KENT PUBLIC HEALTH OBSERVATORY

Population Health Needs, Inequalities and Commissioning Opportunities in North Kent

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Produced by

Abraham George: Public Health Consultant (abraham.george@Kent.gov.uk)
Rachel Kennard: Senior Intelligence Analyst (rachel.kennard@kent.gov.uk)
Remi Omotoye: JSNA Programme Manager (remi.omotoye@kent.gov.uk)
Correspondence to: Abraham George

Status: Final

Part 2

13 Healthcare utilisation and disease distribution 6

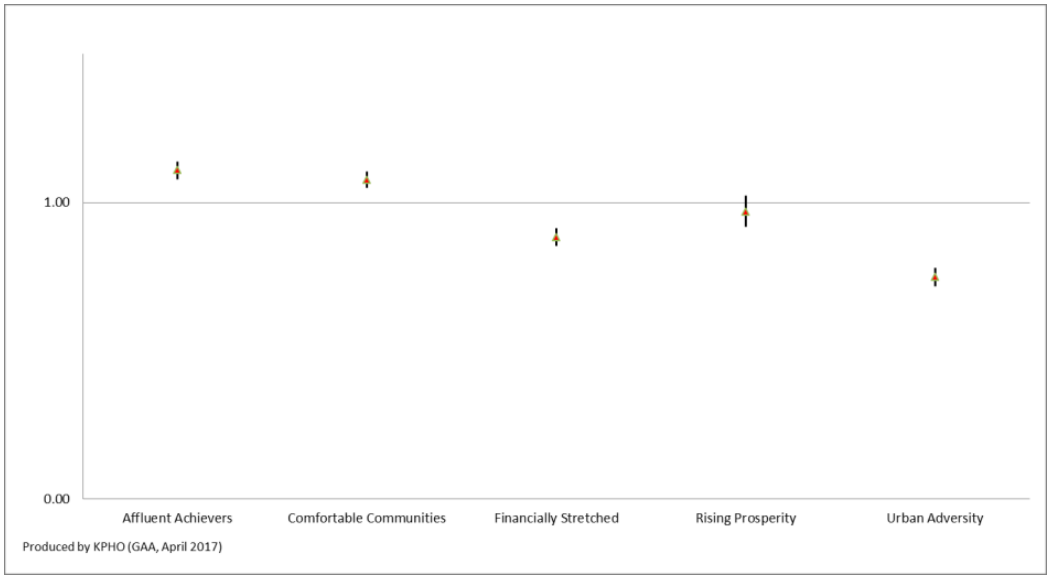
13 Healthcare utilisation and disease distribution

13.1 Health checks

The ACORN classifications are on based on demographic, socio-economic, population and consumer behaviour. The ACORN segments are used provide insights into people's behaviour, lifestyle and attitudes.

Within Kent, persons categorised by household types 'Affluent Achievers' and 'Comfortable Communities' are more likely to complete a Health Check when compared with persons categorised as being 'Financially Stretched' or in 'Urban Adversity'. The group type 'Rising Prosperity' showed no effect one way or the other.

Figure 99: Odds ratio of completing a Health Check by ACORN type (persons)



13.2 Diabetes

Diabetes poses a major public health challenge for the local population. It is a significant cause of morbidity. Diabetes reduces the life expectancy of people with type 1 by about 15 years and type 2 by about 10 years. If not well managed individuals with diabetes could have co-morbidities resulting in complications such as:

Diabetic emergencies: Hypoglycaemia, diabetic ketoacidosis, other diabetic comas

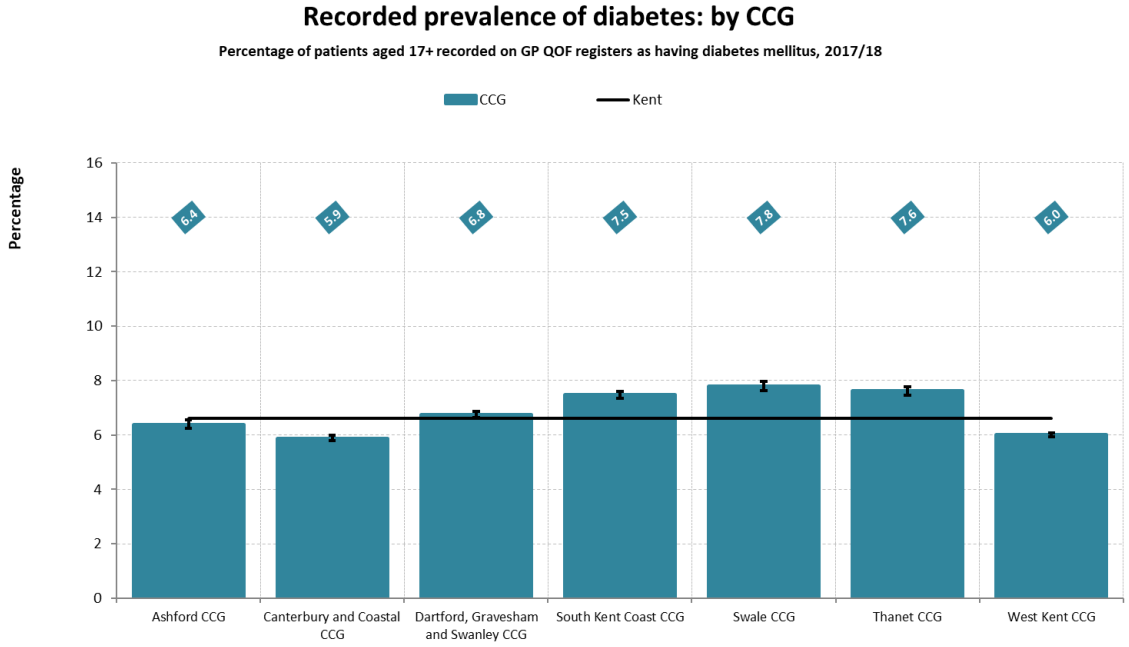
Chronic complications: blindness, kidney disease, coronary heart disease, foot ulcers, amputations, and neuropathy.

Many of these complications are preventable with better control of blood glucose level, control of high blood pressure and blood cholesterol and routine screening such as diabetic retinal screening.

Whilst the QOF recorded diabetes prevalence in DGS is similar to the Kent average, it is higher in the Swale CCG area. In both areas, 10 (of 30) DGS practices and 10 (of 18) Swale practices included in the 2017/18 QOF have a recorded diabetes prevalence significantly higher than the Kent average.

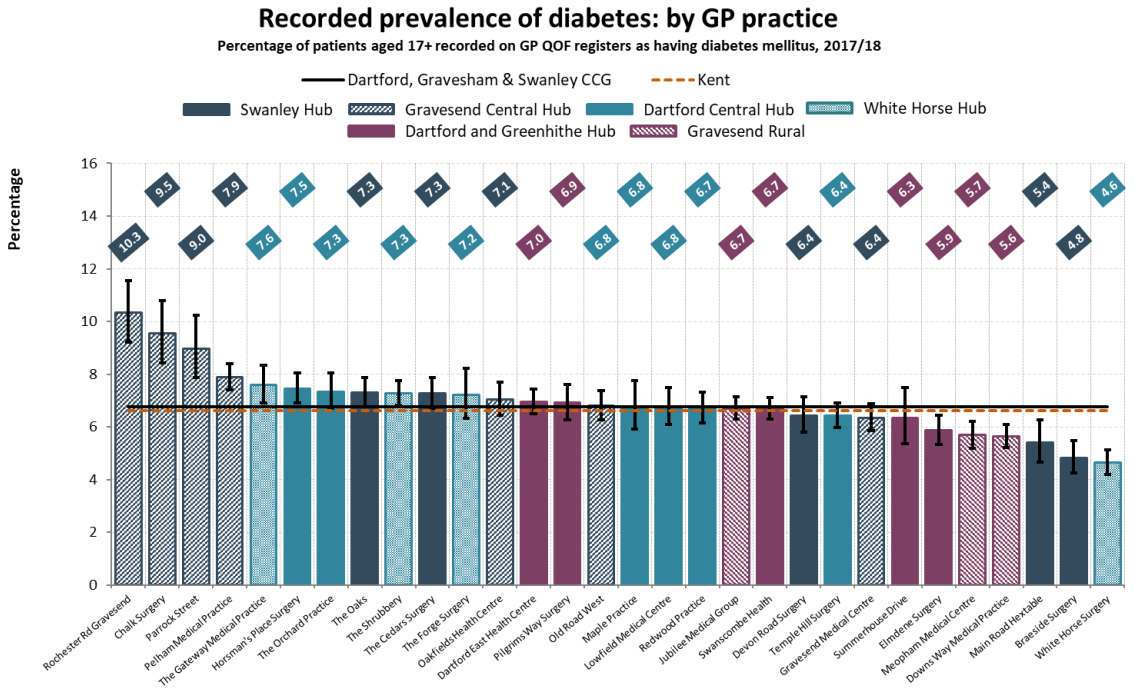
Obesity is one of the risk factors for type 2 diabetes. There is also variation in recorded obesity prevalence across practices.

Figure 100: Recorded diabetes prevalence – by CCG (of registration)

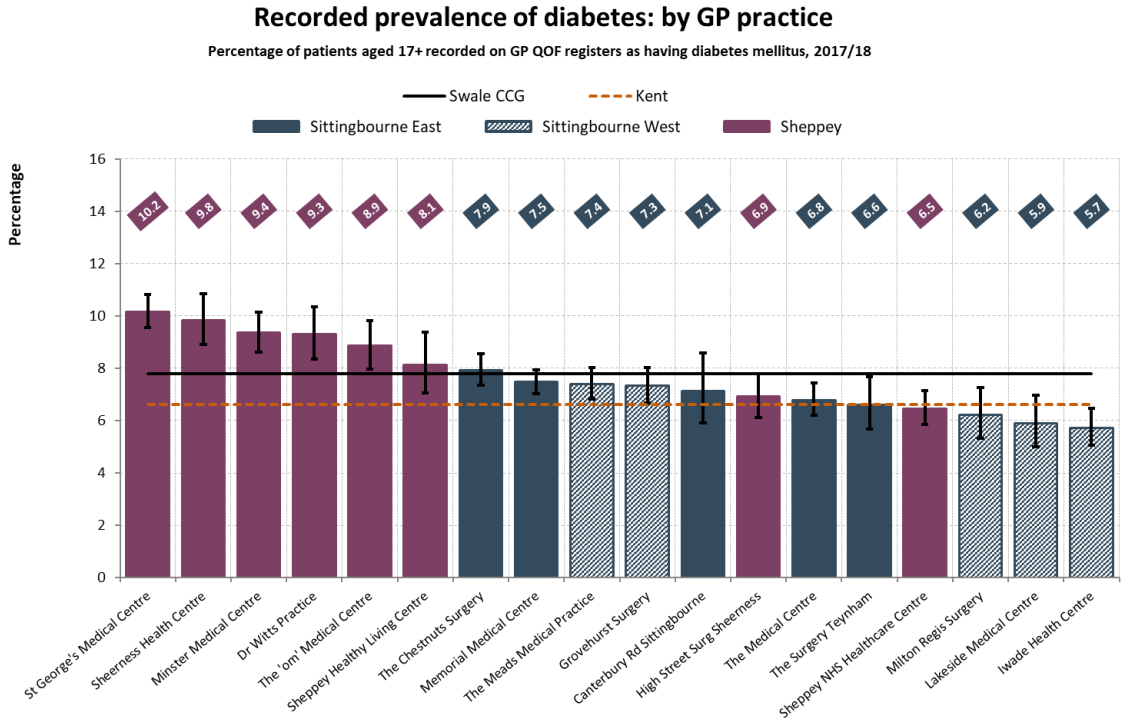


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 101: Recorded diabetes prevalence – by GP practice

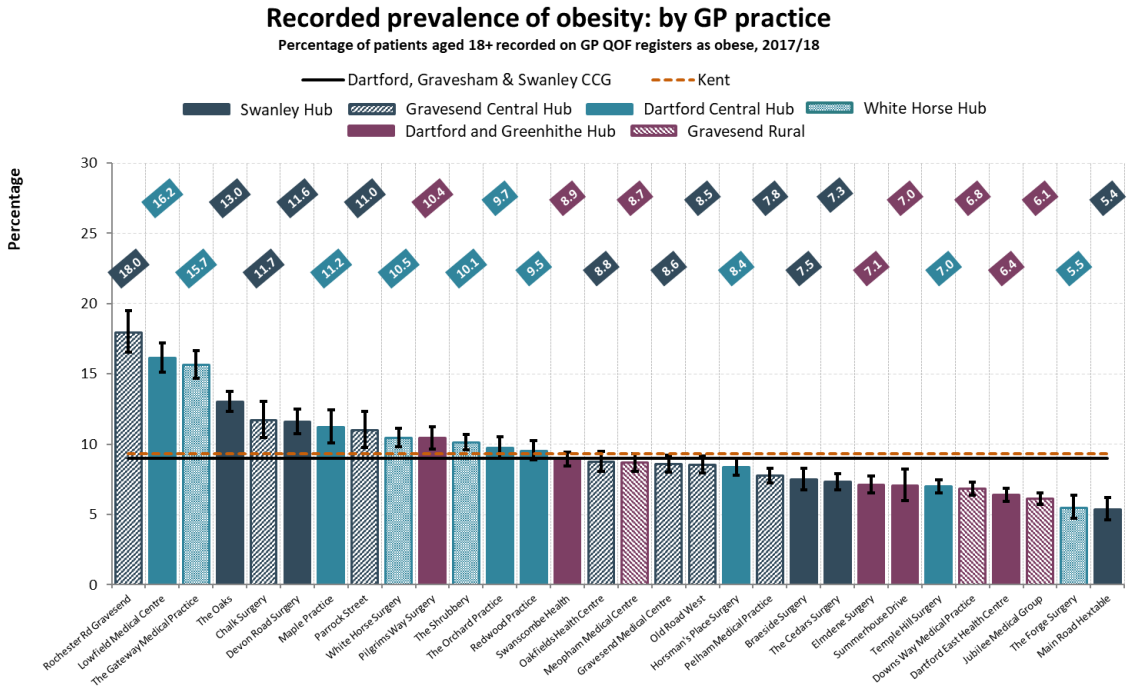


Source: QOF, prepared by KPHO (RK), Jan-19

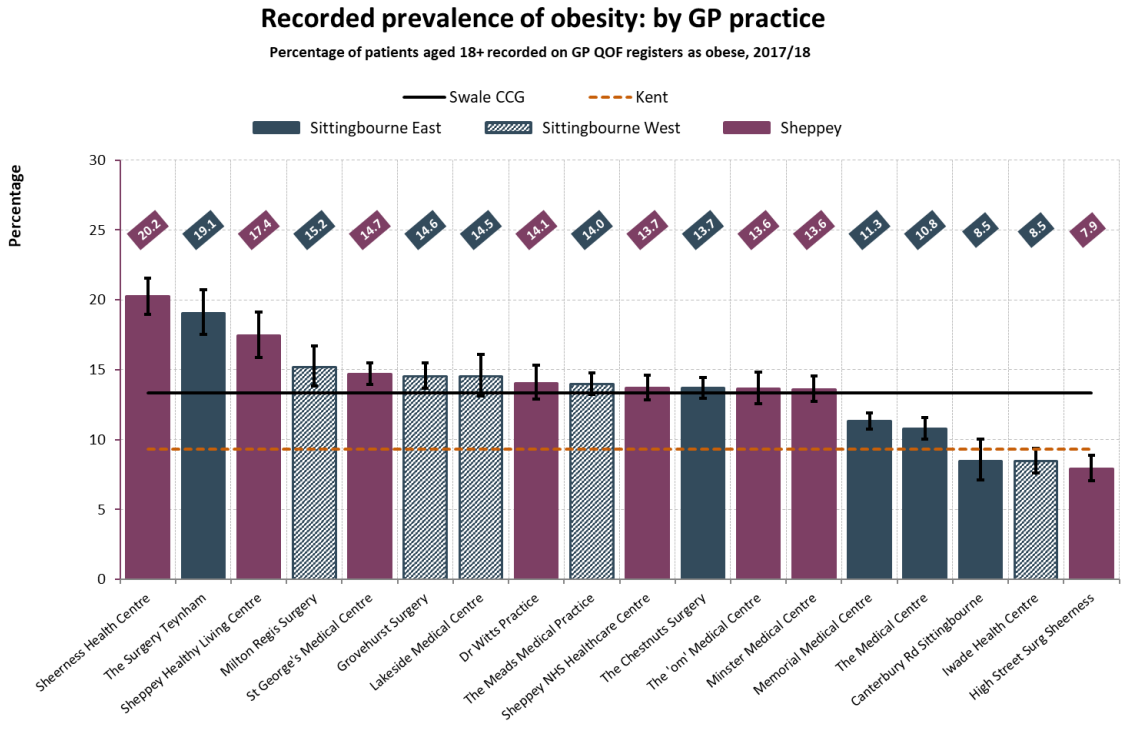


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 102: Recorded prevalence of obesity – by GP practice



Source: QOF, prepared by KPHO (RK), Jan-19

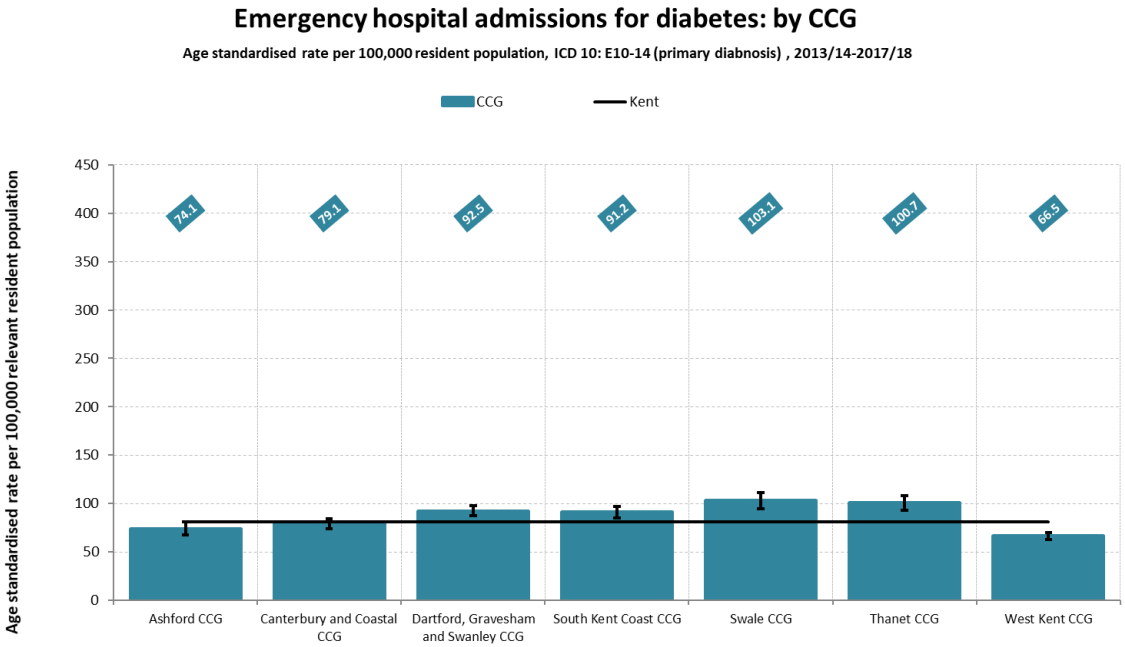


Source: QOF, prepared by KPHO (RK), Jan-19

The rate of emergency admissions to hospital for diabetes in North Kent is higher than the Kent average. There is significant variation across wards, with 7 wards in DGS and 3 wards in Swale CCG having significantly higher emergency hospital admission rates than the Kent average.

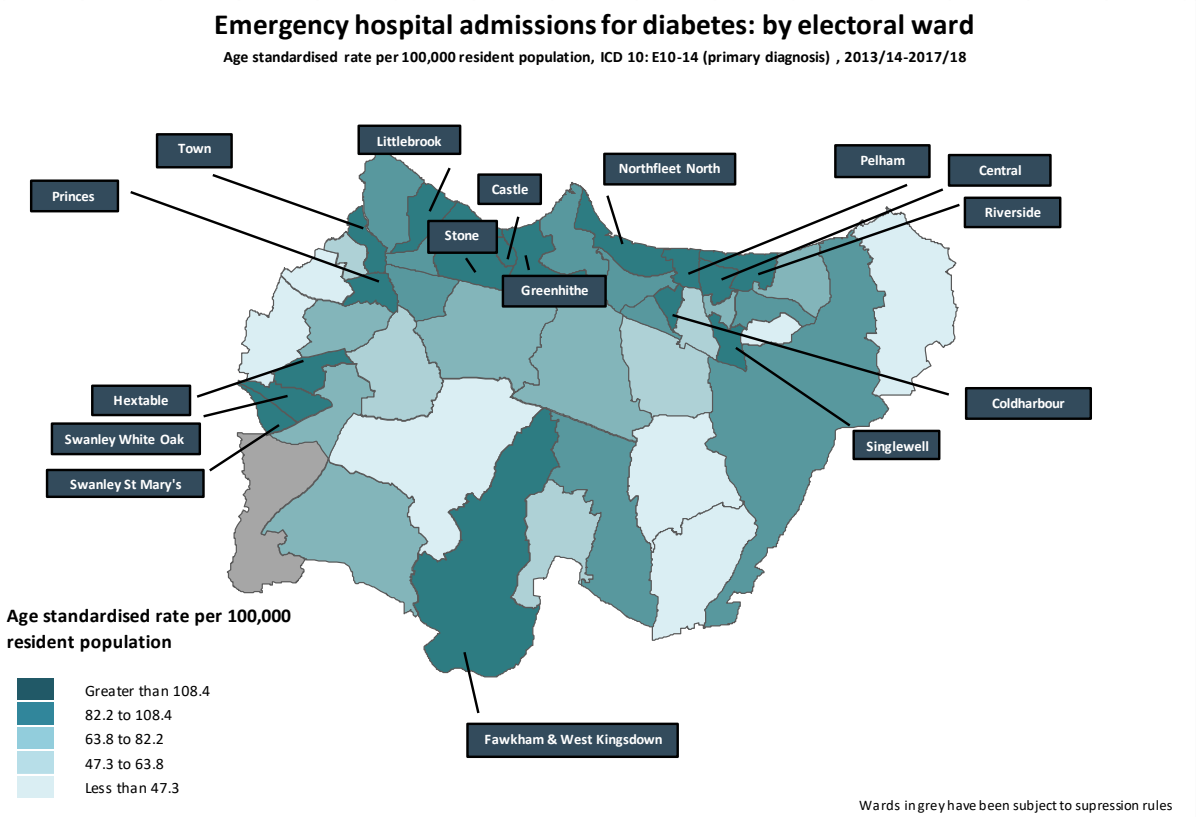
- Central
- Greenhithe
- Littlebrook
- Minster Cliffs
- Murston
- Northfleet North
- Princes
- Riverside
- Sheerness East
- Singlewell

Figure 103: Emergency hospital admissions for diabetes – by CCG (of residence)

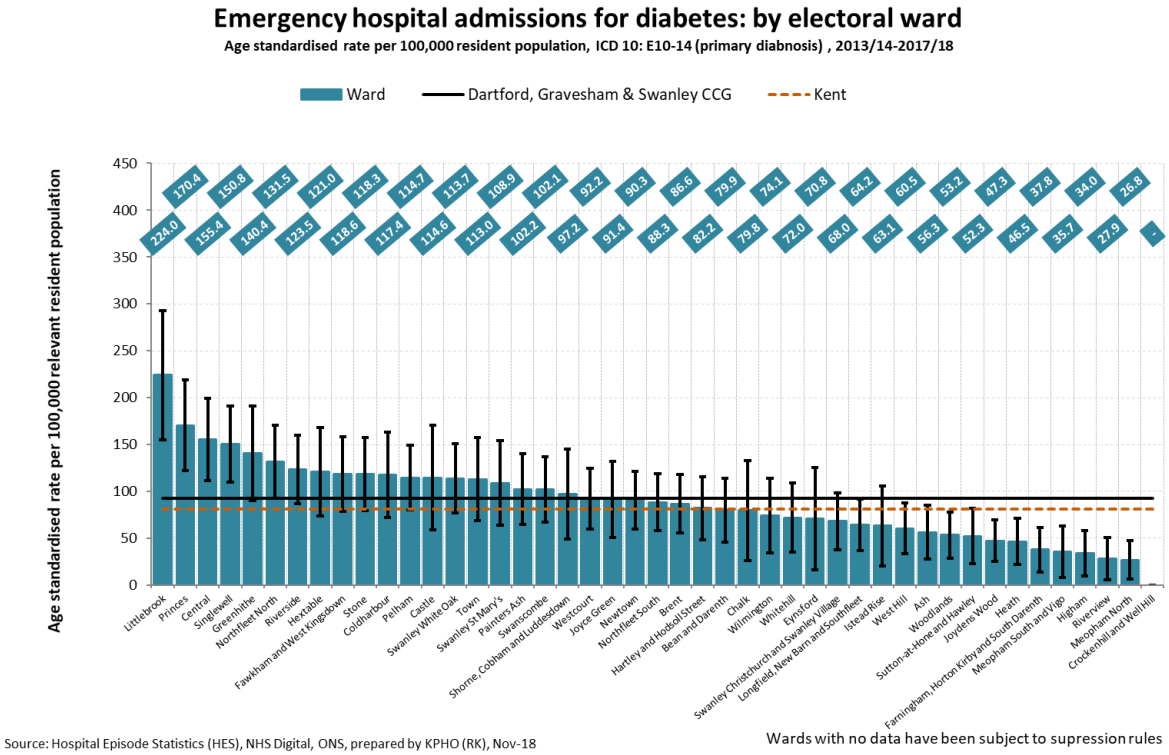


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Nov-18

Figure 104: Emergency hospital admissions for diabetes – by ward



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Nov-18

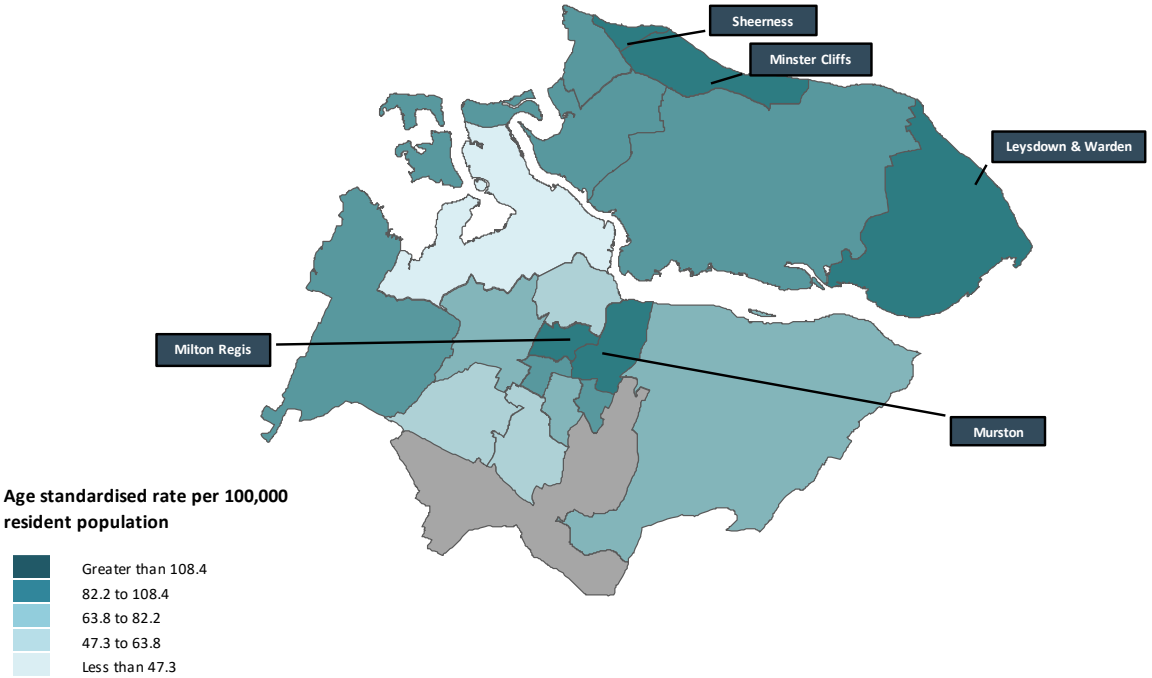


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Nov-18

Wards with no data have been subject to supression rules

Emergency hospital admissions for diabetes: by electoral ward

Age standardised rate per 100,000 resident population, ICD 10: E10-14 (primary diagnosis) , 2013/14-2017/18

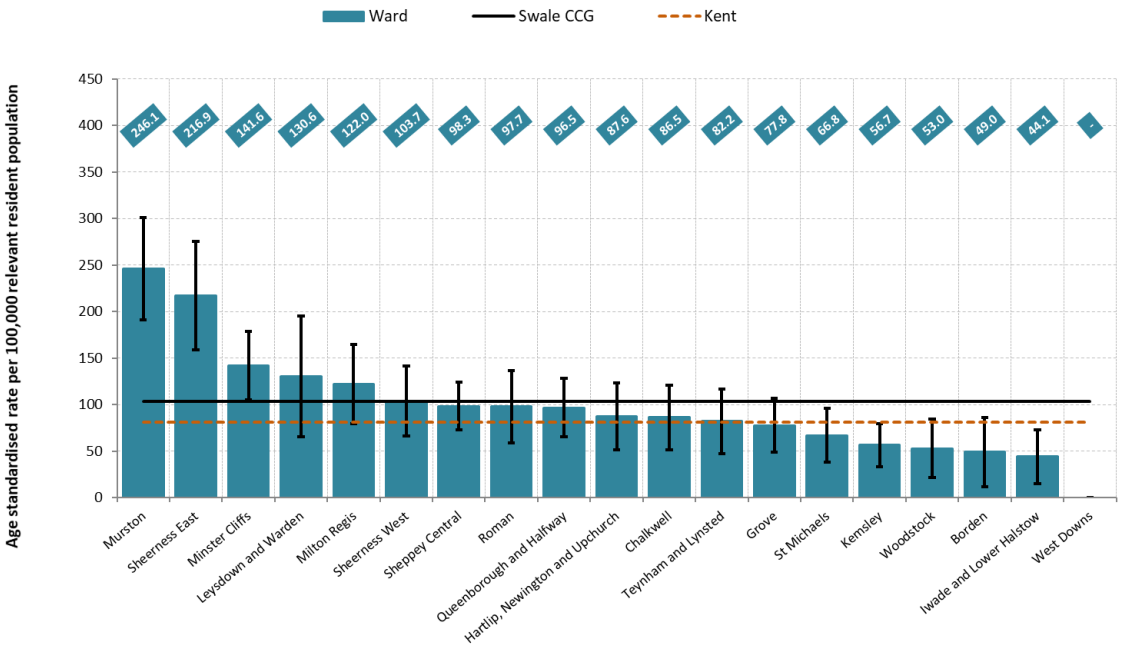


Wards in grey have been subject to supression rules

Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Nov-18

Emergency hospital admissions for diabetes: by electoral ward

Age standardised rate per 100,000 resident population, ICD 10: E10-14 (primary diabnosis) , 2013/14-2017/18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Nov-18

Wards with no data have been subject to supression rules

Conclusion

There is variation in Diabetes prevalence, 10 (of the 18) practices in DGS CCG, and 10 (of the 30) practices in Swale have higher rates compared to the North Kent average. Recorded prevalence is highest in Rochester Road Gravesend in DGS and St Georges Medical Centre, both practices in the respective CCGs.

