for the major cancer types (the exceptions being colorectal cancer and stomach cancer).

2.2.4 Prevalence

Key Points:

- The overall trend in cancer prevalence is upward
- In terms of equity, prevalence is higher amongst:
 - Those living in less deprived areas
 - o Older people
- There is also evidence to suggest that cancer prevalence is marginally higher in South Kent Coast and Thanet than some other Kent CCGs
- Whilst both incidence and mortality rates are higher in the most deprived areas, the
 extent of the inequality is rather different. Inequalities in incidence are modest in
 comparison with inequalities in mortality, suggesting that survival prospects for those
 diagnosed with cancer are better in the least deprived areas. To some extent this might
 explain the higher prevalence rates observed in the least deprived areas, as the survival
 prospects for patients with cancer in these areas better.

Local Cancer Intelligence (a collaboration between Macmillan Cancer Support and Public Health England's National Cancer Intelligence Network (NCIN)) estimates that as of the end of 2010, more than 40,000 people in Kent were living with and beyond cancer up to 20 years after diagnosis. The chart below shows estimated prevalence figures by CCG (both in terms of the numbers of individuals and the % of the registered population (unstandardised)).



Chart 2.2.4(i)

The QOF register provides an alternative measure of cancer prevalence. Prevalence figures derived from this source are likely to underestimate true prevalence, and are certainly significantly lower than the Local Cancer Intelligence figures presented above.

That said, QOF figures are useful as an indicator of trends and enabling sub-analysis (e.g. by deprivation).

The chart below shows prevalence figures as recorded via the QOF between 2009/10 and 2013/14¹⁹.



Chart 2.2.4(ii)

These figures suggest that cancer prevalence, as measured via the QOF, is lower in both Dartford, Gravesham & Swanley CCG and Swale CCG than the other Kent CCGs. Note: Local Cancer Intelligence figures for 2010 do not support this finding. However, both sources seem to suggest that prevalence rates are marginally higher in South Kent Coast CCG and Thanet CCG than elsewhere.

 $^{^{\}rm 19}$ Please note that these figures are $\underline{\rm not}$ age-standardised.

Chart 2.2.4(iii) below shows how cancer prevalence rates vary by deprivation quintile (calculated via the IMD quintile of the GP practice).

Chart 2.2.4(iii)



Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for cancer prevalence of -1% (with a 95% confidence interval of -1% to 0%), and a Gini coefficient of 4.2%.

This suggests that there is an equity issue in relation to deprivation in respect of prevalence, but with the relationship such that the highest prevalence rates (as measured by the QoF) are seen in the GP practices in the <u>least</u> deprived areas. In 2013/14, the prevalence rate for the least deprived quintile in Kent was 28% higher than for the most deprived.

This could be the result of differing degrees of inequality in incidence and mortality rates across all cancers. Whilst both incidence and mortality rates are higher in the most deprived areas, the extent of the inequality is rather different. Inequalities in incidence are modest in comparison with inequalities in mortality, suggesting that survival prospects for those diagnosed with cancer are better in the least deprived areas. This could then lead to a higher prevalence overall for the least deprived groups, as many more patients survive (and so contribute to the background prevalence pool) than is the case for the most deprived groups. It is also worth noting that these prevalence rates are not age-standardised, which could also have an influence over the findings.

The chart below shows the profile of those living with and beyond cancer by time since diagnosis.





This data suggests that, in 2010, around half of those living with and beyond cancer in Kent were diagnosed at least 5 years prior to that. New cancer cases (i.e. those diagnosed that year) account for around 1 in 7. The profile is relatively consistent across CCGs, and similar to that for England as a whole.

2.2.5 Five-Year Survival

Key Points:

• The overall trend in 5-year survival rates is upward

The chart below shows the trend in five-year survival rates for cancer at the Kent & Medway Cancer Network level²⁰.





Chart 2.2.5 shows a steady increase in five-year cancer survival rates. The average rate of increase over the period shown is around three-quarters of a percentage point per year.

Five-year survival rates in Kent & Medway are slightly lower than for England (47.4% vs 49.0% for cases diagnosed in 2008). In comparison with European averages, survival rates in Kent are low²¹.

It has not been possible to analyse survival rates for Kent specifically by other equity divisions such as age, deprivation and ethnicity.

²⁰ Please note that it has not been possible to source five-year survival rates at a more local level, or for more recent cases. The available data covers cases diagnosed between 1997 and 2008.

²¹ Source: (Eurocare), which gives the England average 4-5 year survival rate for 2000-2007 combined as 44.2% and the European average as 47.3%.

2.3 Service

2.3.1 Early Diagnosis

Key Points:

- Around two-thirds of patients in Kent diagnosed with cancer survive for at least one-year.
- However, around 1 in 5 present as an emergency²², and it is estimated that only around half of cases across the County are detected at an early stage (1 or 2).

Early diagnosis is key to good survival rates, with treatments both simpler and more effective when cancers are detected at an early stage. The chart below summarises performance against five measures of early diagnosis approximated to the acute trusts in Kent.



²² These percentages are calculated as proxy measures for the proportion of tumours diagnosed following an initial emergency presentation into secondary care. Inpatient HES Data have been used to calculate the proportion of tumours identified in HES that first presented as an emergency to secondary care. Cancer registrations have been used to exclude records of on-going treatment or treatment for recurrence from any calculations.

Data Notes:

1. % Diagnosed at Stage 1 or 2, 2012 - Source: (Cancer Commissioning Toolkit) – 'Staging by cancer site'. Data is published at CCG-level and has been mapped approximately to acute trusts²³

2. 1-Year Survival Rate, 2012 - Source: (ONS: Index of Cancer Survival). Data is published at CCG-level and has been mapped approximately to acute trusts

3. % Emergency Presentations, July-December 2012 - Source: (Cancer Commissioning Toolkit) – 'Emergency presentations'. Data is published at CCG-level and has been mapped approximately to acute trusts.

4. Urgent GP (Two-Week Wait) Referrals (Crude Rate), 2013 – Source: (Cancer Commissioning Toolkit) – GP Profile. Data represents the crude rate per 100,000 population. Data is published at CCG-level and has been mapped approximately to acute trusts.

5. % Urgent GP Referrals With Cancer, 2013 - Source: (Cancer Commissioning Toolkit) – GP Profile. Data represents the proportion of urgent referrals for cancer that go on to be diagnosed with cancer. Data is published at CCG-level and has been mapped approximately to Acute trusts.

This analysis shows around two-thirds of patients in Kent diagnosed with cancer survive for at least one-year. However, around 1 in 5 present as an emergency²⁴, and it is estimated that only around half of cases across the County are detected at an early stage.

There are differences evident across the County. The data extracted from the Cancer Commissioning Toolkit suggests that for Dartford & Gravesham NHS Trust, the emergency presentation rate is higher than elsewhere and that fewer patients are diagnosed while their cancer is still at an early stage.

²³ For the purposes of this analysis, CCGs have been mapped to acute trusts as follows: Dartford Gravesham & Swanley CCG to Dartford & Gravesham NHS Trust, West Kent CCG to Maidstone and Tunbridge Wells NHS Trust, and all remaining CCGs to East Kent Hospitals University NHS Foundation Trust.

²⁴ These percentages are calculated as proxy measures for the proportion of tumours diagnosed following an initial emergency presentation into secondary care. Inpatient HES Data have been used to calculate the proportion of tumours identified in HES that first presented as an emergency to secondary care. Cancer registrations have been used to exclude records of on-going treatment or treatment for recurrence from any calculations.

2.3.1.1 Stage at Diagnosis

Key Points:

- Data coverage is low. In 2012, just 59% of cancer cases in Kent had staging data recorded
- Early stage diagnosis rates vary markedly across cancer types
 - 95% of melanomas, 79% of breast cancers and 61% of prostate cancers are diagnosed at Stage 1 or 2
 - Just 24% of lung cancers are diagnosed this early stage

The chart below shows the available data on cancer staging for cancer in Kent. This measure includes the proportion of cases for which staging data is available as well as the proportion of recorded cases diagnosed at Stage 1 or 2.



Chart 2.3.1.1(i)

It is noteworthy that staging completeness is moderately low across all 7 CCGs, ranging from 51% to 65%. The Kent average, at 59%, is the same as the England average (also 59%). Across all CCGs staging completeness is lower or markedly lower than the 70% advocated by the House of Commons Committee of Public Accounts.

Completed staging rates indicate variation across the County. In particular, Swale CCG is highlighted as having only 42% of cases diagnosed early (i.e. at Stage 1 or 2). The England average early stage diagnosis rate is 54%.

It has not been possible to analyse this aspect of early diagnosis for specific equity divisions such as sex, age, deprivation and ethnicity.

The chart below provides an analysis of stage of diagnosis by cancer type, at the Kent-level.





This analysis shows that there are large differences across cancer types in respect of early stage diagnosis. While 95% of melanomas, 79% of breast cancers and 61% of prostate cancers in Kent are diagnosed at an early stage, this is the case for just 24% of lung cancers and around 1 in 6 kidney cancers.

This goes some way to explaining the different relationships between incidence and mortality rates for different cancers. For example, incidence rates for prostate cancer show that this is by far the most commonly diagnosed cancer amongst men, but mortality rates are far lower than for lung cancer (which has a much lower incidence rate). Staging data demonstrates that as many as 61% of prostate cancer cases are diagnosed early (i.e. at Stage 1 or 2), compared with just 24% of lung cancer cases.
2.3.1.2 One-Year Survival

Key Points:

- The overall trend in one-year survival rates is upward
- In terms of equity, one-year survival rates are marginally lower in Swale and Thanet than some other Kent CCGs.
- The rate of improvement in one-year survival rates is lower in Swale and Thanet than elsewhere. This implies that these areas are likely to fall further behind in terms of one-year survival rates.
- One-year survival rates provide a measure of the success (or otherwise) of early detection, with low one-year survival rates taken here to imply poor early detection rates²⁵.

The chart below shows one-year survival rates by CCG.

Chart 2.3.1.2(i)



This analysis suggests that there may be some (nonstatistically significant) variation across Kent in respect of one-year survival rates, with survival rates for Swale and Thanet CCG residents appearing slightly lower than elsewhere in Kent²⁶.

For most of the CCGs in Kent, one-year survival rates appear to be consistent with the 69% recorded for England. The exceptions are Swale and Thanet CCGs, where one-year survival rates are lower than for England for cases diagnosed in 2012. In comparison with European averages, survival rates in Kent are low, with the gap even greater than for 5-year survival²⁷.

²⁵ While it is recognised that one-year survival rates are not completely synonymous with early detection (due to influences of other factors such as aggressiveness of treatment strategies vs quality of life considerations), it is assumed here that they are highly correlated.

²⁶ Please note that due to the slight overlaps in the confidence intervals, it isn't possible to conclude with any certainty that survival rates in Swale and Thanet are significantly below other Kent CCGs.

²⁷ Source: (Eurocare), which gives the England average up to 1 year survival rate for 2000-2007 combined as 64.4% and the European average as 70.5%.

The chart below provides an analysis of trends in the one-year survival index for all cancers, again at CCG-level.



Chart 2.3.1.2(ii)

Across all CCGs there is a clear trend of increasing one-year survival rates. However, it is evident that the rate of change (particularly since 2008) has been more rapid in some areas than others.

Linear trendlines have been fitted to the time series from 2008 onwards for each CCG²⁸. The slopes of these lines are all positive (>0), and indicate the annual rate of improvement in the one-year survival rate for the CCG. In the chart below, these slope coefficients have been compared against the latest one-year survival levels in order to identify equity issues.





²⁸ For the purposes of this analysis, linear trend lines have been selected for all CCGs. The R² estimates of the goodness of fit are 97%+ for all CCGs.

There is a positive correlation between rate of improvement and one-year survival levels (i.e. it is generally the case that the best rates of improvement are being enjoyed by those CCGs with highest survival rates).

This analysis suggests that not only has inequality across CCGs increased since 2008, but suggests that, if the current modelled annual rates of improvement continue over the next few years, inequalities across CCGs will increase further, i.e. the gap between the best and worst performing in respect of one-year survival rates will increase.

This analysis particularly highlights Swale and Thanet CCGs, as having a concerning combination of low survival rates and low rates of improvement. This implies that these areas are likely to fall further behind in terms of one-year survival rates.

It has not been possible to analysis survival rates for Kent specifically by other dimensions of interest (e.g. age, deprivation and ethnicity).

2.3.1.3 Urgent GP Referrals

Key Points:

- The short-term trend in urgent GP referral rates is upward
- In terms of equity, urgent GP referral rates are lower among:
 - Those living in the most and least deprived areas
- GP referral rates are far higher in the East Kent CCGs (Ashford, Canterbury & Coastal, South Kent Coast and Thanet) than elsewhere in the County.
- Referral rates vary considerably across GP practices. Those with low two-week wait referral rates are:
 - More likely to be in Dartford, Gravesham & Swanley CCG, Swale CCG or West Kent CCG
 - \circ $\;$ More likely to be in one of the areas falling into the lowest deprivation quintile
 - More likely to be a single-handed GP practice
 - \circ Less likely to have a high proportion of patients in the 65+ age range
 - Less likely to be seeing high rates of cancer patients (in terms of both prevalence and incidence)
 - More likely to have a lower proportion of cancer cases presenting via two-week wait referrals and more likely to have a high rate of conversion from two-week wait referral to confirmed cancer.

The chart below compares urgent GP (two-week wait) cancer referral rates across CCGs.





The figure above indicates that East Kent CCGs (i.e. Ashford, Canterbury & Coastal, South Kent Coast and Thanet) have higher referral rates than elsewhere in the County. Referrals rates in these areas are also higher than the England average (2166 per 100,000 for 2013). Referral rates are particularly high in Canterbury & Coastal, at 3,279 per 100,000 population for 2013.

Although the rates are not age and sex standardised, it is unlikely that structural demographic differences between the East and West would significantly alter the pattern of the differences observed.

The chart below shows two-week wait referral rates by deprivation quintile (calculated via the deprivation quintile of the GP practice).





There is some suggestion that referral rates are lower for both the most <u>and</u> the least deprived groups. This is perhaps contrary to expectations. Higher cancer incidence and mortality rates amongst the most deprived might be expected to translate into higher GP referral rates for this group.

Two-week wait referral rates have also been examined at GP practice level. The funnel plot below shows the distribution of crude referrals rates for individual GP practices in the context of their list size (i.e. total number of patients registered at the practices).



Chart 2.3.1.3(iii)

The funnel plot identifies statistical outliers (i.e. particularly high and low referral rates taking into account the list size of practices) and produces lists of GP practices with both particularly high and particularly low referral rates²⁹³⁰.

As noted earlier, this analysis is based on crude referral rates, and so no adjustments have been made for differences across GP practices in terms of the age and sex of their patients. Indirectly age-standardised ratios are available at GP practice level, and have been used to produce a similar funnel plot.

²⁹ Defined as those with referrals rates more than 3 standard deviations away from the mean (the calculation of the standard deviation takes account of the practice size).

³⁰ This list is based on 2013 referral rates, but has been cross-referenced and validated against a similar list generated based on the 2012 rates. In all but 2 cases, practices flagged based on 2013 rates also had high referral rates in 2012 (at least 2 standard deviations above the mean). For one of the cases the 2012 screening rate was still well above average. The other practice appears to have seen a large increase in the number of referrals being made in 2013.

Chart 2.3.1.3(iv)



Again, the funnel plot identifies statistical outliers (i.e. particularly high and low standardised referral rates taking into account the total number of referrals at practice level) and produces lists of GP practices with both particularly high and particularly low age-standardised referral rates³¹.

The age-standardised funnel plot identifies 60 GP practices³² with low standardised referral rates. Interestingly, all but 4 of these practices are also flagged as outliers by the crude referral rate funnel plot analysis³³.

³¹ Defined as those with standardised referral rates more than 3 standard deviations away from the mean (the calculation of the standard deviation takes account of the practice size).

³² Out of 209 practices studied.

³³ All four practices were found to have low crude referral rates that were more than 2 standard deviations away from the mean.

The 60 practices identified above as having low (age-standardised) referral rates have been profiled and compared against the profile of other GP practices in Kent. An index of 100 for a particular characteristic indicates that GPs with low referrals rates are equally likely to display the characteristic as other Kent GPs. Indexes over 100 indicate that GPs with low referral rates are more likely to display a characteristic (and indexes under 100, less likely).



Chart 2.3.1.3(v)

Data Notes:

The profile of the 60 GP practices identified by the funnel plot as having lower than expected standardised two-week referral rates given their list size has been indexed against the profile of other GP practices in Kent (where data is available) Data sources are as follows;

- 1. CCG: (Cancer Commissioning Toolkit) GP Profile
- 2. Deprivation Quintile: (IMD 2010 scores have been estimated at practice level, then ranked within Kent)
- 3. % of Patients Aged 65+: (Cancer Commissioning Toolkit) GP Profile
- 4. Number of GPs at Practice: (Health and Social Care Information Centre) (from Exeter System), September 2011
- 5. Rurality of GP Practice: (Health and Social Care Information Centre) (based on postcode and 2001 census), calculated 2011
- 6. Quality of GP Practice (Patient Perception): (National General Practice Profiles)(from DH, GP Patient Survey 2013/14)

The chart below provides a similar analysis for additional practice characteristics.

Chart 2.3.1.3(vi)

Profile of GP Practices With Low (Standardised) TWW Referral Rates (Cancer) - Indexed 2013, Kent			
New Cancer Cases (Incidence)	Less than 350 350-449 450-549 550+	64	139 147 110
Cancer Deaths (Mortality)	Less than 200 200-249 250-299 300+	60 🗖 90 [103 142
Cancer Prevalance	Less than 1.5% 1.5%-1.9% 2.0%-2.4% 2.5%+	85 [103
Emergency Admissions With Cancer	Less than 350 350-449 450-549 550+	83 🗖	144
TWW Conversion Rate (% With Cancer)	Less than 9 9%-<11% 11%-<13% 13.0%+	45	111 288
New Cases Presenting via TWW Referrals	Less than 40% 40%-<50% 50%-<60% 60%+	60 🛄 33 🛄	321
Source: Cancer Commissioning Toolkit - GP Profile, HSCIC, National General Practice Profile, prepared by KMPHO (RK), Jan 2015			

Data sources are as follows;

7. New Cancer Cases (Incidence): (Cancer Commissioning Toolkit) - GP Profile (Crude incidence rate per 100,000 based on persons diagnosed in 2011 with any invasive cancer excluding non-melanoma skin cancer)

11. TWW Conversion Rate (% with cancer): (Cancer Commissioning Toolkit) - GP Profile.

12. New Cases Presenting via TWW Referrals: (Cancer Commissioning Toolkit) - GP Profile.

^{8.} Cancer Deaths (Mortality): (Cancer Commissioning Toolkit) - GP Profile (Crude mortality rate per 100,000 based on deaths in 2011/12 from any invasive cancer)

^{9.} Cancer Prevalence: (Cancer Commissioning Toolkit) - GP Profile (QOF 2012/13)

^{10.} Emergency Admissions with Cancer: (Cancer Commissioning Toolkit) - GP Profile (Crude rate per 100,000 based on persons admitted to hospital as an inpatient or day-case via an emergency admission, with a diagnostic code that includes cancer, Mar 2012-Feb 2013)

Those with low two-week standardised referral rates are:

- More likely to be in Dartford, Gravesham & Swanley CCG, Swale CCG or West Kent CCG
- More likely to be in one of the areas falling into the lowest deprivation quintile
- More likely to be a single-handed GP practice
- Less likely to have a high proportion of patients in the 65+ age range
- Less likely to be seeing high rates of cancer patients (in terms of both prevalence and incidence)
- They are more likely to have a lower proportion of cancer cases presenting via two-week wait referrals <u>and</u> more likely to have a high rate of conversion from two-week wait referral to confirmed cancer.

The chart below show two-week wait conversion rates (i.e. the proportion of two-week wait referrals that lead to a cancer diagnosis) across CCGs.



Chart 2.3.1.3(vii)

This analysis suggests that conversion rates have been consistently low in Ashford, Canterbury and Coastal, and Swale CCGs.

Perhaps the other key finding is that conversion rates appear to be decreasing (while crude referral rates are increasing). The England average conversion rate has fallen steadily from 11.2% in 2010 to 10.0% in 2013.

The chart below shows two-week wait conversion rates by deprivation quintile (calculated via the deprivation quintile of the GP practice), and suggests no link between conversion rates and deprivation.





Two-week wait conversion rates have also been examined at GP practice level. The funnel plot below shows the distribution of (crude) conversion rates for individual GP practices in the context of the total number of referrals made.





The funnel plot identifies statistical outliers (i.e. particularly high and low conversion rates taking into account the total number of referrals made)³⁴.

In this respect, there is less variation across GPs than is the case for other measures (such as the number of two-week wait referrals). Just 2 GPs are highlighted as having particularly high conversion rates (i.e. rates more than 3 standard deviations away from the mean) and just 9 as having particularly low conversion rates. A similar analysis looking at 2012 conversion rates produces a similar outcome in terms of highlighting just a small number of practices as outliers (1 with a particularly high conversion rate and 7 with particularly low rates), but with no consistency between the two years in terms of the individual practices highlighted. For this reason, no further analysis of individual GP practices has been presented.

2.3.1.4 Routes to Diagnosis

Key Points:

- The overall trend in emergency presentations is downward
- In terms of equity, emergency presentation rates are higher among:
 - Those living in more_deprived areas
- Emergency presentation rates vary considerably by cancer site
- The overall trend in the proportion of ordinary inpatient admissions with a primary diagnosis of cancer that were seen as emergencies is also downward
- In terms of equity, emergency hospital admission rates are higher among:
 - Men (marginally)
 - Those living in more_deprived areas (marginally)
 - o Older people
 - People of 'White British' ethnic origin
- Emergency hospital admission rates also vary considerably by cancer site.
 - Around 3 in 5 ordinary inpatient admissions with a primary diagnosis of lung cancer are seen as emergencies
 - \circ $\;$ This is the case for less than 1 in 10 breast cancer admissions

³⁴ Defined as those with referrals rates more than 3 standard deviations away from the mean (the calculation of the standard deviation takes account of the practice size).

National research shows that one-year survival rates vary dramatically by the route to diagnosis. It was estimated that between 2006 and 2010, 98% of cancer patients diagnosed via a screening programme, and 83% of patients diagnosed via an urgent GP referral survived for at least 1 year, falling to just 49% among emergency presentations. Figures for 3-year survival are 93%, 70% and 35% respectively³⁵.

The chart below summarises experimental data on presentation route by CCG³⁶.



Chart 2.3.1.4(i)

³⁵ Source: 'Routes to Diagnosis 2006-2010' produced by the National Awareness and Early Diagnosis Initiative (NAEDI).

³⁶ This is an experimental, proxy measure for the proportion of tumours diagnosed following an initial emergency presentation into secondary care. The denominator is all tumours identified from IP HES and therefore does not include all diagnosed tumours, but HES data has the advantage of being available more rapidly than cancer registrations and therefore these proxy results are available for more recent time periods.

Using GP-level data on presentation routes published within the GP profile section of the Cancer Commissioning Toolkit, it is possible to look at presentation routes by deprivation (calculated via the deprivation quintile of the GP practice).



Chart 2.3.1.4(ii)

This analysis suggests that there may³⁷ be a link between deprivation and emergency presentations, with patients living in the most deprived areas the most likely to present as an emergency.

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for emergency presentations of 6% (with a 95% confidence interval of 3% to 9%), and a Gini coefficient of 3.9%.

³⁷ Please note that this finding is only statistically significant at the 90% level.

The chart below examines emergency presentations by cancer type and at CCG-level, for those types for which this data is available. Please note that this type-level data on route to diagnosis has been sourced from the National Awareness and Early Diagnosis Initiative (NAEDI), and so is based on older data (I.e. diagnoses made between 2006 and 2010).



Chart 2.3.1.4(iii)

This analysis demonstrates large differences in emergency presentation rates by cancer type, with lung cancers particularly likely to present in this way. Just 3-7 % of breast cancer cases presented as emergencies. In terms of variations across CCGs, these appear to be most acute for lung cancer, with emergency presentation rates varying between 34% in Dartford, Gravesham & Swanley and 46% in Thanet.

It has not been possible to further analyse this aspect of early diagnosis for Kent specifically for all cancer cases by other equity dimensions such as sex, age and ethnicity. However, it has been possible to analyse inpatient hospital admissions with a primary diagnosis of cancer by whether or not the admission was elective or an emergency.

2.3.1.5 Emergency Admissions to Hospital

The chart below shows trends in the proportion of ordinary inpatient admissions with a primary diagnosis of cancer that were seen as emergencies, by sex.





This analysis suggests that, in Kent, 28% of ordinary inpatient admissions with a primary diagnosis of cancer in 2013/14 were seen as emergencies. The data suggest a downward trend, coupled with a proportion of emergency admissions among men.

Source: SUS, prepared by KMPHO (RK), Feb 2015

Analysis has also been conducted by CCG of residence.

Chart 2.3.1.5(ii)



While historically there has been quite a high degree of variation across CCGs, the proportion of emergency admissions appears to have converged over recent years. In 2013/14 there were no statistically significant differences across CCGs.



The charts below provide an analysis by deprivation.

Chart 2.3.1.5(iii)





Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for emergency inpatient admissions of 4% (with a 95% confidence interval of -3% to 10%), and a Gini coefficient of 2.9%.

These measures are suggestive of inequality with patients living in most deprived areas having a higher proportion of admissions seen as emergencies when compared to patients living in the the least deprived fifth of LSOAs. In 2013/14 these differences accounted for a 14% gap between the upper and lower quintile groups.

Chart 2.3.1.5(iv)

The charts to the right and below examine hospital admissions by the age of the patient.

This analysis shows that, as expected, older patients are more likely to be admitted as an emergency, particularly those aged 85+.





Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Gini coefficient of 10.0%.

Analysis has also been conducted by patients' ethnicity.

Chart 2.3.1.4(v)



The charts below show how emergency admissions vary by cancer type.

Chart 2.3.1.4(vi)



There are also variations in respect of the direction of the trend in emergency admissions. While there has been a significant fall in the proportion of ordinary inpatient admissions with a primary diagnosis of prostate cancer that are emergency cases (from 32% in 2007/08, to just 15% in 2013/14), there has been little change for oesophageal cancer and melanoma over this period. Breast and stomach cancers have also seen significant reductions in the proportion of inpatient cases admitted as emergencies (from 16% in 2007/08 to 7% in 2013/14 for breast cancer, and decreasing from 53% in 2007/08 to 31% in 2013/14 for stomach cancer).

2.3.2 Treatment

In addition to early diagnosis, the level and the quality of the treatment patients receive provides a measure of the overall level of service being received by cancer patients in Kent.

The chart below provides a summary of five measures of service levels in terms of treatment for the acute trusts in Kent.





Data Notes:

1. % Urgent GP referrals for suspected cancer seen within 2 weeks, 2013/14. Source: (Cancer Commissioning Toolkit) - CCG Profile. Data is published at CCG-level and has been mapped approximately to acute trusts³⁸

2. % Treatment within 62 days of urgent GP referral for suspected cancer. Source: (Cancer Commissioning Toolkit) - CCG Profile. Data is published at CCG-level and has been mapped approximately to acute trusts

3. % Treatment within 31 days of decision to treat, 2013/14. Source: (Cancer Commissioning Toolkit) - CCG Profile. Data is published at CCG-level and has been mapped approximately to acute trusts

4. % Deaths at home, 2013. Source: PCMS. Data is produced at CCG-level and has been mapped approximately to acute trusts

5. % Cancer patients rating their care as 'excellent' or 'very good', 2014. Source: (Cancer Patient Experience Survey). Data is published at CCG-level and has been mapped approximately to acute trusts

Chart 2.3.w shows that there is little or no variation across Kent. Virtually all cancer patients start their treatment within 31 days of the decision being taken, but performance against starting treatment within 62 days of an urgent GP referral is not quite as strong. Patient satisfaction scores are high across the County, with around 90% rating their care as either 'excellent' or 'very good'. Around 1 in 4 cancer deaths occur at home.

³⁸ For the purposes of this analysis, CCGs have been mapped to acute trusts as follows: Dartford Gravesham & Swanley CCG to Dartford & Gravesham NHS Trust, West Kent CCG to Maidstone and Tunbridge Wells NHS Trust, and all remaining CCGs to East Kent Hospitals University NHS Foundation Trust.

2.3.2.1 Waiting Times

Key Points:

- While virtually all cancer patients in Kent start their treatment within 31 days of the decision being taken, performance against the two-week wait and 62-day treatment targets for urgent GP referrals are not as strong.
- While Kent CCGs are generally performing at, or close to, the 95% target for two-week wait referrals Dartford, Gravesham & Swanley appears to be the exception.

The chart below summarises the available data on waiting times for cancer patients in Kent.



Chart 2.3.2.1(i)

Data Notes:

- 1. % Urgent GP referrals for suspected cancer seen within 2 weeks, 2013/14. Source: (Cancer Commissioning Toolkit)- CCG Profile.
- 2. % Treatment within 62 days of urgent GP referral for suspected cancer, 2013/14. Source: (Cancer Commissioning Toolkit)- CCG Profile.
- 3. % Treatment within 31 days of decision to treat, 2013/14. Source: (Cancer Commissioning Toolkit)- CCG Profile.

Across all 7 CCGs, virtually all colorectal cancer patients started their treatment within 31 days of the decision being taken. Performance against the 62-day treatment target for urgent GP referrals is not as strong. Generally speaking Kent CCGs are performing at, or close to, the 95% target for urgent GP

referrals. The exception to this is Dartford, Gravesham and Swanley, where less than 95% of urgent GP referrals have been seen within 2 weeks in every Quarter of 2013/14.

It has not possible to conduct further analysis by other equity dimensions such as sex, age, deprivation and ethnicity.

2.3.2.2 Deaths at Home

Key Points: In Kent, around 1 in 4 cancer deaths were at home The long-term trend in deaths at home is upward However, there is some evidence to suggest a fall in 2013, for women particularly In terms of equity, the proportion of cancer deaths that were at home is lower among: Older people There is also evidence to suggest that Swale CCG residents are among the most likely to die at home.

It has been reported that between 50-90% of patients with cancer wish to die at home³⁹. In 2014 in Kent, just 26% of cancer deaths were at home.

The chart below shows trends in the proportion of cancer deaths taking place at home in Kent by sex.



Chart 2.3.2.2(i)

³⁹ Munday D, Dale J, Murray S; Choice and place of death: individual preferences, uncertainty, and the availability of care. J R Soc Med. 2007 May;100(5):211-5.

The historic long-term trend in deaths at home is upward for both men and women. There remains a clear gap between men and women in respect of dying at home, with men in Kent more likely to die at home than women.

It is also the case that cancer patients in Kent are less likely to die at home than the average across England (24% vs 29% for 2010-12).

Analysis has also been conducted by the CCG of residence of the patient.

Chart 2.3.2.2(ii)



The lack of consistency in the trend charts make it difficult to draw any robust conclusions in respect of differences across CCGs. However, it appears that Swale residents are more likely to die at home than those living in some other Kent CCGs.



The chart below provides an analysis by deprivation.





There are also no consistent differences by deprivation, suggesting equity of access across patients regardless of their socio-economic status.

The chart below examines deaths at home by the age of the patient.

Chart 2.3.2.2(iv)



There is evidence to suggest that older patients, aged 85+, are less likely to die at home.

Deaths at home have also been examined at GP practice level. The funnel plot below shows the distribution of the proportion of cancer deaths that take place at home for individual GP practices in the context of the total number of cancer deaths. All cancers deaths occurring between 2006 and 2013 have been pooled for the purposes of this analysis, and excludes 22 practices with less than 30 cancer deaths over this period.

Chart 2.3.2.2(v)



The funnel plot identifies statistical outliers (i.e. practices with particularly high and low proportions of cancer deaths occurring at home taking into account the total number of cancer deaths over the period) and produces a list of GP practices with particularly low rates of deaths at home⁴⁰.

Due to the small number of practices identified (11), it has not been possible to provide a robust analysis of their profile.

⁴⁰ Defined as those for whom the proportion of cancer deaths occurring at home is more than 3 standard deviations away from the mean (the calculation of the standard deviation takes account of the total number of cancer deaths).

2.3.2.3 Patient Experience

Key Points:

- Across Kent, overall ratings for patient experience are high
- In terms of equity, nationally overall ratings are lower among:
 - o Women
 - Those living in more deprived areas
 - o Ethnic minorities

• There is evidence to suggest that there are particularly issues in Swale CCG in respect of a number of the nationally identified improvement areas, including:

- GPs and nurses at their general practice doing everything they could to support them whil they were being treated
- **o** There being enough nurses on duty to care for them in hospital
- Giving families or someone close to them all the information they needed to look after them at home
- o Being given enough care and help from health and social services post discharge

The (Cancer Patient Experience Survey) provides a wealth of information on the experience of care and treatment for cancer patients in Kent. The 2014 survey covered over 70,000 NHS patients nationally with a primary diagnosis of cancer who had been seen for treatment in hospital, and over 1,900 patients in Kent.

The chart below provides an analysis of a single overall summary measure of the patient experience in Kent, defined here as the proportion of patients rating their care as 'excellent' or 'very good'.



Chart 2.3.2.3(i)

Across Kent, overall ratings are high (at 85%+ for all 7 CCGs).

The 2014 Cancer Patient Experience Survey report identified a range of opportunities for improvement nationally⁴¹. The chart below shows performance on these measures for Kent cancer patients by CCG.



Chart 2.3.2.3(ii)

This analysis highlights Swale CCG as having particular issues with a number of these improvement areas, namely:

- GPs and nurses at their general practice doing everything they could to support them while they were being treated (43%)
- There being enough nurses on duty to care for them in hospital (46%)
- Giving families or someone close to them all the information they needed to look after them at home (37%)
- Being given enough care and help from health and social services post discharge (44%)

Performance in respect of patients being asked what name they prefer to be called by is poor (in comparison with the national figures) across all Kent CCGs except Canterbury & Coastal.

⁴¹ Concern about these areas is based on lower scores, information from the 400,000 written comments made by cancer patients in the CPES since 2010, and the experience of national cancer charities on what matters to patients in active treatment, as well as on the quantitative data from CPES.

It has not been possible to analyse Patient Experience results by other equity divisions for Kent specifically, but this analysis has been conducted at a national level and found that women, those from more deprived backgrounds, and patients from ethnic minorities gave lower scores for their care overall than their counterparts. Specifically:

- Men gave slightly higher scores for 34 of the 70 measures in the survey, including their rating of their care overall
- The most deprived patients gave the lowest scores for 24 measures (including care overall), however the least deprived gave the lowest scores for 12.
- Patients from ethnic minorities gave lower scores for 21 of the 70 measures, including for their care overall
- Older patients also gave higher scores for 41 measures (but not for their care overall)

2.4 Comparison Of Service And Need

The equity footprint overleaf provides a summary comparison of service levels and need for all cancers in Kent, with respect to a number of equity characteristics.

The equity footprint demonstrates higher levels of need for men, those living in more deprived areas and older patients.

In terms of service levels, while it has not been possible to analyse most aspects of the level of service being delivered by equity characteristics at the Kent level, mismatches are flagged in terms of:

• **Emergency presentation rates** by deprivation (with the proportion of cases presenting as an emergency higher for the most deprived).

Figure 2.4



3. Cancer in Kent: Breast

3.1 Introduction

In 2014, just over 300 women in Kent died from breast cancer (ICD10: C50), with just over half of them aged under 75 (52%). Just 30% of all deaths in Kent were of under 75s.

Alongside CVD, Cancer is one of the biggest killers in Kent, with cancer recorded as the underlying cause of death in 29% of mortalities in 2014. Among women, breast cancer is the second biggest killer (behind lung cancer).

3.2 Need

The chart below provides a summary of a range of measures of the level of need in relation to female breast cancer in Kent, in comparison with England as a whole⁴².

Chart 3.2(i)



There is evidence to suggest that while incidence rates for breast cancer in Kent are lower than the England average, mortality rates and years of life lost are very similar. The available data suggests that survival rates are also similar to the England average, but this is based on data for cases diagnosed between 2005 and 2007.

Data notes:

1/2. Incidence of breast cancer (Directly age-standardised registration rates (DSR) per 100,000, ICD10 C50), 2010-12 - Source: (Health and Social Care Information Centre)

3/4. Mortality from breast cancer (Directly age-standardised rates (DSR) per 100,000, ICD10 C50), 2013/2011-13 - Source: (Health and Social Care Information Centre)

5. Years of life lost due to mortality from breast cancer (Directly age-standardised rates (DSR) per 10,000, ICD10 C50, Under 75's), 2011-13 - Source: (Health and Social Care Information Centre)

6. Survival following diagnosis of breast cancer (5-Year directly age-standardised net survival rates), Patients diagnosed 2005-07 (followed up to 31 December 2012) - Source: (Health and Social Care Information Centre)

3.2.1 Incidence

⁴²⁴² Please note that this data generally relates to 2012, so as to allow comparison with England averages. More recent local data is presented later in this report for mortality and years of life lost.

Key Points:

- The historic long-term trend in breast cancer incidence rates is fairly flat
- In terms of equity, incidence rates for breast cancer are higher among:
 - o Older women

The chart below shows trends in directly standardised incidence rates for female breast cancer in Kent.



There are a number of possible interpretations of the trend in incidence rates for female breast cancer in Kent. While the long-term trend is mostly static (or perhaps slightly upwards), it could be argued that there is evidence to suggest that incidence rates have declined since 2005.

The chart below provides a similar analysis for women under the age of 75⁴³.



⁴³ Please note that data is only available as 3-year rolling averages.

This analysis suggests that incidence rates among the under 75's may have increased slightly.

The chart below shows incidence rates among the under 75's at District-level⁴⁴ for 2009-11 and 2010-12.

Chart 3.2.1(iii)



This suggests no statistically significant variation across localities within Kent.

However, figures for 2007-09 and 2008-10 are available broken down to PCT-level, with both sets of figures suggesting that incidence rates among the under 75's were significantly lower for Eastern & Coastal Kent PCT than for West Kent PCT.

In comparison with European averages, breast cancer incidence rates in the UK are far higher.

⁴⁴ Analysis is not currently available by CCG.

The chart below shows how crude incidence rates for breast cancer vary by age.

Chart 3.2.1(iv)



This analysis shows how incidence rates increase sharply with age, reflecting the natural epidemiology of the disease process.

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Gini coefficient of 50.5%⁴⁵. This suggests that inequalities by age are less acute for breast cancer, with this Gini coefficient lower than the 64.4% observed across all cancers.

It has not been possible to analysis Kent-level incidence rates by other equity dimensions such as deprivation and ethnicity.

⁴⁵ Since there is clearly a non-linear relationship between age and crude incidence rates, it is not appropriate to consider the Slope Index of Inequality.

3.2.2 Mortality

Key Points:

- The overall trend in mortality rates is downward
 - However, there is some evidence to suggest that breast cancer mortality rates in Kent have been mostly static since 2011
- In terms of equity, breast cancer mortality rates are higher among:
 - o Older women
 - o Those living in less deprived areas (premature mortality only)

The charts below show trends in directly standardised mortality rates for female breast cancer in Kent.

Chart 3.2.2(i)



While the historic long-term trend in mortality from breast cancer is downward, there is some evidence to suggest that both premature and all-age breast cancer mortality rates in Kent have remained fairly static since 2011.

Mortality rates from breast cancer in Kent are similar to the England average. In comparison with European averages, breast cancer mortality rates in the UK are higher than the EU average.

The charts below show how mortality rates for female breast cancer vary by CCG.

Chart 3.2.2(ii)



The lack of consistency in the trend charts for both all age and premature mortality make it difficult to draw any robust conclusions in respect of differences across CCGs, other than to say that there are no consistent significant differences.
The charts below show how crude mortality rates from female breast cancer vary by age.

Chart 3.2.2(iii)



This analysis shows clearly how mortality rates increase sharply with age, reflecting the natural epidemiology of the disease process.

0

100

200

Crude Rate per 100,000

300

Source: PCMD, prepared by KMPHO (LL-Y), Feb 2015

400

500

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Gini coefficient of 66.9%⁴⁶. While still a large coefficient, it is smaller than the 73.2% observed for women across all cancers, suggesting that inequalities by age are less acute for breast cancer than cancers overall.

⁴⁶ Since there is clearly a non-linear relationship between age and crude mortality rates, it is not appropriate to consider the Slope Index of Inequality.