Littlebrock and Crockerhill and Well Hill wards, both in DGS CCG area, respectively had the highest and lowest hospital admissions for diabetes. In the Swale CCG area, corresponding highest and lowest hospital admissions rates were in Murstow and West Downs wards.

Recommendations

Greater emphasis prevention which needs to be grounded in local interventions rather than just giving advice. Interventions need to be able to identify undiagnosed diabetics as well as the cohort of patients inadequately supported in Primary Care.

There needs to be greater emphasis on obesity given the relationship BMI shares with diabetes.

Optimizing health checks to 'find the missing thousands' and for referral into lifestyle programs to reduce risks.

Secondary prevention for people with diabetes is important to prevent complications. Local primary care providers should be made aware of rates of emergency admissions for diabetic complications and structure services accordingly.

All diabetes patients except those with existing eye conditions and under the care of a specialist should attend annual screening to prevent retinopathy.

Specialized services such as education, podiatry, dietetics and psychology require additional support to ensure equitable access across North Kent, in anticipation of the predicted rise in increasing numbers of people who will be diagnosed with diabetes.

13.3 Respiratory diseases

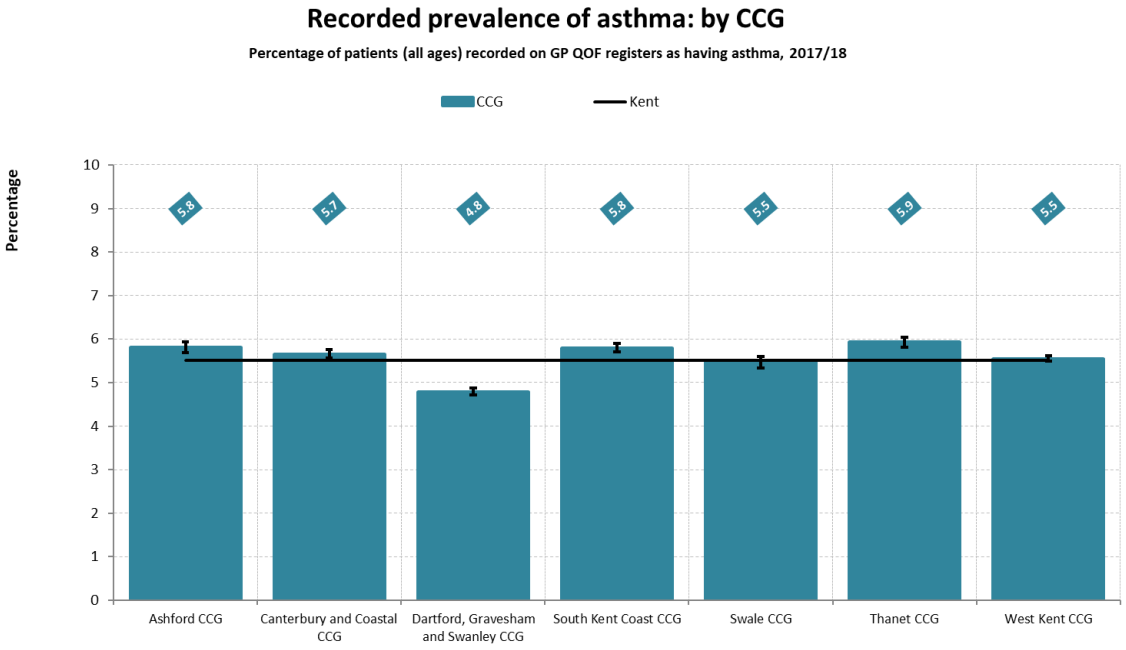
Asthma and Chronic Obstructive Pulmonary Disease are the two most common chronic lung diseases. Lung diseases can affect an individual's level of mobility and also their activities of daily living.

13.3.1 Asthma

Asthma affects both children and adults and is one of the most common chronic conditions. The recorded prevalence for asthma for DGS is 4.8% (significantly below the Kent average) and for Swale CCG is 5.5% (similar to the Kent average). There is one practice in DGS and 3 practices in Swale CCG with significantly higher recorded asthma prevalence than the Kent average:

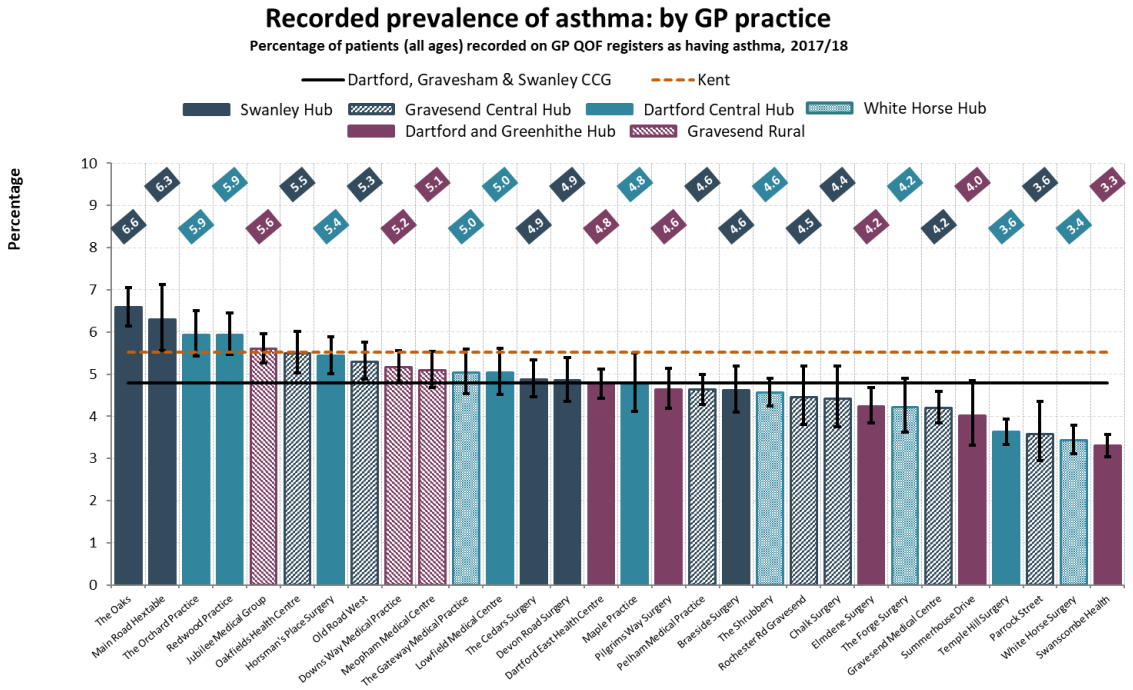
- Iwade Health Centre
- Sheerness Health Centre
- The Medical Centre
- The Oaks

Figure 105: Recorded asthma prevalence – by CCG (of registration)

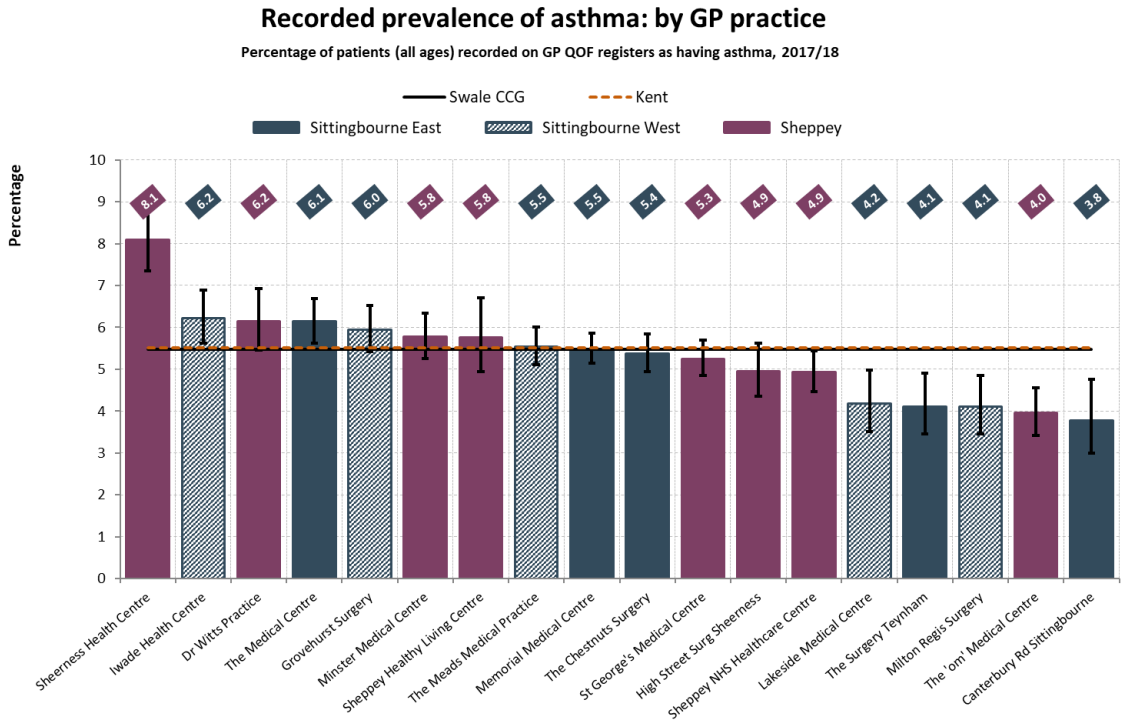


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 106: Recorded asthma prevalence – by GP practice



Source: QOF, prepared by KPHO (RK), Jan-19

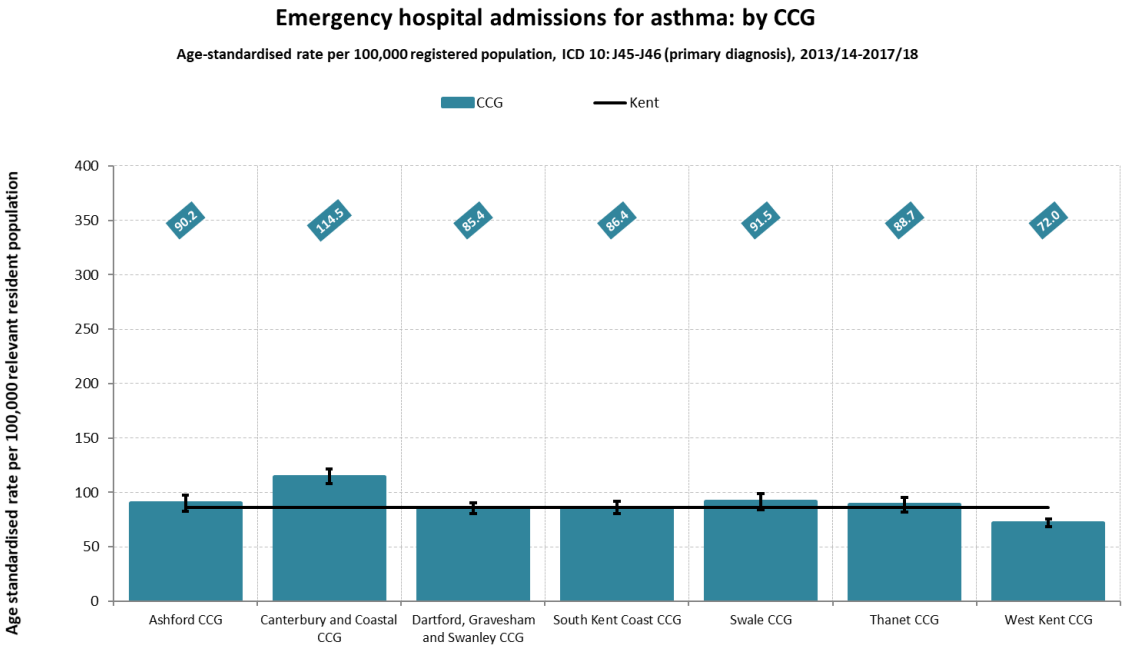


Source: QOF, prepared by KPHO (RK), Jan-19

The rate of emergency admissions to hospital for asthma in North Kent is similar to the Kent average. There is significant variation across wards, with 4 wards in DGS and 3 wards in Swale CCG having significantly higher emergency hospital admission rates than the Kent average:

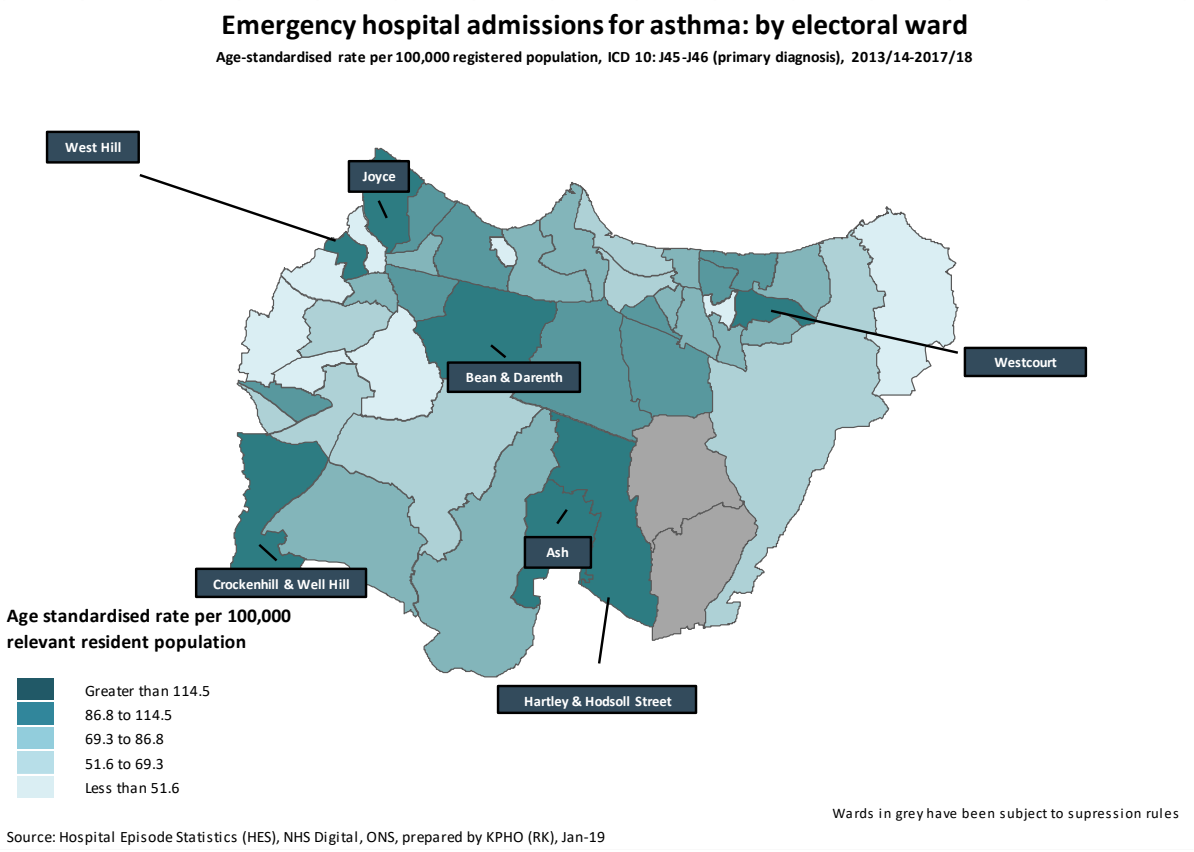
- Hartley & Hodsoll Street
- Joyce Green
- Murston
- St Michaels
- Sheerness West
- West Hill
- Westcourt

Figure 107: Emergency hospital admissions for asthma – by CCG (of residence)

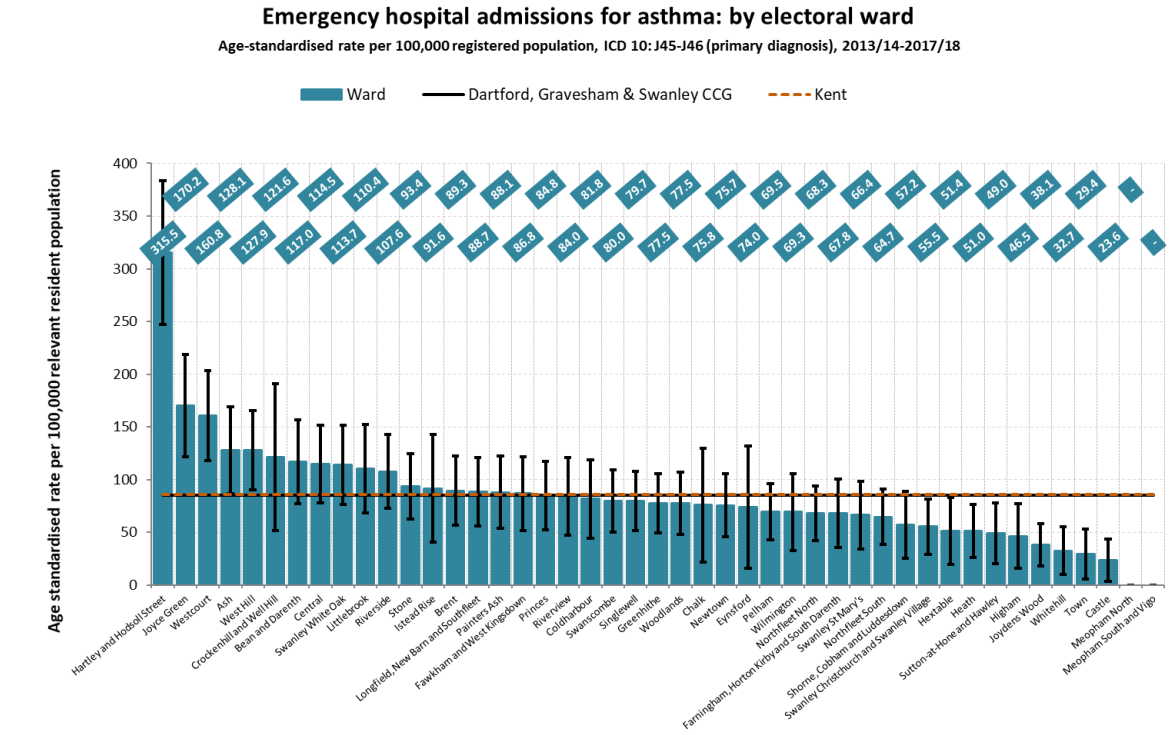


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Jan-19

Figure 108: Emergency hospital admissions for asthma – by ward



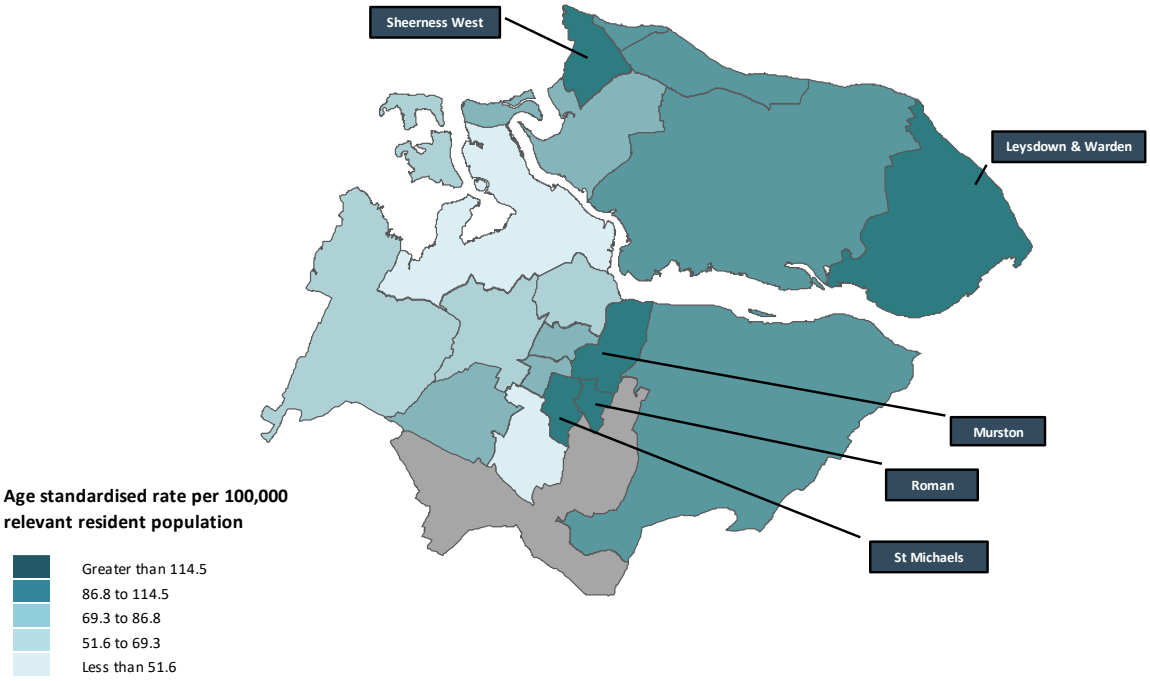
Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Jan-19



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Jan-19

Emergency hospital admissions for asthma: by electoral ward

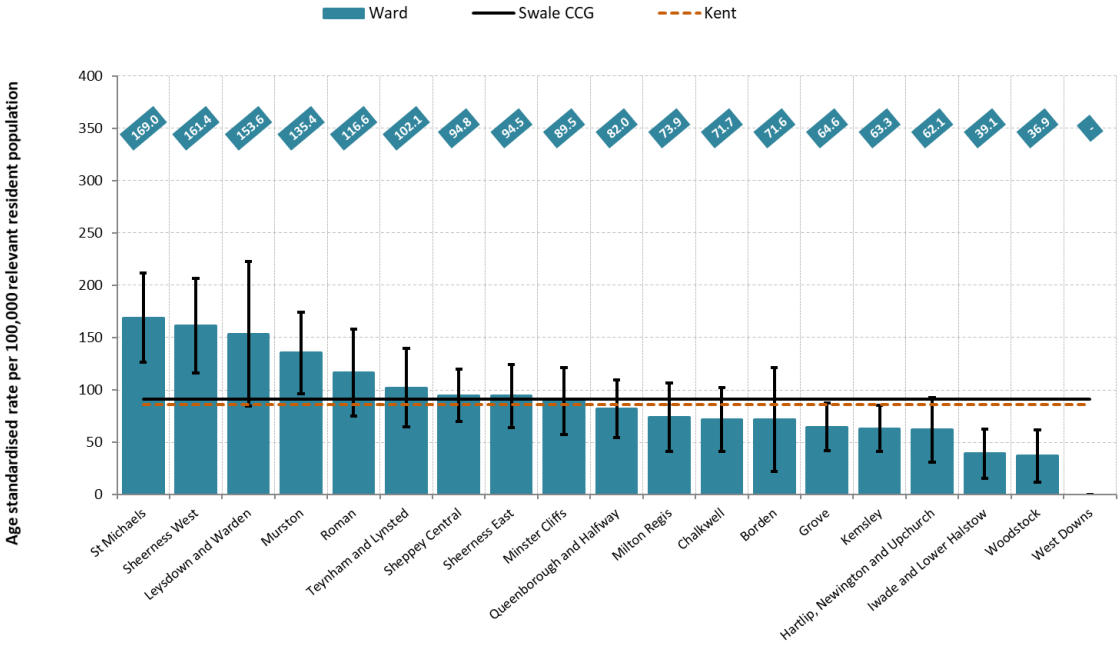
Age-standardised rate per 100,000 registered population, ICD 10: J45-J46 (primary diagnosis), 2013/14-2017/18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Jan-19

Emergency hospital admissions for asthma: by electoral ward

Age-standardised rate per 100,000 registered population, ICD 10: J45-J46 (primary diagnosis), 2013/14-2017/18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Jan-19

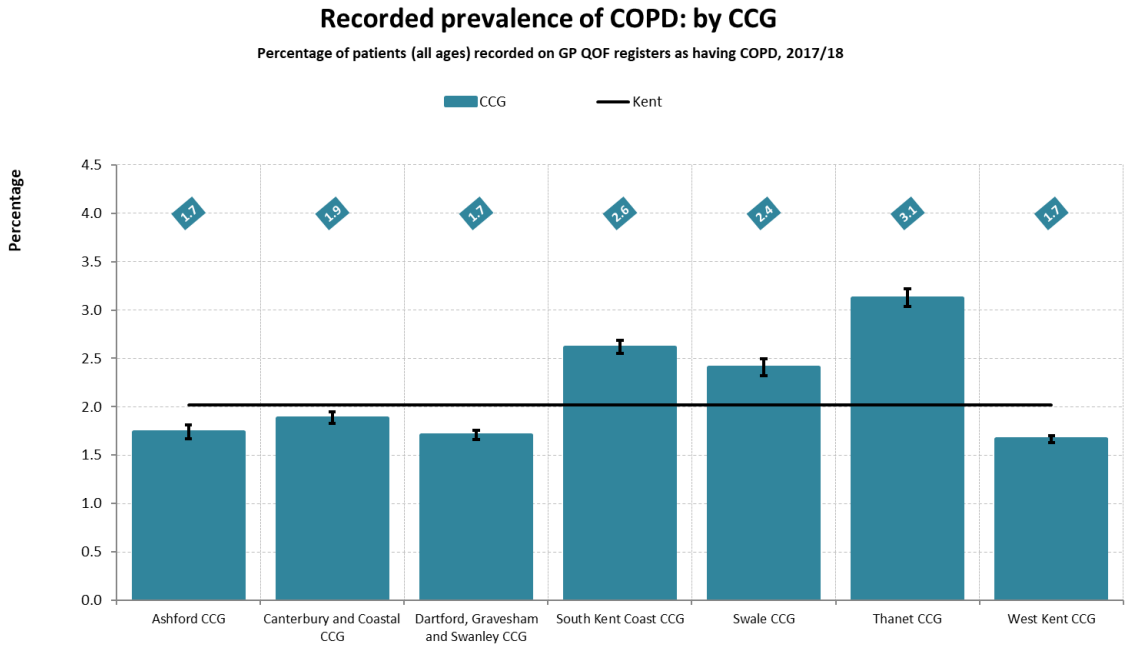
13.3.2 Chronic Obstructive Pulmonary Disease (COPD)

COPD is a general term that is used to describe a number of conditions, including chronic bronchitis and emphysema. The primary cause of COPD is smoking.