The charts below show how age-standardised mortality rates from female breast cancer vary by deprivation quintile.

Chart 3.2.2(iv)



Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for all-age mortality of -8 (with a 95% confidence interval of -29 to 13), and a Gini coefficient of 5.7%. The Slope Index of Inequality (SII) for premature mortality is -11 (with a 95% confidence interval of -25 to 3), and a Gini coefficient of 9.0%.

This suggests that, when all-age mortality is considered, there is insufficient evidence to suggest a significant equity issue in relation to deprivation for female breast cancer. When just premature deaths are considered, there is perhaps some evidence to suggest inequality by deprivation, with the relationship the reverse to that observed across all cancers. This analysis suggests that, in 2014,

mortality rates were higher for women living in less deprived areas⁴⁷. However, this does not necessarily hold true for all time periods, and so caution must be exercised when interpreting this result.

It has not been possible to conduct analysis of mortality rates by ethnicity.

3.2.3 Years of Life Lost

Key Points:

- The overall trend in years of life lost due to breast cancer is downward
- In terms of equity, years of life lost due to breast cancer are higher among:
 - Those living in less deprived areas

There are a number of possible approaches to the calculation of years of life lost. This section adopts an approach designed to mirror that used by the (Health and Social Care Information Centre) in the years of life lost information published on their indicator portal. Rates are shown per 10,000, as per the HSCIC approach.

The chart below shows trends in years of life lost due to mortality from female breast cancer in Kent.



Chart 3.2.3(i)

⁴⁷ Breast feeding Statistics show that if you breastfeed you are less at risk of developing breast cancer, particularly if you have your children when you are younger. We don't know exactly why this is. It may be because your ovaries don't produce eggs so often when you are breastfeeding. Or it may be because breastfeeding changes the cells in the breast and may make them more resistant to the changes that lead to cancer. (Cancer Research UK)

While the historic long-term trend in years of life lost from breast cancer is downwards, a slightly higher figure has been observed in 2014. Caution must be exercised when interpreting this result as the years of life lost measure is subject to volatility where there are higher than usual numbers of deaths among very young people. In 2014 there were 4 breast cancer deaths amongs women aged under 30, compared with just 1 such death in 2013, and just 2 in each of 2011 and 2012. It is (partly) this relatively higher number of cancer deaths among very young women that is driving the direction of travel of the 2014 result for women overall.

The charts below show how standardised rates of years of life lost due to mortality from female breast cancer vary by CCG.





The high level of variability in the trends makes it difficult to draw meaningful conclusions in respect of differences across CCGs.

The charts below show how age-standardised years of life lost due to mortality from female breast cancer vary by deprivation quintile.

Chart 3.2.3(ii)





Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for years of life lost from breast cancer of -19 (with a 95% confidence interval of -65 to 28), and a Gini coefficient of 14.5%.

This suggests that there is perhaps some evidence to suggest inequality by deprivation, with the relationship the reverse to that observed across other cancers. These data suggest that, in 2014, years of life lost were highest for women living in the least deprived areas. However, this does not necessarily hold true for all time periods, and so caution must be exercised when interpreting this result.

3.2.4 Five-Year Survival

Key Points:

• The overall short-term trend in 5-year breast cancer survival rates is flat.

The chart below shows the trend in five-year survival rates for breast cancer at the Kent & Medway Cancer Network level⁴⁸. The available data covers cases diagnosed between 2002 and 2007.

Chart 3.2.4(i)



The five-year survival rate for female breast cancer for the Kent & Medway Cancer Network area for cases diagnosed 2005-07 was 83.5%, which is noteably higher than the 46.3% 5-year survival rate for women across all cancers. 5year survival rates from breast cancer are similar in Kent & Medway to the England average (83.4%) (while survival rates across all cancers are lower in Kent & Medway than for England overall).

This series suggests that five-year survival rates for breast cancer have remained broadly static in the Kent & Medway Cancer Network area over this period.

Additional intelligence on five-year survival rates is available from ONS, but only for breast, colorectal and lung cancers combined. This information is available for single years, but up to cases diagnosed in 2008.



⁴⁸ Please note that it has not been possible to source five-year survival rates at a more local level, or for more recent cases.

This analysis evidences a steady increase in five-year survival rates for these three cancers combined, at the rate of around three-quarters of a percentage point per year.

Five-year survival rates in Kent & Medway for these three cancers combined appear to be very slightly lower than for England (51.4% vs 52.3% for cases diagnosed in 2008). Survival rates in Kent for colorectal cancer ares slightly lower than European averages. It has not been possible to analysis survival rates for Kent specifically by other dimensions of interest (e.g. age, deprivation and ethnicity).

3.3 Service

3.3.1 Early Diagnosis

Early diagnosis is key to good survival rates, with treatments both simpler and more effective when cancers are detected at an early stage.

The chart below summarises performance against seven measures of early diagnosis approximated to the acute trusts in Kent.

Early Diagnosis Measures - Breast Cancer % Diagnosed at Stage 1 or 2 90% 80% 70% 1-Year Survival Rate % Emergency 60% (Breast, Colorectal Presentations & Lung combined) 50% 40% ----- Dartford And Gravesham NHS Trust 30% East Kent Hospitals University NHS Foundation Trust 20% 10% 🛶 Maidstone And Tunbridge Wells NHS Trust Urgent GP Referrals % Presenting via Urgent GP Referral (Crude Rate) % Presenting via % of Eligible Screening Patients Screened

Chart 3.3.1(i)

Data Notes:

1. % Diagnosed at Stage 1 or 2, 2012 - Source: (Cancer Commissioning Toolkit) – 'Staging by cancer site'. Data is published at CCG-level and has been mapped approximately to acute trusts⁴⁹

2. 1-Year Survival Rate, 2012 - Source: (ONS: Index of Cancer Survival). Data is published at CCG-level and has been mapped approximately to acute trusts

3. Urgent GP (Two-Week Wait) Referrals (Crude Rate), 2013 – Source: (Cancer Commissioning Toolkit) – GP Profile. Data represents the crude rate per 100,000 population. Data is published at CCG-level and has been mapped approximately to acute trusts.

4. % of Eligible Patients Screened, 2013 - Source: (Cancer Commissioning Toolkit) - GP Profile. Data is published at GP-level and has been aggregated up to acute trusts.

5. % Presenting via Screening, 2012/13 - Source: (Cancer Commissioning Toolkit) - Service Profile. Data represents the proportion of persons diagnosed with primary breast cancer that were identified via the screening service.

6. % Presenting via Urgent GP Referral, 2012/13 - Source: (Cancer Commissioning Toolkit) - Service Profile. Data represents the number of urgent referrals for suspected breast cancer diagnosed with cancer, divided by the number of breast cancers managed.

7. % Emergency Presentations - Source: (Cancer Commissioning Toolkit) - Service Profile (2013/14). Data represents an estimate of the proportion of emergency presentations, defined as the number of emergency presentations divided by the total number of presentations. Data presented in the ' (Cancer Commissioning Toolkit) – Service Profile' attempts to express indictors as a proportion of the cohort of patients or tumours associated with the trust. Two approaches are used to match patients to trusts. Firstly, Cancer Waiting Times data is used to identify the trust at which the *decision to treat* was made. To attempt to capture as complete a diagnostic cohort as possible the second method uses a composite of Cancer Registry, Cancer Waiting Times and Hospital Episode Statistics data to allocate a trust of diagnosis.

This analysis shows that more than a quarter of breast cancer cases in Kent are detected at an early stage, and that only a tiny minority present as an emergency. Around three-quarters of those eligible are screened, and around a third of cases are screen detected. While around two-thirds of patients in Kent diagnosed with breast, colorectal or lung cancer survive for at least one-year, survival rates for breast cancer are far higher than this (95%).

There are some differences evident across the County. The data extracted from the Cancer Commissioning Toolkit suggests that both the volume of urgent GP referrals and the proportion of cases presenting via this route is higher for East Kent Hospitals University NHS Foundation Trust.

⁴⁹ For the purposes of this analysis, CCGs have been mapped to acute trusts as follows: Dartford Gravesham & Swanley CCG to Dartford & Gravesham NHS Trust, West Kent CCG to Maidstone and Tunbridge Wells NHS Trust, and all remaining CCGs to East Kent Hospitals University NHS Foundation Trust.

3.3.1.1 Stage at Diagnosis

Key Points:

- Data coverage is high. In 2012, 93% of breast cancer cases in Kent had staging data recorded
- The proportion of breast cancer cases diagnosed at an early stage is also fairly high across all 7 CCGs
- In terms of equity, there are no significant differences in early diagnosis rates across CCGs.

The chart below shows the available data on cancer staging for breast cancer in Kent. This measure includes the proportion of cases for which staging data is available as well as the proportion of recorded cases diagnosed as Stage 1 or 2.

Chart 3.3.1.1



Data coverage for 2012 is well above the 70% minimum recommended for robust analysis across all CCGs.

The proportion of breast cancer cases diagnosed at an early stage is also fairly high across all 7 CCGs, and well above the 52% observed across all cancers.

While there are apparent differences across CCGs in respect of stage of diagnosis, they are not statistically significant. Early diagnosis rates for breast cancer are slightly lower for Kent (79%) than the England average (83%).

It has not been possible to analysis this aspect of early diagnosis for Kent specifically by other equity dimensions such as sex, age, deprivation and ethnicity.

3.3.1.2 One-Year Survival

Key Points:

- One-year survival rates for breast cancer are high.
- In terms of equity, one-year survival rates for breast, colorectal and lung cancers combined are marginally lower in Swale and to a lesser extent Thanet than some other Kent CCGs.
- The rate of improvement in one-year survival rates for breast, colorectal and lung cancers combined is lower in Swale and (to a lesser extent) Thanet than elsewhere. This implies that these areas are likely to fall further behind in terms of one-year survival rates.

One-year survival rates provide a measure of the success (or otherwise) of early detection, with low one-year survival rates taken here to imply poor early detection rates⁵⁰.

The chart below shows the short-term trend in one-year survival rates for breast cancer at the Kent & Medway Cancer Network level⁵¹. The available data covers cases diagnosed between 2002 and 2007.



⁵⁰ While it is recognised that one-year survival rates are not completely synonymous with early detection (due to influences of other factors such as aggressiveness of treatment strategies vs quality of life considerations), it is assumed here that they are highly correlated.

⁵¹ Please note that it has not been possible to source survival rates for more recent cases.

The one-year survival rate for breast cancer is high compared with many other cancer sites. For the Kent & Medway Cancer Network area for cases diagnosed 2005-07, the one-year survival rate was 95.2%, which is almost identical to a figure of 95.1% for England. In comparison with European averages, survival rates in Kent for breast cancer are slightly lower⁵².

This series suggests that one-year survival rates for female breast cancer in Kent & Medway have remained static over this period.

More up-to-date intelligence on one-year survival rates is available from (ONS: Index of Cancer Survival), for breast, colorectal and lung cancers combined.



Chart 3.3.1.2(ii)

This analysis suggests that there is some variation across Kent in respect of one-year survival rates for these three cancers combined, with oneyear survival rates for Swale and possibly Thanet CCG residents appearing lower than elsewhere in Kent.

⁵² Source: (Eurocare), which gives the England average up to 1 year survival rate for 2000-2007 combined as 92.4% and the European average as 94.1%.

The chart below provides an analysis of trends in the one-year survival index for these three cancers, again at CCG-level.

Chart 3.3.1.2(iii)



From 2008 onwards, most CCGs have seen a clear trend of increasing one-year survival rates.

Linear trendlines have been fitted to the time series from 2008 onwards for each CCG⁵³. The slopes of these lines are all positive (>0), and indicate the annual rate of improvement in the one-year survival rate for the CCG. In the chart below, these slope coefficients have been compared against the one-year survival levels in 2008 (i.e. at the start of the period of interest) in order to identify equity issues

⁵³ For the purposes of this analysis, linear trend lines have been selected for all CCGs. The R^2 estimates of the goodness of fit are 99%+ for all CCGs except Swale (R^2 =76%) and Thanet (R^2 =91%).

. Chart 3.3.1.2(iv)



There is generally a positive correlation between rate of improvement and baseline one-year survival levels (i.e. it is generally the case that the best rates of improvement are being enjoyed by those CCGs that already had the highest survival rates).

This suggests that inequality across CCGs has increased over this period. The only possible exception is South Kent Coast, where the rate of improvement has been highest, but where one-year survival rates were below average in 2008 and among the lowest in the County in the late-1990s.

The chart below shows a similar analysis, but comparing the slope coefficients against the latest oneyear survival levels.



This analysis suggests that, if the current modelled annual rates of improvement continue over the next few years, inequalities across CCGs will increase and the gap between the best and worst performing in respect of one-year survival rates increase.

This analysis particularly highlights Swale CCG, and to a lesser extent Thanet CCG, as having a concerning combination of low baseline survival rates and low rates of improvement. This implies that these areas are likely to fall further behind in terms of one-year survival rates.

It has not been possible to analysis survival rates for Kent specifically by other dimensions of interest (e.g. age, deprivation and ethnicity).

3.3.1.3 Urgent GP Referrals

Key Points:

- The short-term trend in urgent GP referral rates for breast cancer is upward
- GP referral rates are slightly higher in the East Kent CCGs (Ashford, Canterbury & Coastal, South Kent Coast and Thanet) than elsewhere in the County.
- Referral rates vary considerably across GP practices. Those with low two-week wait referral rates are:
 - More likely to be in the most deprived areas
 - More likely to be a single-handed GP practice
 - o Less likely to be highly rated by their patients
 - Less likely to have a high proportion of patients in the 65+ age range
 - Less likely to be seeing high rates of cancer patients (in terms of prevalence)
 - They are more likely to have a lower proportion of cancer cases presenting via two-week wait referrals, and a high conversion rate in terms of two-week wait referrals that become confirmed cancer cases

The chart below compares urgent GP (two-week wait) cancer referral rates for breast cancer across CCGs.



Chart 3.3.1.3(i)

The figure above suggests that East Kent CCGs (i.e. Ashford, Canterbury & Coastal, South Kent Coast and Thanet) have slightly higher referral rates for breast cancer than elsewhere in the County (although the difference is less pronounced than for urgent GP referrals across all cancers). Referral rates in these areas are also far higher than the England average (391 per 100,000 for 2013). Referral rates are particularly high in Ashford, at 562 per 100,000 population for 2013.

Although the rates are not age and sex standardised, it is unlikely that structural demographic differences between the East and West would significantly alter the direction of the differences observed.

The chart below shows two-week wait referral rates for breast cancer by deprivation quintile (calculated via the deprivation quintile of the GP practice).



Chart 3.3.1.3(ii)

There is no clear evidence to suggest inequality in respect of referral rates for breast cancer by deprivation quintile.

Two-week wait referral rates have also been examined at GP practice level. The funnel plot below shows the distribution of crude referrals rates for breast cancer for individual GP practices in the context of their list size (i.e. total number of patients registered at the practice).



Chart 3.3.1.3(iii)

The funnel plot identifies statistical outliers (i.e. particularly high and low referral rates taking into account the list size of practices) and produces lists of GP practices with both particularly high and particularly low referral rates⁵⁴⁵⁵.

⁵⁴ Defined as those with referrals rates more than 2 standard deviations away from the mean (the calculation of the standard deviation takes account of the practice size). Adopting a definition of 3 standard deviations from the mean yielded insufficient practices (18) for robust analysis.

The 47 practices identified above as having low two-week wait referral rates for breast cancer have been profiled and compared against the profile of other GP practices in Kent. An index of 100 for a particular characteristic indicates that GPs with low referrals rates are equally likely to display the characteristic as other Kent GPs. Indexes over 100 indicate that GPs with low referral rates are more likely to display a characteristic (and indexes under 100, less likely).



Chart 3.3.1.3(iv)

Data Notes:

The profile of the 47 GP practices identified by the funnel plot as having lower than expected standardised two-week referral rates given their list size has been indexed against the profile of other GP practices in Kent (where data is available) Data sources are as follows;

1. CCG: (Cancer Commissioning Toolkit) - GP Profile

2. Deprivation Quintile: (IMD 2010 scores have been estimated at practice level, then ranked within Kent)

3. % of Patients Aged 65+: (Cancer Commissioning Toolkit) - GP Profile

4. Number of GPs at Practice: (Health and Social Care Information Centre) (from Exeter System), September 2011

5. Rurality of GP Practice: (Health and Social Care Information Centre) (based on postcode and 2001 census), calculated 2011

6. Quality of GP Practice (Patient Perception): (National General Practice Profiles)(from DH, GP Patient Survey 2013/14)

The chart below provides a similar analysis for additional practice characteristics.

Chart 3.3.1.3(v)



Data sources are as follows;

7. New Cancer Cases (Incidence): (Cancer Commissioning Toolkit) - GP Profile (Crude incidence rate per 100,000 based on persons diagnosed in 2011 with any invasive cancer excluding non-melanoma skin cancer)

8. Cancer Deaths (Mortality): (Cancer Commissioning Toolkit) - GP Profile (Crude mortality rate per 100,000 based on deaths in 2011/12 from any invasive cancer)

9. Cancer Prevalence: (Cancer Commissioning Toolkit) - GP Profile (QOF 2012/13)

10. Emergency Admissions with Cancer: (Cancer Commissioning Toolkit) - GP Profile (Crude rate per 100,000 based on persons admitted to hospital as an inpatient or day-case via an emergency admission, with a diagnostic code that includes cancer, Mar 2012-Feb 2013)

11. TWW Conversion Rate (% with cancer): (Cancer Commissioning Toolkit) - GP Profile.

12. New Cases Presenting via TWW Referrals: (Cancer Commissioning Toolkit) - GP Profile.

Those with low two-week wait referral rates are:

- More likely to be in the most deprived areas
- More likely to be a single-handed GP practice
- Less likely to be highly rated by their patients
- Less likely to have a high proportion of patients in the 65+ age range
- Less likely to be seeing high rates of cancer patients (in terms of prevalence)
- They are more likely to have a lower proportion of cancer cases presenting via two-week wait referrals, and a high conversion rate in terms of two-week wait referrals that become confirmed cancer cases

3.3.1.4 Routes to Diagnosis

Key Points:

Chart 3.3.1.4(i)

- The proportion of ordinary inpatient admissions with a primary diagnosis of breast cancer that are seen as emergencies is low, at 7%.
- The overall trend in this emergency admission rate is downward
- In terms of equity, emergency hospital admission rates are higher among:
 Older women

National research shows that one-year survival rates can vary dramatically by the route to diagnosis. It was estimated that between 2006 and 2010, 100% of breast cancer patients diagnosed via the screening programme survived for at least 1 year, falling to just 50% among emergency presentations. 98% of those diagnosed through an urgent (two week wait) GP referral survive for at least 1-year. Figures for 3-year survival are 99%, 35% and 91% respectively⁵⁶.





⁵⁶ Source: 'Routes to Diagnosis 2006-2010' produced by the National Awareness and Early Diagnosis Initiative (NAEDI).

This analysis suggests that the proportion of breast cancer cases presenting via urgent GP referrals is higher for patients in the East Kent Hospitals University NHS Foundation Trust area (at nearly 3 in 5) than Maidstone and Tunbridge Wells NHS Trust (where the proportion is just under half).

Presentation routes in Kent for breast cancer are similar to the England average.

CCG-level data on route to diagnosis is available from the National Awareness and Early Diagnosis Initiative (NAEDI), but is based on much older data (I.e. diagnoses made between 2006 and 2010)⁵⁷.



Chart 3.3.1.4(ii)

This analysis suggests that the pattern of route to diagnosis has historically been reasonably similar across CCGs in Kent.

It has not been possible to analyse this aspect of early diagnosis for Kent specifically by other equity dimensions such as sex, age, deprivation and ethnicity. However, it has been possible to analyse inpatient hospital admissions with a primary diagnosis of breast cancer by whether or not the admission was elective or an emergency.

⁵⁷ This could explain the apparent differences with the Trust-level data displayed earlier in this section.

3.3.1.5 Emergency Admissions to Hospital

The chart below shows trends in the proportion of ordinary inpatient admissions among women with a primary diagnosis of breast cancer that were seen as emergencies.





This analysis suggests that, in Kent, less than 1 in 10 ordinary inpatient admissions with a primary diagnosis of female breast cancer are seen as emergencies. There is evidence to suggest a clear downward trend, from nearly a fifth of ordinary admissions in 2006/07 to just 7% in 2013/14.