Recorded COPD prevalence in DGS is lower than the Kent average, but it is higher than the Kent average in Swale CCG. There is also high variability across practices. There are 4 practices in DGS and 9 practices in Swale CCG with significantly higher recorded COPD prevalence than the Kent average:

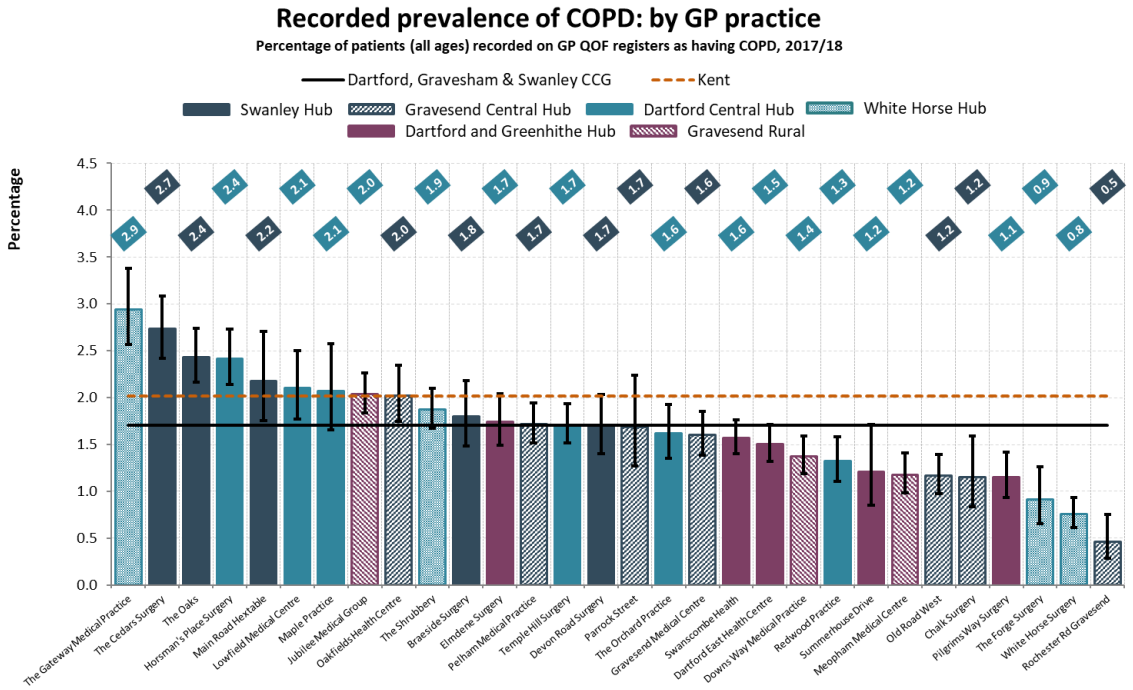
- Dr Witts Practice
- Grovehurst Surgery
- Horsman's Place Surgery
- Minster Medical Centre
- Sheerness Health Centre
- Sheppey Health Living Centre
- Sheppey NHS Healthcare Centre
- St George's Medical Centre
- The Cedars Surgery
- The Chestnuts Surgery
- The Gateway Medical Practice
- The Oaks
- The 'om' Medical Centre

Figure 109: Recorded COPD prevalence – by CCG (of registration)

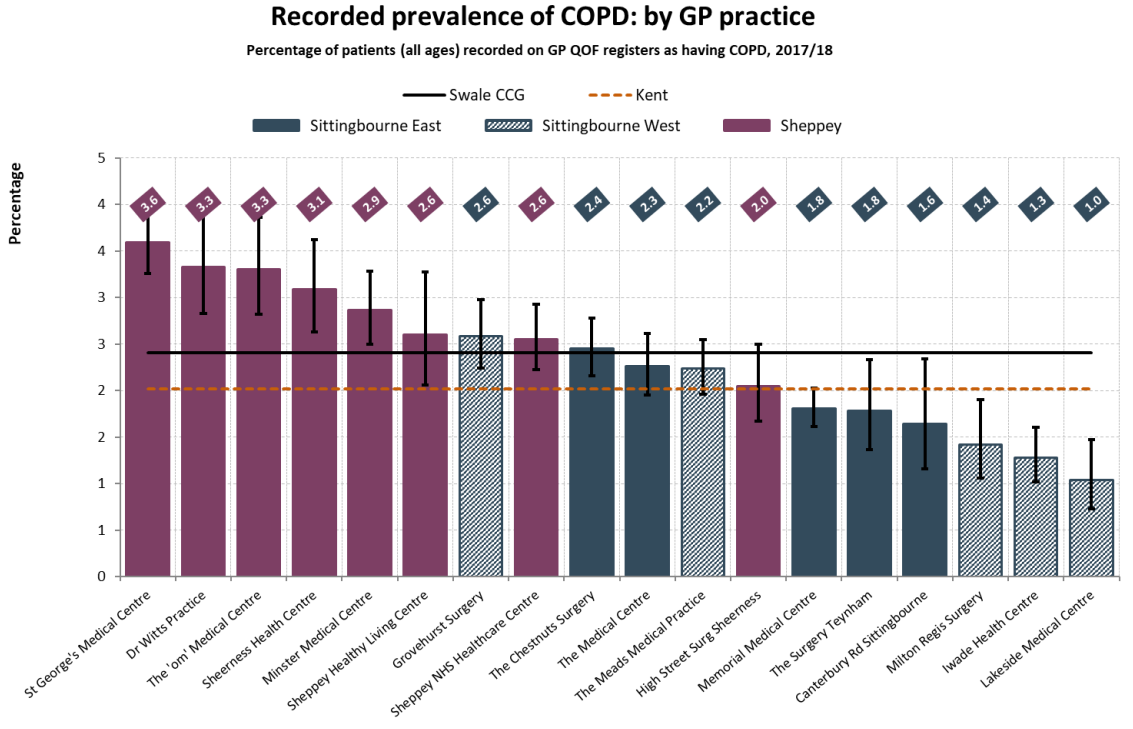


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 110: Recorded COPD prevalence – by GP practice



Source: QOF, prepared by KPHO (RK), Jan-19

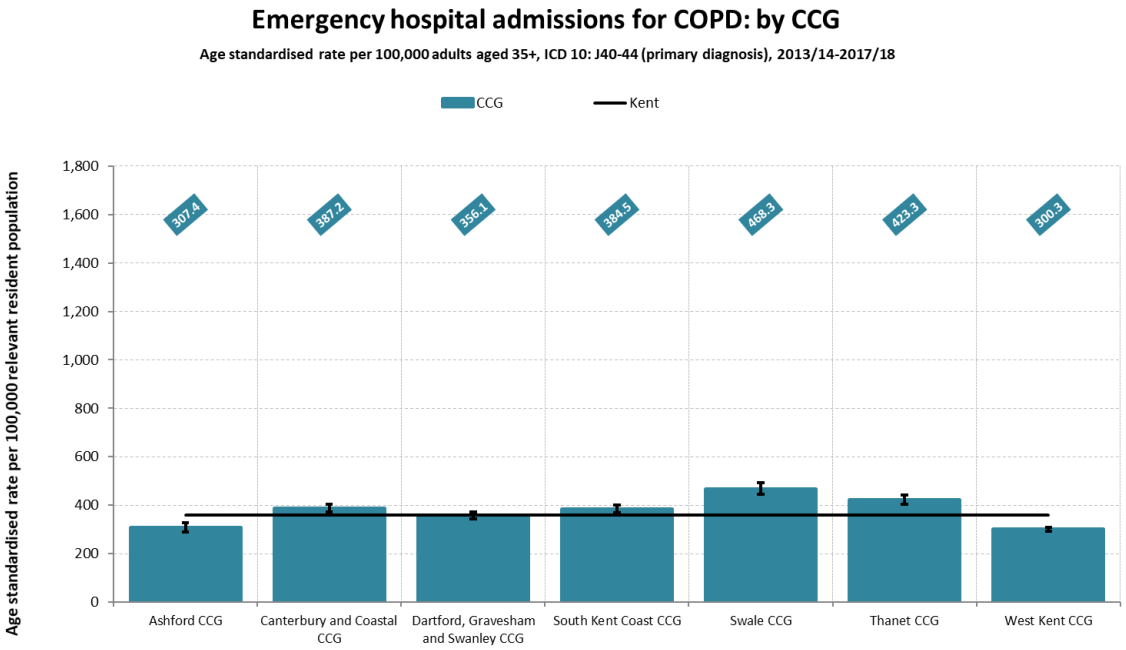


Source: QOF, prepared by KPHO (RK), Jan-19

The rate of emergency admissions to hospital for COPD in DGS is similar to the Kent average, but above the Kent average in Swale CCG. There is considerable variation between electoral wards. Emergency hospital admission rates for COPD are significantly higher than the Kent average in:

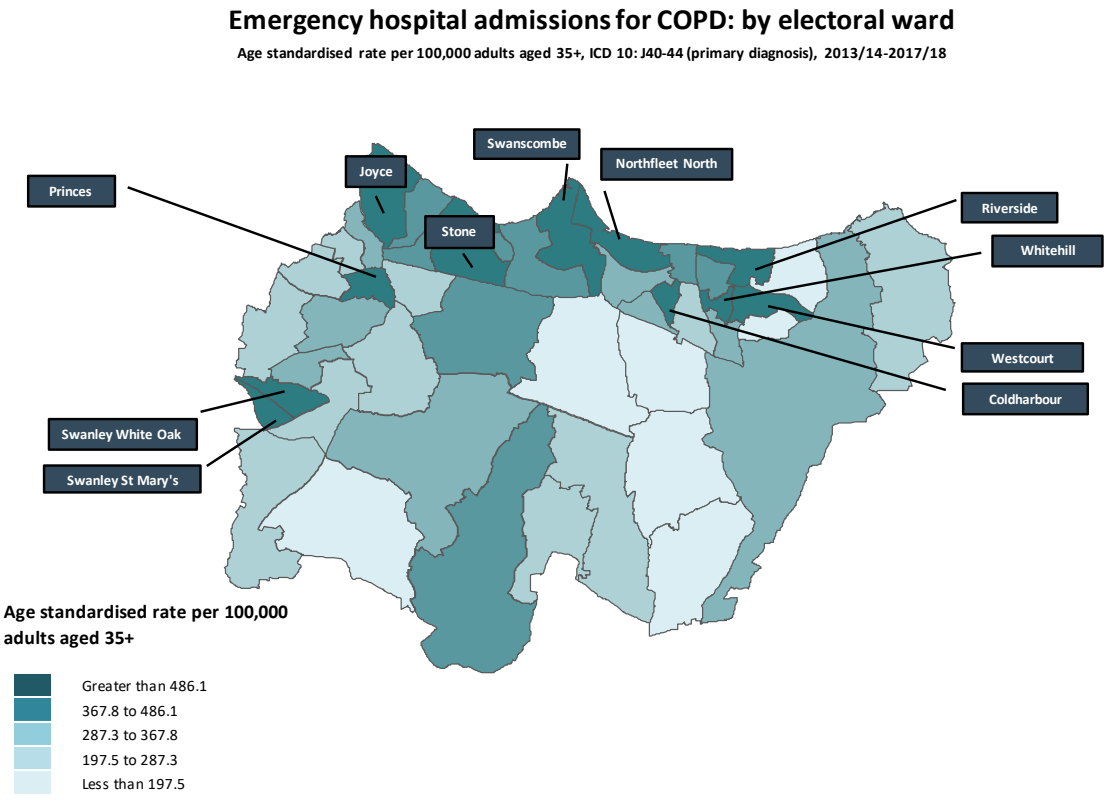
- Bean & Darenth
- Coldharbour
- Grove
- Joyce Green
- Leysdown & Warden
- Milton Regis
- Minster Cliffs
- Northfleet North
- Pelham
- Princes
- Riverside
- Sheerness East
- Sheerness West
- Sheppey Central
- Stone
- Swanley St Mary's
- Swanley White Oak
- Swanscombe
- Teynham & Lynstead
- Westcourt
- Whitehill

Figure 111: Emergency hospital admissions for COPD – by CCG (of residence)

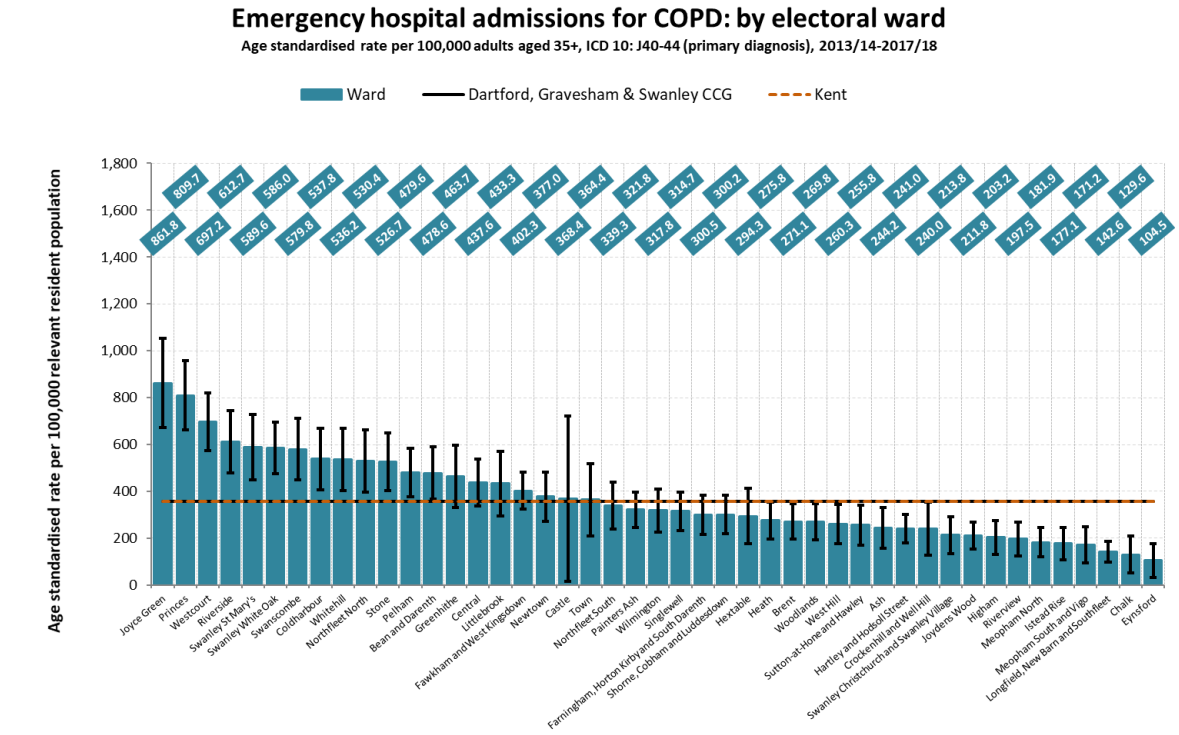


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (ZC), Nov-18

Figure 112: Emergency hospital admissions for COPD – by ward



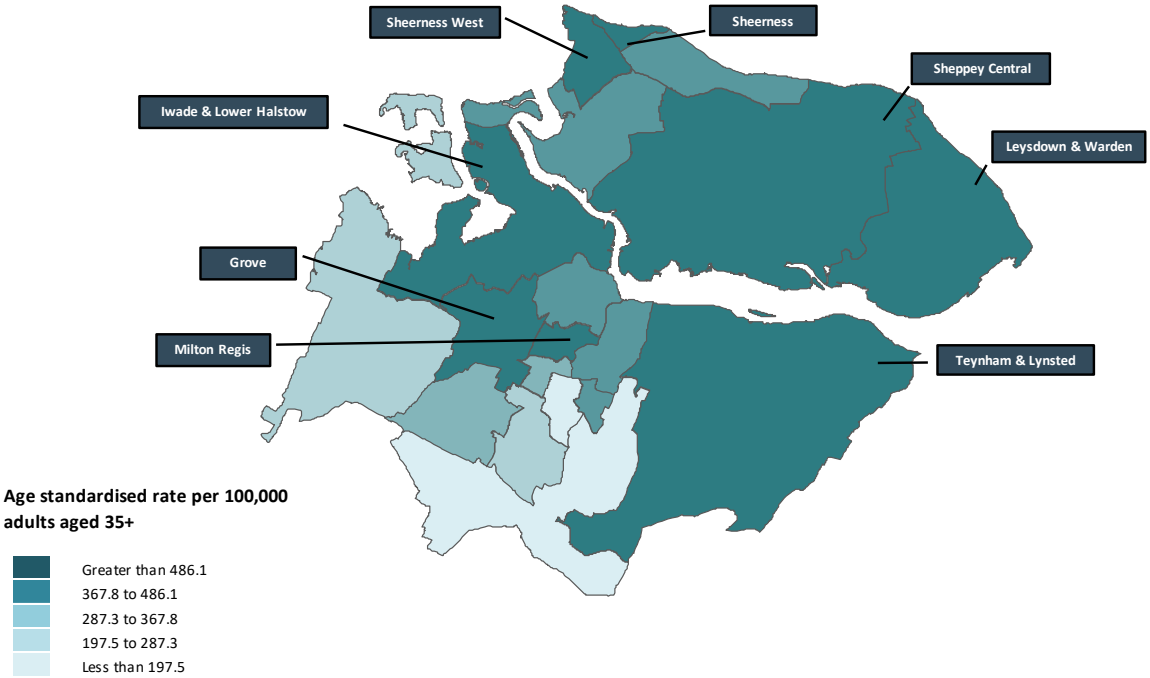
Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (ZC), Nov-18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (ZC), Nov-18

Emergency hospital admissions for COPD: by electoral ward

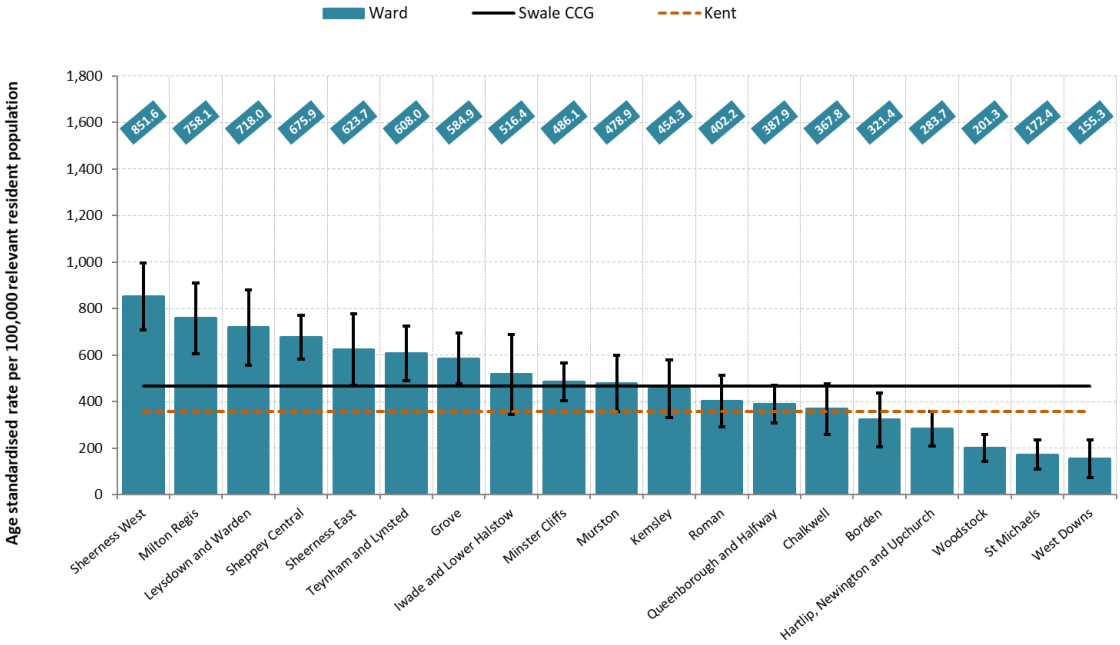
Age standardised rate per 100,000 adults aged 35+, ICD 10: J40-44 (primary diagnosis), 2013/14-2017/18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (ZC), Nov-18

Emergency hospital admissions for COPD: by electoral ward

Age standardised rate per 100,000 adults aged 35+, ICD 10: J40-44 (primary diagnosis), 2013/14-2017/18

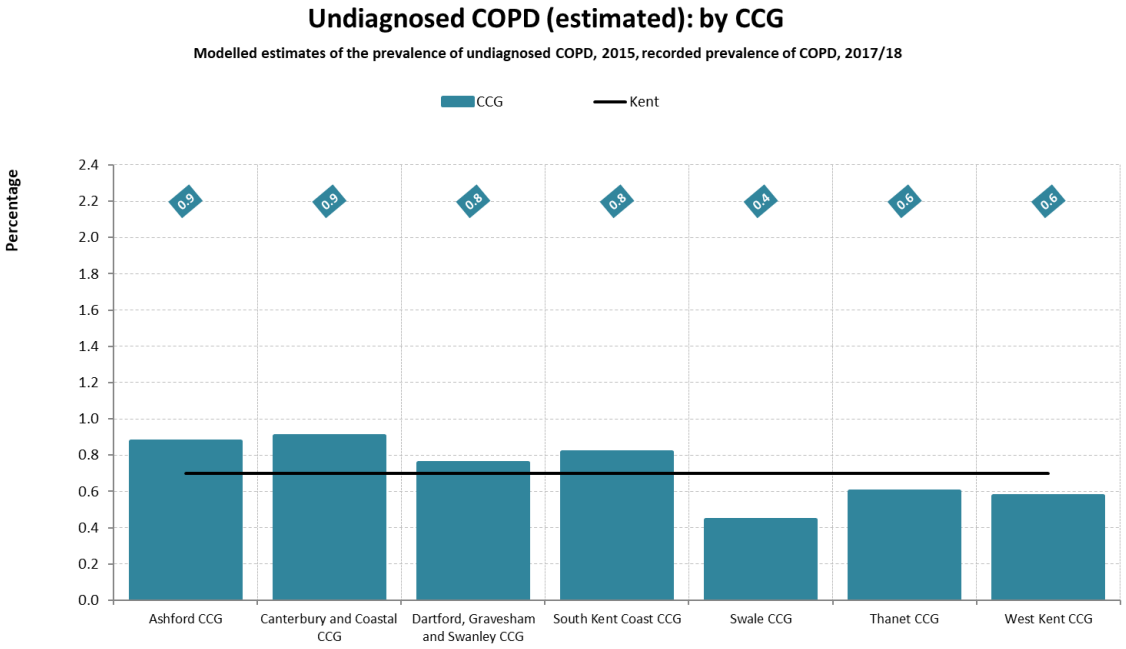


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (ZC), Nov-18

Based on estimates of disease counts calculated using a logistic regression model developed by Imperial College based on CPRD, it is estimated that 0.8% of the registered population in DGS have undiagnosed COPD and 0.4% of the registered population in Swale CCG. The figure for Swale CCG is below the Kent average.

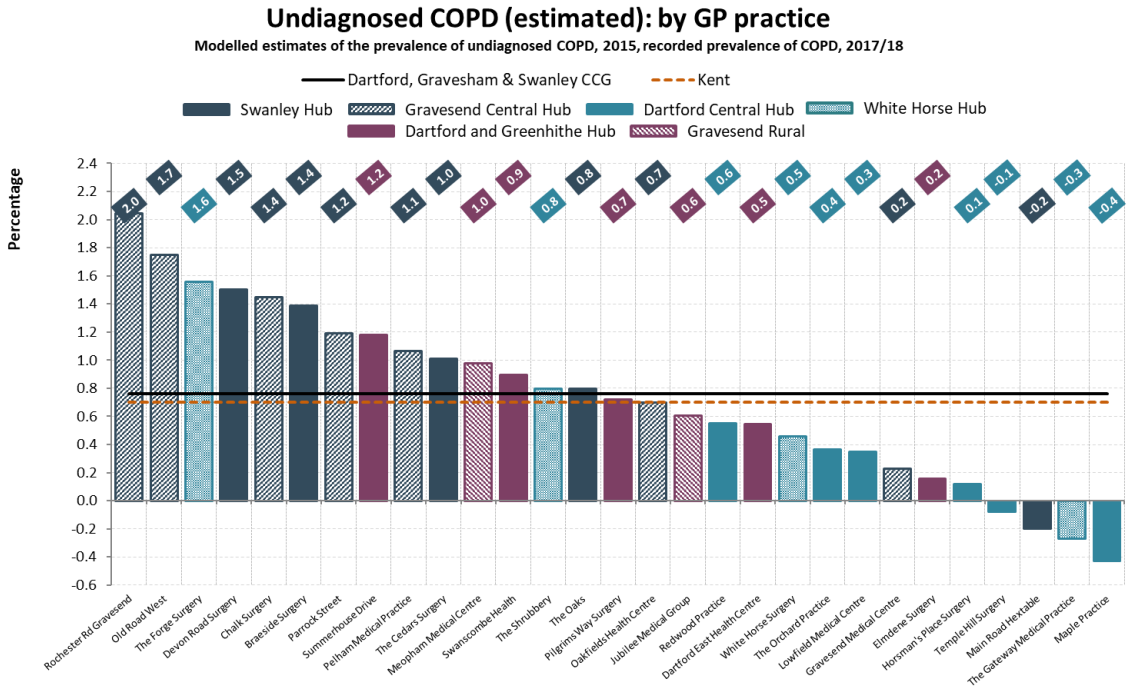
There are 14 practices in DGS and 6 practices in Swale CCG with higher predicted undiagnosed COPD rates than the Kent average.

Figure 113: Undiagnosed COPD (estimated) – by CCG

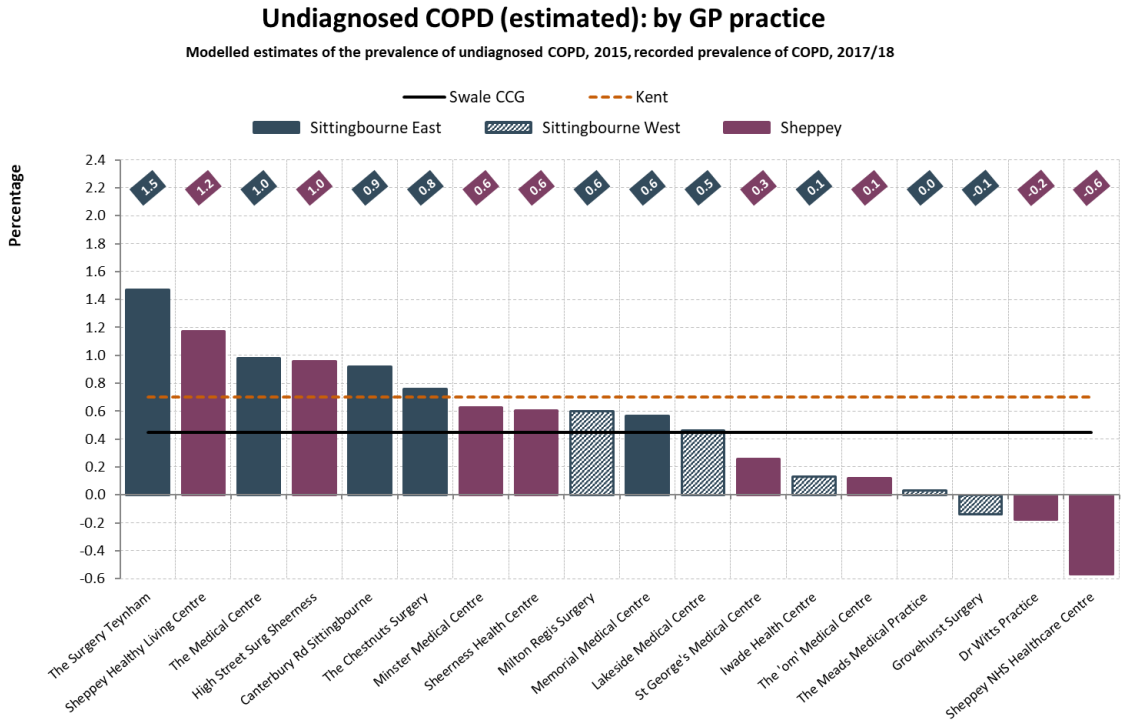


Source: Imperial College London/QOF, prepared by KPHO (RK), Jan-19

Figure 114: Undiagnosed COPD (estimated) – by GP practice



Source: Imperial College London/QOF, prepared by KPHO (RK), Jan-19



Source: Imperial College London/QOF, prepared by KPHO (RK), Jan-19

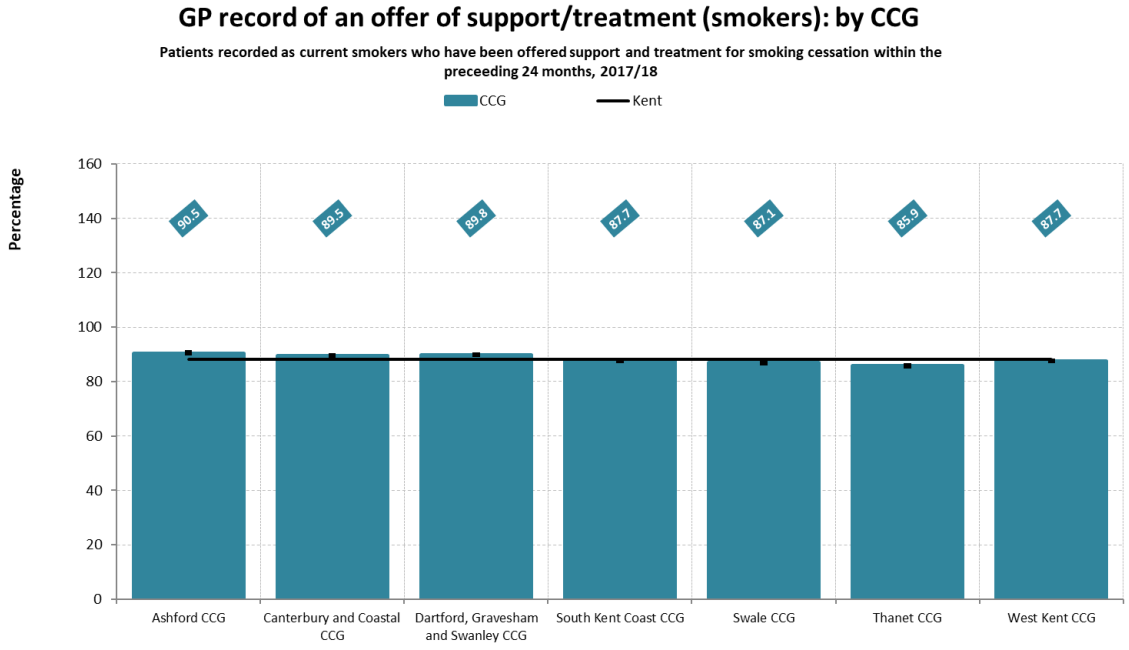
13.3.3 Smoking cessation

Smoking is the main cause of COPD and therefore smoking cessation is an integral part of the management of COPD.

GP recorded offers of support/treatment to smokers are similar in North Kent to the Kent average, but there is high variability across practices. There are 4 practices in DGS and 4 practices in Swale CCG with *much* lower recorded offers of support/treatment to smokers than the Kent average:

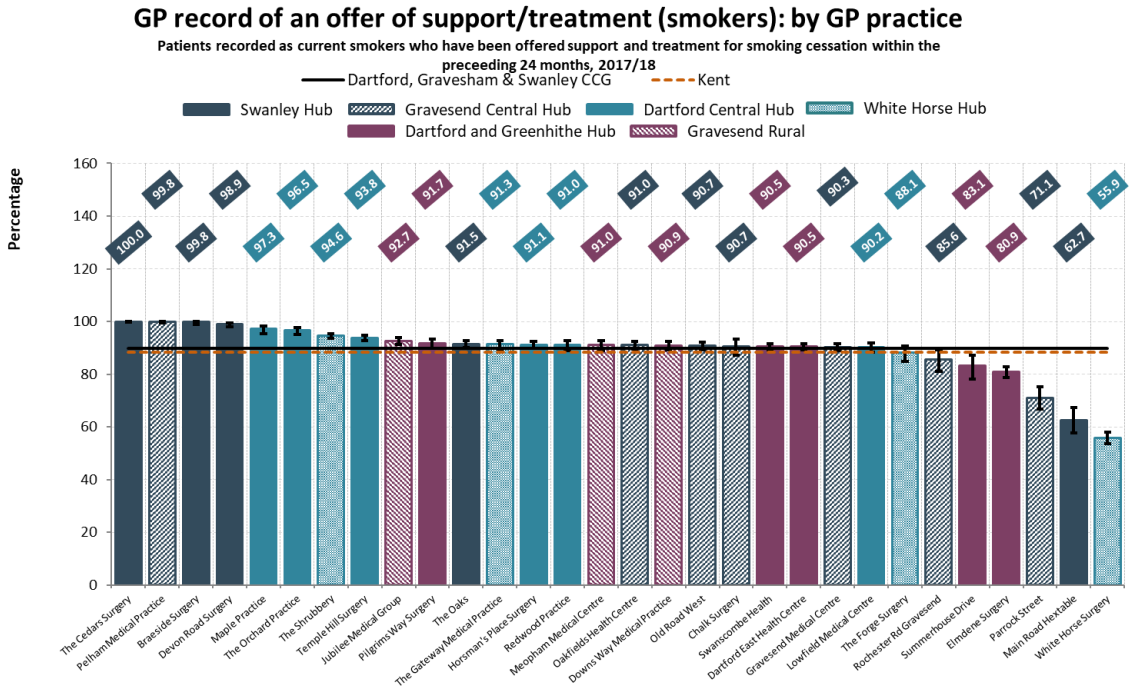
- Canterbury Rd Sittingbourne
- Elmdene Surgery
- High Street Surgery Sheerness
- Main Road Hextable
- Milton Regis Surgery
- Parrock Street
- The Medical Centre
- White Horse Surgery

Figure 115: GP record of an offer of support/treatment to smokers – by CCG (of registration)

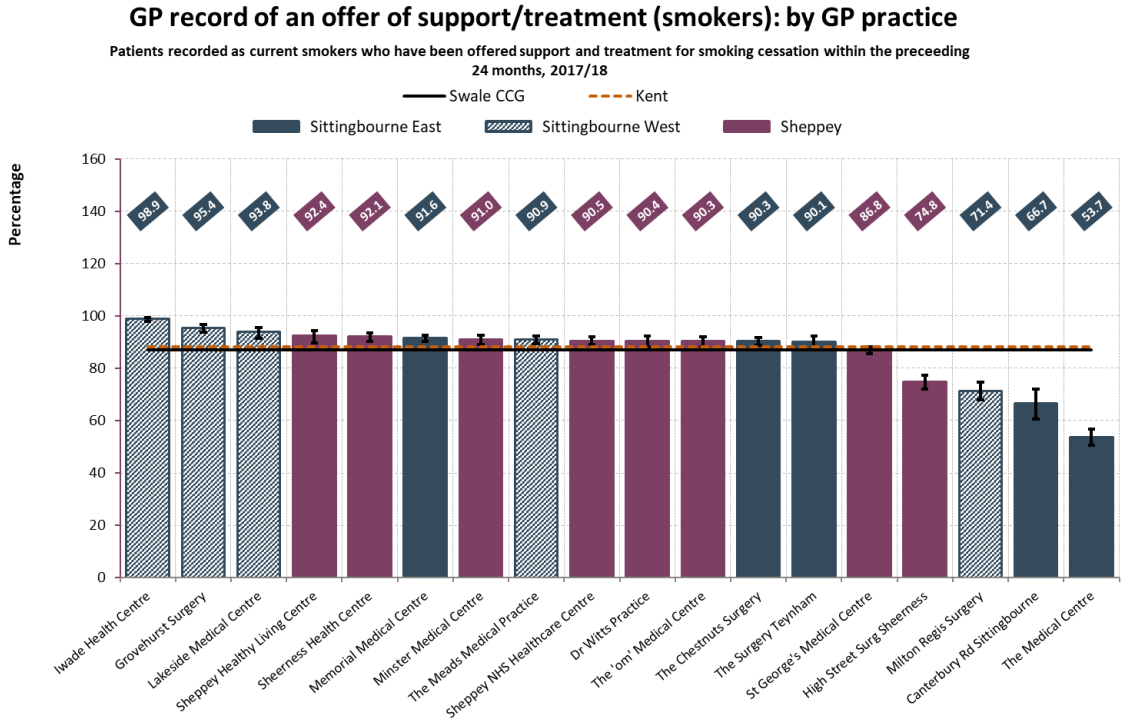


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 116: GP record of an offer of support/treatment to smokers – by GP practice



Source: QOF, prepared by KPHO (RK), Jan-19



Source: QOF, prepared by KPHO (RK), Jan-19

Conclusion

- There is significant variation in emergency admissions and prevalence for asthma across the DGS and Swale CCG areas. Compared to the Kent average, Hartley & Hodsoll Street, Joyce Green, Murston, St Michaels, Sheerness West, West Hill and Westcourt wards have higher emergency admissions for asthma. Across the practices, prevalence was significantly high in Iwade HealthCentre (DGS), Sheerness Health Centre, The Medical Centre, The Oaks (Swale).
- COPD prevalence in DGS is lower than the Kent average, but it is higher in Swale. Overall, 13 practices – four in DGS (Dr Witts, Grovehurst Surgery, Horsman's Place Surgery and The Cedars Surgery), and 9 in Swale (Minster Medical Centre, Sheerness Health Centre, Sheppey Health Living Centre, Sheppey NHS Healthcare Centre, St George's Medical Centre, The Chestnuts Surgery, The Gateway Medical Practice, The Oaks and The 'OM' Medical Centre) had relatively higher prevalence than the Kent average.
- Of these four DGS practices, only one (Cedars Surgery) and four of the 9 Swale practices were among the 14 Practices with predicted higher (than Kent) undiagnosed COPD rates. The variations which is also reflected in emergency admissions suggest further improvement in primary care management similar to practices in other long-term conditions may be required.
- Four practices each in both DGS and Swale CCGs had *much* lower recorded offers of support/treatment to smokers than the Kent average.

Recommendations

Asthma

- To undertake targeted work with practices with low prevalence of Asthma and high admission rates and explore if patients could be better managed in primary care.

COPD

- Active case finding for individuals with COPD should encouraged.
- COPD should be considered in patients over the age of 35 who have a risk factor (generally smoking) and who present with exertional breathlessness, chronic cough, regular sputum production, frequent winter 'bronchitis' or wheeze.
- All COPD patients still smoking, regardless of age should be encouraged to stop, and offered help to do so, at every opportunity.
- Pulmonary rehabilitation should be made available to all appropriate people with COPD including those who have had a recent hospitalization for an acute exacerbation.
- Practices should understand local variation in the management of individuals with COPD and implement model of best practice.

13.4 Cardiovascular Diseases (CVD)

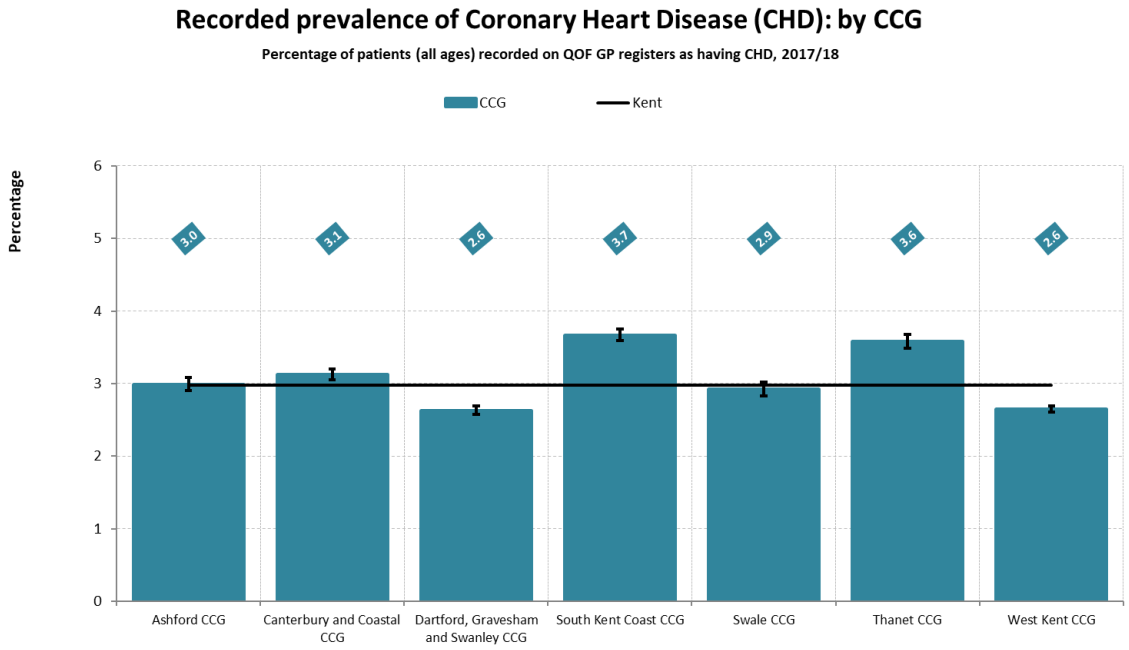
CVD is a term used to describe disorders of heart and blood vessels. These diseases include Coronary Heart Disease, Coronary Artery Disease and Cerebrovascular disease which may lead to angina, heart failure and strokes.

13.4.1 Coronary Heart Disease (CHD)

Recorded CHD prevalence in DGS is lower than the Kent average and it is similar to the Kent average in Swale CCG, but there is high variability across practices. There are 2 practices in DGS and 5 practices in Swale CCG with significantly higher recorded CHD prevalence than the Kent average:

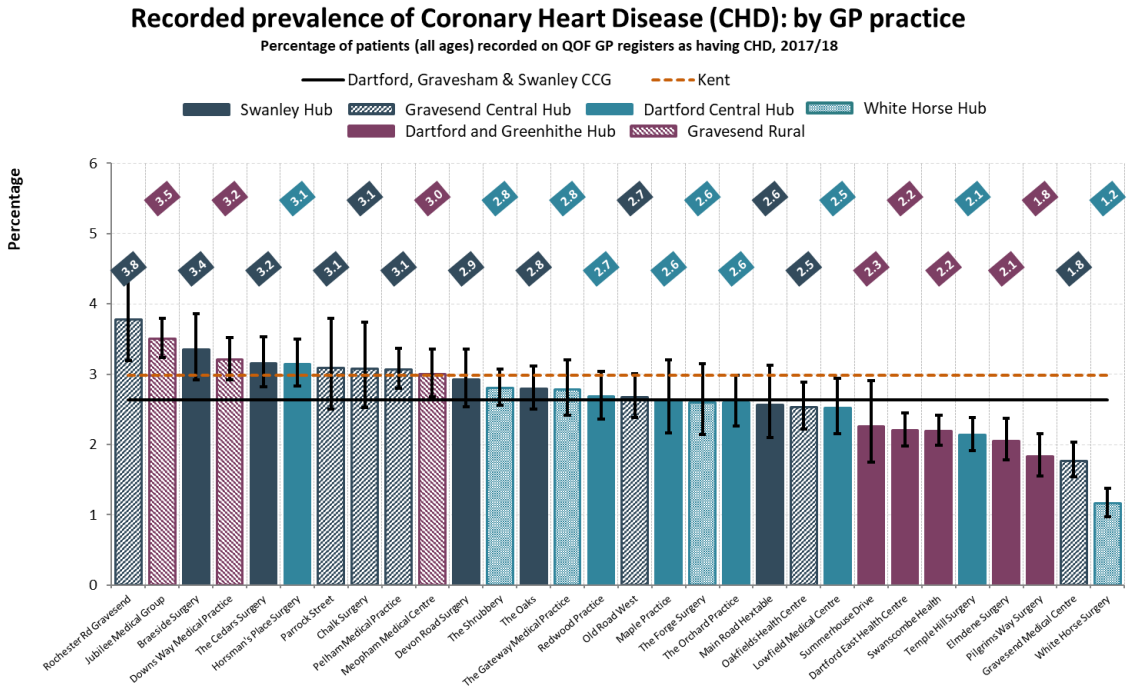
- Jubilee Medical Group
- Rochester Rd Gravesend
- Sheerness Health Centre
- St George's Medical Centre
- The Chestnuts Surgery
- The Medical Centre
- The 'om' Medical Centre

Figure 117: Recorded coronary heart disease prevalence – by CCG (of registration)

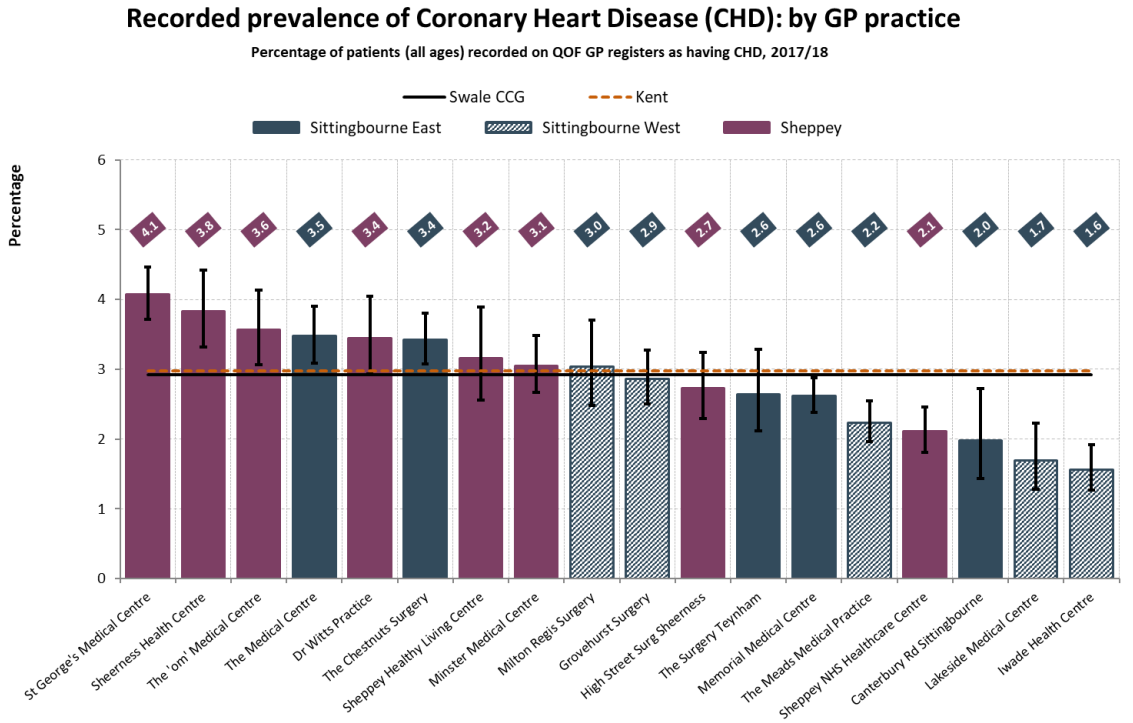


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 118: Recorded coronary heart disease prevalence – by GP practice



Source: QOF, prepared by KPHO (RK), Jan-19

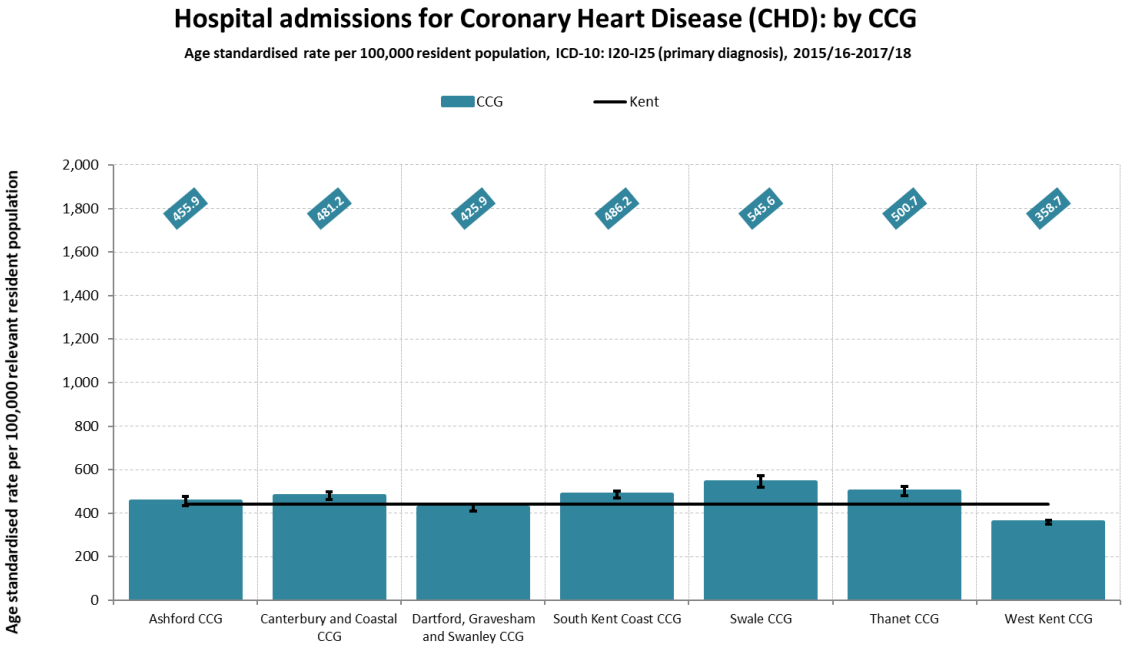


Source: QOF, prepared by KPHO (RK), Jan-19

Whilst the rate of admissions to hospital for coronary heart disease is similar to the Kent average in DGS, it is higher than the Kent average in Swale CCG. There is significant variation across wards, with 2 wards in DGS and 6 wards in Swale CCG having significantly higher hospital admission rates than the Kent average:

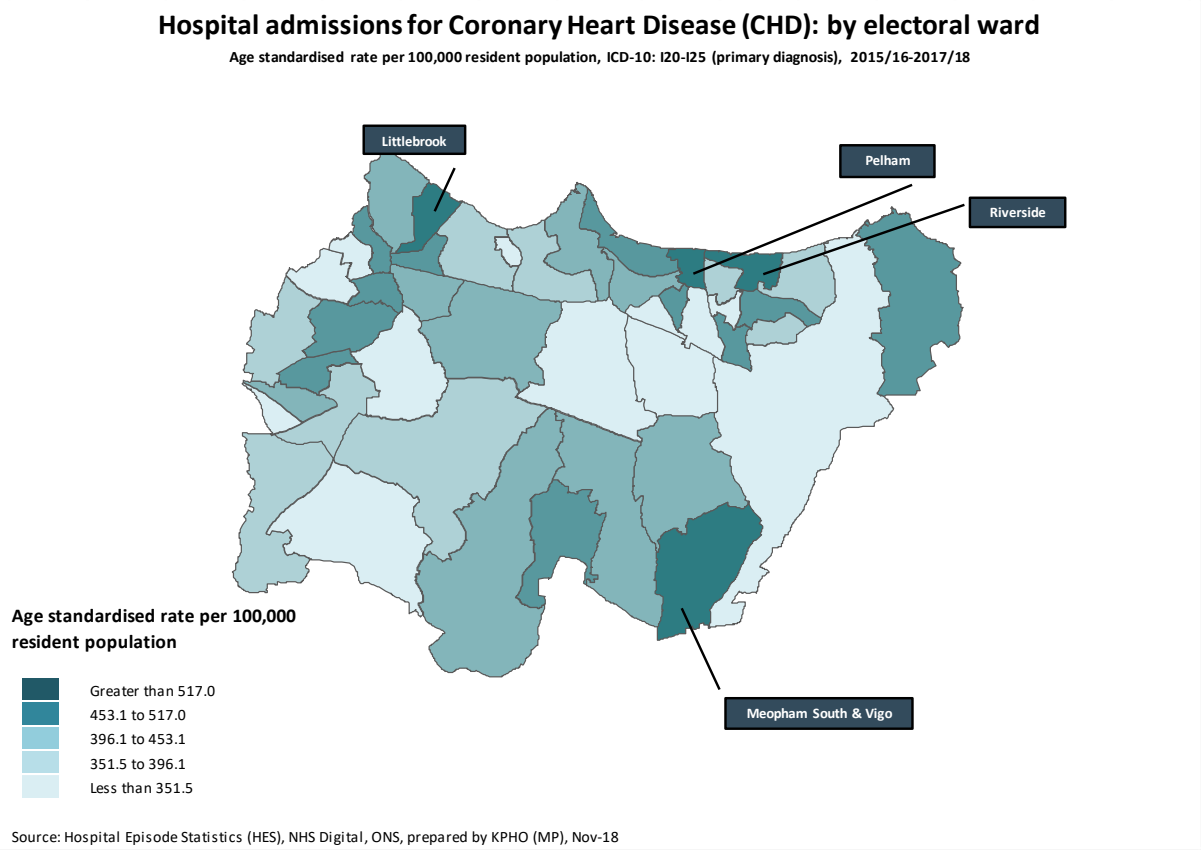
- Leysdown & Warden
- Meopham South & Vigo
- Milton Regis
- Minster Cliffs
- Queenborough & Halfway
- Riverside
- Sheerness West
- Sheppey Central

Figure 119: Hospital admissions for coronary heart disease – by CCG (of residence)

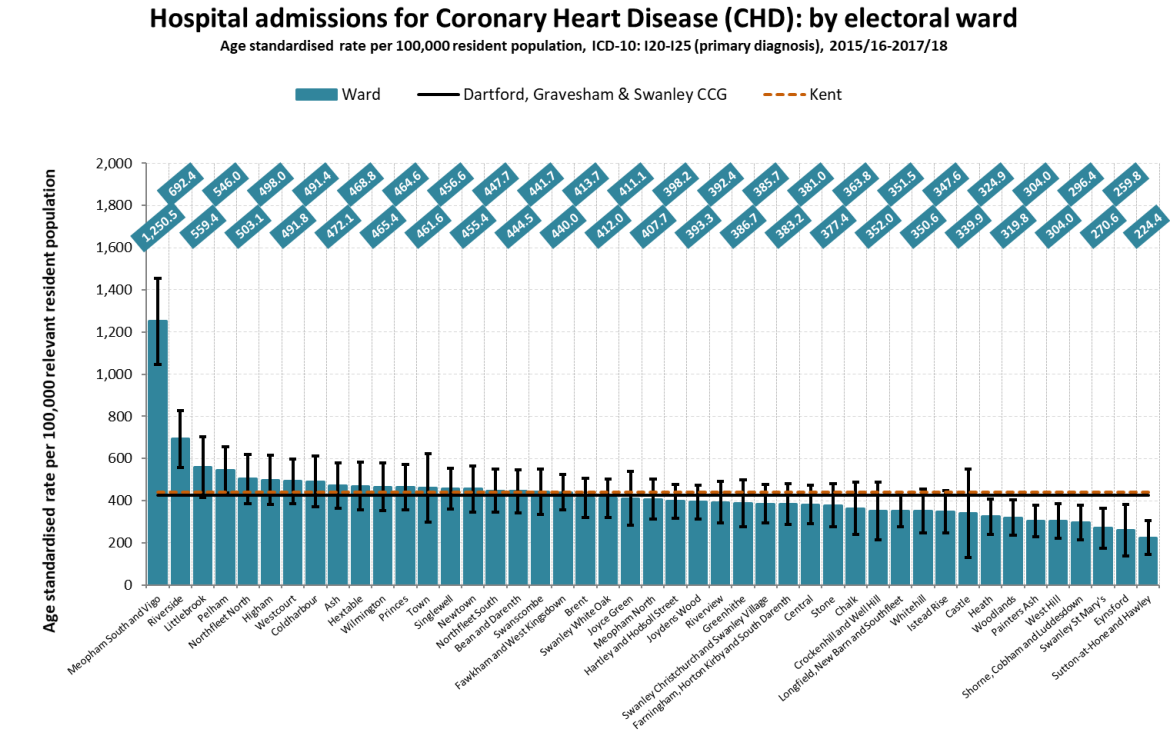


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18

Figure 120: Hospital admissions for coronary heart disease – by ward



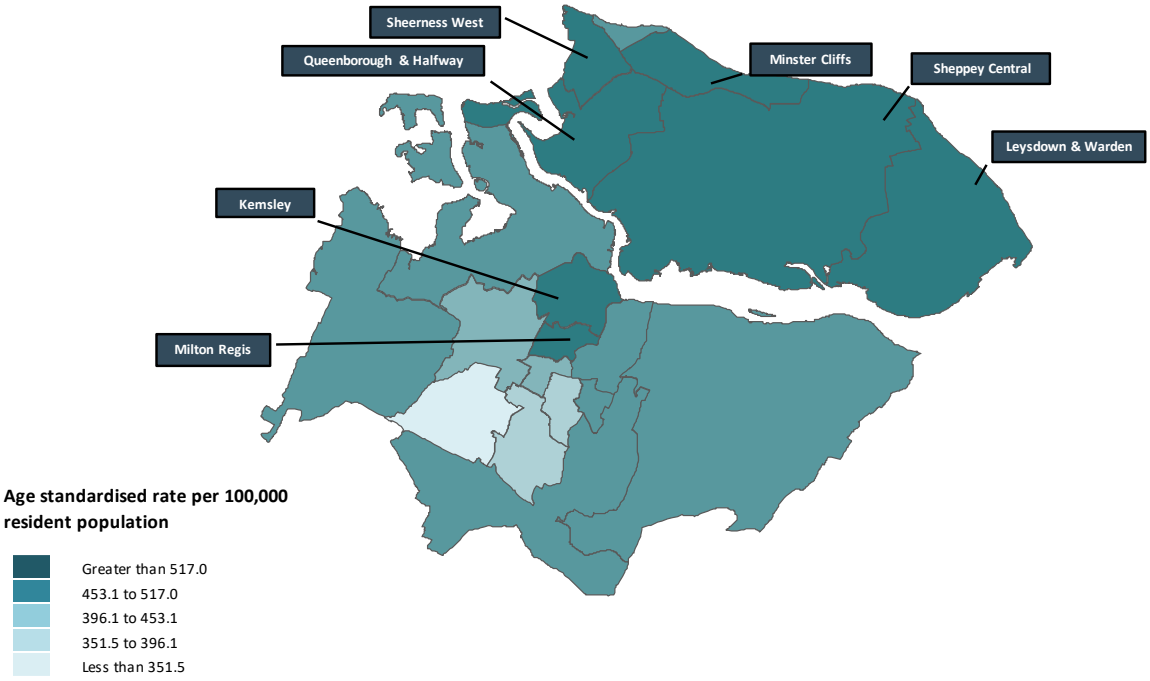
Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18