Analysis has also been conducted by CCG of residence.

Chart 3.3.1.5(ii)



The lack of consistency in the trend charts makes it difficult to draw any robust conclusions in respect of differences across CCGs. In 2013/14 there were no statistically significant differences across CCGs.





The charts below provide an analysis by deprivation.



Chart 3.3.1.5(iv)

There are also no consistent differences by deprivation, and so no consistent evidence of inequality across patients according to socioeconomic status.





Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Gini coefficient of 15.1%.

Analysis has also been conducted by patients' ethnicity.





This analysis suggests no significant differences according to ethnicity.

3.3.1.6 Screening

Key Points:

- Reflecting the maturity of the breast cancer screening programme, screening rates have remained fairly static between 2010 and 2013.
- By 2013, still only around 3 in 4 eligible women in Kent had been screened for breast cancer.
- In terms of equity, screening rates are slightly lower among:
 Those living in the most deprived areas
- There is also evidence to suggest that breast cancer screening rates are lower in Dartford, Gravesham & Swanley and Thanet when compared with the other CCGs.
- Screening rates vary considerably across GP practices. Those with low breast cancer screening rates are:
 - o More likely to be in a deprived area
 - More likely to have a low proportion of female patients in the eligible age range
 - More likely to have received low recommendation rates in the GP Patient Survey
 - More likely to have low rates of cancer patients (in terms of both prevalence and incidence)

The NHS Breast Screening Programme is well established, having begun in 1988. The chart below shows CCG-level screening rates among eligible patients for the period 2010-2013.



Chart 3.3.1.6(i)

Reflecting the maturity of the breast screening programme, screening rates have remained fairly static over this period in most CCGs (typically increasing by around 2 percentage points). However it is noteworthy that by 2013 only around 3 in 4 eligible women in Kent had been screened for breast cancer.

There is some slight variation in screening rates across CCGs, with screening rates in Dartford, Gravesham & Swanley and Thanet lower than the other CCGs. Interestingly, bowel cancer screening rates are also low for these two CCGs. Information on screening rates is available down to individual GP practice level, and this data has been used to investigate whether any inequalities in screening exist according to deprivation. The chart below shows the latest screening rates and screening rate trends by deprivation quintile⁵⁸.



Chart 3.3.1.6(ii)

There is evidence to suggest that screening rates are lower for the most deprived quintile.

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) of 4% (with a 95% confidence interval of -5% to 13%), and a Gini coefficient of 1.2%. In 2013, screening rates for the least deprived quintile in Kent were 6% higher than for the most deprived.

⁵⁸ Details of how this is done, i.e. that the deprivation quintile of the GP practice as identified by the CCT GP Profile has been used.

A similar analysis has been conducted based on patient perception of the quality of their GP practice as measured via responses to "Would you recommend your GP surgery to someone who has just moved to your local area?" captured through the GP Patient Survey. The indicator value is the percentage of people who answered this question with either "Yes, would definitely recommend" or "Yes, would probably recommend".

The chart below shows screening rate trends by perceptions of the quality of the GP practice.

Chart 3.3.1.6(iii)



Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) of 4% (with a 95% confidence interval of -3% to 11%), and a Gini coefficient of 0.8%.

In 2013, screening rates at the highest rated practices in Kent were 4% higher than those with the lowest scores.

Screening rates have also been examined at GP practice level. The funnel plot below shows the distribution of screening rates for individual GP practices in the context of their list size (i.e. total number of patients registered at the practice).

Chart 3.3.1.6(iv)



The funnel plot identifies statistical outliers (i.e. particularly high and low screening rates taking into account the list size of practices) and produces a list of GP practices with particularly low screening rates⁵⁹⁶⁰.

⁵⁹ Defined as those with screening rates more than 3 standard deviations away from the mean (the calculation of the standard deviation takes account of the practice size).

⁶⁰ This list is based on 2013 screening rates, but has been cross-referenced and validated against similar lists generated based on the 2010, 2011 and 2012 rates. Two apparent outliers (based on 2013 rates) have been removed so that, in all cases, practices flagged based on 2013 rates were also low performers in at least one of 2010, 2011 and 2012.

The 34 practices identified above as having low screening rates have been profiled and compared against the profile of other GP practices in Kent. Specifically, the characteristics of those GP practices identified as having low screening rates are compared with other GP practices in Kent. An index of 100 for a particular characteristic indicates that GPs with low screening rates are equally likely to display the characteristic as other Kent GPs. Indexes over 100 indicate that GPs with low screening rates are more likely to display a characteristic (and indexes under 100, less likely).

Chart 3.3.1.6(v)



Data Notes:

The profile of the 34 GP practices identified by the funnel plot as having lower than expected screening rates given their list size has been indexed against the profile of other GP practices in Kent (where data is available) Data sources are as follows;

- 1. CCG: (Cancer Commissioning Toolkit) GP Profile
- 2. Deprivation Quintile: (IMD 2010 scores have been estimated at practice level, then ranked within Kent)
- 3. % of Female Patients Aged 50-70: PCIS GP Registrations, June 2013
- 4. Number of GPs at Practice: (Health and Social Care Information Centre) (from Exeter System), September 2011
- 5. Rurality of GP Practice: (Health and Social Care Information Centre) (based on postcode and 2001 census), calculated 2011

The chart overleaf provides a similar analysis for additional practice characteristics.



Data sources are as follows;

6. Quality of GP Practice (Patient Perception): (National General Practice Profiles)(from DH, GP Patient Survey 2013/14)

7. New Cancer Cases (Incidence): (Cancer Commissioning Toolkit) - GP Profile (Crude incidence rate per 100,000 based on persons diagnosed in 2011 with any invasive cancer excluding non-melanoma skin cancer)

8. Cancer Deaths (Mortality): (Cancer Commissioning Toolkit) - GP Profile (Crude mortality rate per 100,000 based on deaths in 2011/12 from any invasive cancer)

9. Cancer Prevalence: (Cancer Commissioning Toolkit) - GP Profile (QOF 2012/13)

10. Emergency Admissions with Cancer: (Cancer Commissioning Toolkit) - GP Profile (Crude rate per 100,000 based on persons admitted to hospital as an inpatient or day-case via an emergency admission, with a diagnostic code that includes cancer, Mar 2012-Feb 2013)

Those with low screening rates are:

- More likely to be in an area falling into the most deprived quintile
- More likely to have a low proportion of female patients in the eligible age range
- More likely to have received low recommendation rates in the GP Patient Experience Survery
- More likely to have low rates of cancer patients (in terms of both prevalence and incidence)

3.3.2 Treatment

In addition to early diagnosis, the level and the quality of the treatment patients receive provides a measure of the overall level of service being received by lung cancer patients in Kent.

The chart below provides a summary of six measures of service levels in terms of treatment for the acute trusts in Kent.





Data Notes:

- 1. % Urgent GP referrals for suspected cancer seen within 2 weeks, 2012/13. Source: (Cancer Commissioning Toolkit) Service Profile.
- 2. % Treatment within 31 days of decision to treat, 2012/13. Source: (Cancer Commissioning Toolkit) Service Profile.
- 3. % Treatment within 62 days of urgent GP referral for suspected cancer, 2012/13. Source: (Cancer Commissioning Toolkit) Service Profile.

4. % Mastectomies with immediate breast reconstruction, 2011/12 – 2013/14. Source: SUS.

- 5. % Breast cancer surgeries discharged the same day, 2013/14. Source: SUS.
- 6. % Breast cancer surgeries discharged the same or next day, 2013/14. Source: SUS.

This analysis suggests that while performance on waiting times is strong across Kent, there is significant variation across the County in terms of immediate breast reconstruction for mastectomy patients, and same day discharge for other types of breast cancer surgery.

For items 4-6, data is calculated at CCG-level and has been mapped approximately to acute trusts⁶¹

⁶¹ For the purposes of this analysis, CCGs have been mapped to acute trusts as follows: Dartford Gravesham & Swanley CCG to Dartford & Gravesham NHS Trust, West Kent CCG to Maidstone and Tunbridge Wells NHS Trust, and all remaining CCGs to East Kent Hospitals University NHS Foundation Trust.

3.3.2.1 Waiting Times

Key Points:

• Virtually all breast cancer patients in Kent start their treatment within 31 days of the decision being taken, and performance against the 62-day and two-week wait targets for urgent GP referrals is at or above the 95% target for all three acute trusts in Kent.

The chart below summarises the available data on waiting times for breast cancer patients in Kent.



Chart 3.3.2.1(i)

Across Kent, virtually all breast cancer patients started their treatment within 31 days of the decision being taken and at least 95% received their treatment within 62 days of referral. For breast cancer, the target 95% of patients being seen within two weeks of an urgent GP referral was met for all three acute trusts in Kent.

It has not possible to conduct further analysis by other equity dimensions such as sex, age, deprivation and ethnicity.

3.3.2.2 Breast Reconstruction

Key Points:

- The overall trend in the proportion of mastectomy patients having immediate breast reconstruction is upward
- In terms of equity, immediate breast reconstruction rates are lower among:
 - Those living in more deprived areas
 - o Older patients
- There is also evidence to suggest that immediate reconstruction rates are higher in Swale and West Kent than other Kent CCGs

NICE state that 'People with early breast cancer who are to undergo mastectomy (should) have the options of immediate and planned delayed breast reconstruction discussed with them'. The chart below shows the proportion of female breast cancer patients in Kent undergoing a mastectomy who also had an immediate breast reconstruction.

Chart 3.3.2.2(i)



Data Notes:

% Of Mastectomies With Immediate Breast Reconstruction. Source: SUS.

Female breast cancer patients were identified via HES records where the primary diagnosis was breast cancer (ICD10: C50) Mastectomies were identified via HES episodes where the procedure code included B271-9 (OPCS4). Mastectomies with immediate breast reconstruction were identified as episodes where the procedure code included B271-9, and any of B291-9, B301, B381-9 or B391-9.

This analysis suggests that the proportion of breast cancer patients having mastectomies in Kent who have an immediate breast reconstruction has increased, from around 10% in 2006/07 (and just 6% in 2009/10), to 16% in 2013/14.

Analysis has also been conducted by CCG⁶².



Chart 3.3.2.2(ii)

This analysis suggests that there are significant differences in breast (cancer) reconstruction rates dependent on an individual's CCG of residence. Those living in either Swale or West Kent appear to be more likely to have an immediate breast reconstruction than those living elsewhere. This could suggest unstandardised clinical practice.



There is no evidence to suggest any issues with equity of access to immediate breast reconstructions by ethnicity.

Chart 3.3.2.2(iii)



⁶² This analysis has been conducted on a 3-year rolling average basis, due to low annual numbers of mastectomies in some CCGs.

The charts below show how immediate breast reconstruction rates vary by deprivation quintile.

Chart 3.3.2.2(iv)



Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for 2013/14 for immediate breast reconstruction of 23% (with a 95% confidence interval of 6% to 40%), and a Gini coefficient of 24.9%.

This suggests that there is an equity issue in relation to deprivation. For 2013/14, the proportion of mastectomy patients who had immediate breast reconstruction for the least deprived quintile in Kent was 6 times higher than for the most deprived (although it should be noted that this equity gradient has been shallower in the past).

The chart below examines immediate breast reconstruction rates by the age of the patient.

Chart 3.3.2.2(v)

There is evidence to suggest that the proportion of breast cancer patients undergoing a mastectomy who also have immediate breast reconstruction decreases sharply with age. While 29% of those aged under 55 having mastectomies in 2013/14 also had immediate breast reconstruction, this falls to 12% of women aged 65-74 and just 1% of those aged 75 or over.





Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) of 38% (with a 95% confidence interval of 32% to 45%), and a Gini coefficient of 37.0%.
3.3.2.3 23-Hour Pathway

Key Points:

- The long-term trend in the proportion of breast cancer surgery patients discharged the same or next day is upward
 - However, there is some evidence to suggest a fall in 2013/14
- In terms of equity, same/next day discharge rates are lower among:
 - Older patients (aged 75+)
- Those living in Swale CCG are less likely to be discharged the same or next day than some other Kent CCGs.

It is widely recognised that the vast majority of operations for breast cancer (excluding operations for breast construction) can be safely undertaken as a day case procedure or with a single overnight stay, with clear benefits for both the patient and the NHS. The chart below shows the proportion of female breast cancer patients in Kent undergoing surgery who were discharged the same day, and the proportion who were discharged either the same or next day⁶³.

Chart 3.3.2.3(i)



Data Notes:

% Of Breast Cancer Surgeries Discharged The Same/Next Day. Source: SUS.

Female breast cancer patients were identified via HES records where the primary diagnosis was breast cancer (ICD10: C50) Breast cancer surgeries were identified via HES episodes where the procedure codes included one of the resection OPCS4 codes identified in (NCIN 'Major Surgical Resections, 2004-06')report. Please note that this analysis excludes those patients undergoing breast reconstruction as part of the same episode.

⁶³ It has not been possible to measure precisely those discharged within 23 hours. This is definitely the case for all patients discharged the same day, but also a proportion of those discharged the next day.

This analysis suggests that, while both the proportion of breast cancer surgery patients discharged the same day, and the proportion discharged the same/next day increased significantly between 2006/07 and 2012/13, a slight decreases was evident for both trends in 2013/14. By 2013/14, almost two-fifths of breast cancer surgery patients⁶⁴ were discharged the same day (39%), and 76% the same or the next day.

The charts below provide an analysis of those discharged the same day, by CCG.





This analysis suggests that there are differences according to where within Kent breast cancer patients live. Those living in Swale particularly, but also those living in Dartford, Gravesham and Swanley, are less likely to be discharged the same day than those living elsewhere.



⁶⁴ Excluding those also having breast reconstruction

The charts below provide a similar analysis for those either discharged the same or the next day.

Chart 3.3.2.3(iii)



When those discharged the next day are included in the analysis, the proportion discharged within this timeframe is still lower in Swale than most other CCGs. Thanet is highlighted as having a particularly high proportion of patients discharged either the same or the next day.



There is no evidence to suggest any significant differences by ethnicity.

Chart 3.3.2.3(iv)



The charts below show how same day discharge rates vary by deprivation quintile.

Chart 3.3.2.3(v)



There are also no consistent differences by deprivation, suggesting equity across patients regardless of their socio-economic status.

The charts below provide a similar analysis for those either discharged the same or the next day.

Chart 3.3.2.3(vi)



Again, there are also no consistent differences by deprivation, suggesting equity across patients regardless of their socio-economic status.

The charts below examine same day discharge rates by the age of the patient.



Chart 3.3.2.3(vii)

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) of 23% (with a 95% confidence interval of -18% to 63%), and a Gini coefficient of 9.0%.

Chart 3.3.2.3(viii)

The same is true for those discharged either the same or the next day, i.e. that same/next day discharge rates are similar for patients aged under 75, but that this happens in a lower proportion of cases where the patient is aged 75+.





3.4 Comparison Of Service And Need

The equity footprint below provides a summary comparison of service levels and need for all cancers in Kent, with respect to a number of equity characteristics.



Figure 3.4

Prepared by KMPHO (RK), Feb 2015

The equity footprint clearly illustrates significantly elevated levels of need for older patients and those living in <u>less</u> deprived areas.

While it has not been feasible to set out the totality of equity constraints from a service provision perspective, a number of equity anomalies have emerged:

- Masectomies with immediate breast reconstruction by age (with the proportion of mastectomies conducted on older people including an immediate breast reconstruction lower than for younger patients)
- **Emergency presentation rates** by age (with the proportion of cases presenting as an emergency higher for older patients).

4. Cancer in Kent: Colorectal

4.1 Introduction

In 2014, approximately 400 people in Kent died from colorectal cancer (ICD10: C17-21). Around two-fifths (37%) of these deaths occurred prematurely (aged under 75). Across Kent, premature deaths from all causes accounted for just 30% of all deaths.

Alongside CVD, Cancer is one of the biggest killers in Kent, with cancer recorded as the underlying cause of death in 29% of mortalities in 2014. Of the cancer types, colorectal cancer is the second biggest killer (behind lung cancer). In recognition of the importance of early detection in improving the prognosis, the NHS Bowel Cancer Screening Programme started offering screening services in April 2006. In Kent the bowel screening service was introduced for males and females in the 60-69 age band in 2009.

4.2 Need



The chart below provides a summary of a range of measures of level of need in relation to colorectal cancer in Kent, in comparison with England.

Chart 4.2(i)

In Kent, premature and all age mortality rates for colorectal cancer are similar to England. The same is true for years of life lost. There is some evidence to suggest that incidence rates are slightly lower in Kent. Chart 4.2(i) also signals a slightly lower 5-year survival rate for Kent compared with England, but it should be noted that these survival data are based on cases diagnosed between 2005 and 2007.

Data notes:

1/2. Incidence of colorectal cancer (Directly age-standardised registration rates (DSR) per 100,000, ICD10 C17-C21), 2012, 2010-12 - Source: (Health and Social Care Information Centre)

3/4. Mortality from colorectal cancer (Directly age-standardised rates (DSR) per 100,000, ICD10 C17-C21), 2013, 2011-13 - Source: (Health and Social Care Information Centre)

5. Years of life lost due to mortality from colorectal cancer (Directly age-standardised rates (DSR) per 10,000, ICD10 C17-C21, Under 75's), 2011-13 - Source: (Health and Social Care Information Centre)

6. Survival following diagnosis of colon cancer (5-Year directly age-standardised net survival rates), Patients diagnosed 2005-07 (followed up to 31 December 2012) - Source: (Health and Social Care Information Centre)

The chart below compares these same summary metrics by gender.

Chart 4.2(ii)

In Kent, incidence and mortality rates for colorectal cancer are far higher for men than women. Years of life lost are also higher for men.

Five-year survival rates are similar (based on data for cases diagnosed between 2005 and 2007).



4.2.1 Incidence

Key Points:

- The overall trend in incidence rates is upward
- In terms of equity, incidence rates for colorectal cancer are higher among:
 - o Men
 - o Older people

The chart below shows trends in directly standardised incidence rates for colorectal cancer in Kent by sex.



Incidence rates for colorectal cancer are notably higher for men than women. In 2012, the directly standardised incidence rate for men in Kent was 48% higher than for women. For both men and women in Kent the overall trend is up.

The charts below provide a similar analysis for those under the age of 75^{65} .



Chart 4.2.1(ii)

The gap between men and women is just as pronounced for the under 75's, with the directly age-standardised incidence rate for men in Kent 45% higher than for women for 2010-12. As with all-age incidence, the trend for both men and women in Kent is up.

⁶⁵ Please note that data is only available as 3-year rolling averages.

The chart below shows incidence rates among the under 75's at District-level⁶⁶ for 2009-11 and 2010-12.

Chart 4.2.1(iii)



This suggests some variation across localities within Kent. For example, the standardised incidence rate for Swale is significantly higher than for some of the Districts in the West of the County, including Sevenoaks, Tunbridge Wells and Gravesham.

Figures for 2007-09 and 2008-10 are available broken down to PCT-level, with the 2007-09 figures suggesting that incidence rates among the under 75's were significantly higher for Eastern & Coastal Kent PCT than for West Kent PCT.

⁶⁶ Analysis is not currently available by CCG.

The chart below shows how crude incidence rates for colorectal cancer vary by age.

Chart 4.2.1(iv)



This analysis shows how incidence rates increase sharply with age, reflecting the natural epidemiology of the disease process.

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Gini coefficient of 72.2%⁶⁷. This suggests that inequalities by age are particularly acute for colorectal cancer, with this Gini coefficient slightly higher than the 64.4% observed across all cancers.

It has not been possible to analysis Kent-level incidence rates by other equity dimensions such as deprivation and ethnicity.

4.2.2 Mortality

Key Points:

- The overall trend in mortality rates is downward
 - However, there is some evidence to suggest that mortality rates may be rising again for women in Kent
- In terms of equity, colorectal cancer mortality rates are higher among:
 - o **Men**
 - o Older people

⁶⁷ Since there is clearly a non-linear relationship between age and crude incidence rates, it is not appropriate to consider the Slope Index of Inequality.

The chart below shows trends in directly standardised mortality rates for colorectal cancer in Kent by sex.

Chart 4.2.2(i)



While incidence is rising, the trend in mortality rates is less clear. There is perhaps some evidence to suggest that mortality rates for men have decreased over recent years, but risen slightly for women. Whist there is still a gap between men and women in respect of mortality from colorectal cancer, there is evidence to suggest that it may be narrowing.