Hospital admissions for Coronary Heart Disease (CHD): by electoral ward

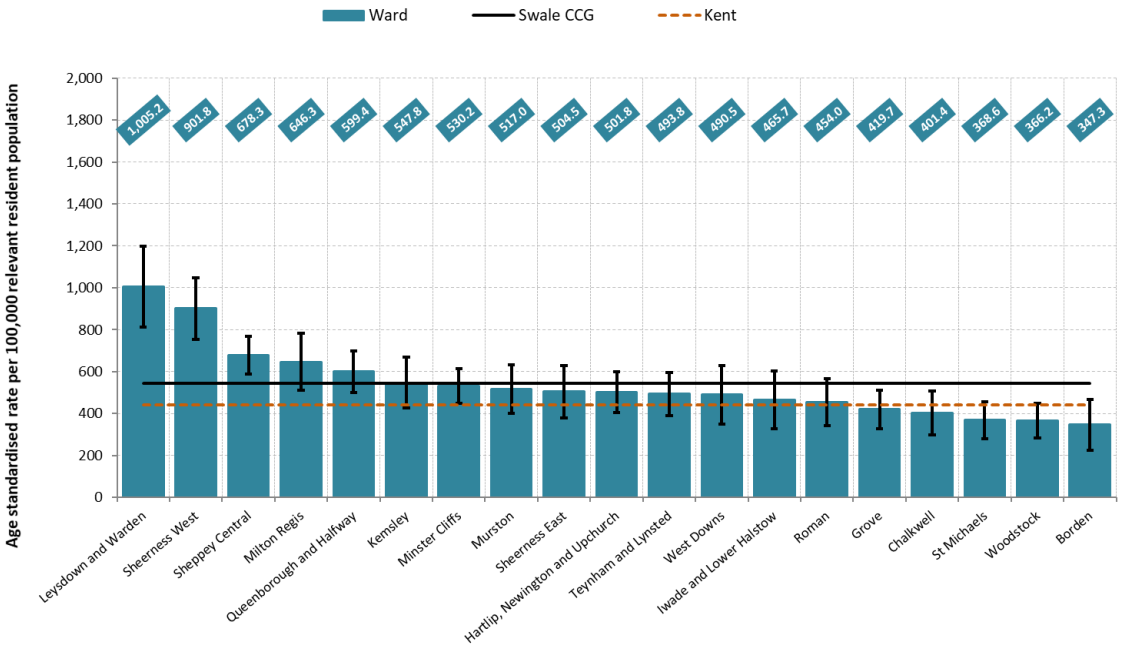
Age standardised rate per 100,000 resident population, ICD-10: I20-I25 (primary diagnosis), 2015/16-2017/18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18

Hospital admissions for Coronary Heart Disease (CHD): by electoral ward

Age standardised rate per 100,000 resident population, ICD-10: I20-I25 (primary diagnosis), 2015/16-2017/18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18

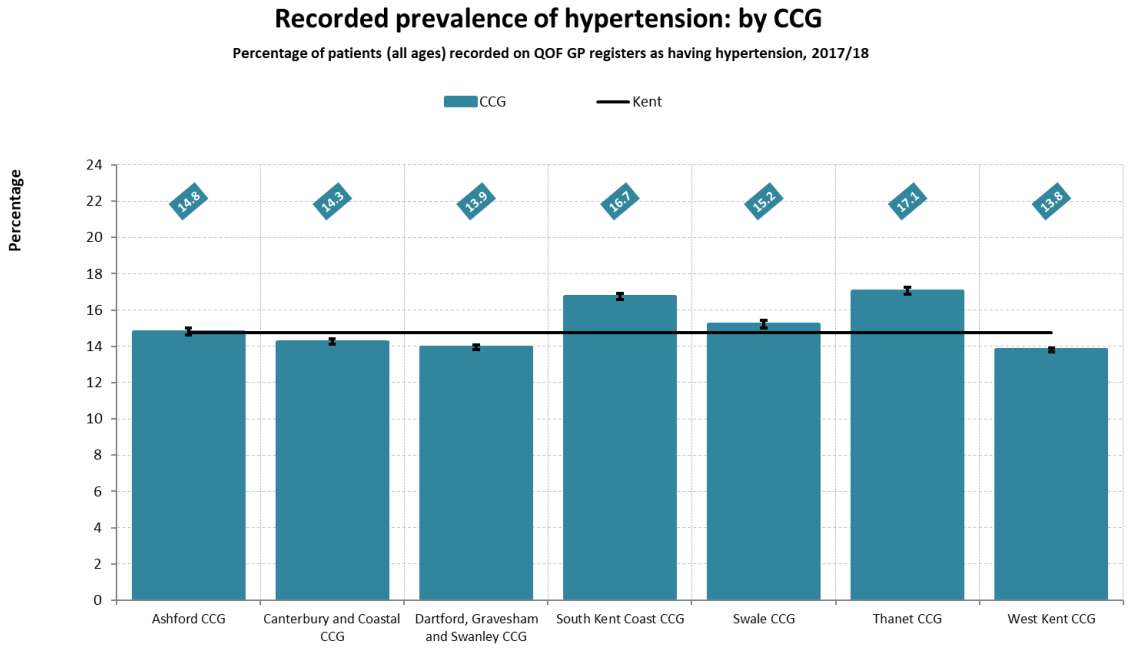
13.4.2 Hypertension

Persistent hypertension is one of the risk factors for stroke and heart failure and is also a major cause of chronic kidney disease. Chronic Kidney Disease could also be as a result from complications for individuals with diabetes.

Recorded hypertension prevalence in DGS is slightly lower than the Kent average, and similar to the Kent average in Swale CCG. There is high variability across practices, with 7 practices in DGS and 8 practices in Swale CCG with significantly higher recorded hypertension prevalence than the Kent average.

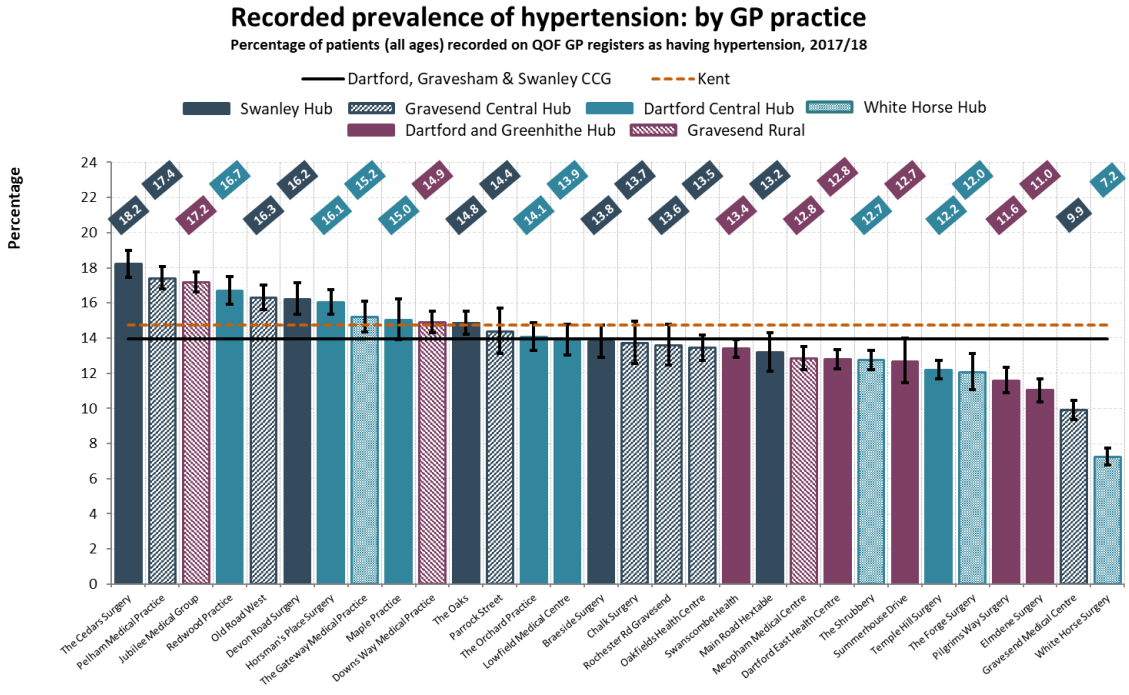
- Devon Road Surgery
- Grovehurst Surgery
- Horsman's Place Surgery
- Jubilee Medical Group
- Minster Medical Centre
- Old Road West
- Pelham Medical Practice
- Redwood Practice
- Sheerness Health Centre
- Sheerness Health Centre (Dr Witts Practice)
- St George's Medical Centre
- The Cedars Surgery
- The Chestnuts Surgery
- The Medical Centre
- The Surgery Teynham

Figure 121: Recorded prevalence of hypertension – by CCG (of registration)



Source: QOF, prepared by KPHO (RK), Jan-19

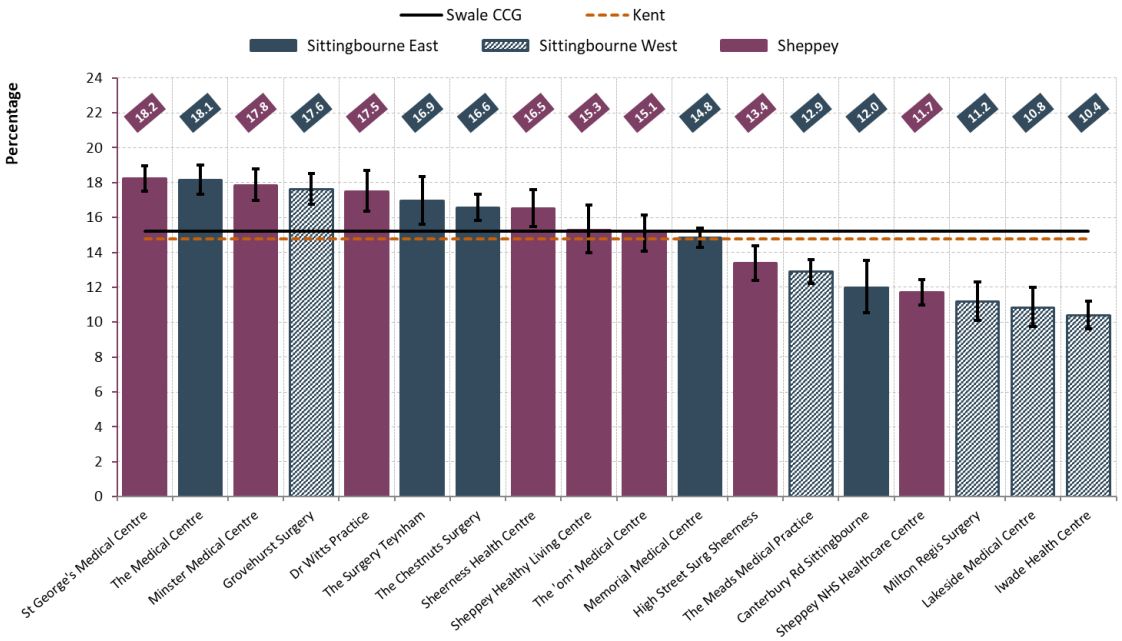
Figure 122: Recorded prevalence of hypertension – by GP practice



Source: QOF, prepared by KPHO (RK), Jan-19

Recorded prevalence of hypertension: by GP practice

Percentage of patients (all ages) recorded on QOF GP registers as having hypertension, 2017/18



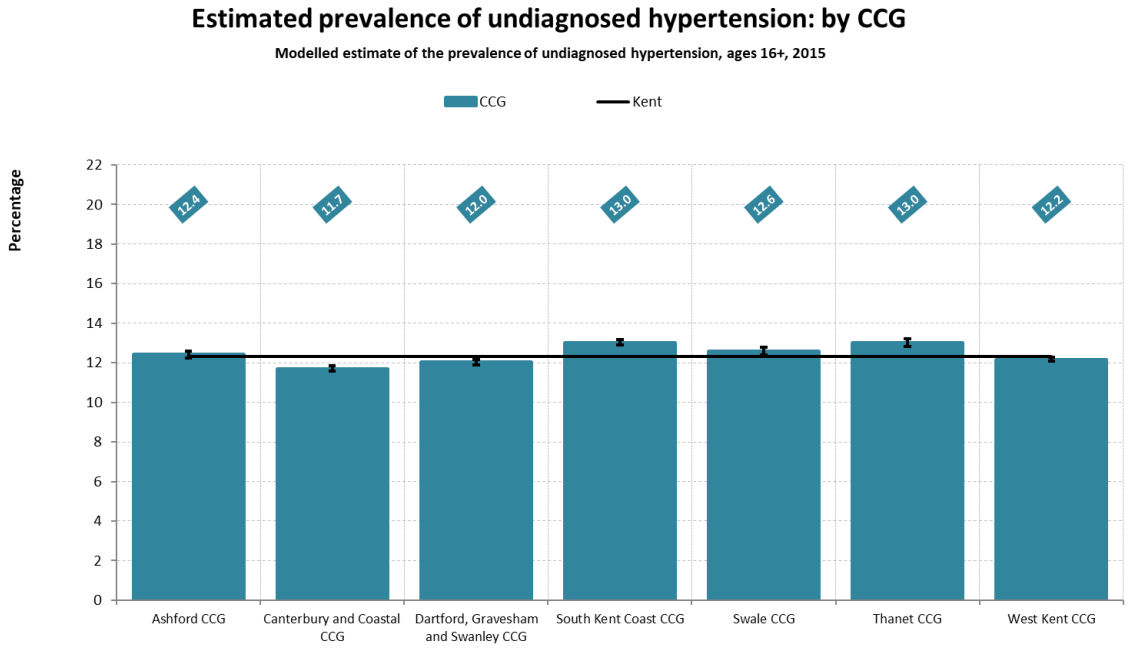
Source: QOF, prepared by KPHO (RK), Jan-19

Based on a predictive model developed by Imperial College London[1], it is estimated that 12.0% of the registered population in DGS and 12.6% of the registered population in Swale CCG have undiagnosed hypertension.

Just one practice in North Kent (Minster Medical Centre) has a significantly higher predicted undiagnosed hypertension rate than the Kent average.

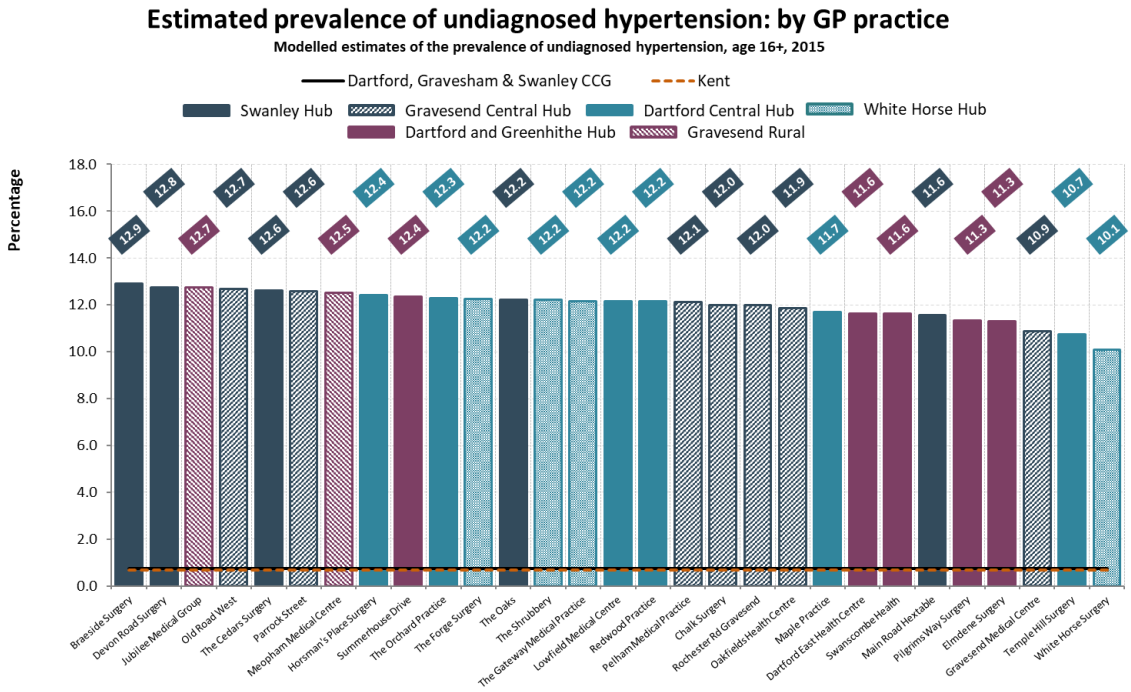
[1] https://github.com/julianflowers/prevalence_estimates/blob/master/Hypertension-model-2016-Technical-Document-v2.5.docx

Figure 123: Estimated prevalence of undiagnosed hypertension – by CCG (of registration)

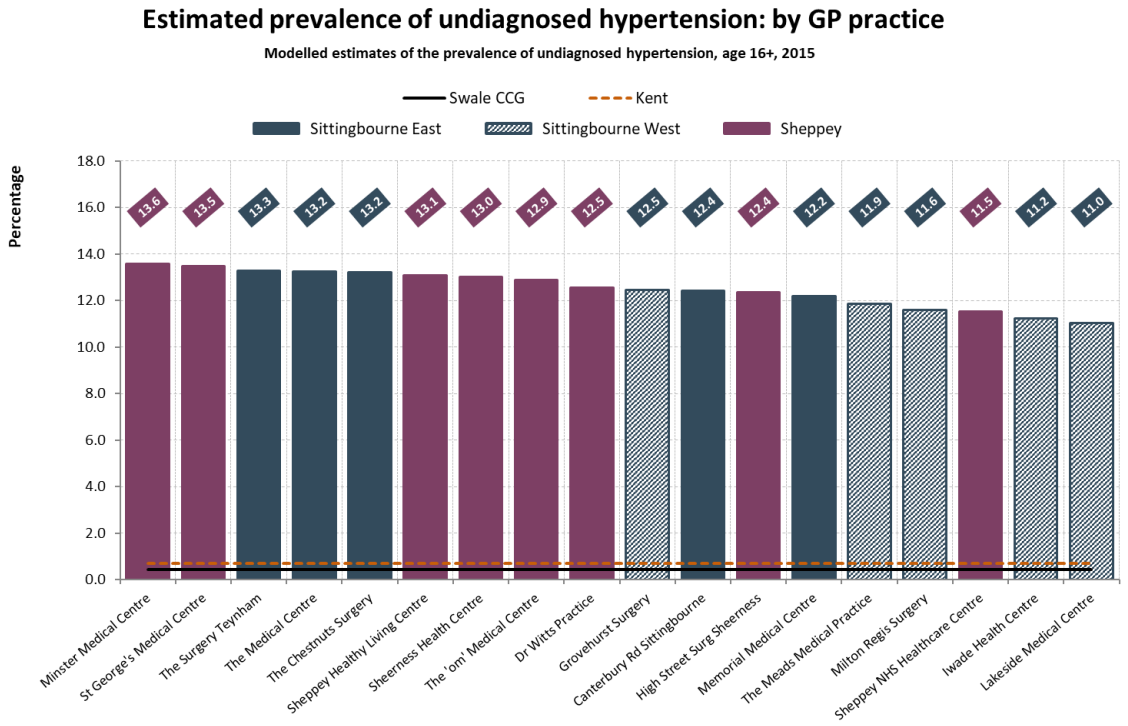


Source: Imperial College London, prepared by KPHO (RK), May-18

Figure 124: Estimated prevalence of undiagnosed hypertension – by GP practice



Source: Imperial College London, prepared by KPHO (RK), Feb-19

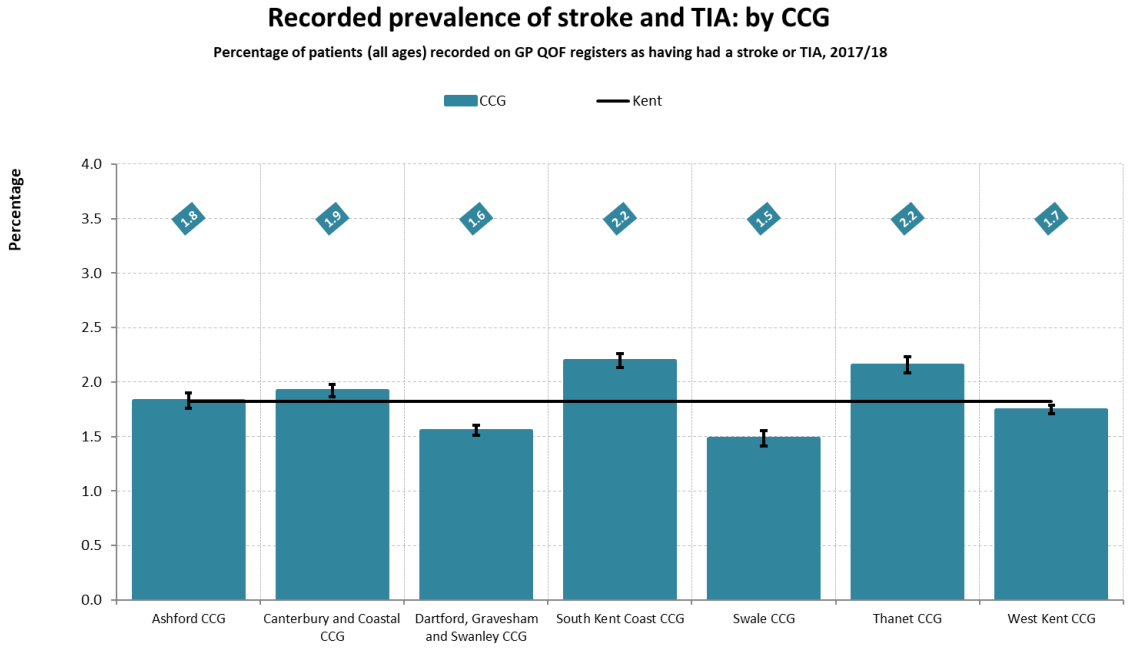


Source: Imperial College London, prepared by KPHO (RK), Feb-19

13.4.3 Stroke

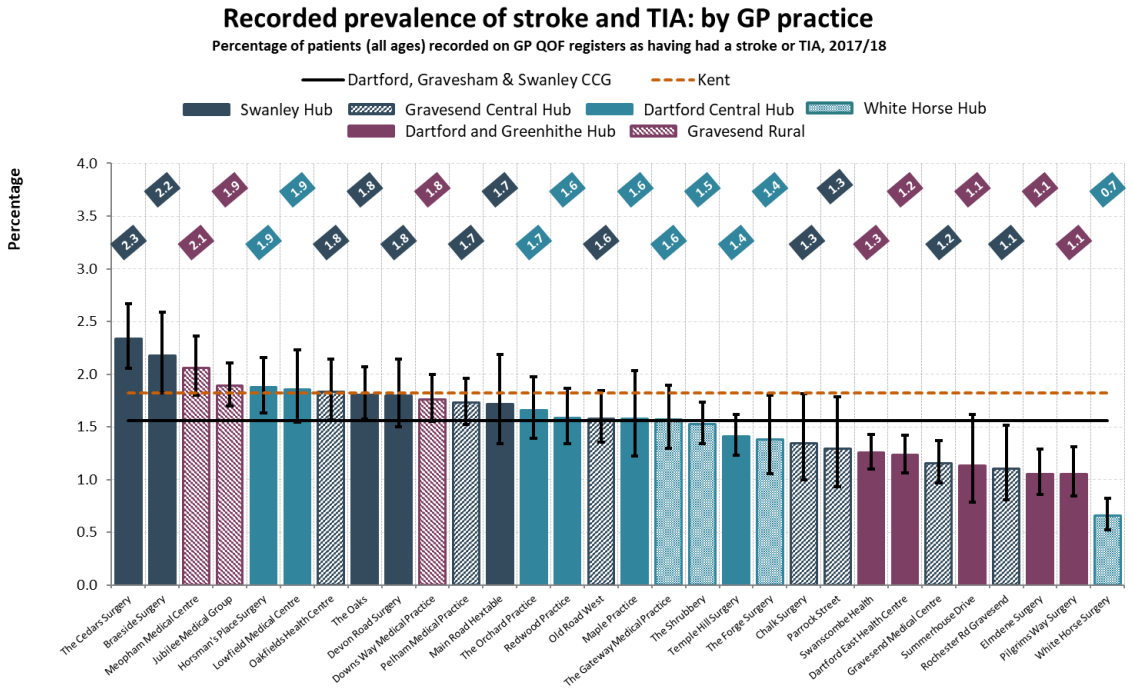
Recorded prevalence of stroke and transient ischemic attack (TIA) in North Kent is below the Kent average. It is above the Kent average in just one practice in North Kent (The Cedars Surgery).