The charts below show how mortality rates from colorectal cancer vary by CCG.

Chart 4.2.2(ii)



The lack of consistency in the trend charts for both all age and premature mortality make it difficult to draw any robust conclusions in respect of differences across CCGs, other than to say that there are no consistent significant differences.

Charts 4.2.2 (iii) on the following page show a similar analysis of mortality rates by CCG separately for men and women. Again, the lack of consistency in the trend charts make it difficult to draw any robust conclusions in respect of differences across CCGs, other than to say that there are no consistent significant differences.



The charts below show how crude mortality rates from colorectal cancer vary by age.

Chart 4.2.2(iv)



This analysis shows how mortality rates increase sharply with age.

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Gini coefficient of 78.1%⁶⁸. This is at a similar level to all cancers, indicating that inequalities by age for colorectal cancer are in line with inequalities for cancer overall.

Charts on the following page show a similar analysis of mortality rates by age separately for men and women.

⁶⁸ Since there is clearly a non-liner relationship between age and crude mortality rates, it is not appropriate to consider the Slope Index of Inequality.

Chart 4.2.2(v)

150

100

50 0

2006

2007

2008

2009

2010

2011

2012



Further analysis using the (Public Health England Inequalities Analysis Tool), gives similar Gini coefficients for men and women (80.6% and 75.9% respectively), suggesting that a similar level of inequality exists regardless of gender.

2013

*2014 figures are standardised using 2013 population estimates

Source: PCMD, prepared by KMPHO (LL-Y), Feb 2015

75-84

🛛 🗕 85 plus

75-84

85 plus

131.5

257.3

150 200 250 300

Crude Rate per 100,000

Source: PCMD, prepared by KMPHO (LL-Y), Feb 2015

350 400 450

0 50 100 The charts below show how age-standardised mortality rates from colorectal cancer vary by deprivation quintile.

Chart 4.2.2(vi)



While all-age mortality does appear to be associated with deprivation when just the latest (2014) data is considered, there is no consistent association over time. This suggests that there is no evidence of a consistent equity deficit in relation to deprivation for colorectal cancer.

Charts 4.2.2(vii) on the following page show a similar analysis of mortality rates by deprivation separately for men and women. Again, there are no consistent patterns suggestive of any equity deficits by deprivation.



It has not been possible to conduct analyses of mortality rates by ethnicity.

4.2.3 Years of Life Lost

Key Points:

- The overall long-term trend in years of life lost due to colorectal cancer is downward
 - However, there is some evidence to suggest that years of life lost due to colorectal cancer for women in Kent started rising again in 2012
- In terms of equity, no issues are highlighted

There are a number of possible approaches to the calculation of years of life lost. This section adopts an approach designed to mirror that used by the (Health and Social Care Information Centre) in the years of life lost information published on their indicator portal. Rates are shown per 10,000, as per the HSCIC approach.

The chart below shows trends in years of life lost due to mortality from colorectal cancer in Kent by sex.

Chart 4.2.3(i)



As with mortality rates, the trend in years of life lost is not unambiguous. On average the trend for males and females is down. However data since 2012 for females indicate that this trend is reversing. It is also apparent that the latest data points are somewhat suggestive of a narrowing in the inequality gap however, as previously stated, any assumptions on medium to long term trends are predicated on the stability of the pattern of distribution of age at death, with peaks in younger deaths in particular causing significant fluctuations in the variance of the trend. Given the volatility

of this measure it is therefore inadvisable to comment on the significance of convergence until sufficient data are available.

The charts below show how standardised rates of years of life lost due to mortality from colorectal cancer vary by CCG.



Chart 4.2.3(ii)



The lack of consistency in the trend charts make it difficult to draw any robust conclusions in respect of differences across CCGs, other than to say that there are no consistent significant differences.

The charts below show how age-standardised years of life lost due to mortality from colorectal cancer vary by deprivation quintile.

Chart 4.2.3(iii)





While years of life lost do appear to be associated with deprivation when just the latest (2014) data is considered, there is no consistent association over time. This suggests that there is no evidence of a consistent equity issue in relation to years of life lost by deprivation for colorectal cancer.

4.2.4 Five-Year Survival

Key Points:

• While the short-term trend in 5-year survival rates for colorectal cancer for men is upward, the reverse appears to be true for women

The chart below shows the short-term trend in five-year survival rates for colorectal cancer at the Kent & Medway Cancer Network level⁶⁹. The available data covers cases diagnosed between 2002 and 2007.

Chart 4.2.4(i)



The five-year survival rate for colorectal cancers for the Kent & Medway Cancer Network area for cases diagnosed 2005-07 was 50.4% for men and 46.3% for women. This is lower than figures of 52.3% and 52.7% respectively for England. This series suggests that five-year survival rates for colorectal cancers have increased for men in the Kent & Medway Cancer Network area over this period, but not women.

Additional intelligence on five-year survival rates is available from ONS, but only for breast, colorectal and lung cancers combined. This information is available for single years, but up to cases diagnosed in 2008.



⁶⁹ Please note that it has not been possible to source five-year survival rates at a more local level, or for more recent cases.

This analysis evidences a steady increase in five-year survival rates for these three cancers combined, at the rate of around three-quarters of a percentage point per year.

Five-year survival rates in Kent & Medway for these three cancers combined appear to be slightly lower than for England (51.4% vs 52.3% for cases diagnosed in 2008). In comparison with European averages, survival rates in Kent for colorectal cancer are low. It has not been possible to analysis survival rates for Kent specifically by other dimensions of interest (e.g. age, deprivation and ethnicity).

4.3 Service

4.3.1 Early Diagnosis

Early diagnosis is key to good survival rates, with treatments both simpler and more effective when cancers are detected at an early stage. Colorectal cancer is seen as one of the cancers that is amenable to early detection in Primary Care settings.

The chart below summarises performance against seven measures of early diagnosis for the acute trusts in Kent.



Chart 4.3.1

Data Notes:

1. % Diagnosed at Stage 1 or 2, 2012 - Source: (Cancer Commissioning Toolkit). Data is published at CCG-level and has been mapped approximately to acute trusts⁷⁰

2. 1-Year Survival Rate (Breast, Colorectal & Lung combined), 2012 - Source: (ONS: Index of Cancer Survival). Data is published at CCG-level and has been mapped approximately to acute trusts

3. Urgent GP (Two-Week Wait) Referrals (Crude Rate), 2013 – Source: (Cancer Commissioning Toolkit) – GP Profile. Data represents the crude rate per 100,000 population for lower GI cancers. Data is published at CCG-level and has been mapped approximately to acute trusts.

4. % of Eligible Patients Screened, 2013 - Source: (Cancer Commissioning Toolkit) - GP Profile. Data is published at GP-level and has been aggregated up to acute trusts. Data was not available for 1 very small Kent GP, and so this practice has been excluded.

5. % Presenting via Screening, 2012/13 - Source: (Cancer Commissioning Toolkit) - Service Profile. Data represents the proportion of persons diagnosed with primary colorectal cancer that were identified via the NHS Bowel Cancer Screening Programme.

6. % Presenting via Urgent GP Referral, 2012/13 - Source: (Cancer Commissioning Toolkit) - Service Profile. Data represents the number of urgent referrals for suspected lower GI cancer (not just colorectal cancer) diagnosed with cancer, divided by the number of lower GI cancers managed.
7. % Emergency Presentations, 2012/13 - Source: (Cancer Commissioning Toolkit) - Service Profile. Data represents an estimate of the proportion of emergency presentations, defined as the number of emergency presentations divided by the total number of presentations.

Data presented in the ' (Cancer Commissioning Toolkit)– Service Profile' attempts to express indictors as a proportion of the cohort of patients or tumours associated with the trust. Two approaches are used to match patients to trusts. Firstly, Cancer Waiting Times data is used to identify the trust at which the *decision to treat* was made. To attempt to capture as complete a diagnostic cohort as possible the second method uses a composite of Cancer Registry, Cancer Waiting Times and Hospital Episode Statistics data to allocate a trust of diagnosis.

This analysis shows that while around 70% of patients in Kent diagnosed with breast, colorectal and lung cancer combined survive for at least one-year (around 65% for colorectal cancer⁷¹), only around 60% of eligible individuals are screened and only around 10% of presentations come via this route. Still around 1 in 5 present as emergency cases, and it is estimated that only around 40% of cases across the County are detected at an early stage.

There are differences evident across acute trusts. The data extracted from the Cancer Commissioning Toolkit suggests that for Dartford & Gravesham, screening rates and rates of urgent GP referrals are low, and a high proportion of patients present via an emergency route. There is some evidence to suggest that fewer patients with colorectal cancer in this area are diagnosed while their cancer is still at an early stage, although it should be noted that this difference is not statistically significant.

⁷⁰ For the purposes of this analysis, CCGs have been mapped to acute trusts as follows: Dartford Gravesham & Swanley CCG to Dartford & Gravesham NHS Trust, West Kent CCG to Maidstone and Tunbridge Wells NHS Trust, and all remaining CCGs to East Kent Hospitals University NHS Foundation Trust.

⁷¹ See Section 4.3.1.2.

4.3.1.1 Stage at Diagnosis

Key Points:

- Data coverage is high. In 2012, 91% of colorectal cancer cases in Kent had staging data recorded
- The proportion of colorectal cancer cases diagnosed at an early stage is fairly low across all 7 CCGs
- In terms of equity, there are no significant differences in early diagnosis rates across CCGs

The chart below shows the available data on colorectal cancer staging by CCG. This analysis includes the proportion of cases for which staging data had been recorded as well as the proportion of recorded cases diagnosed as Stage 1 or 2.



While there are apparent differences across CCGs in respect of stage of diagnosis, they are not statistically significant. In comparison with the average across all cancers in Kent, early diagnosis rates are low (40% compared with 52% for all cancers). Early diagnosis rates for colorectal cancer are lower for Kent (40%) than the England average (45%).

Data coverage for 2012 is well above the 70% minimum recommended for robust analysis across all CCGs.

It has not been possible to analysis this aspect of early diagnosis for Kent specifically by other equity dimensions such as sex, age, deprivation and ethnicity.

4.3.1.2 One-Year Survival

Key Points:

- The short-term trend in one-year colorectal cancer survival rates is downward.
 Survival rates are also lower than the England averages for both men and women.
- In terms of equity, one-year survival rates for breast, colorectal and lung cancers combined are marginally lower in Swale and to a lesser extent Thanet than some other Kent CCGs.
- The rate of improvement in one-year survival rates for breast, colorectal and lung cancers combined is lower in Swale and (to a lesser extent) Thanet than elsewhere. This implies that these areas are likely to fall further behind in terms of one-year survival rates.

One-year survival rates provide a measure of the success (or otherwise) of early detection, with low one-year survival rates taken here to imply poor early detection rates⁷².

The chart below shows the short-term trend in one-year survival rates for colorectal cancer at the Kent & Medway Cancer Network level. Please note that it has not been possible to source survival rates for more recent cases. The available data covers cases diagnosed between 2002 and 2007.



Chart 4.3.1.2(i)

The one-year survival rate for colorectal cancers for the Kent & Medway Cancer Network area for cases diagnosed 2005-07 was 63.8% for men and slightly higher for women, at 65.4%. This compares unfavourably with figures of 71.2% and 71.0% respectively for England. This series also suggests that one-year survival rates for colorectal cancers actually fell in the Kent & Medway Cancer Network area over this period.

⁷² While it is recognised that one-year survival rates are not completely synonymous with early detection (due to influences of other factors such as aggressiveness of treatment strategies vs quality of life considerations), it is assumed here that they are highly correlated.

It is worth noting that the data presented here is all pre the NHS Bowel Cancer Screening Programme, which was not rolled-out in Kent until 2009.

More up-to-date intelligence on one-year survival rates is available from (ONS: Index of Cancer Survival), but only for breast, colorectal and lung cancers combined. This data is also available down to CCG-level, and is displayed in the chart below.



Chart 4.3.1.2(ii)

This analysis suggests that there is some variation across Kent in respect of one-year survival rates for these three cancers combined, with oneyear survival rates for Swale and possibly Thanet CCG residents appearing lower than elsewhere in Kent.

The chart below provides an analysis of trends in the one-year survival index for these three cancers, again at CCG-level.



From 2008 onwards, most CCGs have seen a clear trend of increasing one-year survival rates.

Linear trendlines have been fitted to the time series from 2008 onwards for each CCG⁷³. The slopes of these lines are all positive (>0), and indicate the annual rate of improvement in the one-year survival rate for the CCG. In the chart below, these slope coefficients have been compared against the one-year survival levels in 2008 (i.e. at the start of the period of interest) in order to identify equity issues.

Chart 4.3.1.2(iv)



There is generally a positive correlation between rate of improvement and baseline one-year survival levels (i.e. it is generally the case that the best rates of improvement are being enjoyed by those CCGs that already had the highest survival rates).

This suggests that inequality across CCGs has increased over this period. The only possible exception is South Kent Coast, where the rate of improvement has been highest, but where one-year survival rates were below average in 2008 and among the lowest in the County in the late-1990s.

The chart below shows a similar analysis, but comparing the slope coefficients against the latest oneyear survival levels.

Chart 4.3.1.2(v)

When viewed in this way, the positive correlation between rate of improvement and survival rates is even stronger, with South Kent Coast CCG now displaying above average one-year survival rates along with the highest rate of improvement.



⁷³ For the purposes of this analysis, linear trend lines have been selected for all CCGs. The R^2 estimates of the goodness of fit are 99%+ for all CCGs except Swale (R^2 =76%) and Thanet (R^2 =91%).

This analysis suggests that, if the current modelled annual rates of improvement continue over the next few years, inequalities across CCGs will increase and the gap between the best and worst performing in respect of one-year survival rates increase.

This analysis particularly highlights Swale CCG, and to a lesser extent Thanet CCG, as having a concerning combination of low baseline survival rates and low rates of improvement. This implies that these areas are likely to fall further behind in terms of one-year survival rates.

It has not been possible to analyse survival rates for Kent specifically by other dimensions of interest (e.g. age, deprivation and ethnicity).

4.3.1.3 Urgent GP Referrals

Key Points:

- The short-term trend in urgent GP referral rates for lower GI cancer is upward
- In terms of equity, urgent GP referral rates are lower among:
 - \circ ~ Those living in both the <u>most and the least</u> deprived areas
- GP referral rates are far higher in the East Kent CCGs (Ashford, Canterbury & Coastal, South Kent Coast and Thanet) than elsewhere in the County.
- Referral rates vary considerably across GP practices. Those with low two-week wait referral rates are:
 - More likely to be in Dartford, Gravesham & Swanley CCG or Swale CCG
 - More likely to be a single-handed GP practice
 - Less likely to have a high proportion of patients in the 65+ age range
 - Less likely to be seeing high rates of cancer patients (in terms of both prevalence and incidence)
 - They are more likely to have a lower proportion of cancer cases presenting via two-week wait referrals

The chart below compares urgent GP (two-week wait) cancer referral rates for lower GI cancers across CCGs.





The figure above indicates that East Kent CCGs (i.e. Ashford, Canterbury & Coastal, South Kent Coast and Thanet) have higher referral rates for lower GI cancer than elsewhere in the County (which is in line with the findings for urgent GP referrals across all cancers). Referral rates in these areas are also considerably higher than the England average (379 per 100,000 for 2013). Referral rates are particularly high in Canterbury & Coastal, at 644 per 100,000 population for 2013.

Although the rates are not age and sex standardised, it is unlikely that structural demographic differences between the East and West would significantly alter the direction of the differences observed.

The chart below shows two-week wait referral rates for lower GI cancers by deprivation quintile (calculated via the deprivation quintile of the GP practice).



There is some suggestion that referral rates are lower for both the most <u>and</u> the least deprived groups.

Two-week wait referral rates have also been examined at GP practice level. The funnel plot below shows the distribution of crude referrals rates for lower GI cancer for individual GP practices in the context of their list size (i.e. total number of patients registered at the practices).



Chart 4.3.1.3(iii)

The funnel plot identifies statistical outliers (i.e. particularly high and low referral rates taking into account the list size of practices) and produces lists of GP practices with both particularly high and particularly low referral rates⁷⁴⁷⁵.

⁷⁴ Defined as those with referrals rates more than 3 standard deviations away from the mean (the calculation of the standard deviation takes account of the practice size).

⁷⁵ This list is based on 2013 referral rates, but has been cross-referenced and validated against a similar list generated based on the 2012 rates. In all but 5 cases, practices flagged based on 2013 rates were also low performers in 2012, and at least 2 standard deviations from the mean. In the remaining cases referral rates were also low for at least one of 2010, 2011 or 2012 (and usually two of these years).

The 39 practices identified above as having low two-week wait referral rates for lower GI cancer have been profiled and compared against the profile of other GP practices in Kent. An index of 100 for a particular characteristic indicates that GPs with low referrals rates are equally likely to display the characteristic as other Kent GPs. Indexes over 100 indicate that GPs with low referral rates are more likely to display a characteristic (and indexes under 100, less likely).



Chart 4.3.1.3(iv)

Data Notes:

The profile of the 39 GP practices identified by the funnel plot as having lower than expected standardised two-week referral rates given their list size has been indexed against the profile of other GP practices in Kent (where data is available) Data sources are as follows;

- 1. CCG: (Cancer Commissioning Toolkit) GP Profile
- 2. Deprivation Quintile: (IMD 2010 scores have been estimated at practice level, then ranked within Kent)
- 3. % of Patients Aged 65+: (Cancer Commissioning Toolkit) GP Profile
- 4. Number of GPs at Practice: (Health and Social Care Information Centre) (from Exeter System), September 2011
- 5. Rurality of GP Practice: (Health and Social Care Information Centre) (based on postcode and 2001 census), calculated 2011
- 6. Quality of GP Practice (Patient Perception): (National General Practice Profiles)(from DH, GP Patient Survey 2013/14)

The chart below provides a similar analysis for additional practice characteristics.

Chart 4.3.1.3(v)

Profile of GP Practices With Low TWW Referral Rates (Lower GI Cancer) - Indexed 2013, Kent			
New Cancer Cases (Incidence)	Less than 350 350-449 450-549 550+	68 📮 22 💻	414
Cancer Deaths (Mortality)	Less than 200 200-249 250-299 300+	44 70 77	229
Cancer Prevalance	Less than 1.5% 1.5%-1.9% 2.0%-2.4% 2.5%+	76 🔲 66 🔲 43 🔛	392
Emergency Admissions With Cancer	Less than 350 350-449 450-549 550+	19 74 78	252
TWW Conversion Rate (% With Cancer)	Less than 9 9%-<11% 11%-<13% 13.0%+	95	119 160
New Cases Presenting via TWW Referrals	Less than 40% 40%-<50% 50%-<60% 60%+	85 [54 🗖 57 📘	337
Source: Cancer Commissioning Toolkit - GP Profile, HSCIC, National General Practice Profile, prepared by KMPHO (RK), Jan 2015			

Data sources are as follows;

- 7. New Cancer Cases (Incidence): (Cancer Commissioning Toolkit) GP Profile (Crude incidence rate per 100,000 based on persons diagnosed in 2011 with any invasive cancer excluding non-melanoma skin cancer)
- 8. Cancer Deaths (Mortality): (Cancer Commissioning Toolkit) GP Profile (Crude mortality rate per 100,000 based on deaths in 2011/12 from any invasive cancer)
- 9. Cancer Prevalence: (Cancer Commissioning Toolkit) GP Profile (QOF 2012/13)
- 10. Emergency Admissions with Cancer: (Cancer Commissioning Toolkit) GP Profile (Crude rate per 100,000 based on persons admitted to hospital as an inpatient or day-case via an emergency admission, with a diagnostic code that includes cancer, Mar 2012-Feb 2013)
- 11. TWW Conversion Rate (% with cancer): (Cancer Commissioning Toolkit) GP Profile.
- 12. New Cases Presenting via TWW Referrals: (Cancer Commissioning Toolkit) GP Profile.
Those with low two-week wait referral rates are:

- More likely to be in Dartford, Gravesham & Swanley CCG or Swale CCG
- More likely to be a single-handed GP practice
- Less likely to have a high proportion of patients in the 65+ age range
- Less likely to be seeing high rates of cancer patients (in terms of both prevalence and incidence)
- They are more likely to have a lower proportion of cancer cases presenting via two-week wait referrals

4.3.1.4 Routes to Diagnosis

Key Points:

- The proportion of ordinary inpatient admissions with a primary diagnosis of colorectal cancer that are seen as emergencies is similar to the average across all cancers.
- The overall trend in this emergency admission rate is downward
- In terms of equity, emergency hospital admission rates are higher among:
 - Older people

National research shows that one-year survival rates vary significantly by the route to diagnosis. It was estimated that between 2006 and 2010, 98% of colorectal cancer patients diagnosed via the screening programme survived for at least 1 year, falling to just 49% among emergency presentations. 83% of those diagnosed through an urgent (two week wait) GP referral survive for at least 1-year. Figures for 3-year survival are 93%, 35% and 70% respectively⁷⁶.

⁷⁶ Source: 'Routes to Diagnosis 2006-2010' produced by the National Awareness and Early Diagnosis Initiative (NAEDI).

The chart below summarises the available data on presentation route for the Kent acute trusts.





This analysis suggests that the proportion of colorectal cancer cases presenting via urgent GP referrals is lower for patients in the Dartford and Gravesham NHS Trust area (at around 1 in 4) than elsewhere in Kent (where the proportion is closer to 2 in 5). While the estimated proportion of tumours with emergency presentations appears to be slightly higher in Dartford and Gravesham, this difference is not statistically significant.

Presentation routes in Kent for colorectal cancer are similar to the England average.

CCG-level data on route to diagnosis is available from the National Awareness and Early Diagnosis Initiative (NAEDI), but is based on much older data (I.e. diagnoses made between 2006 and 2010)⁷⁷.



Chart 4.3.1.4(ii)

This analysis suggests that the pattern of route to diagnosis has historically been reasonably similar across CCGs in Kent. The potential exception is Ashford, where there appears to be a slightly higher proportion of cases diagnosed through emergency routes, and a slightly lower proportion through 'managed' routes (which includes all GP referrals as well as cases presenting via an elective hospital admission)⁷⁸.

It has not been possible to analyse this aspect of early diagnosis for Kent specifically by other equity dimensions such as sex, age, deprivation and ethnicity. However, it has been possible to analyse inpatient hospital admissions with a primary diagnosis of colorectal cancer by whether or not the admission was elective or an emergency.

⁷⁷ This could explain the apparent differences with the Trust-level data displayed earlier in this section.

⁷⁸ Please note that whilst the proportion of cases diagnosed through managed routes is significantly lower than the England average (at the 95% level of confidence), the apparent difference in the proportion of cases diagnosed through other routes is not statistically significant.

4.3.1.5 Emergency Admissions to Hospital

The chart below shows trends in the proportion of ordinary inpatient admissions with a primary diagnosis of colorectal cancer that were seen as emergencies, by sex.

Chart 4.3.1.5(i)



This analysis suggests that, in Kent, around a quarter of ordinary inpatient admissions with a primary diagnosis of colorectal cancer are seen as emergencies. This is similar to the level across all cancers in Kent. There is evidence to suggest a downward trend, from 32% in 2006/07 to 25% in 2013/14.

Analysis has also been conducted by CCG of residence.

Chart 4.3.1.5(ii)





The charts below provide an analysis by deprivation.

Chart 4.3.1.5(iii)





Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for emergency inpatient admissions of 7% (with a 95% confidence interval of -10% to 23%). There are also no statistically significant differences in emergency admission rates by deprivation quintile. This suggests insufficient evidence of inequality by deprivation.

Chart 4.3.1.5 (iv)

Charts 4.3.1.5(iv) examine hospital admissions by the age of the patient.

This analysis shows that older patients are more likely to be admitted as an emergency, particularly those aged 85+.





Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Gini coefficient of 12.2%.

Analysis has also been conducted by patients' ethnicity.



While colorectal cancer-related hospital admissions look to be more likely to be an emergency if the patient is White British, this difference is not statistically significant.

4.3.1.6 Screening

Key Points:

- Despite significant improvements in bowel cancer screening rates since 2010, by 2013 still only around 3 in 5 60-69 year olds in Kent had been screened for bowel cancer.
- In terms of equity, screening rates are lower among:
 - Those living in more deprived areas
- The evidence also suggests that bowel cancer screening rates are lower in Dartford, Gravesham & Swanley, Swale and Thanet than the other CCGs.
- Screening rates vary considerably across GP practices. Those with low bowel cancer screening rates are:
 - More likely to be in a deprived area
 - Less likely to have a high proportion of patients in the 60-69 age range
 - **o** More likely to be in Dartford, Gravesham & Swanley CCG
 - More likely to have received low recommendation rates in the GP Patient Survey
 - More likely to have low rates of cancer patients (in terms of both prevalence and incidence)

The NHS Bowel Cancer Screening Programme started in April 2006, with screening services rolledout to both East and West Kent during 2009. The chart below shows CCG-level screening rates among eligible patients for the period 2010-2013⁷⁹.

Chart 4.3.1.6(i)



It is evident that there have been significant improvements in screening performance over this period. However it is interesting to note that by 2013 still only around 3 in 5 60-69 year olds in Kent had been screened for bowel cancer.

While there were considerable variations across CCGs in 2010 (when the screening programme was in its infancy), screening rates are now much more consistent across CCGs, with the current rates ranging between 58% and 62%. That said, screening rates are still lower in Dartford, Gravesham & Swanley, Swale and Thanet than the other Kent CCGs. Furthermore, breast cancer screening rates are also low in Dartford, Gravesham & Swanley and Thanet.

⁷⁹ Calculated as the number of persons registered to the practice screened adequately in the previous 30 months *divided* by the number of eligible persons on the last day of the review period.

The chart below shows uptake of invitations, and demonstrates that the relatively low overall screening rates are almost completely due to people not taking up an invitation to take part in the screening programme, and not a failure to invite them.



Chart 4.3.1.6(ii)

While there is evidence to suggest improvements in uptake across all CCGs, this has been modest (at around 3-5 percentage points). Again, the figures for Dartford, Gravesham & Swanley, Swale and Thanet are lower than other CCGs in Kent.

Information on screening rates is available at an individual GP practice level, and this data has been used to investigate the extent to which any inequalities in screening relate to deprivation. The chart below shows the latest screening rates and screening rate trends by deprivation quintile⁸⁰.



Chart 4.3.1.6(iii)



While it was the case that patients in the most deprived areas are also most likely to have been screened in the early days of the programme (when overall screening rates were low), in recent years the pattern has reversed and there is evidence to suggest that screening rates increase as deprivation decreases (i.e. that screening rates are highest for the least deprived). As with other findings set out in this report, this is suggestive of an inverse care process.

Between 2012 and 2013 rates of improvement are almost identical across deprivation groups, suggesting that inequity by deprivation is neither widening nor narrowing.

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) of 8% (with a 95% confidence interval of 2% to 14%), and a Gini coefficient of 2.8%.

KMPHO (RK), Dec 2014

⁸⁰ Details of how this is done, i.e. that the deprivation quintile of the GP practice as identified by the CCT GP Profile has been used.

In 2013, screening rates for the least deprived quintile in Kent were 15% higher than for the most deprived.

Similar analyses have been conducted based on patient perception of the quality of their GP practice as measured via responses to "Would you recommend your GP surgery to someone who has just moved to your local area?" captured through the GP Patient Survey. The indicator value is the percentage of people who answered this question with either "Yes, would definitely recommend" or "Yes, would probably recommend".

The chart below shows screening rate trends by perceptions of the quality of the GP practice.





This analysis suggests a link between the quality of the GP practice and screening rates, with rates increasing as the proportion of patients who would recommend their surgery increases (i.e. that screening rates are highest for those patients registered to highly regarded practices).

The underlying mechanisms driving this link are unclear.

Rates of improvement appear very similar regardless of recommendation rates, suggesting that inequity by practice quality is neither widening nor narrowing.



Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) of 8% (with a 95% confidence interval of 1% to 16%), and a Gini coefficient of 2.2%. In 2013, screening rates at the highest rated practices in Kent were 12% higher than those with the lowest scores.

It is noteworthy that differences in screening rates by patient perceptions of GP quality persist when differing levels of deprivation are taken into account.

Screening rates have also been examined at GP practice level. The funnel plot below shows the distribution of screening rates for individual GP practices in the context of their list size (i.e. total number of patients registered at the practice).

Chart 4.3.1.6(v)



The funnel plot identifies statistical outliers (i.e. particularly high and low screening rates taking into account list size of practices) and produces a list of GP practices with particularly low screening rates⁸¹⁸².

⁸¹ Defined as those with screening rates more than 3 standard deviations away from the mean (the calculation of the standard deviation takes account of the practice size).

⁸² This list is based on 2013 screening rates, but has been cross-referenced and validated against a similar list generated based on the 2012 rates. In all but 1 case, practices flagged based on 2013 rates were also low performers in 2012, and at least 2 standard deviations from the mean. In the remaining case the 2012 screening rate was still well below average.

The 39 practices identified above as having low screening rates have been profiled and compared against the profile of other GP practices in Kent. Specifically, the characteristics of those GP practices identified as having low screening rates are compared with other GP practices in Kent. An index of 100 for a particular characteristic indicates that GPs with low screening rates are equally likely to display the characteristic as other Kent GPs. Indexes over 100 indicate that GPs with low screening rates are more likely to display a characteristic (and indexes under 100, less likely).



Chart 4.3.1.6(vi)

Data Notes:

The profile of the 40 GP practices identified by the funnel plot as having lower than expected screening rates given their list size has been indexed against the profile of all GP practices in Kent (where data is available) Data sources are as follows;

- 1. CCG: (Cancer Commissioning Toolkit) GP Profile
- 2. Deprivation Quintile: (IMD 2010 scores have been estimated at practice level, then ranked within Kent)
- 3. % of Patients Aged 60-69: PCIS GP Registrations, June 2013
- 4. Number of GPs at Practice: (Health and Social Care Information Centre) (from Exeter System), September 2011
- 5. Rurality of GP Practice: (Health and Social Care Information Centre) (based on postcode and 2001 census), calculated 2011

The chart overleaf provides a similar analysis for additional practice characteristics.

Chart 4.3.1.6(vii)



Data sources are as follows;

6. Quality of GP Practice (Patient Perception): (National General Practice Profiles)(from DH, GP Patient Survey 2013/14)

7. New Cancer Cases (Incidence): (Cancer Commissioning Toolkit) - GP Profile (Crude incidence rate per 100,000 based on persons diagnosed in 2011 with any invasive cancer excluding non-melanoma skin cancer)

8. Cancer Deaths (Mortality): (Cancer Commissioning Toolkit) - GP Profile (Crude mortality rate per 100,000 based on deaths in 2011/12 from any invasive cancer)

9. Cancer Prevalence: (Cancer Commissioning Toolkit) - GP Profile (QOF 2012/13)

10. Emergency Admissions with Cancer: (Cancer Commissioning Toolkit) - GP Profile (Crude rate per 100,000 based on persons admitted to hospital as an inpatient or day-case via an emergency admission, with a diagnostic code that includes cancer, Mar 2012-Feb 2013)

Those with low screening rates are:

- More likely to be in a deprived area, and much more likely to be in an area falling into the highest deprivation quintile
- Less likely to have a high proportion of patients in the 60-69 age range
- More likely to be in Dartford, Gravesham & Swanley CCG
- More likely to have received low recommendation rates in the GP Patient Survey
- More likely to have low rates of cancer patients (in terms of both prevalence and incidence)

4.3.2 Treatment

In addition to early diagnosis, the level and the quality of the treatment patients receive provides a measure of the overall level of service being received by colorectal cancer patients in Kent.

The chart below provides a summary of seven measures of service levels in terms of treatment for the acute trusts in Kent.



Data Notes:

1. % Urgent GP referrals for suspected cancer seen within 2 weeks, 2012/13. Source: (Cancer Commissioning Toolkit) - Service Profile. This indicator covers Lower Gastrointestinal Cancers, not specifically colorectal cancers.

2. % Treatment within 31 days of decision to treat, 2012/13. Source: (Cancer Commissioning Toolkit) - Service Profile. This indicator covers Lower Gastrointestinal Cancers, not specifically colorectal cancers.

Data for treatment within 62 days of urgent GP referrals for suspected cancer has not been included due to low case volumes.

3. % of major surgeries (resections) treated laparoscopically, 2013/14. Source: SUS.

Resections were identified via HES episodes where the primary procedure was one of the resection OPCS4 codes identified in (NCIN 'Major Surgical Resections, 2004-06') report, and where the patient had a C18-C20 diagnosis (any field).

Laparoscopic procedures were identified as those resections above associated with a Y75* or Y652 OPCS4 code.

Provider refers to the Trust where the procedure took place (NOT the diagnosing Trust), and covers all resections conducted over the period, not just those relating to newly diagnosed colorectal cancers.

4. % of surgical patients readmitted as an emergency within 28 days, 2012/13. Source: (Cancer Commissioning Toolkit) - Service Profile.
5/6. Median length of stay for elective admissions in which surgery took place, 2012/13. Source: (Cancer Commissioning Toolkit) - Service Profile. This indicator covers diagnosis codes C18-20.

6. Median length of stay for emergency admissions in which surgery took place, 2012/13. Source: (Cancer Commissioning Toolkit) - Service Profile. This indicator covers diagnosis codes C18-20.

Data presented in the '(Cancer Commissioning Toolkit)– Service Profile' attempts to express indictors as a proportion of the cohort of patients or tumours associated with the trust. Two approaches are used to match patients to trusts. Firstly, Cancer Waiting Times data is used to identify the trust at which the decision to treat was made. To attempt to capture as complete a diagnostic cohort as possible the second method uses a composite of Cancer Registry, Cancer Waiting Times and Hospital Episode Statistics data to allocate a trust of diagnosis.

This analysis suggests that virtually all colorectal cancer patients start their treatment within 31 days of the decision being taken, although performance against the two-week wait target for urgent GP referrals is not quite as strong, particularly for Dartford and Gravesham NHS Trust. Around 2 in 5 resections in Kent are done laparoscopically, with median stay lengths shortest for patients treated this way. Emergency admissions have the longest median length of stay associated with them, and 10-20% of all resection patients are readmitted as an emergency within 28 days.

4.3.2.1 Waiting Times

Key Points:

- While virtually all colorectal cancer patients start their treatment within 31 days of the decision being taken, performance against the two-week wait target for urgent GP referrals is not quite as strong
 - Particularly for Dartford and Gravesham NHS Trust 0

The chart below summarises the available data on waiting times for colorectal cancer patients in Kent.



Chart 4.3.2.1

Data Notes:

1. % Urgent GP referrals for suspected cancer seen within 2 weeks, 2011/12 & 2012/13. Source: (Cancer Commissioning Toolkit) - Service Profile. This indicator covers Lower Gastrointestinal Cancers, not specifically colorectal cancers.

2. % Treatment within 31 days of decision to treat, 2011/12 & 2012/13. Source: (Cancer Commissioning Toolkit) - Service Profile. This indicator covers Lower Gastrointestinal Cancers, not specifically colorectal cancers.

Data for treatment within 62 days of urgent GP referrals for suspected cancer has not been included due to low case volumes.

In both 2011/12 and 2012/13 and across Kent, virtually all colorectal cancer patients started their treatment within 31 days of the decision being taken. Performance against the two-week wait target for urgent GP referrals is not quite as strong, particularly for Dartford and Gravesham NHS Trust. Both East Kent Hospitals University NHS Foundation Trust and Maidstone and Tunbridge Wells NHS Trust perform very similarly to the England average of 95% in respect of two-week wait compliance.

It has not possible to conduct further analysis by other equity dimensions such as sex, age, deprivation and ethnicity.

4.3.2.2 Major Surgeries (Resections)

Key Points:

- The overall trend in the proportion of colorectal resections being conducted laparoscopically is upward
- While the proportion of elective surgeries treated laparoscopically across Kent has increased significantly since 2006/07, still only a very small proportion of emergency procedures are treated this way.
- In terms of equity, laparoscopic surgery rates are lower among:
 Older patients
- There is evidence to suggest that resected patients in West Kent are less likely to have the procedure done laparoscopically than those living in other Kent CCG areas.

While it has not been possible to source data on the proportion of all colorectal cancer patients who are treated surgically, it has been possible to examine the proportion of major surgeries conducted laparoscopically using SUS data. This indicator shows the progress being made in Kent in implementing NICE guidance (TAG 105) which requires all suitable colorectal cancer patients to be offered this choice of surgery. Compared to traditional open surgery, patients often experience less pain, fewer complications, shorter hospital stays and a shorter overall recovery. The evidence suggests that the outcome in respect of their cancer is not compromised.

The chart below shows the proportion of resections conducted laparoscopically by provider.

Chart 4.3.2.2(i)



% of major surgeries (resections) treated laparoscopically, 2013/14. Source: SUS.
 Resections were identified via HES episodes where the primary procedure was one of the resection OPCS4 codes identified in (NCIN 'Major Surgical Resections, 2004-06')report, and where the patient had a C18-C20 diagnosis (any field).
 Laparoscopic procedures were identified as those resections above associated with a Y75* or Y652 OPCS4 code.
 Provider refers to the Trust where the procedure took place (NOT the diagnosing Trust), and covers all resections conducted over the period, not just those relating to newly diagnosed colorectal cancers.

Perhaps the key point to note here is the significant increase in the use of laparoscopic surgery for colorectal resection patients across Kent. In 2006/07, just 4% of resections were treated laparoscopically, compared with 41% in 2013/14.

The proportion of resections treated laparoscopically has been historically low for Maidstone and Tunbridge Wells NHS Trust. While particularly large increases have been seen here over recent years, Maidstone and Tunbridge Wells NHS Trust still lag slightly behind other provides in Kent in this respect. Analysis has also been conducted by the CCG of residence of the patient.

Chart 4.3.2.2(ii)



As the usage of laparoscopic surgery has increased, there has been a high degree of variance year-on-year in respect of the proportion of patients living within each CCG who have been treated laparoscopically. However, it has remained the case throughout the period that West Kent residents are among the least likely to have had access to this type of treatment.



Chart 4.3.2.2(iii)

While the proportion of elective surgeries treated laparoscopically across Kent has increased significantly since 2006/07 (to 49% in 2013/14), still only a very small proportion of emergency procedures are treated this way.



National-level analysis contained within the 2014 (National Bowel Cancer Audit) suggests that inequalities in respect of access to laparoscopic procedures by admission type are far greater in Kent than the England average, due to lower usage of laparoscopic procedures for emergency cases⁸³.

There is no evidence to suggest any issues with equity of access to laparoscopic treatment by either sex or ethnicity of patient.



Chart 4.3.2.2(iv)

⁸³ The 2014 (National Bowel Cancer Audit) suggests that 18% of emergency resections in England were treated laparoscopically in 2013/14.

There are also no consistent differences by deprivation. This suggests equity of access across patients regardless of their socio-economic status.

Chart 4.3.2.2(v)



The chart below examines access to laparoscopic treatment by the age of the patient.

There is evidence to suggest that older patients are less likely to be treated laparoscopically when they have a major resection⁸⁴.

Over the last 4 years, the laparoscopic treatment rate for patients aged 75+ has been consistently around 10 percentage points lower than for younger patients.

National-level analysis contained within the 2014 (National Bowel Cancer Audit) suggests that inequalities in respect of access to laparoscopic procedures for older patients are far greater in Kent than the England average (which is around 5 percentage points).



Chart 4.3.2.2(vi)



Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) of -21% (with a 95% confidence interval of -61% to 19%), and a Gini coefficient of 7.9%.

⁸⁴ This is thought to be due higher levels of late presentation among older patients, resulting in cancers tending to be at a later stage (and so less amenable to laparoscopic treatment). However, it could also be simply be due to a higher likelihood of complications that limit the feasibility of a laparoscopy.

4.3.2.3 Major Surgeries (Resections): Outcomes & Recovery

Key Points:

- Length of hospital stays following a resection vary considerably by admission/treatment type
 - Emergency admissions have the highest median stay lengths.
 - Elective admissions treated laparoscopically tend to have shorter stay lengths associated with them, compared with open surgery.
- The short-term trend in stay lengths is fairly stable
- In terms of equity, median length of stay is higher among:
 - o Older patients

The chart below examines length of stay and emergency readmission rates for colorectal cancer patients undergoing major surgeries.