Figure 125: Recorded prevalence of stroke and TIA – by CCG (of registration)

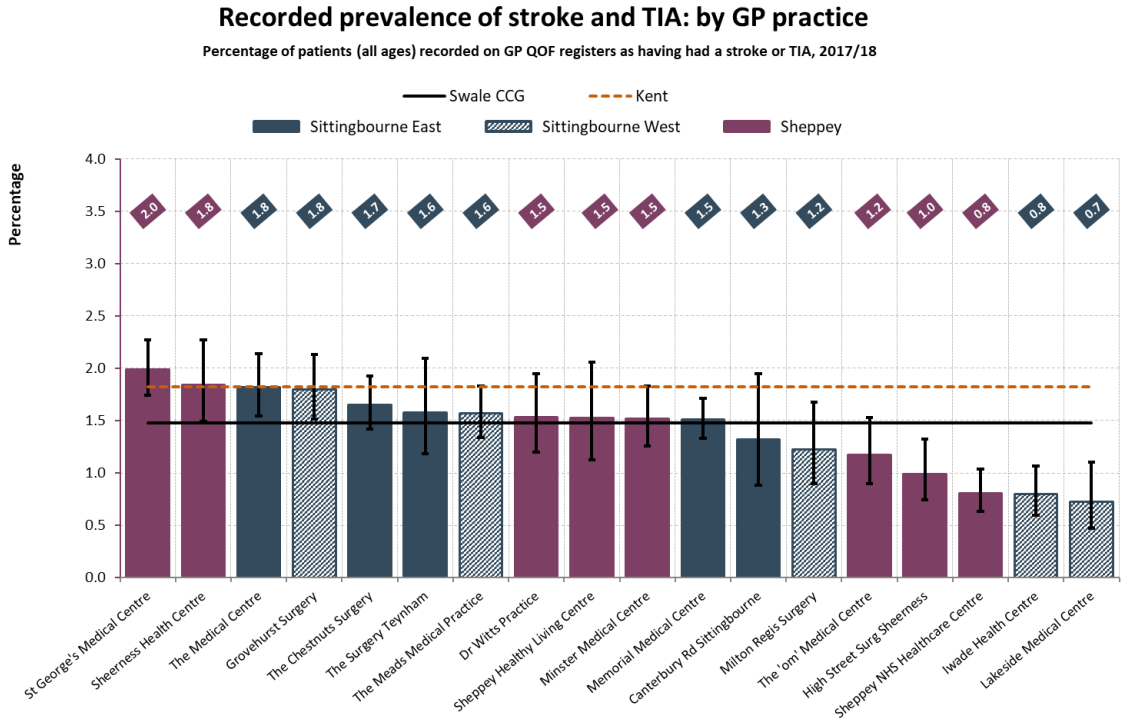


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 126: Recorded prevalence of stroke and TIA – by GP practice



Source: QOF, prepared by KPHO (RK), Jan-19



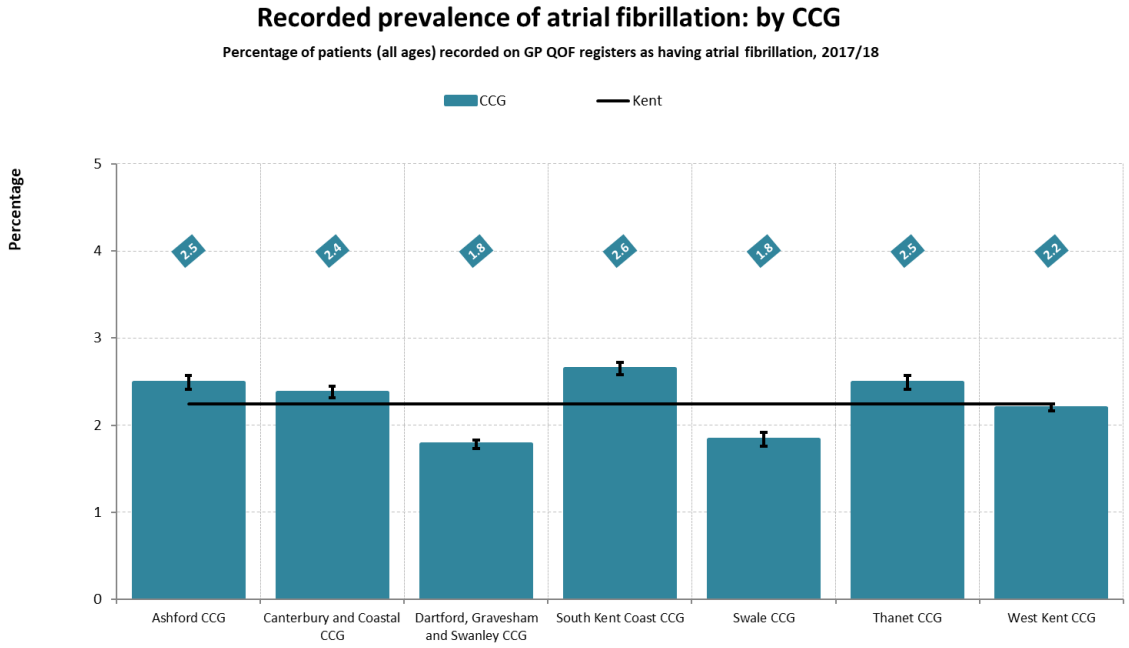
Source: QOF, prepared by KPHO (RK), Jan-19

13.4.4 Atrial Fibrillation (AF)

The recorded prevalence of atrial fibrillation (AF) is also below the Kent average, but there is variability across practices. There are 4 practices in DGS and 1 in Swale CCG with significantly higher recorded AF prevalence than the Kent average:

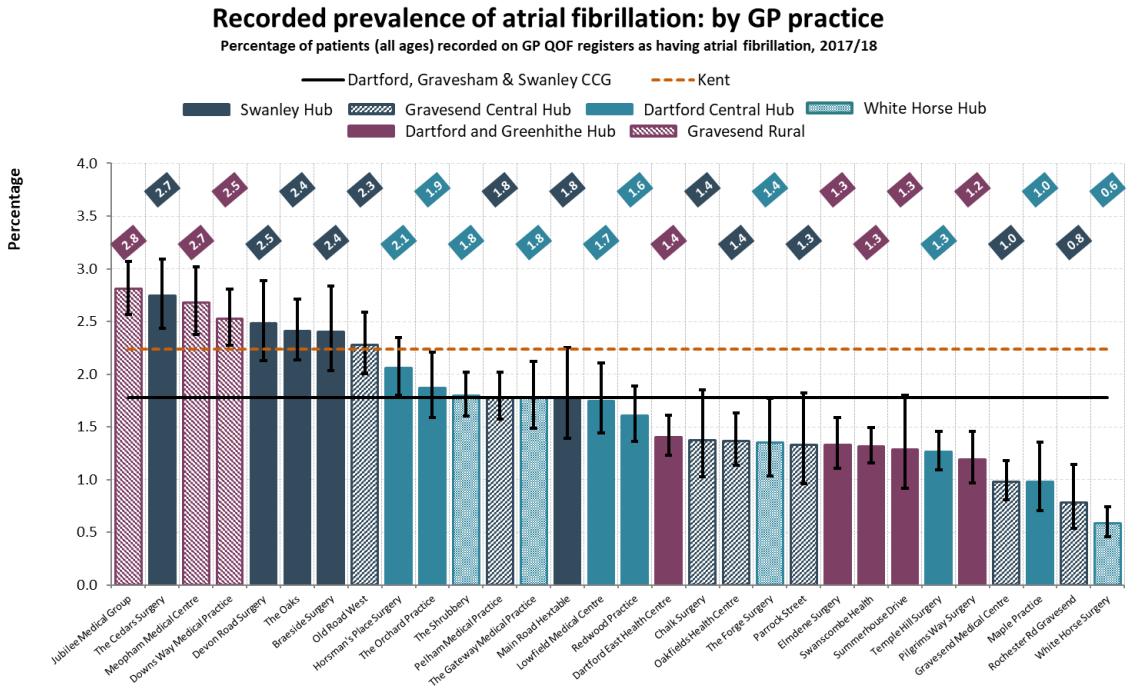
- Downs Way Medical Practice
- Jubilee Medical Group
- Meopham Medical Centre
- The Cedars Surgery
- The Medical Centre

Figure 127: Recorded prevalence of atrial fibrillation – by CCG (of registration)

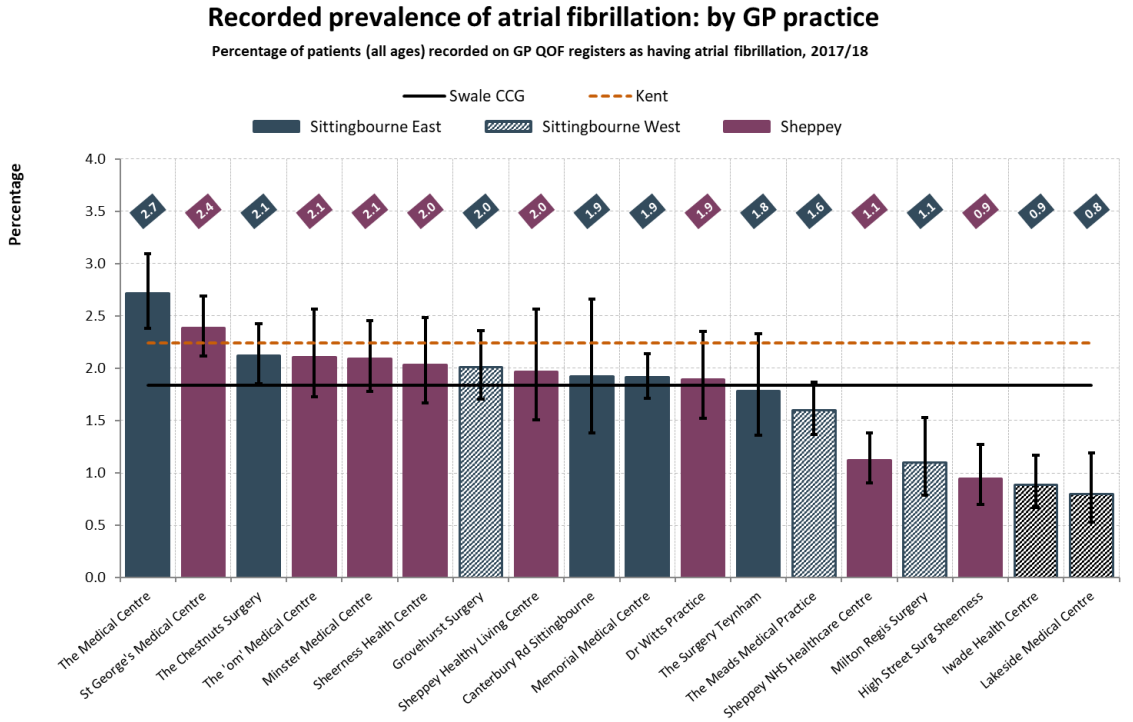


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 128: Recorded prevalence of atrial fibrillation – by GP practice



Source: QOF, prepared by KPHO (RK), Jan-19



Source: QOF, prepared by KPHO (RK), Jan-19

Conclusion

Two practices in DGS (Rochester Road and Jubilee Medical), and four in Swale CCGs (St Georges Medical, Sheerness Health Centre, The Om and London Road Medical) have higher recorded prevalence of CHD compared to the Kent average. There is significant variation in hospital admissions as well – with significantly higher rates than the Kent average in two wards in DGS (Meopham South & Vigo and Riverside), and 6 in Swale CCGs (Leysdown and Warden, Milton Regis, Minster Cliffs, Queenborough & Halfway, Sheerness West and Sheppey Central).

At least 15 practices across both DGS and Swale CCGs have hypertension prevalence that is significantly higher compared to the Kent average.

Only one Practice (The Cedars) across both DGS and Swale CCGs had stroke prevalence that was significantly higher than the rates in Kent, whereas for Atrial Fibrillation, four in DGS (The Cedars, Jubilee, Meopham Medical Centre and Downs Way) and one on Swale (London Road) had significantly high rates than Kent.

Recommendation

Increase the uptake of health checks to identify persons with cardiovascular risks

Four key areas of AF management should be addressed to improve outcomes in terms of stroke prevention:

- diagnosis of AF
- identification of those at high risk of stroke
- initiation of anticoagulant therapy in line with national guidelines
- maintenance of adequate anticoagulation / medicines optimisation

13.5 Cancer

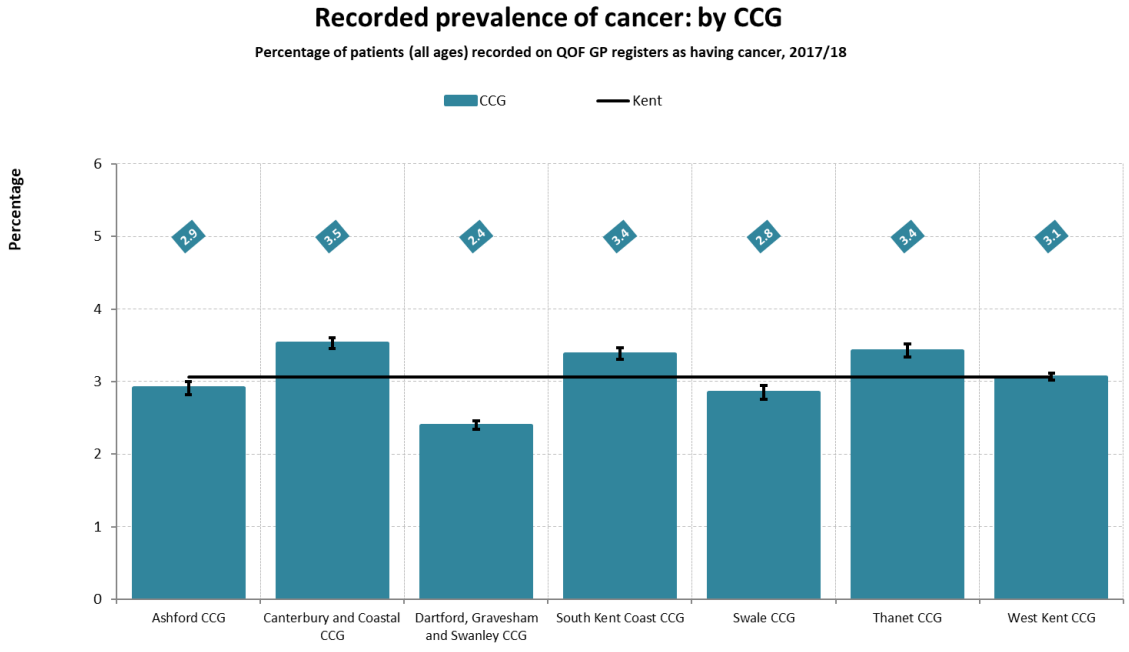
Most cancers can be prevented by adopting healthy lifestyles and refraining from smoking, excessive alcohol consumption and poor diet.

Recorded cancer prevalence in North Kent is well below the Kent average, but there is high variability across practices. There are 2 practices in DGS and 4 practices in Swale CCG with significantly higher recorded cancer prevalence than the Kent average:

- Devon Road Surgery
- Grovehurst Surgery
- Jubilee Medical Group
- St George's Medical Centre
- The Chestnuts Surgery
- The Medical Centre

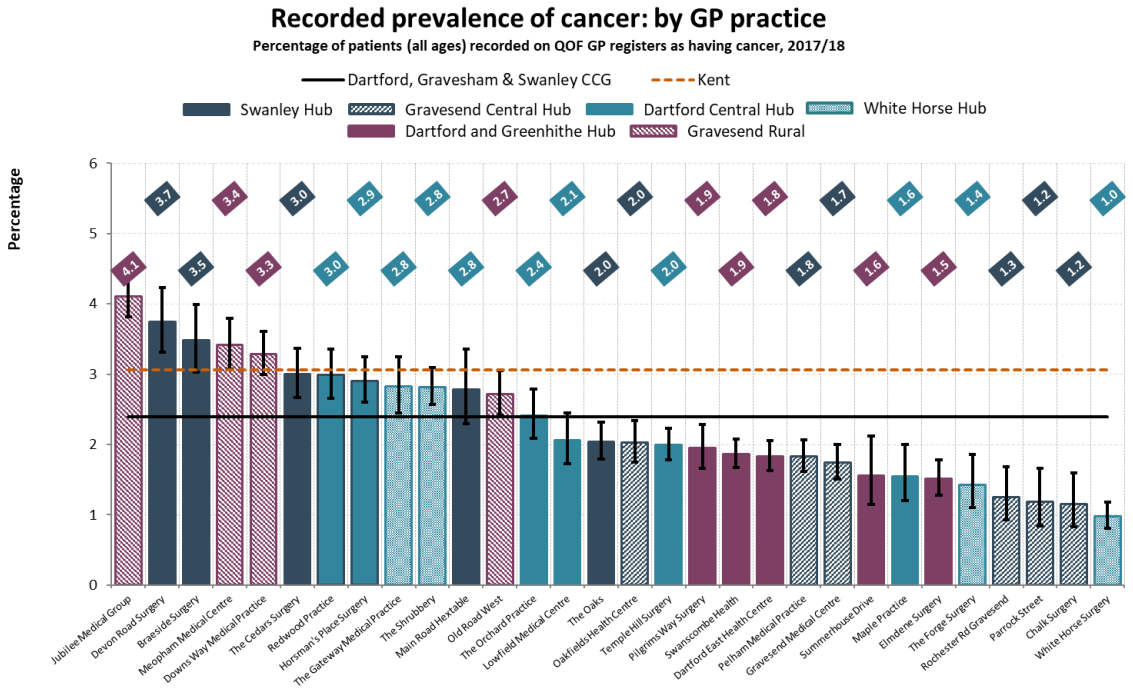
One-year cancer survival rates in North Kent are improving, but in Swale CCG they continue to be lower than the Kent and Medway average (67.3% for cancers diagnosed in 2015 compared with 71.1% for Kent and Medway) and are increasing at a slower rate than for Kent as a whole. Emergency hospital admissions with cancer are also higher than the Kent average in Swale CCG.

Figure 129: Recorded prevalence of cancer – by CCG (of registration)

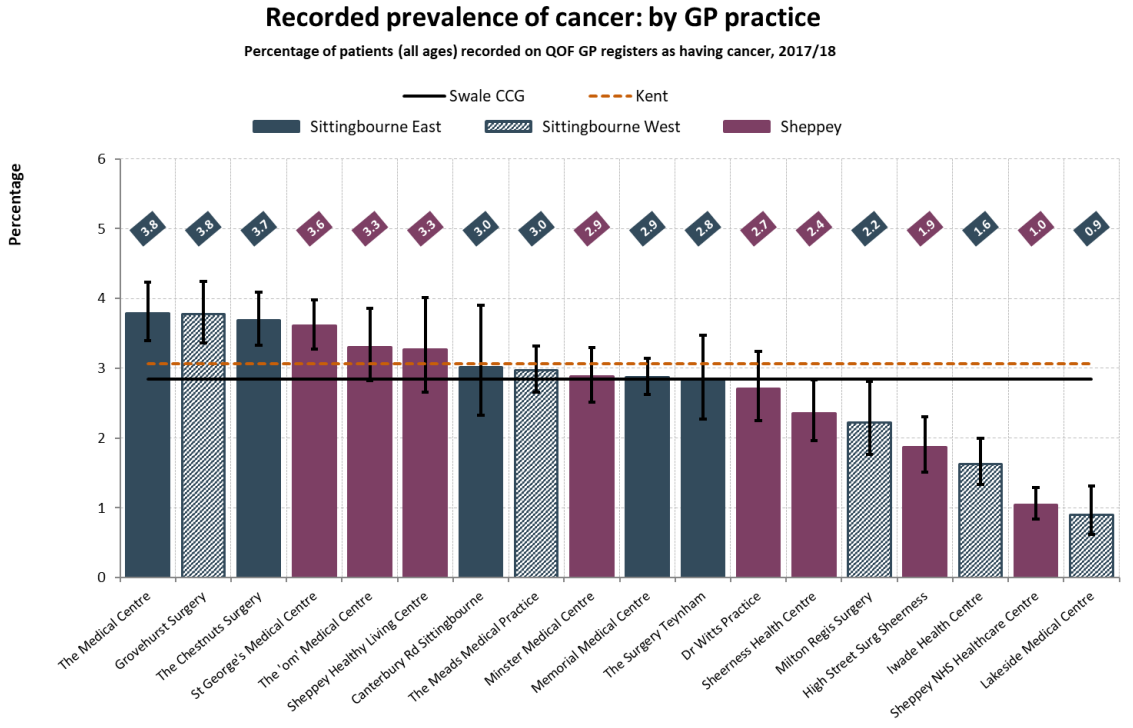


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 130: Recorded prevalence of cancer – by GP practice

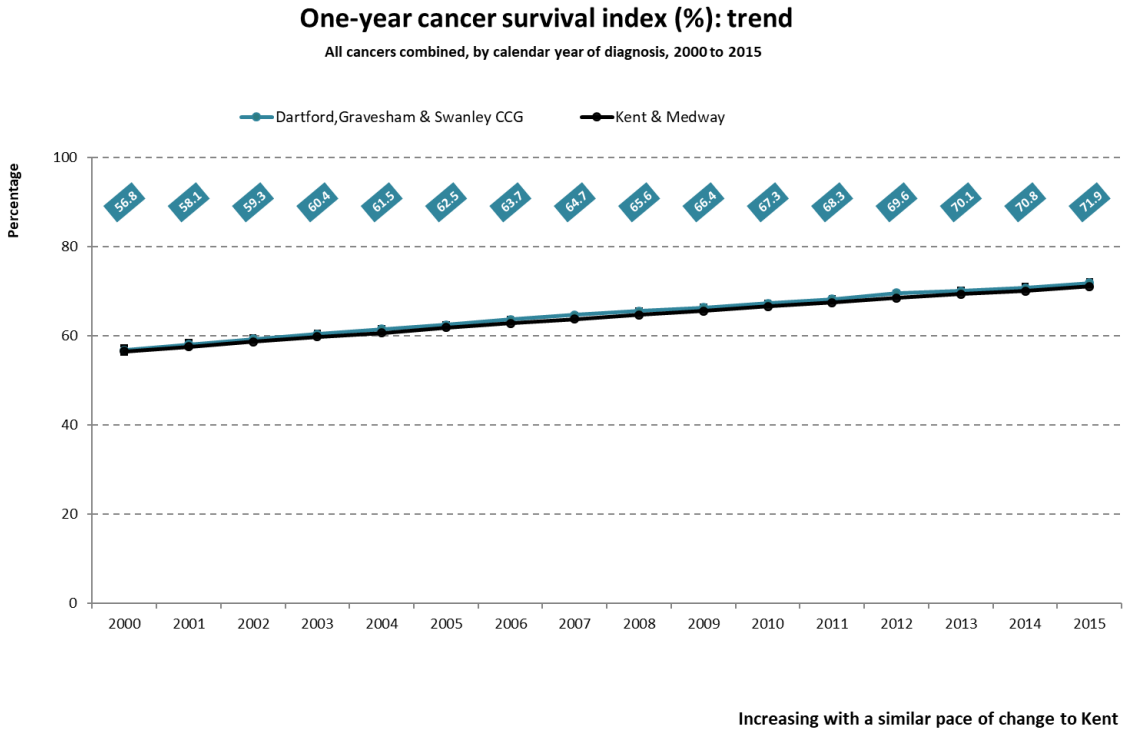


Source: QOF, prepared by KPHO (RK), Jan-19



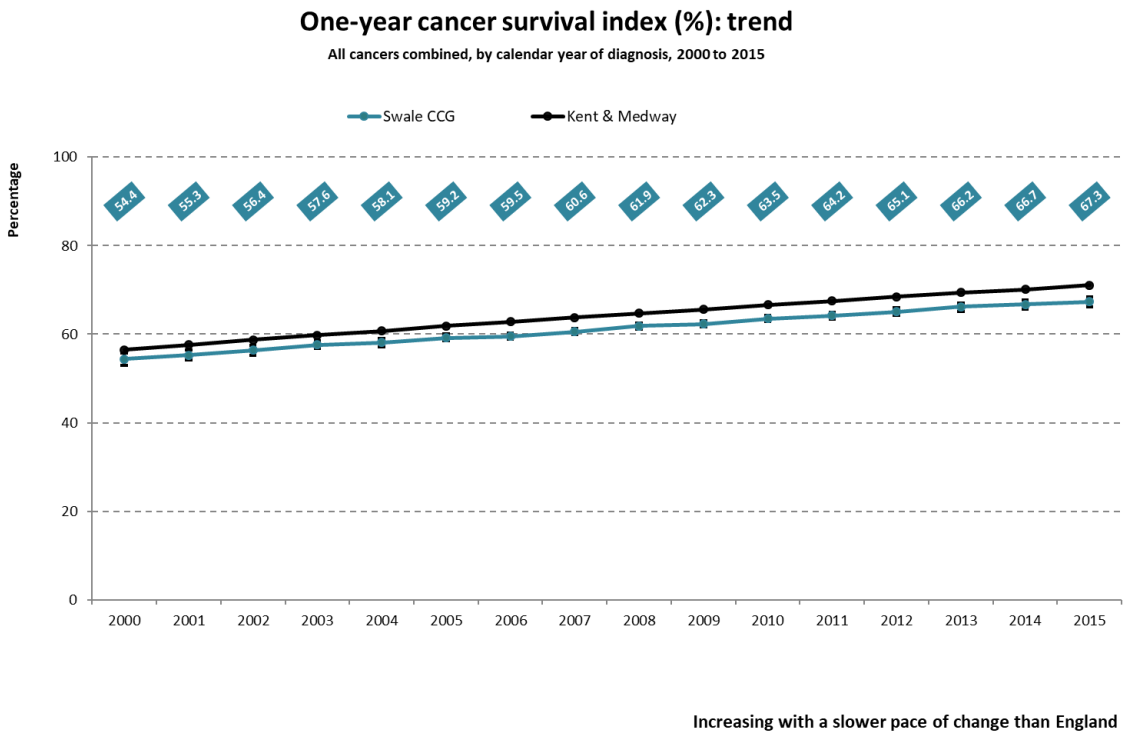
Source: QOF, prepared by KPHO (RK), Jan-19

Figure 131: One-year cancer survival index – trend



Increasing with a similar pace of change to Kent

Source: ONS, prepared by KPHO (RK), Jan-19



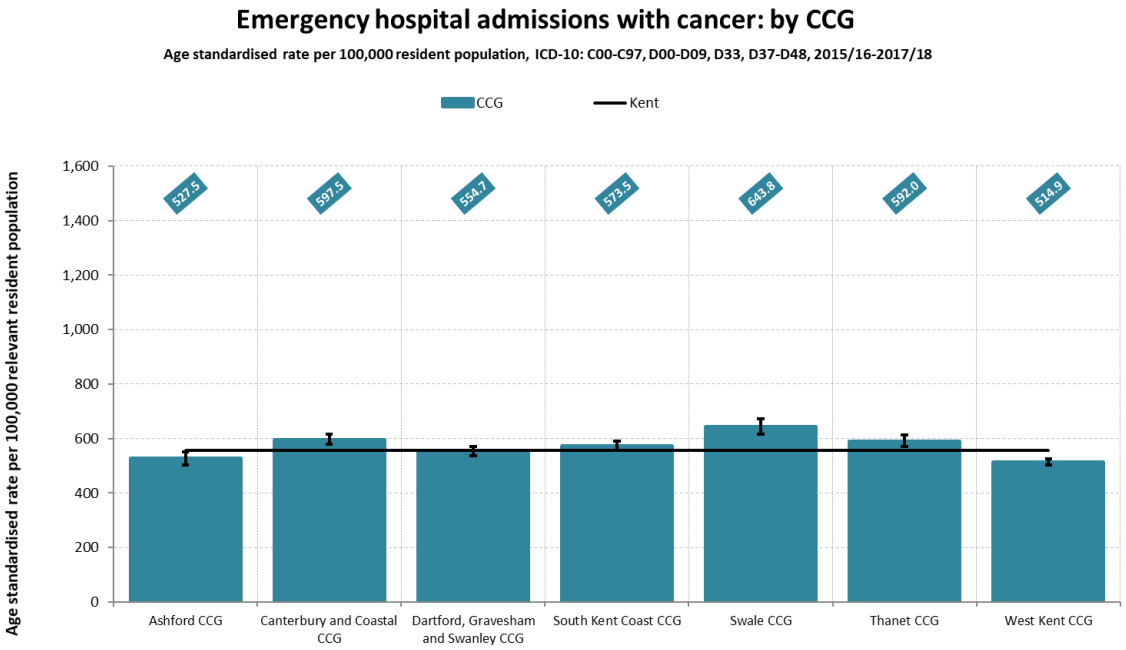
Increasing with a slower pace of change than England

Source: ONS, prepared by KPHO (RK), Jan-19

The rate of emergency admissions to hospital with cancer in DGS is similar to the Kent average, but is higher than the Kent average for Swale CCG, with evidence to suggest an increase over the last couple of years. There is significant variation across wards, with 4 wards in DGS and 7 wards in Swale CCG having significantly higher emergency hospital admission rates than the Kent average.