Data Notes:

- 1. % of surgical patients readmitted as an emergency within 28 days, 2012/13. Source: (Cancer Commissioning Toolkit) Service Profile.
- 2. Median length of stay for elective admissions in which surgery took place, 2012/13. Source: SUS, 2009/10-2013/14
- 3. Median length of stay for emergency admissions in which surgery took place, 2012/13. Source: SUS, 2009/10-2013/14

This analysis demonstrates differences in the median length of stay by admission and treatment type. Emergency admissions have the longest median length of stay associated with them, with median length of stays lower for elective patients. As expected, there is evidence to suggest faster recovery times for those elective patients treated laparoscopically, with a difference in the median length of stay of around 2-3 days. While stay lengths at EKUFT appear to be slightly lower for all admission types, this difference is unlikely to be statistically significant.

This analysis suggests that, in Kent, 10-20% of surgical patients are readmitted as an emergency within 28 days of discharge.

While it has not been possible to conduct further analysis of emergency readmission rates, it has been possible to use SUS data to examine length of stay in more detail.

The chart below provides further analysis of trends in the median length of stay following a major resection by admission type.





Median length of stay is highest for emergency admissions (which are virtually all nonlaparoscopic) at 13 days. Elective admissions treated laparoscopically tend to have shorter stay lengths associated with them, compared with open surgery.



The trend analysis above suggests that stay lengths have remained relatively stable for each admission/treatment type over the last few years. For this reason, the remainder of this section pools 5 years' worth of data, thus allowing for more robust subgroup analysis.

As expected, there is some evidence to suggest that older patients tend to stay in hospital for slightly longer than their younger counterparts across all admission/treatment types, however this is not seen as an equity issue. Median stay length is similar for men and women, and by ethnicity.



There are no significant differences by CCG, or deprivation.



5

5

0

1 - Least Deprived

Emergency admission

Source: SUS, prepared by KMPHO (RK), Dec 2014

2 3 4 5 - Most Deprived

5

5

4.4 Comparison Of Service And Need

The equity footprint below provides a summary comparison of service levels and need for colorectal cancer in Kent, with respect to a number of equity characteristics.





The equity footprint demonstrates the higher levels of need for men and older patients.

In terms of service levels, while it has not been possible to analyse most aspects of the level of service being delivered by equity characteristics at the Kent level, mismatches are flagged in terms of:

- **One-year survival rates**⁸⁵ for men and women (with survival rates higher for women, despite the level of need being lower for this group
- **Screening rates** by deprivation (with screening rates higher for the less deprived, despite the level of need being no higher for this group).
- **Laparoscopic surgeries** by age (with laparoscopic surgeries being offered less often to older patients, despite the level of need being higher for this group).

It could be argued that these types of mismatch imply a future widening of existing inequalities.

⁸⁵ Used here as a proxy measure for early detection.

5. Cancer in Kent: Lung

5.1 Introduction

In 2014, more than 800 people in Kent died from lung cancer (ICD10: C33-34), with half of them aged under 75 (50%). Just 30% of all deaths in Kent were of under 75s.

Alongside CVD, Cancer is one of the biggest killers in Kent, with cancer recorded as the underlying cause of death in 29% of mortalities in 2014. Of the cancer types, lung cancer is the biggest killer for both men and women.

5.2 Need

The chart below provides a summary of a range of measures of the level of need in relation to lung cancer in Kent, in comparison with England as a whole⁸⁶.



Chart 5.2(i)

There is evidence to suggest that incidence, mortality and years of life lost from lung cancer are all slightly lower in Kent than is the case for England as a whole. Survival rates are similar to the England average.

Data notes:

1/2. Incidence of lung cancer (Directly age-standardised registration rates (DSR) per 100,000, ICD10 C33-C34), 2010-12 - Source: (Health and Social Care Information Centre)

3/4. Mortality from lung cancer (Directly age-standardised rates (DSR) per 100,000, ICD10 C33-C34), 2013, 2011-13 - Source: (Health and Social Care Information Centre)

5. Years of life lost due to mortality from lung cancer (Directly age-standardised rates (DSR) per 10,000, ICD10 C33-C34, Under 75's), 2011-13 - Source: (Health and Social Care Information Centre)

6. Survival following diagnosis of lung cancer (5-Year directly age-standardised net survival rates), Patients diagnosed 2005-07 (followed up to 31 December 2012) - Source: (Health and Social Care Information Centre)

⁸⁶⁸⁶ Please note that this data generally relates to 2012, so as to allow comparison with England averages. More recent local data is presented later in this report for mortality and years of life lost.

The chart below compares these same summary metrics by gender.

Chart 5.2(ii)

In Kent, incidence, mortality rates and years of life lost from lung cancer are far lower for women than men. Survival rates are similar.



5.2.1 Incidence

Key Points:

- The overall trend in incidence rates is upward for women and downward for men.
 - However, incidence rates among men under 75 have increased over recent years.
- In terms of equity, incidence rates for colorectal cancer are higher among:
 - o Men
 - Older people
- While incidence rates for lung cancer remain higher for men than women, the gap is closing.

The chart below shows trends in directly standardised incidence rates for lung cancer in Kent by sex.

Chart 5.2.1(i)



Incidence rates for lung cancer are still higher for men than women, but the gap has narrowed considerably over the last 15 years. While lung cancer incidence rates among men have fallen over this period, the long term trend for women is upward.

In 1996, the directly standardised incidence rate for men in Kent was more than 150% higher than for women. The gap has reduced drastically, although it must be noted that by 2012, the directly standardised incidence rate for men in Kent was still 50% higher than for women.

The charts below provide a similar analysis for those under the age of 75. Please note that data is only available as 3-year rolling averages.



Chart 5.2.1(ii)

The gap between men and women is less pronounced for the under 75's, with the directly age-standardised incidence rate for men in Kent 37% higher than for women for 2010-12.

As with all-age incidence, the trend for women in Kent is up. While the trend in all-age incidence for men is down, there is no evidence of this among the under 75s.

The chart below shows incidence rates among the under 75's at District-level⁸⁷ for 2009-11 and 2010-12.



Chart 5.2.1(iii)

This suggests some variation across localities within Kent. For example, the standardised incidence rate for Thanet is significantly higher than a number of the Districts, particularly those in the West of the County.

⁸⁷ Analysis is not currently available by CCG.

The chart below shows how crude incidence rates for lung cancer vary by age.

Chart 5.2.1(iv)



This analysis shows how incidence rates increase sharply with age.

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Gini coefficient of 74.4%⁸⁸. This suggests that inequalities by age are particularly acute for lung cancer, with this Gini coefficient slightly higher than the 64.4% observed across all cancers.

It has not been possible to analyse Kent-level incidence rates by other equity dimensions such as deprivation and ethnicity.

5.2.2 Mortality

Key Points: The overall trend in mortality rates is downward for men but very slightly upward for women However, there is some evidence to suggest that lung cancer mortality rates in Kent also started rising for men in 2013 In terms of equity, lung cancer mortality rates are higher among:

- o Men
- Those living in more deprived areas
- o Older people
- There is also evidence to suggest that lung cancer mortality rates are higher in Swale and Thanet than some other Kent CCGs

⁸⁸ Since there is clearly a non-linear relationship between age and crude incidence rates, it is not appropriate to consider the Slope Index of Inequality.

• Further analysis of equity by deprivation demonstrates that the two most deprived quintiles have not only have above average mortality rates, but also mortality rates that have been increasing at a higher than average rate over the last couple of years. This suggests that inequalities by deprivation may be increasing further.

The chart below shows trends in directly standardised mortality rates for lung cancer in Kent by sex.





While the long-term trend in both all-age and premature mortality from lung cancer among men appears to be decreasing, the long-term trend for women is slightly upward. Both all-age and premature mortality rates for both men and women appear to have increased over the last couple of years (between 2012 and 2014). There remains a significant gap between men and women in respect of mortality from lung cancer, with men in Kent far more likely to die from the disease than women. The gap is similarly large for both all-age and premature mortality.

The charts below show how mortality rates from lung cancer vary by CCG.



Chart 5.2.2(ii)

The lack of consistency in the trend charts for both all age and premature mortality make it difficult to draw any robust conclusions in respect of differences across CCGs, however mortality rates in Swale and Thanet appear to be high.

Charts 5.2.2(iii) overleaf show a similar analysis of mortality rates by CCG separately for men and women. Again, the lack of consistency in the trend charts make it difficult to draw any robust

conclusions in respect of differences across CCGs, although mortality rates in Swale and Thanet again appear high.




The charts below show how crude mortality rates from lung cancer vary by age.



Chart 5.2.2(iv)

This analysis shows how mortality rates increase sharply with age.

Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Gini coefficient of 76.3%⁸⁹. This is at a similar level to all cancers, indicating that inequalities by age for lung cancer are in line with inequalities for cancer overall.

Charts on the following page show a similar analysis of mortality rates by age separately for men and women.

⁸⁹ Since there is clearly a non-liner relationship between age and crude mortality rates, it is not appropriate to consider the Slope Index of Inequality.

Chart 5.2.2(v)





Further analysis using the (Public Health England Inequalities Analysis Tool), gives similar Gini coefficients for men and women (78.6% and 74.2% respectively), suggesting that a similar level of inequality exists regardless of gender.

The charts below show how age-standardised mortality rates from lung cancer vary by deprivation quintile.

Chart 5.2.2(vi)



Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for all-age mortality of 60 (with a 95% confidence interval of 31 to 88), and a Gini coefficient of 16.2%. The Slope Index of Inequality (SII) for premature mortality is 29 (with a 95% confidence interval of -3 to 60), and a Gini coefficient of 15.3%.

This suggests that there is an equity issue in relation to deprivation for lung cancer. The agestandardised all-age mortality rate for the most deprived quintile in Kent more than double that for the least deprived (and more than triple when only premature deaths from cancer are considered).

Looking at the short-term trends in mortality rates (since 2012) by deprivation reveals some interesting differences. It is clear that the rate of change since 2012 has not been the same across deprivation groups.

Linear trendlines have been fitted to the time series from 2012 onwards for each deprivation quintile⁹⁰ for both all-age and premature mortality. The slopes of these lines are positive (>0) for all except the most deprived quintile, and indicate the annual rate of increase (or decrease in the case of negative slopes) in the mortality rate for the deprivation quintile in question. In the charts below, these slope coefficients have been compared against the latest mortality rates in order to identify equity issues.



*2014 figures are standardised using 2013 population estimates

This indicates that mortality rates are rising for all except the least deprived quintile, with the rate of increase highest for the most deprived. For both all-age and premature mortality, the most deprived 2 quintiles have above average mortality rates that have been increasing a higher than average rate. This suggests that if the current modelled annual rates of increase continue over the next few years, inequalities by deprivation will increase further, i.e. the gap between the most and least deprived will increase. Charts on the following page show a similar analysis of mortality rates by deprivation separately for men and women. This suggests that there is an equity issue in relation to deprivation for both genders.

⁹⁰ For the purposes of this analysis, linear trend lines have been selected for all quintiles. The R² estimates of the goodness of fit are 77%+ for all quintiles (except quintile 3 for premature mortality).

Chart 5.2.2(viii)



Source: PCMD, prepared by KMPHO (LL-Y), Feb 2015

It has not been possible to conduct analysis of mortality rates by ethnicity.

5.2.3 Years of Life Lost

Key Points:

- The overall trend in years of life lost due to lung cancer is downward
 - However, there is some evidence to suggest that years of life lost due to lung cancer for women in Kent started rising again in 2013
- In terms of equity, years of life lost due to lung cancer are higher among:
 - o Men
 - Those living in more deprived areas
- There is also evidence to suggest that years of life lost due to lung cancer are higher in Thanet than some other Kent CCGs

There are a number of possible approaches to the calculation of years of life lost. This section adopts an approach designed to mirror that used by the (Health and Social Care Information Centre) in the years of life lost information published on their indicator portal. Rates are shown per 10,000, as per the HSCIC approach.



The chart below shows trends in years of life lost due to mortality from lung cancer in Kent by sex.

As with mortality rates, while the long-term trend in years of life lost from lung cancer among men appears to be decreasing, the long-term trend for women is less clear. In particular, (standardised) years of life lost from lung cancer for women appear to have increased over the last couple of years (between 2012 and 2014). There remains a significant gap between men and women in respect of years of life lost from lung cancer, with years of life lost for men in Kent higher than for women.

The charts below show how standardised rates of years of life lost due to mortality from lung cancer vary by CCG.

Chart 5.2.3(ii)





The lack of consistency in the trend charts make it difficult to draw any robust conclusions in respect of differences across CCGs. However, it appears that years of life lost due to mortality from lung cancer may be higher in Thanet than some other Kent CCGs. The charts below show how age-standardised years of life lost due to mortality from lung cancer vary by deprivation quintile.

Chart 5.2.3(iii)





Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for years of life lost due to mortality from lung cancer of 46 (with a 95% confidence interval of 25 to 67), and a Gini coefficient of 25.0%.

This suggests that there is a significant equity issue in relation to deprivation in respect of years of life lost. In 2014, the age-standardised rate of years of life lost from lung cancer for the most deprived quintile in Kent was more than 3 times higher than for the least deprived.

5.2.4 Five-Year Survival

Key Points:

• The short-term trend in 5-year survival rates for lung cancer is upward

The chart below shows the short-term trend in five-year survival rates for lung cancer at the Kent & Medway Cancer Network level. Please note that it has not been possible to source five-year survival rates at a more local level, or for more recent cases. The available data covers cases diagnosed between 2002 and 2007.

Chart 5.2.4(i)



The five-year survival rate for lung cancer for the Kent & Medway Cancer Network area for cases diagnosed 2005-07 was 6.9% for men and 8.9% for women, which is far lower than the 50.4% and 46.3% 5-year survival rates across all cancers. The figures for Kent & Medway are not significantly different to figures of 7.7% and 9.3% respectively for England. This series suggests that five-year survival rates for lung cancer have increased slightly in the Kent & Medway Cancer Network area over this period.

Additional intelligence on five-year survival rates is available from ONS, but only for breast, colorectal and lung cancers combined. This information is available for single years, but up to cases diagnosed in 2008.





This analysis evidences a steady increase in five-year survival rates for these three cancers combined, at the rate of around three-quarters of a percentage point per year.

Five-year survival rates in Kent & Medway for these three cancers combined appear to be very slightly lower than for England (51.4% vs 52.3% for cases diagnosed in 2008). In comparison with European averages, survival rates in Kent for colorectal cancer are low. It has not been possible to analyse survival rates for Kent specifically by other dimensions of interest (e.g. age, deprivation and ethnicity).

5.3 Service

5.3.1 Early Diagnosis

Early diagnosis is key to good survival rates, with treatments both simpler and more effective when cancers are detected at an early stage.

The chart below summarises performance against five measures of early diagnosis approximated to the acute trusts in Kent.





Data Notes:

1. % Diagnosed at Stage 1 or 2, 2012 - Source: (Cancer Commissioning Toolkit) – 'Staging by cancer site'. Data is published at CCG-level and has been mapped approximately to acute trusts⁹¹

2. 1-Year Survival Rate, 2012 - Source: (ONS: Index of Cancer Survival). Data is published at CCG-level and has been mapped approximately to acute trusts

3. Urgent GP (Two-Week Wait) Referrals (Crude Rate), 2013 – Source: (Cancer Commissioning Toolkit) – GP Profile. Data represents the crude rate per 100,000 population. Data is published at CCG-level and has been mapped approximately to acute trusts.

5. % Presenting via Urgent GP Referral, 2012/13 - Source: (Cancer Commissioning Toolkit) – Service Profile. Data represents the proportion of cases managed that were urgent referrals for suspected cancer.

6. % Emergency Presentations - Source: (Cancer Commissioning Toolkit) - Service Profile (2013/14). Data represents an estimate of the proportion of emergency presentations, defined as the number of emergency presentations divided by the total number of presentations. Data presented in the ' (Cancer Commissioning Toolkit) – Service Profile' attempts to express indictors as a proportion of the cohort of patients or tumours associated with the trust. Two approaches are used to match patients to trusts. Firstly, Cancer Waiting Times data is used to identify the trust at which the *decision to treat* was made. To attempt to capture as complete a diagnostic cohort as possible the second method uses a composite of Cancer Registry, Cancer Waiting Times and Hospital Episode Statistics data to allocate a trust of diagnosis.

This analysis shows that only around a quarter of lung cancer cases in Kent are detected at an early stage, and that around 2 in 5 present as an emergency. While around two-thirds of patients in Kent diagnosed with breast, colorectal, or lung cancer survive for at least one-year, survival rates for lung cancer are far lower than this (only a little over a quarter for Kent).

⁹¹ For the purposes of this analysis, CCGs have been mapped to acute trusts as follows: Dartford Gravesham & Swanley CCG to Dartford & Gravesham NHS Trust, West Kent CCG to Maidstone and Tunbridge Wells NHS Trust, and all remaining CCGs to East Kent Hospitals University NHS Foundation Trust.

5.3.1.1 Stage at Diagnosis

Key Points:

- Data coverage is high. In 2012, 90% of lung cancer cases in Kent had staging data recorded
- The proportion of lung cancer cases diagnosed at an early stage is low across all 7 CCGs
- In terms of equity, early diagnosis rates are lower in Swale than some other Kent CCGs.

The chart below shows the available data on cancer staging for lung cancer in Kent. This measure includes the proportion of cases for which staging data is available as well as the proportion of recorded cases diagnosed as Stage 1 or 2.





Data coverage for 2012 is well above the 70% minimum recommended for robust analysis across all CCGs.

Perhaps the key point to note in relation to the actual staging rates, is that the proportion of lung cancer cases diagnosed at an early stage is low across all 7 CCGs. In 2012, less than a quarter of lung cancer cases in Kent were diagnosed at Stage 1 or 2, compared with 52% across all cancers.

This analysis suggests that there may well be variation across CCGs in respect of early stage diagnosis. In particular, Swale CCG is highlighted as having only 11% of cases diagnosed early (i.e. at

Stage 1 or 2). Early diagnosis rates for lung cancer are similar in Kent (24%) to the England average (23%).

It has not been possible to analysie this aspect of early diagnosis for Kent specifically by other equity dimensions such as sex, age, deprivation and ethnicity.

5.3.1.2 One-Year Survival

Key Points:

- The short-term trend in one-year lung cancer survival rates is very slightly upward for men, but fairly static for women
- In terms of equity, one-year survival rates for breast, colorectal and lung cancers combined are marginally lower in Swale and to a lesser extent Thanet than some other Kent CCGs.
- It is also the case that the rate of improvement in one-year survival rates for breast, colorectal and lung cancers combined is lower in Swale and (to a lesser extent) Thanet than elsewhere. This implies that these areas are likely to fall further behind in terms of one-year survival rates.

One-year survival rates provide a measure of the success (or otherwise) of early detection, with low one-year survival rates taken here to imply poor early detection rates⁹².

The chart below shows the short-term trend in one-year survival rates for lung cancer at the Kent & Medway Cancer Network level. Please note that it has not been possible to source survival rates for more recent cases. The available data covers cases diagnosed between 2002 and 2007.



Chart 5.3.1.2(i)

The one-year survival rate for lung cancer is low compared with other cancer sites. For the Kent & Medway Cancer Network area for cases diagnosed 2005-07, the one-year survival rate was 25.5% for men and slightly higher for women, at 28.0%. This compares unfavourably with figures of 28.0% and 30.9% respectively for England. In comparison with European averages, survival rates in Kent for lung cancer are low⁹³.

This series suggests that while one-year survival rates for men with lung cancer in Kent & Medway rose slightly over this period, they have remained fairly static for women.

⁹² While it is recognised that one-year survival rates are not completely synonymous with early detection (due to influences of other factors such as aggressiveness of treatment strategies vs quality of life considerations), it is assumed here that they are highly correlated.

⁹³ Source: (Eurocare), which gives the England average up to 1 year survival rate for 2000-2007 combined as 26.7% and the European average as 37.5%.

More up-to-date intelligence on one-year survival rates is available from (ONS: Index of Cancer Survival), but only for breast, colorectal and lung cancers combined. This data is also available down to CCG-level, and is displayed in the chart below.



Chart 5.3.1.2(ii)

This analysis suggests that there is some variation across Kent in respect of one-year survival rates for these three cancers combined, with oneyear survival rates for Swale and possibly Thanet CCG residents appearing lower than elsewhere in Kent.

The chart below provides an analysis of trends in the one-year survival index for these three cancers, again at CCG-level.





From 2008 onwards, most CCGs have seen a clear trend of increasing one-year survival rates.

Linear trendlines have been fitted to the time series from 2008 onwards for each CCG⁹⁴. The slopes of these lines are all positive (>0), and indicate the annual rate of improvement in the one-year survival rate for the CCG. In the chart below, these slope coefficients have been compared against the one-year survival levels in 2008 (i.e. at the start of the period of interest) in order to identify equity issues.

Chart 5.3.1.2(iv)



There is generally a positive correlation between rate of improvement and baseline one-year survival levels (i.e. it is generally the case that the best rates of improvement are being enjoyed by those CCGs that already had the highest survival rates).

This suggests that inequality across CCGs has increased over this period. The only possible exception is South Kent Coast, where the rate of improvement has been highest, but where one-year survival rates were below average in 2008 and among the lowest in the County in the late-1990s.

The chart below shows a similar analysis, but comparing the slope coefficients against the latest oneyear survival levels.

Chart 5.3.1.2(v)

When viewed in this way, the positive correlation between rate of improvement and survival rates is even stronger, with South Kent Coast CCG now displaying above average one-year survival rates along with the highest rate of improvement.



⁹⁴ For the purposes of this analysis, linear trend lines have been selected for all CCGs. The R^2 estimates of the goodness of fit are 99%+ for all CCGs except Swale (R^2 =76%) and Thanet (R^2 =91%).

This analysis suggests that, if the current modelled annual rates of improvement continue over the next few years, inequalities across CCGs will increase and the gap between the best and worst performing in respect of one-year survival rates increase.

This analysis particularly highlights Swale CCG, and to a lesser extent Thanet CCG, as having a concerning combination of low baseline survival rates and low rates of improvement. This implies that these areas are likely to fall further behind in terms of one-year survival rates.

It has not been possible to analyse survival rates for Kent specifically by other dimensions of interest (e.g. age, deprivation and ethnicity).

5.3.1.3 Urgent GP Referrals

Key Points:

- The short-term trend in urgent GP referral rates for lung cancer is upward
- In 2013, referral rates were higher than the England average in all Kent CCGs except Swale and West Kent.
- Referral rates vary considerably across GP practices. Those with low two-week wait lung cancer referral rates are:
 - o Less likely to have a high proportion of patients in the 65+ age range
 - Less likely to be seeing high rates of cancer patients (in terms of both prevalence and incidence)

The chart below compares urgent GP (two-week wait) cancer referral rates for lung cancer across CCGs.



Chart 5.3.1.3(i)

While across all cancers, and for other common cancers, urgent GP referral rates have been found to be higher in East Kent CCGs (i.e. Ashford, Canterbury & Coastal, South Kent Coast and Thanet) than elsewhere in the County, it is less clear that this is the case for lung cancers. In 2013, referral rates were higher than the England average (of 90 per 100,000) in all Kent CCGs except Swale and West Kent.

The chart below shows two-week wait referral rates for lung cancer by deprivation quintile (calculated via the deprivation quintile of the GP practice).





There is evidence to suggest that referral rates for lung cancer are lower for the least deprived quintile.

Two-week wait referral rates have also been examined at GP practice level. The funnel plot below shows the distribution of crude referrals rates for lung cancer for individual GP practices in the context of their list size (i.e. total number of patients registered at the practice).



Chart 5.3.1.3(iii)

The funnel plot identifies statistical outliers (i.e. particularly high and low referral rates taking into account list size of practices) and produces lists of GP practices with both particularly high and particularly low referral rates⁹⁵.



The 36 practices identified above as having low two-week wait referral rates for lung cancer have been profiled and compared against the profile of other GP practices in Kent. An index of 100 for a particular characteristic indicates that GPs with low referrals rates are equally likely to display the characteristic as other Kent GPs. Indexes over 100 indicate that GPs with low referral rates are more likely to display a characteristic (and indexes under 100, less likely).



Chart 5.3.1.3(iv)

Data Notes:

The profile of the 36 GP practices identified by the funnel plot as having lower than expected standardised two-week referral rates given their list size has been indexed against the profile of other GP practices in Kent (where data is available) Data sources are as follows;

1. CCG: (Cancer Commissioning Toolkit) - GP Profile

2. Deprivation Quintile: (IMD 2010 scores have been estimated at practice level, then ranked within Kent)

3. % of Patients Aged 65+: (Cancer Commissioning Toolkit) - GP Profile

4. Number of GPs at Practice: (Health and Social Care Information Centre) (from Exeter System), September 2011

5. Rurality of GP Practice: (Health and Social Care Information Centre) (based on postcode and 2001 census), calculated 2011

6. Quality of GP Practice (Patient Perception): (National General Practice Profiles)(from DH, GP Patient Survey 2013/14)

The chart below provides a similar analysis for additional practice characteristics.

Chart 5.3.1.3(v)

Profile of GP Practices With Low TWW Referral Rates (Lung Cancer) - Indexed 2013, Kent				
	Less than 350	1	144	
New Cancer Cases	350-449		120	
(Incidence)	450-549		129	
	550+	58		
	Less than 200	_	112	
Cancer Deaths	200-249		134	
(Mortality)	250-299	96 🛽		
	300+	63 🗖		
	Less than 1.5%	-	149	
Cancer Prevalance	1.5%-1.9%		130	
	2.0%-2.4%		114	
	2.5%+	37		
	Less than 350	-	175	
Emergency Admissions	350-449	56		
With Cancer	450-549		120	
	550+	46		
	Less than 9	72 🗖		
TWW Conversion Rate	9%-<11%		150	
(% With Cancer)	11%-<13%	80 🔲		
	13.0%+		135	
	Less than 40%	-	166	
New Cases Presenting via	40%-<50%		134	
TWW Referrals	50%-<60%	78 🗖		
	60%+	49		
Source: Ca	ancer Commissioning Toolkit	- GP Profile, HSCIC, pre	National General Practice Profile epared by KMPHO (RK), Feb 201	e, 5
/ Cancer Cases (Incidence): (Ca	ncer Commissioning T	oolkit) - GP Profi	ile (Crude incidence rate p	per 100,00
ons diagnosed in 2011 with a	ny invasive cancer excl	uding non-melar	noma skin cancer)	
or Doothe (Martality), (Conce	r Commissioning Toolk	it) - GP Profile ((rude mortality rate per 1	00.000 ba

9. Cancer Prevalence: (Cancer Commissioning Toolkit) - GP Profile (QOF 2012/13)

10. Emergency Admissions with Cancer: (Cancer Commissioning Toolkit) - GP Profile (Crude rate per 100,000 based on persons admitted to hospital as an inpatient or day-case via an emergency admission, with a diagnostic code that includes cancer, Mar 2012-Feb 2013)

11. TWW Conversion Rate (% with cancer): (Cancer Commissioning Toolkit) - GP Profile.

12. New Cases Presenting via TWW Referrals: (Cancer Commissioning Toolkit) - GP Profile.

Those with low two-week wait referral rates are:

- Less likely to have a high proportion of patients in the 65+ age range
- Less likely to be seeing high rates of cancer patients (in terms of both prevalence and incidence)

5.3.1.4 Routes to Diagnosis

Key Points:

Chart 5.3.1.4(i)

- The proportion of ordinary inpatient admissions with a primary diagnosis of lung cancer that are seen as emergencies is high, at around 3 in 5.
- The overall trend in this emergency admission rate is fairly static (whereas it is downward across all cancers)
- In terms of equity, emergency hospital admission rates for lung cancer are higher among:
 Older people

National research shows that one-year survival rates for lung cancer vary dramatically by the route to diagnosis. It was estimated that between 2006 and 2010, 42% of lung cancer patients diagnosed via an urgent GP referral survived for at least 1 year, falling to just 12% among emergency presentations. Figures for 3-year survival are 17% and 4% respectively⁹⁶.



The chart below summarises the available data on presentation route for the Kent acute trusts.

This analysis suggests that there are no significant differences in presentation routes for lung cancer across the acute trusts in Kent. While the estimated proportion of lung cancer cases presenting via urgent GP referrals appears to be higher in Dartford and Gravesham, this difference is not statistically significant.

⁹⁶ Source: 'Routes to Diagnosis 2006-2010' produced by the National Awareness and Early Diagnosis Initiative (NAEDI).

CG-level data on route to diagnosis is available from the National Awareness and Early Diagnosis Initiative (NAEDI), but is based on much older data (I.e. diagnoses made between 2006 and 2010)⁹⁷.



Chart 5.3.1.4(ii)

This analysis suggests that the pattern of route to diagnosis has historically been reasonably similar across CCGs in Kent. The potential exception is Dartford & Gravesham, where there appears to be a slightly lower proportion of cases diagnosed through emergency routes, and a slightly higher proportion through 'managed' routes (which includes all GP referrals as well as cases presenting via an elective hospital admission).

It has not been possible to analyse this aspect of early diagnosis for Kent specifically by other equity dimensions such as sex, age, deprivation and ethnicity. However, it has been possible to analyse inpatient hospital admissions with a primary diagnosis of lung cancer by whether or not the admission was elective or an emergency.

⁹⁷ This could explain the apparent differences with the Trust-level data displayed earlier in this section.

5.3.1.5 Emergency Admissions to Hospital

The chart below shows trends in the proportion of ordinary inpatient admissions with a primary diagnosis of lung cancer that were seen as emergencies, by sex.





This analysis suggests that, in Kent, around 3 in 5 ordinary inpatient admissions with a primary diagnosis of lung cancer are seen as emergencies. This is far higher than the 28% observed across all cancers, and there is no evidence that these emergency admission rates are decreasing for lung cancer, as is the case across all cancers. There is no significant difference between men and women in terms of the proportion of lung cancer admissions that were seen as emergencies.

Analysis has also been conducted by CCG of residence.

Chart 5.3.1.5(ii)





The charts below provide an analysis by deprivation.

Chart 5.3.1.5(iii)





Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) for emergency inpatient admissions of 1% (with a 95% confidence interval of -23% to 35%).

This suggests that there is no equity issue in relation to deprivation.



Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Gini coefficient of 10.1%.

Analysis has also been conducted by patients' ethnicity.

Chart 5.3.1.5(v)



Source: SUS, prepared by KMPHO (RK), Feb 2015

This analysis suggests no significant differences according to ethnicity.

5.3.2 Treatment

In addition to early diagnosis, the level and the quality of the treatment patients receive provides a measure of the overall level of service being received by lung cancer patients in Kent.

The chart below provides a summary of six measures of service levels in terms of treatment for the acute trusts in Kent.





- 2. % Treatment within 31 days of decision to treat, 2013/14. Source: (Cancer Commissioning Tod
- % Patients With Histological Diagnosis, 2013. Source: (National Lung Cancer Audit)
 % Accessing A Nurse Specialist, 2013. Source: (National Lung Cancer Audit)
- % Patients Receiving Active Treatment, 2013. Source: (National Lung Cancer Audit)
- % Patients Receiving Surgery, 2013. Source: (National Lung Cancer Audit)

Data presented in the (National Lung Cancer Audit) refers to the trust where the patient was first seen.

This analysis suggests significant variation across the County. While virtually all cancer patients in Kent start their treatment within 31 days of the decision being taken, data extracted from the Cancer Commissioning Toolkit suggests that performance in Dartford and Gravesham NHS Trust on waiting times for urgent (two-week wait) GP referrals is well below the 95% target. However, higher proportions of confirmed lung cancer patients in Dartford & Gravesham have received a histological diagnosis, accessed a nurse specialist and received active treatment than elsewhere in Kent, and particularly in comparison with East Kent Hospitals University NHS Foundation Trust. Across Kent, around 1 in 7 lung cancer patients receive surgery.

5.3.2.1 Waiting Times

Key Points:

- While virtually all lung cancer patients in Kent start their treatment within 31 days of the decision being taken, performance against the two-week wait target for urgent GP referrals are not as strong.
 - Particularly in the Dartford and Gravesham NHS Trust area, where the available data suggests the target 95% is not being reached

The chart below summarises the available data on waiting times for lung cancer patients in Kent.



Chart 5.3.2.1

Across Kent, virtually all lung cancer patients started their treatment within 31 days of the decision being taken. While more than the target 95% of patients is seen within two weeks of an urgent GP referral in the East Kent Hospitals University NHS Foundation Trust and Maidstone and Tunbridge Wells NHS Trust areas, this appears not to be the case in the Dartford and Gravesham NHS Trust area.

It has not possible to conduct further analysis by other equity dimensions such as sex, age, deprivation and ethnicity.

5.3.2.2 Histological Diagnosis

Key Points:

- The short-term trend in the proportion of lung cancer patients receiving a histological diagnosis across Kent is downward
- Those seen initially at Dartford and Gravesham NHS Trust are most likely to receive a histological diagnosis, and those seen at East Kent Hospitals University NHS Trust the least likely.

The chart below shows the proportion of lung cancer patients who received a histological diagnosis by acute trust. The analysis includes odds ratios, which provide a measure of histological diagnosis adjusted for case mix⁹⁸.



Chart 5.3.2.2

Both the unadjusted proportions of patients receiving a histological diagnosis, and the case-mix adjusted odds ratios suggest that a greater proportion of lung cancer patients seen initially at Dartford and Gravesham NHS Trust receive a histological diagnosis for their condition. The

⁹⁸ Data presented is the Odds Ratio of histological diagnosis in a specified trust relative to the whole LUCADA population, adjusted for composition of population in terms of age, sex, socioeconomic status, performance status, stage.

proportion of patients receiving a histological diagnosis appears particularly low for East Kent Hospitals University NHS Foundation Trust, where it is below the England average for 2013 of 75%.

In terms of trends over time, there is evidence to suggest that, with the exception of patients first seen at Dartford and Gravesham NHS Trust, the proportion of lung cancer patients receiving a histological diagnosis has fallen between 2012 and 2013.

It has not possible to conduct further analysis by other equity dimensions such as sex, age, deprivation and ethnicity.

5.3.2.3 Nurse Specialists

Key Points:

• Those seen initially at East Kent Hospitals University NHS Trust are far less likely to have been assessed by a nurse specialist

The chart below shows the proportion of lung cancer patients who were assessed by a nurse specialist by acute trust. The analysis includes the proportion of cases for which data on nurse specialists is available as well as the proportion of patients recorded as have been assessed by a nurse specialist.





While all patients first seen at Dartford and Gravesham NHS Trust and 90% of patients first seen at Maidstone and Tunbridge Wells were assessed by a nurse specialist, the National Lung Cancer Audit reports that this happened for less than half of East Kent Hospitals University NHS Foundation Trust patients. This is well below the national average of 84%.

Data coverage is 100% for all three acute trusts in Kent (higher than the national average of 93%).

It has not possible to conduct further analysis by other equity dimensions such as sex, age, deprivation and ethnicity.

5.3.2.4 Patients Receiving Treatment



- The short-term trend in the proportion of lung cancer patients receiving active treatment across Kent is upward
- Those seen initially at East Kent Hospitals University NHS Trust are least likely to receive active treatment
- The overall trend in the proportion of lung cancer patients in Kent admitted to hospital • undergoing a resection is upward
- In terms of equity, laparoscopic surgery rates are lower among: •
 - Older patients
- There is evidence to suggest that the resection rate in Thanet is lower than for some other Kent CCGs.

trust. The analysis includes odds ratios, which provide a measure of treatment rates adjusted for case mix⁹⁹.





The chart below shows the proportion of lung cancer patients receiving active treatment by acute

This analysis suggests that lung cancer patients first seen at East Kent Hospitals University NHS Foundation Trust are less likely to receive active treatment than those seen elsewhere in Kent. In particular, the odds ratio for active treatment is lower for East Kent than the other acute trusts.

The charts overleaf provide a more detailed analysis of the proportions of lung cancer patients receiving particular types of treatment. In 2013, only around 1 in 7 lung cancer patients first seen at one of the three Kent acute trusts received surgery. Around a third received radiotherapy, and around a quarter chemotherapy.



Chart 5.3.2.4(ii)

In terms of differences across acute trusts, this analysis indicates that while lung cancer patients first seen at East Kent Hospitals University NHS Foundation Trust are as likely to receive radiotherapy as lung cancer patients elsewhere, they are less likely to receive chemotherapy (19% for NSCLC patients, compared with 32% and 27% for Dartford and Gravesham NHS Trust and Maidstone and Tunbridge Wells NHS Trust respectively). In 2012, patients first seen at East Kent Hospitals University NHS Foundation Trust were also less likely than those seen elsewhere to have surgery, but surgery rates were fairly similar in 2013.

Further analysis of lung cancer patients treated surgically is possible using SUS data, which then allows analysis by key equity dimensions. The chart below shows the proportion of patients admitted to hospital with lung cancer who underwent a resection (i.e. surgery) that year, by sex¹⁰⁰.





Data Notes:

% Of Patients Admitted to Hospital With Lung Cancer Undergoing A Resection. Source: SUS. Lung cancer patients were identified via HES records where the primary diagnosis was lung cancer (ICD10: C34) Resections were identified via HES episodes where the procedures included one of the resection OPCS4 codes identified in (NCIN 'Major Surgical Resections, 2004-06')report

Perhaps the key point to note here is that this analysis suggests that resection rates for lung cancer patients have risen for both men and women in Kent. In 2006/07, just 7% of those admitted to hospital with a primary diagnosis of lung cancer had a resection, compared with 12% in 2013/14.

In 2013/14, resection rates were very similar for men and women (12% and 13% respectively).

¹⁰⁰ This data provides an *estimate* of the true resection rate. It differs from the more precise measure of '% of patients having surgery' reported on in the National Lung Cancer Audit because it only considers in the denominator lung cancer patients admitted to hospital during the contract year in question, and in the numerator those who received surgery during that year.

Analysis has also been conducted by the CCG of residence of the patient.

Chart 5.3.2.4(iv)



The lack of consistency in the trend charts make it difficult to draw any robust conclusions in respect of differences across CCGs. The potential exception is Thanet, where there appears to be a lower resection rate in comparison with some other CCGs.

There is no evidence to suggest any issues with equity of access to resections by ethnicity.

Chart 5.3.2.4(v)



Source: SUS, prepared by KMPHO (RK), Feb 2015

The charts below show how resection rates vary by deprivation quintile.

Chart 5.3.2.4(vi)


The chart below examines resection rates by the age of the patient.

Chart 5.3.2.4(vii)

There is evidence to suggest that older lung cancer patients in Kent (aged 85+) are less likely to have a resection.





Further analysis using the (Public Health England Inequalities Analysis Tool), gives a Slope Index of Inequality (SII) of -7% (with a 95% confidence interval of -25% to 10%), and a Gini coefficient of 12.4%.

5.4 Comparison Of Service And Need

The equity footprint below provides a summary comparison of service levels and need for all cancers in Kent, with respect to a number of equity characteristics.





The equity footprint demonstrates the higher levels of need for men, those living in more deprived areas and older patients.

In terms of service levels, while it has not been possible to analyse most aspects of the level of service being delivered by equity characteristics at the Kent level, mismatches are flagged in terms of:

- **One-year survival rates**¹⁰¹ for men and women (with survival rates higher for women, despite the level of need being lower for this group
- **Resection rates** by age (with the proportion of patients admitted to hospital with lung cancer receiving a resection lower older patients, despite the level of need being higher for this group).
- **Emergency presentation rates** by age (with the proportion of cases presenting as an emergency higher for older patients).

It could be argued that these types of mismatch imply a future widening of existing inequalities.

¹⁰¹ Used here as a proxy measure for early detection.

Annex A: CCG Summaries

Graphical CCG-level summaries are provided below.





Annex B: Definitions & References

Slope Index of Inequality

For more details on the slope index of inequality (SII) see:

Regidor E. Methods for measuring health inequalities: part 2. J Epidemiol Community Health. 2004; 58: 900-903. http://jech.bmjjournals.com/cgi/content/full/58/11/900

Low A and Low A. Measuring the gap: quantifying and comparing local health inequalities. Journal of Public Health. 2004; 26(4): 388-395.

Gini Coefficient

For more details on the Gini coefficient see:

Brown, Malcolm (1994). "Using Gini-Style Indices to Evaluate the Spatial Patterns of Health Practitioners: Theoretical Considerations and an Application Based on Alberta Data". Social Science Medicine 38 (9): 1243-1256.