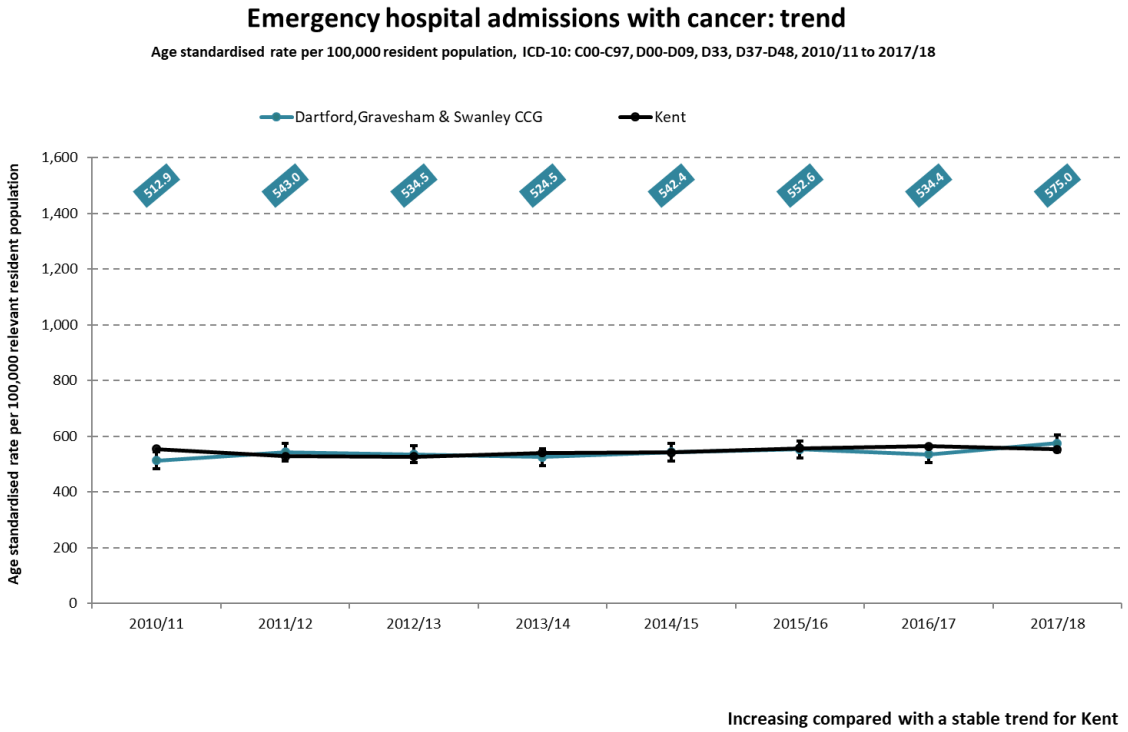
- Hartlip, Newington & Upchurch
- Joyce Green
- Kemsley
- Leysdown & Warden
- Queenborough & Halfway
- Sheerness East
- Sheerness West
- Sheppey Central
- Stone
- Swanscombe
- Town

Figure 132: Emergency hospital admissions with cancer – by CCG (of residence)

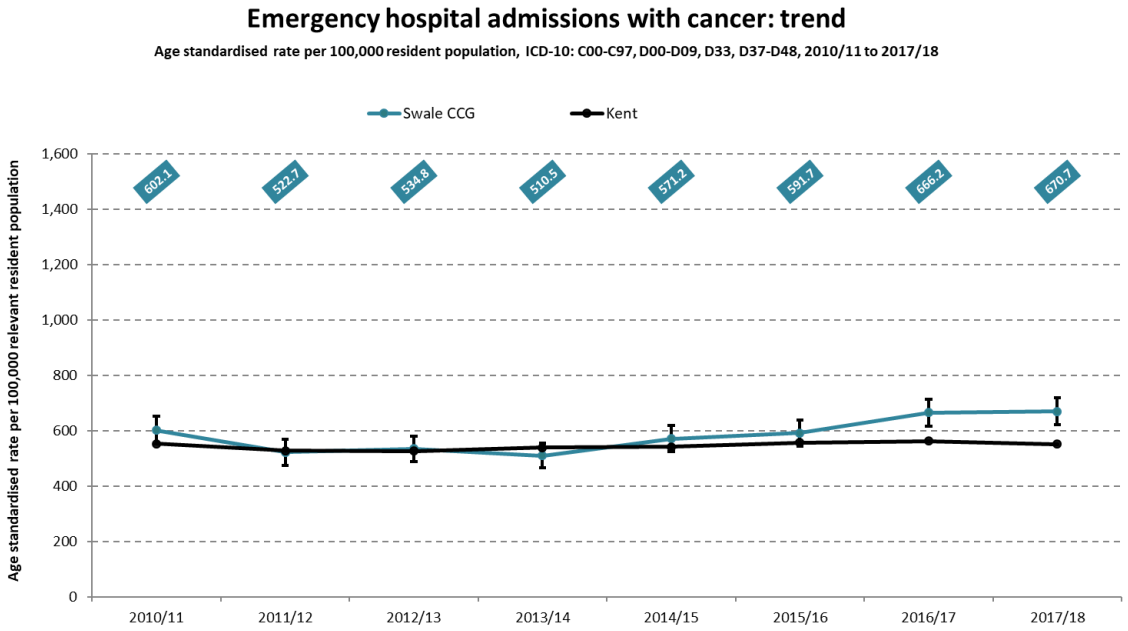


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18

Figure 133: Emergency hospital admissions with cancer – trend

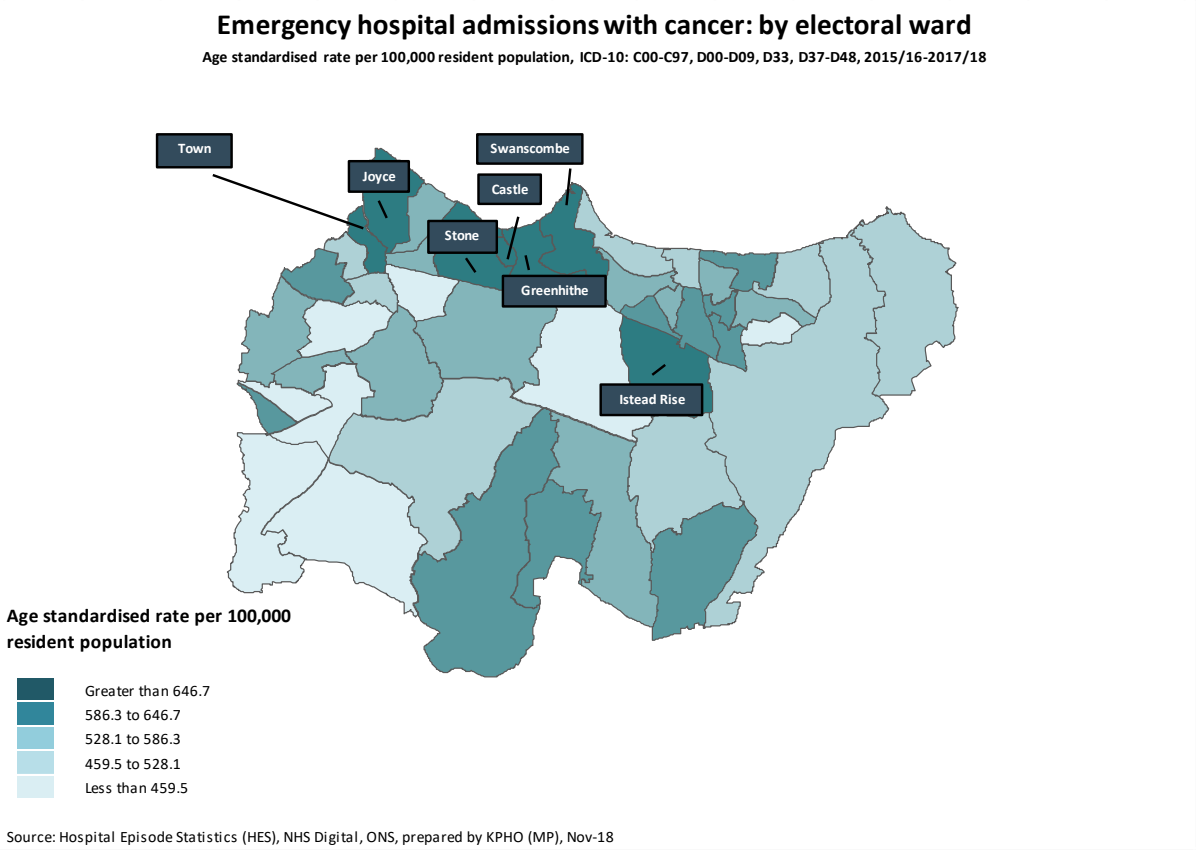


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18

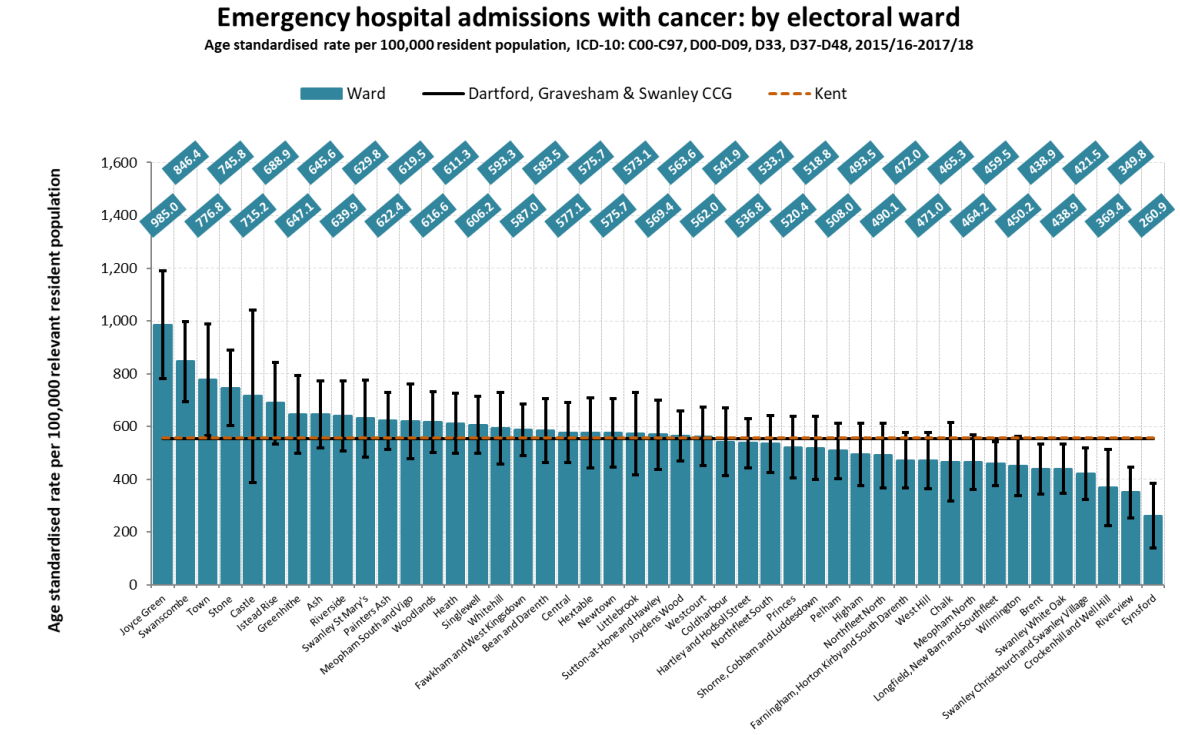


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18

Figure 134: Emergency hospital admissions with cancer – by ward



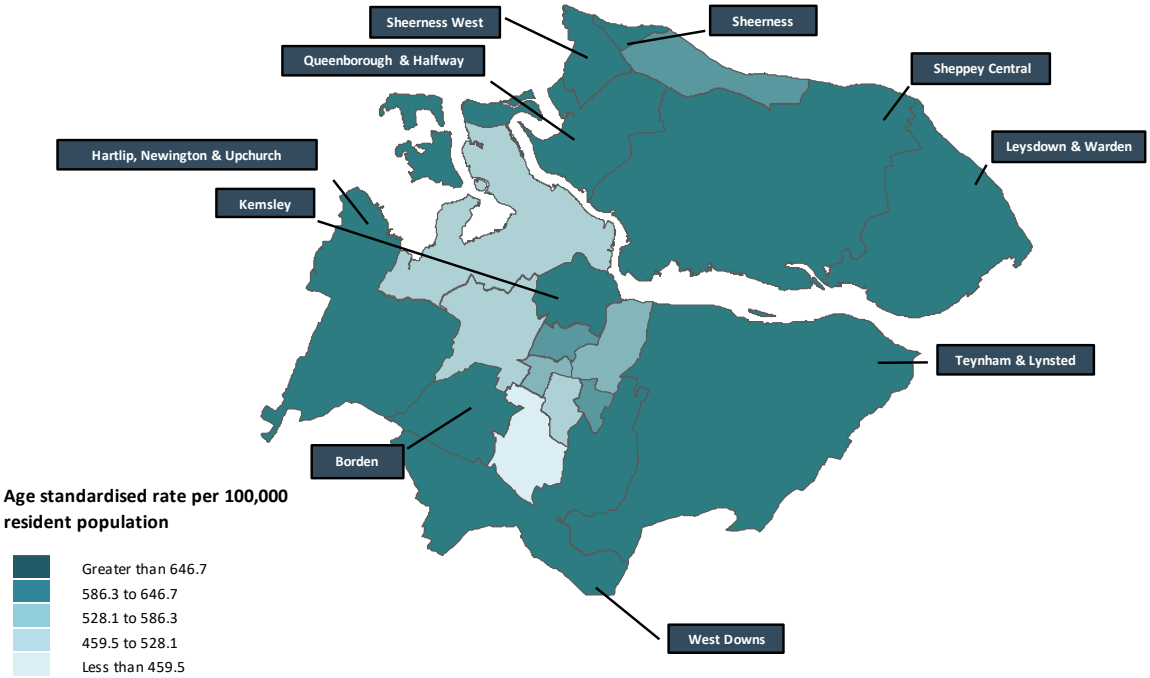
Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18

Emergency hospital admissions with cancer: by electoral ward

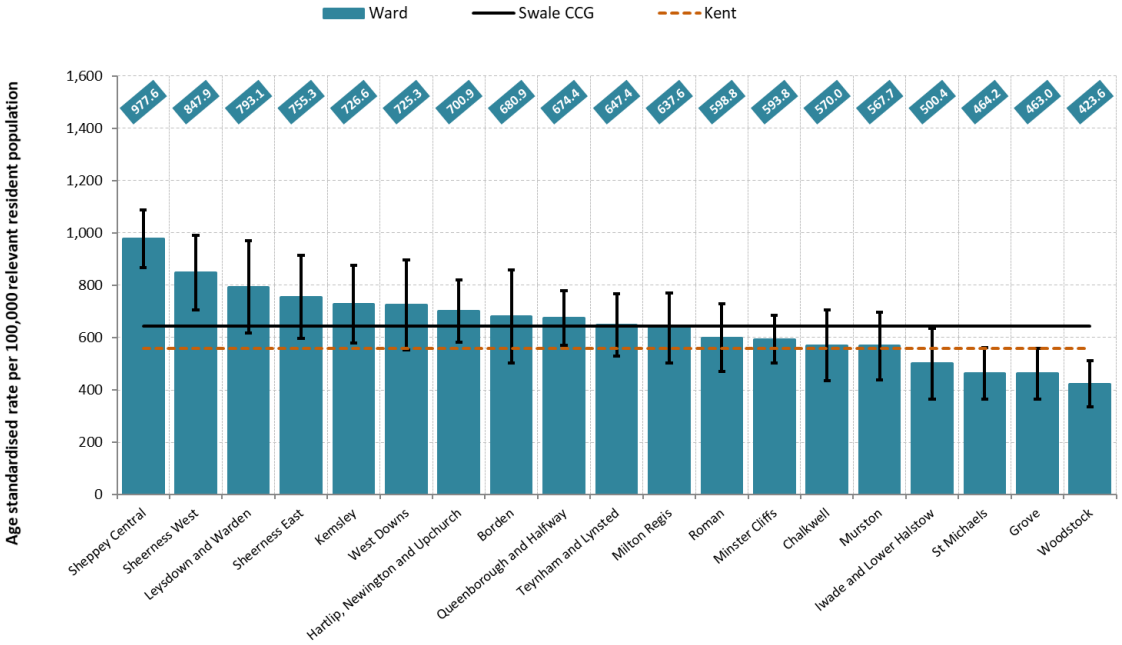
Age standardised rate per 100,000 resident population, ICD-10: C00-C97, D00-D09, D33, D37-D48, 2015/16-2017/18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18

Emergency hospital admissions with cancer: by electoral ward

Age standardised rate per 100,000 resident population, ICD-10: C00-C97, D00-D09, D33, D37-D48, 2015/16-2017/18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (MP), Nov-18

Conclusion

Whilst cancer prevalence in North Kent is well below the Kent average, two practices in DGS (Jubilee Medical and Devon Road surgery) and four in Swale CCGs (Grovehurst Surgery, St George's Medical Centre, The Chestnuts Surgery and London Road) had significantly higher recorded cancer prevalence than the Kent average. The one-year survival rates are improving across both CCG areas, although Swale remains slightly below the Kent and Medway average.

Recommendations

To identify practice level variation in cancer referral rates, emergency admission rates and cancer screening uptake rates by practices and develop remedial action plan.

To work with Kent and Medway Cancer Alliance for raising public awareness of signs and symptoms of cancer.

To develop initiatives for people to seek help earlier, facilitating earlier diagnosis of cancer in primary care and prompt referral for treatment in secondary care.

Investigate how demographic changes will impact on demand on services.

Support cancer patients to 'live with and beyond their cancer' diagnosis and treatment by offering more personalised care.

According to Kent and Medway Cancer Alliance, the agreed priorities for cancer across Kent and Medway in 2019/20 as follows:

- Continued support of Streamlined Diagnostic Pathways (Prostate / Lung / Colorectal & OG)
- Support Introduction of QFit for low risk symptomatic patients across Kent and Medway
- Implement stratified pathways for Colorectal & Prostate patients
- Support providers with the introduction of the 28-day faster diagnosis standard – shared PTL, workshops, etc
- Define most appropriate diagnostic model for Kent and Medway networked diagnostic model rather than RDC
- Enhance MFT Prehab Model and roll out across Kent and Medway
- Pilot 'Late Effects 'service model at MTW
- Further development on Infoflex – integrated cancer care record

13.6 Screening programmes

13.6.1 Screening – National Programmes

National screening programmes are stipulated in an agreement between the Department of Health and Social Care and NHS England – the Public Health Functions Agreement also known as the "Section 7a Agreement" which is revised annually.

https://www.gov.uk/government/publications/public-health-commissioning-in-the-nhs-2018-to-2019

https://www.england.nhs.uk/publication/public-health-national-service-specifications/

This section has largely been produced by this team. The team works with CCGs, practices and NHS Providers and any other relevant organisations (eg Primary Care Networks in future) to improve screening rates and ensure safety and quality standards are met.

The aim of national screening programmes is to improve health by detecting treatable disease early and to promptly refer onwards to treatment services and in some cases prevent disease. A balance has to be struck to ensure that unnecessary or over investigation is minimised whilst not missing many cases. This balance, as well as acceptable costs has to be struck in order for screening programmes to go ahead. A key characteristic is the need for consistently high quality in all stages of a screening programme.

In all programmes the aim is to offer informed choice as to whether to participate or not. There are targets for coverage, or sometimes for uptake, which should be achievable if programme information is of good quality and the programmes are accessible and acceptable.

CCGs and the practices within them have a direct and key role in some screening programmes eg taking samples for cervical screening. In other programmes there can be strong influence through supporting or endorsing programmes and in individually informing patients about screening programmes.

National Screening Programmes are conventionally grouped and named:

Antenatal and Newborn Screening Programme, which comprises

- Infectious Diseases in Pregnancy
- Sickle and Thalassemia Screening
- Downs and Fetal Anomaly Screening
- Newborn Bloodspot Screening
- Newborn Infant Physical Examination

Cancer Screening Programmes

- Cervical Screening
- Breast Screening
- Bowel Cancer Screening, including Bowel Scope

Adult Screening Programmes (non-cancer)

- Abdominal Aortic Aneurysm Screening
- Diabetic Eye Screening

Screening Statistics

There are many measures in screening programmes, used to indicate how well they are functioning. The majority are technical measures of performance or quality.

Several years ago, key performance indicators were developed, about three for each programme, and these usually provide information on coverage, the speed of the screening process and a key measure to do with referrals for treatment. They are reported by screening providers usually quarterly, some indicators are annual. These are published:

https://www.gov.uk/government/publications/nhs-screening-programmes-kpi-reports-2017-to-2018

13.7 Antenatal and Newborn Screening Programme

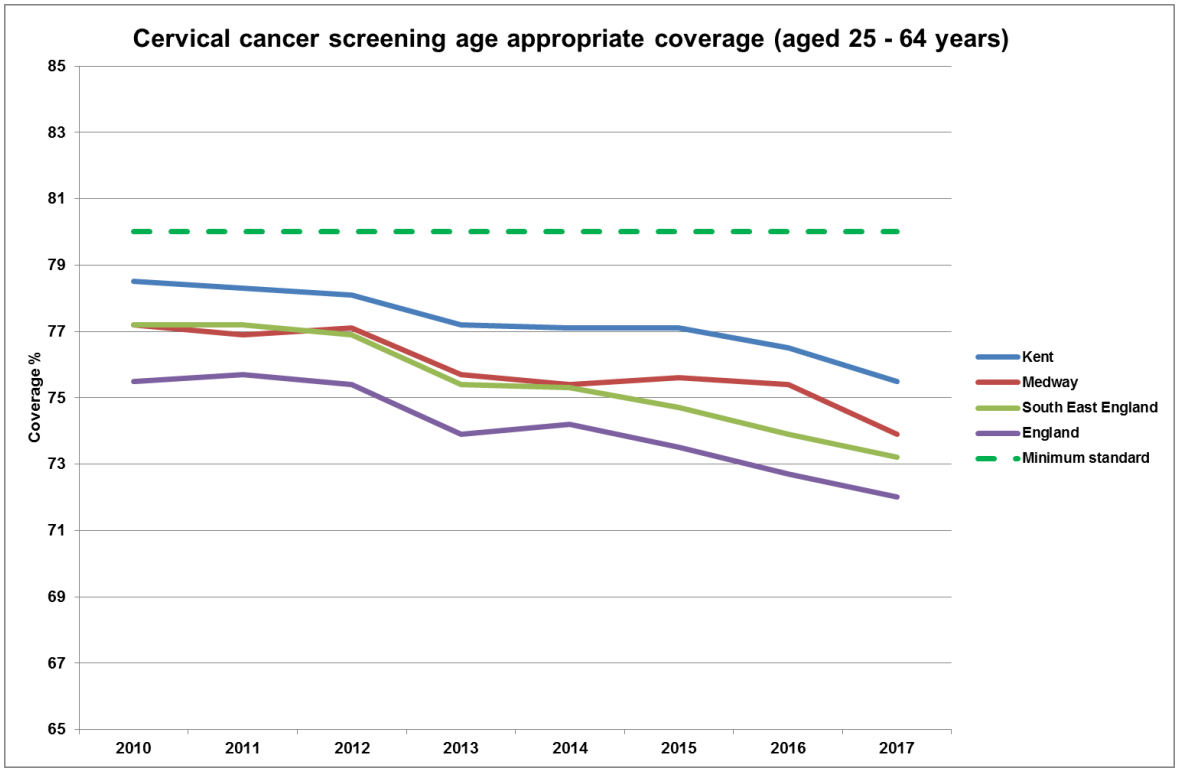
The majority of this is offered as part of antenatal and postnatal care, through midwifery and associated services, eg ultrasound departments and, for Newborn Infant Physical Examination, paediatrics. Uptake of the screening programmes is very good and usually meets standards.

13.7.1 Cancer Screening Programmes

13.7.1.1 Cervical Screening

The key concern is that coverage has been falling:

Figure 135: Cervical cancer screening rate – trend

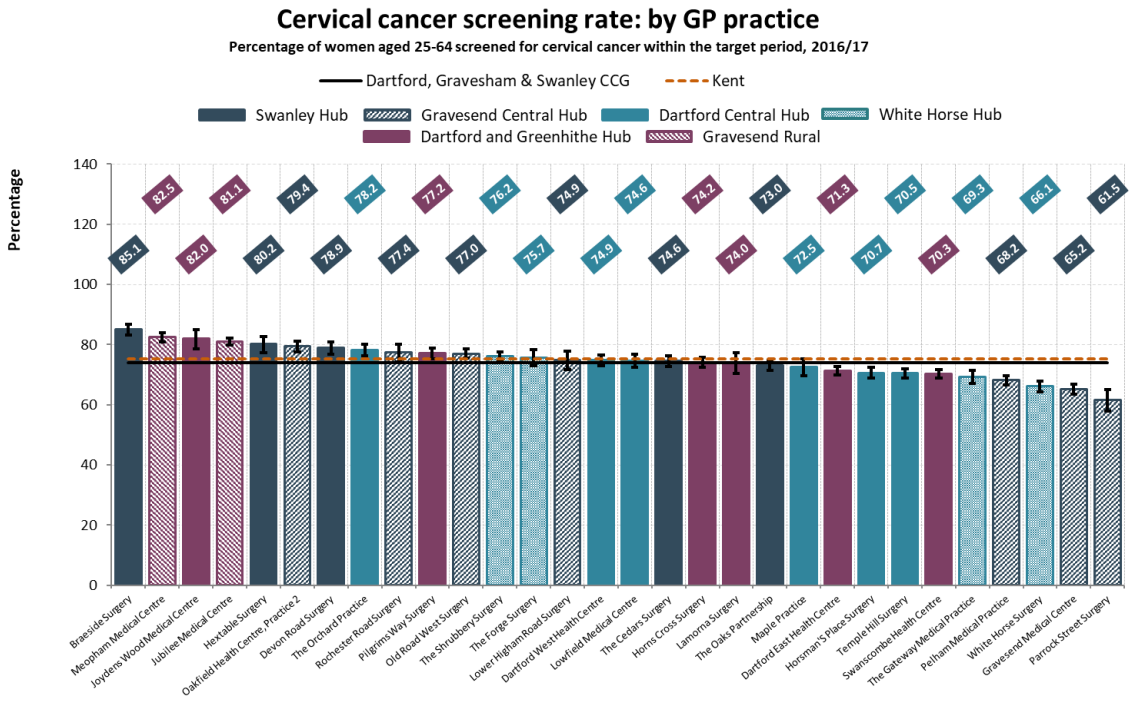


The 2017/18 coverage figures[2] for the DGS CCG area for 25-49-year olds and 50-64 year olds were 71.6% and 76.6% respectively, whereas corresponding figures for the Swale CCG areas were 73.5% and 74.8%. With an 80% target set for coverage, this therefore suggests an estimated 3,909 and 1,184 female population aged 25-49 year olds represents the gap to achieve this in the North Kent area.

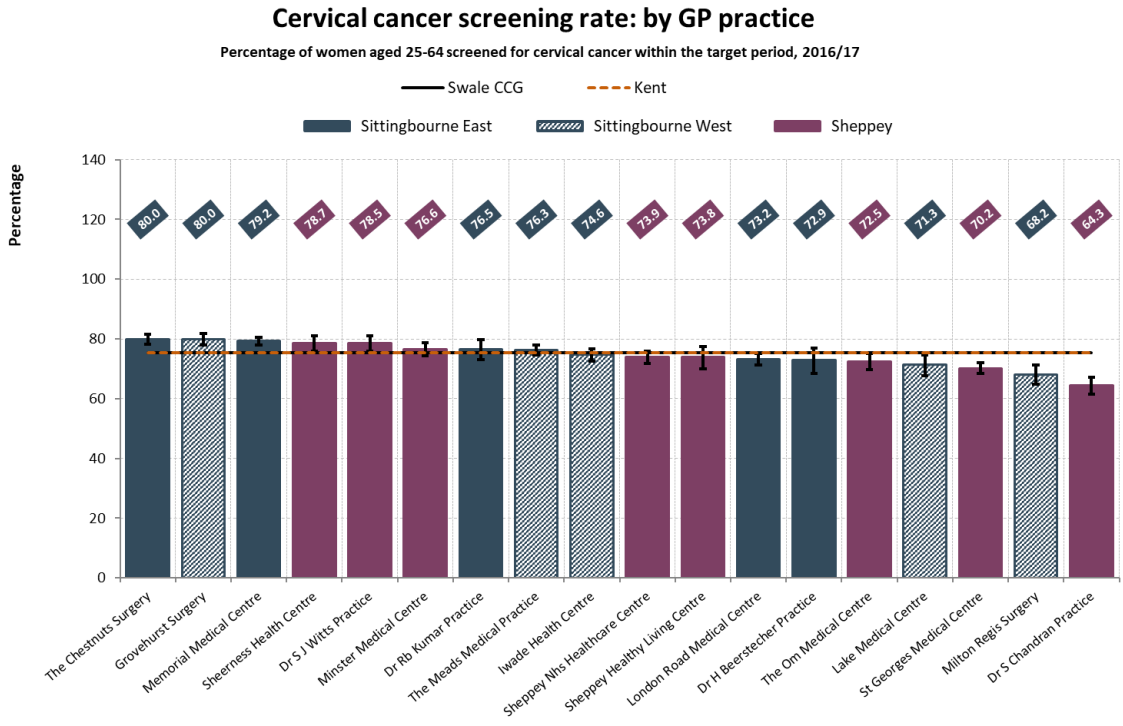
There is a need to make this screening programme more relevant, acceptable and accessible. Coverage varies considerably by general practice and it is clear that practice organisation has a major influence on coverage rates achieved.

[2] https://www.gov.uk/government/publications/cervical-screening-coverage-and-data

Figure 136: Cervical cancer screening rate – by GP practice



Source: Open Exeter, prepared by KPHO (RK), May-18

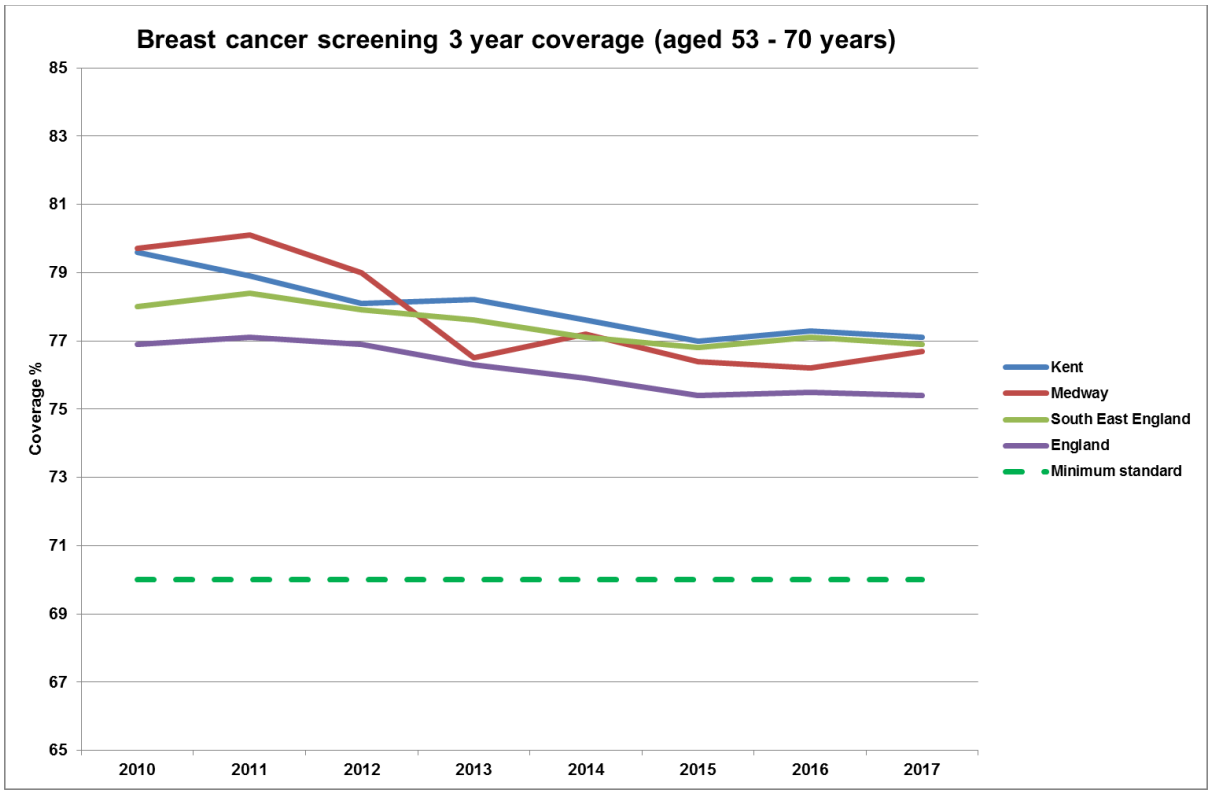


Source: Open Exeter, prepared by KPHO (RK), May-18

13.7.1.2 Breast Screening

Coverage of breast cancer screening is slightly on the up in the North Kent area in contrast to that across the whole of Kent.

Figure 137: Breast cancer screening rate – trend

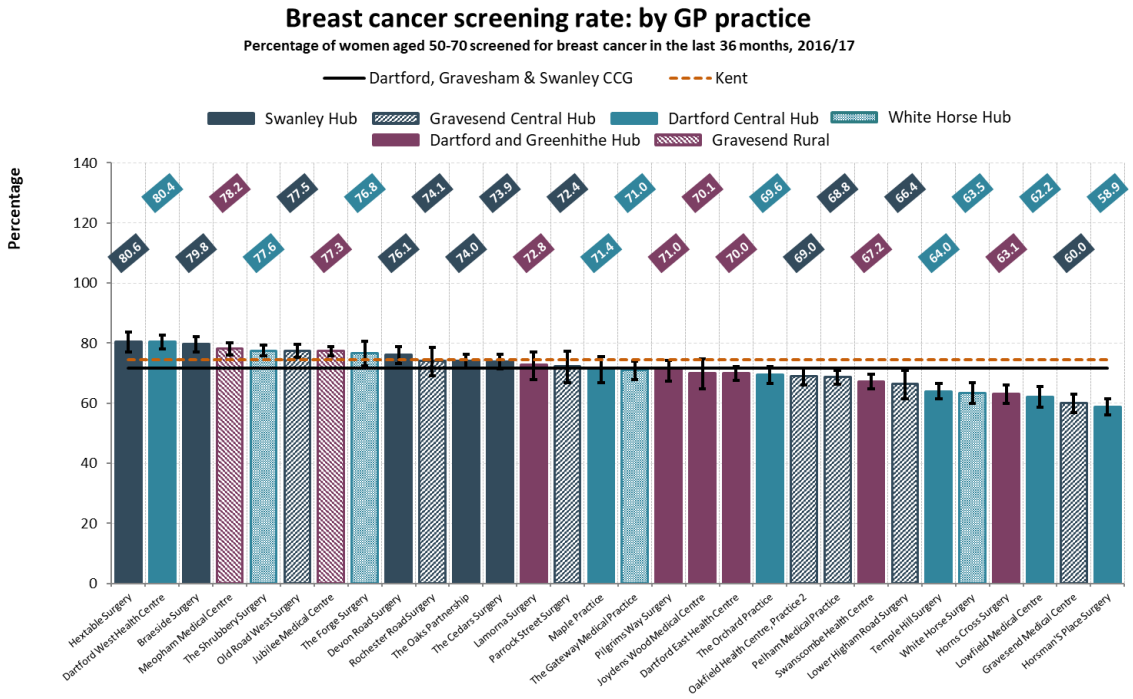


The 2017/18 figures[3] show uptake in DGS and Swale was 72.5% and 74%, with an overall increasing trend that suggests a slight departure from a dip in coverage across Kent, though acceptable threshold is 70% and the achievable threshold is 80%.

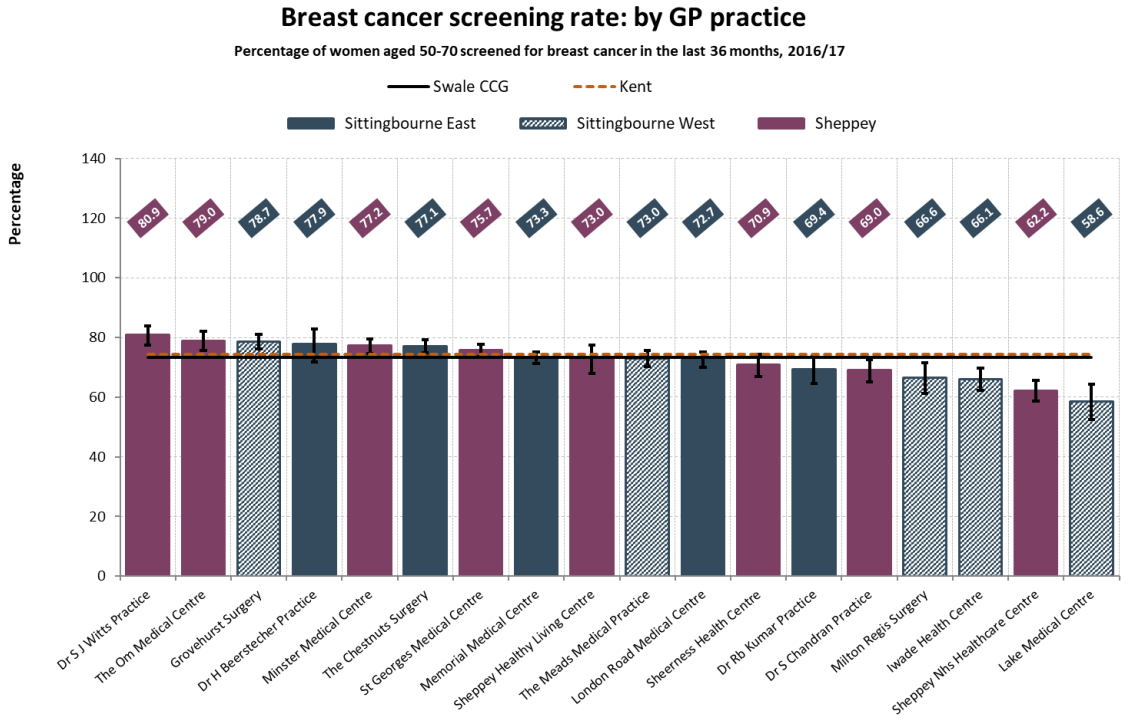
A major influence on uptake is the proximity to women and the accessibility of the mobile screening units, as the one located in Darent Valley Hospital, Dartford .here is a clear need to support effective siting of mobile mammography units to minimise some of the difficulties in the use of the Angel Centre in Tonbridge.

[3] https://fingertips.phe.org.uk/profile/general-practice/data#page/4/gid/1938132829/pat/152/par/E38000180/ati/7/are/G82175/iid/91339/age/265/sex/2

Figure 138: Breast cancer screening rate – by GP practice



Source: Open Exeter, prepared by KPHO (RK), May-18



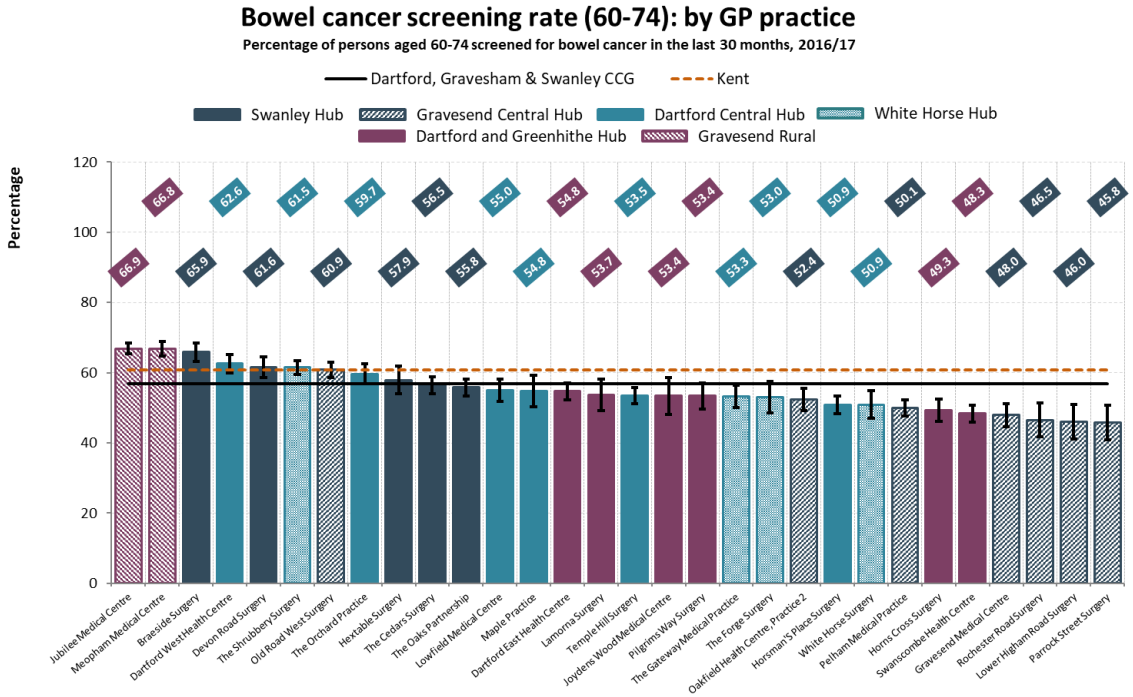
Source: Open Exeter, prepared by KPHO (RK), May-18

13.7.1.3 Bowel Cancer Screening, including Bowel Scope

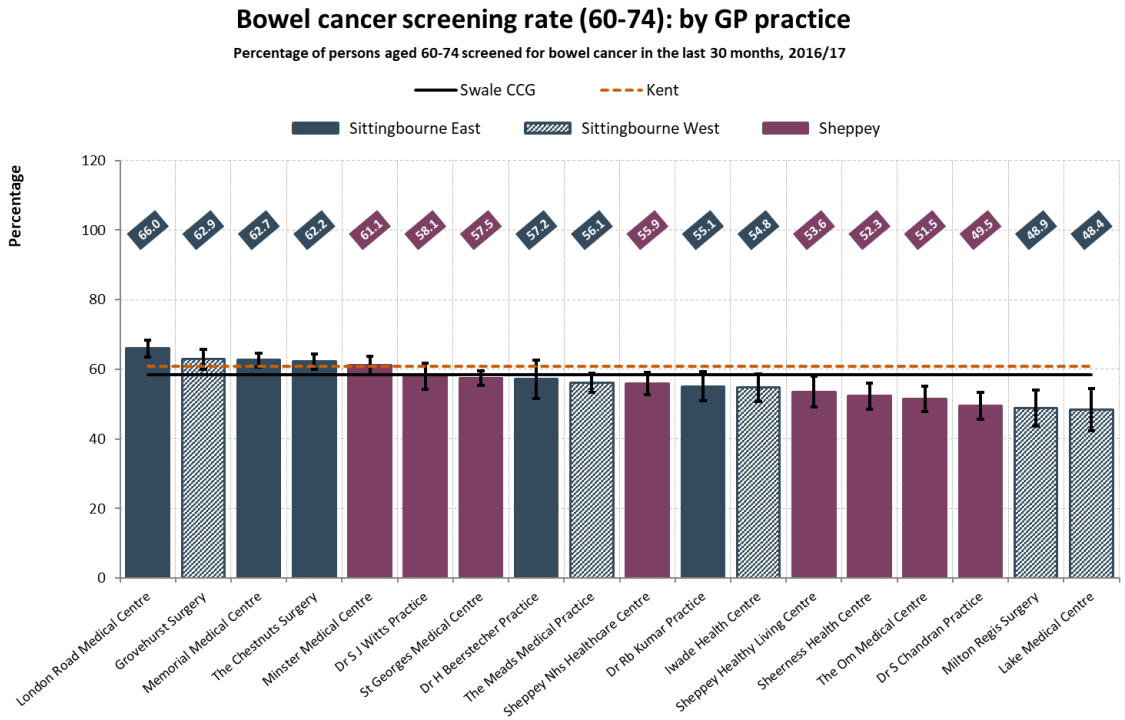
Uptake for Bowel Cancer screening in the North Kent area is generally in line with Kent. In DGS CCG, 57.6% were screened, and 58.3% in Swale, whereas comparative figures for the North Kent area was 63.6%, which is much higher than the whole of Kent. However, the uptake for this screening programme varies considerably from practice to practice and is much lower for those who would benefit the most from screening i.e. in socially deprived areas and in men.

Though invitations for screening do not come from general practice, practices have been shown to able to influence uptake significantly by promoting this programme or through endorsement of invitations. For example, West Kent CCGs have a scheme to encourage practices to contact "non-responders", this initiative which is only within this area, shows the lack of a systematic approach to improving uptake.

Figure 139: Bowel cancer screening rate – by GP practice



Source: Open Exeter, prepared by KPHO (RK), May-18



Source: Open Exeter, prepared by KPHO (RK), May-18

Bowel Scope, which is a screening test invitation for people aged 55 has been in place in some areas of Kent for several years – West Kent was the first area in England to implement this programme at scale but it is still not available for many areas eg most of Dartford, Medway and East Kent. Uptake is about 50%, similar to other parts of England.

A current problem with Bowel Cancer Screening is that there needs to be enough endoscopy capacity – most of which is used for symptomatic patients and commissioned by CCGs.

13.7.2 Aortic Aneurysm Screening Programme

Coverage for Kent in 2016/17 is 82% and varies little from year to year. These figures compare favourably with England. Access is very good, with many clinic sites available.

13.7.3 Diabetic Eye Screening programme

Uptake is generally good, 82% for Kent and Medway is the last published figure for Jan-March 2017. This programme had been gradually changing – from a van-based service to fewer, static locations though compared to services in other parts of England still provides relatively local access. The change improves efficiency and reliability of equipment.

Conclusion

With an 80% target set for cervical screening coverage, around 5,093 females aged 25-49-year olds is an estimate of the gap to achieve this in the North Kent area.

Coverage of breast cancer screening is slightly on the up in the North Kent area in contrast to that across the whole of Kent – uptake in DGS and Swale CCGs was 72.5% and 74% in 2017/18.

Uptake for Bowel Cancer screening in the North Kent area is generally in line with Kent. In DGS CCG, 57.6% were screened, and 58.3% in Swale. This figure though hides major inequalities in access affecting poorer areas and lower uptake in men. A major concern is that Bowel Scope is not available to the whole area due to lack of capacity for endoscopy.

The key message is that much of the data available can be complex to interpret, historical to some extent and that interpretation and the development of plans to improve should involve the Kent and Medway Screening and Immunisation Team.

13.8 Immunisations

Immunisation – National Programmes

National immunisation programmes are stipulated in an agreement between the Department of Health and Social Care and NHS England – the Public Health Functions Agreement also known as the "Section 7a Agreement" which is revised annually.

https://www.gov.uk/government/publications/public-health-commissioning-in-the-nhs-2018-to-2019

https://www.england.nhs.uk/publication/public-health-national-service-specifications/

Locally, NHS England (South East) – this is subject to NHSE reorganisation – has a Public Health Commissioning Team and embedded in this is a Public Health England team, the Kent and Medway Screening and Immunisation Team. This section has largely been produced by this team. The team works with North Kent CCGs, practices and NHS Providers to improve immunisation rates.

The aim of national immunisation programmes is in general to provide herd immunity and most immunisations have a target of 95% population coverage or uptake (usually used interchangeably in immunisation). There are exceptions, where the vaccination does not provide herd immunity, ie. prenatal pertussis and shingles, where the protection is for that individual.

The complete national immunisation schedule is found here:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/741543/Complete_immunisation_schedule_sept2018.pdf

It may be grouped:

Seasonal Flu

- Children aged 2 and 3 years (but not four years or older) on 31 August 2018
- Children in school years Reception, 1, 2, 3, 4 and 5
- Over 65 years
- Under 65 and in a clinical risk group
- All pregnant women
- GP and Practice Staff
- Frontline Healthcare Workers

Adult Immunisation Programme

- Pneumococcal
- Shingles

School Aged Immunisation Programme

- Human Papillomavirus (HPV)
- Teenage Booster (Td/IPV)
- Meningococcal ACWY

Childhood Immunisation Programme

- COVER data

Immunisations for Those at Risk

- Neonatal Hepatitis B
- Neonatal BCG
- Prenatal Pertussis

Immunisation statistics

Uptake figures and available form two main sources. Both start from general practice.

1. ImmForm is a system that collates immunisation summary statistics though usually monthly electronic extracts of general practice data performed by general practice system suppliers' ie EMIS etc. Published data is available by CCG but not by individual practice.
2. COVER is a quarterly publication of childhood immunisation data supplied in summary form from Child Health Information Systems (CHIS), which in turn rely on individual patient immunisation information from general practices (not always reliable in Kent) COVER produces summary statistics by Local Authority area (Upper

Tier, so at the level of Kent County Council). Data is not available by CCG or individual practice.

3. NHS Digital published in December 2017, for the first time, childhood immunisation statistics, for 2016/17, at the individual practice level. The source for this was an electronic extraction from CHIS databases. The data is viewable as tables and also through an interactive Power BI platform providing interactive maps at STP, CCG and GP practice level. It is expected that this will be refreshed with 2017/18 data.

Immunisation statistics can vary considerably over time; therefore, it is important to try to base assessments and actions on up to date information. Recent information is often not publicly or routinely available at a CCG level or an individual practice level. The Screening and Immunisation Team produces Statistical Reports which provide commentary on collated data from a variety of sources. It is regularly refreshed[4].

1902_KSS_Imms_Data.pdf

13.9 Mental health

People with mental illness experience higher rates of morbidity and have a lower life expectancy then those without mental illness. Individuals with chronic physical health problems are also more likely to experience mental health problems: 30% of patients with a long-term condition have a mental health problem. (Source: KID) There are two main categories of mental illness referred to as 'common mental illness' [depression, anxiety] and 'severe and enduring mental illness' [schizophrenia (psychosis) and bi-polar disorder]. However, a person with mental illness will also have differing severity (with CMI and SMI). Also, there is a high degree of co-morbidity both within mental health (i.e. co-occurring depression & anxiety etc) as well as co-occurring with physical illness e.g. depression and CVD, psychosis and diabetes. People with a mental illness on average die 20 years earlier than those without mental illness.

The 2014 APMS survey highlights higher rates of common mental health problems being found among younger women (aged 16 to 24 years) compared to their male peers. In 1993, young women of this age group were twice as likely to have symptoms of a common mental health problem - at 19.2% - compared to young men - at 8.4%.This increased by 2014, where these symptoms are nearly three times more common in young women (26.0%) than men (9.1%). The findings also show that nearly 25% of young women in this age group have self-harmed in their life. These stark patterns indicate the need for the STP to support the development of effective strategies for preventing common mental health problems in

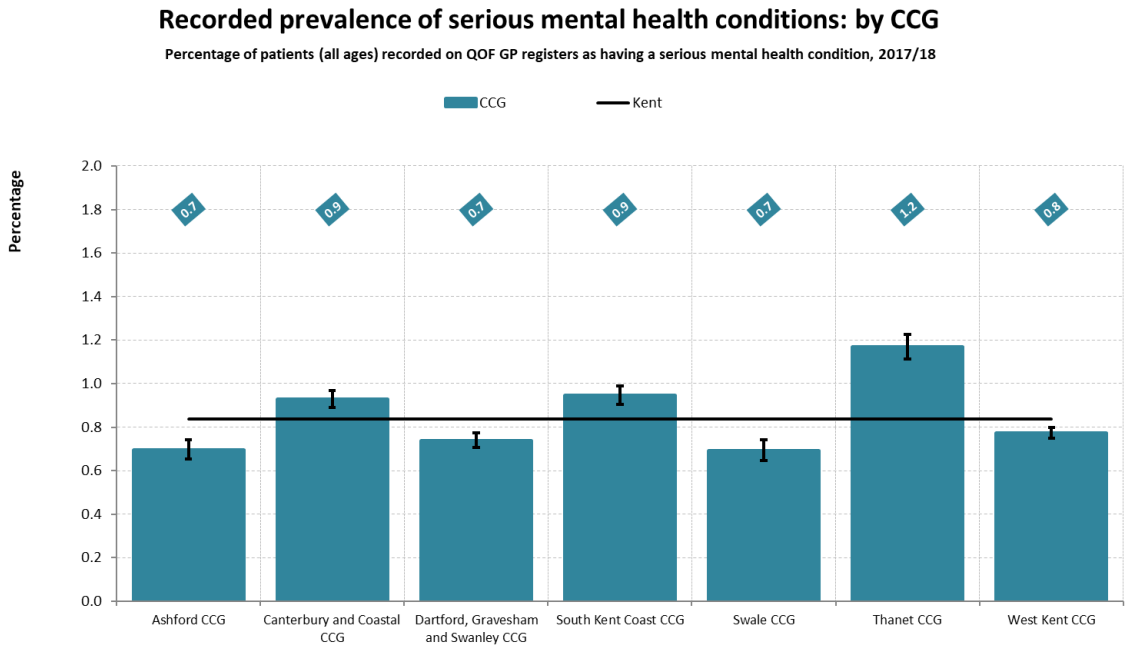
[4] *Link to Kent Surrey Sussex Vaccination and Immunisation Data and Report*

women. It is likely that these strategies will need to take into consideration that men are known to be under represented in diagnosis of common mental illness, but, there are a combination of a range of factors which women are more vulnerable to experiencing in their life time (such as domestic violence, physical and sexual abuse) which interact with one another. Source (APMS)

Recorded prevalence of serious mental health conditions in North Kent is below the Kent average. As expected there is practice level variation; two practices, each in DGS and Swale CCGs have significantly higher prevalence of recorded serious mental health condition than the Kent average.

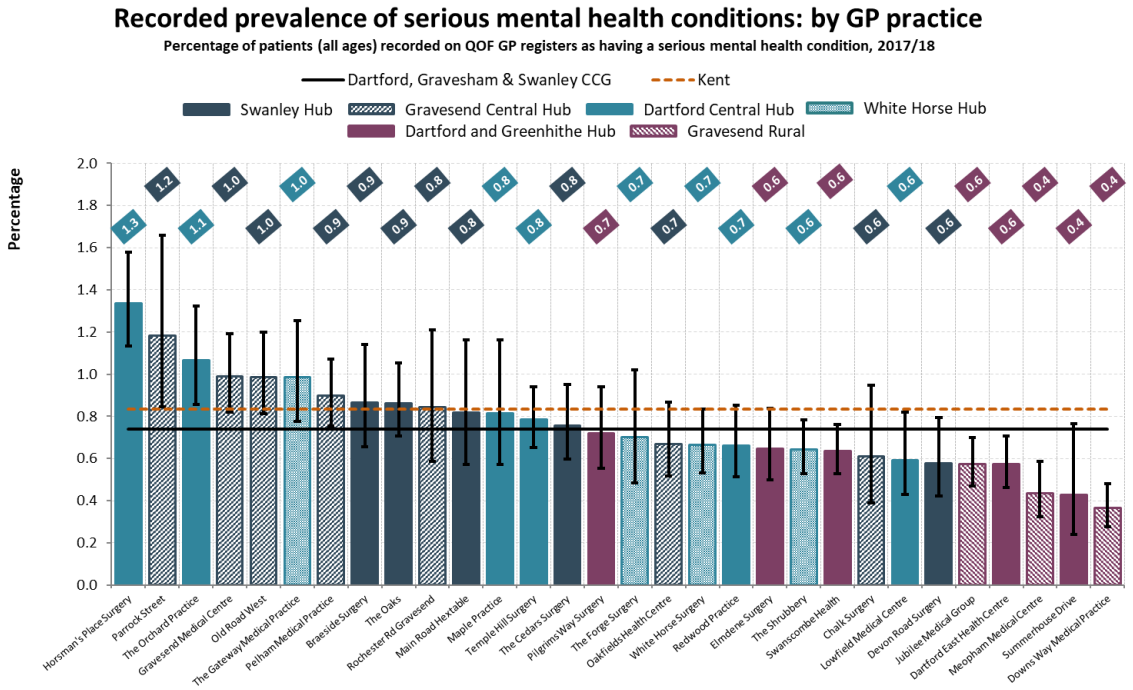
- Horsman's Place Surgery
- Milton Regis Surgery
- Sheppey Healthy Living Centre
- The Orchard Practice

Figure 140: Recorded prevalence of serious mental health conditions – by CCG

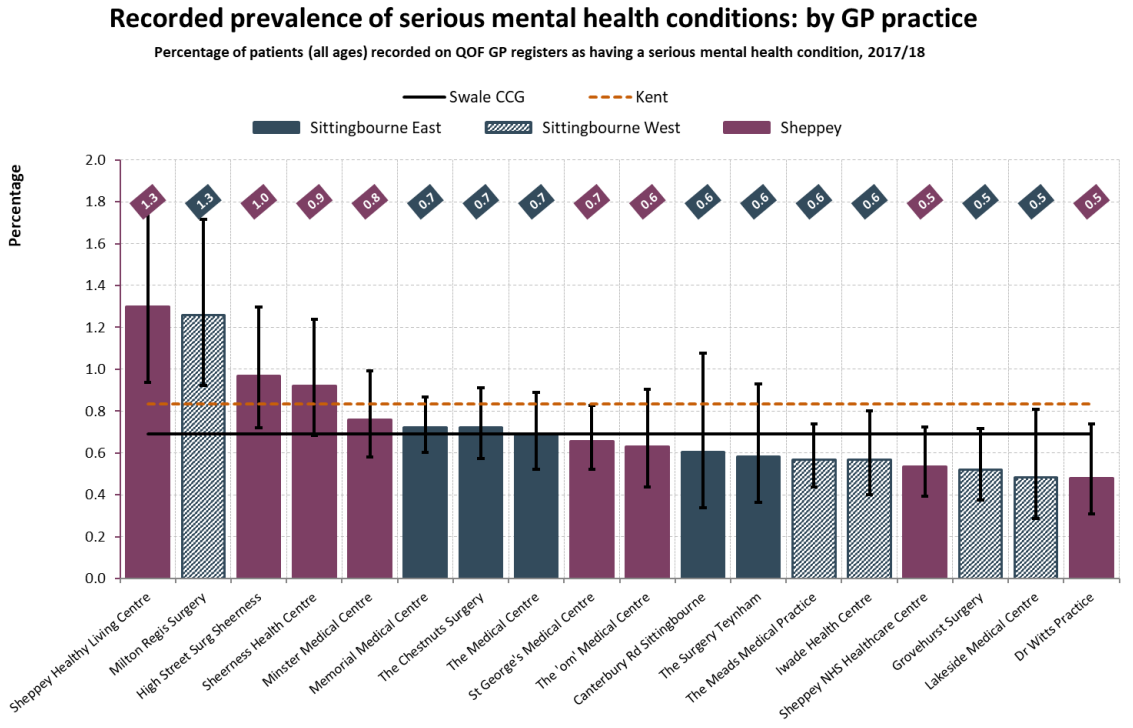


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 141: Recorded prevalence of serious mental health conditions – by GP practice



Source: QOF, prepared by KPHO (RK), Jan-19

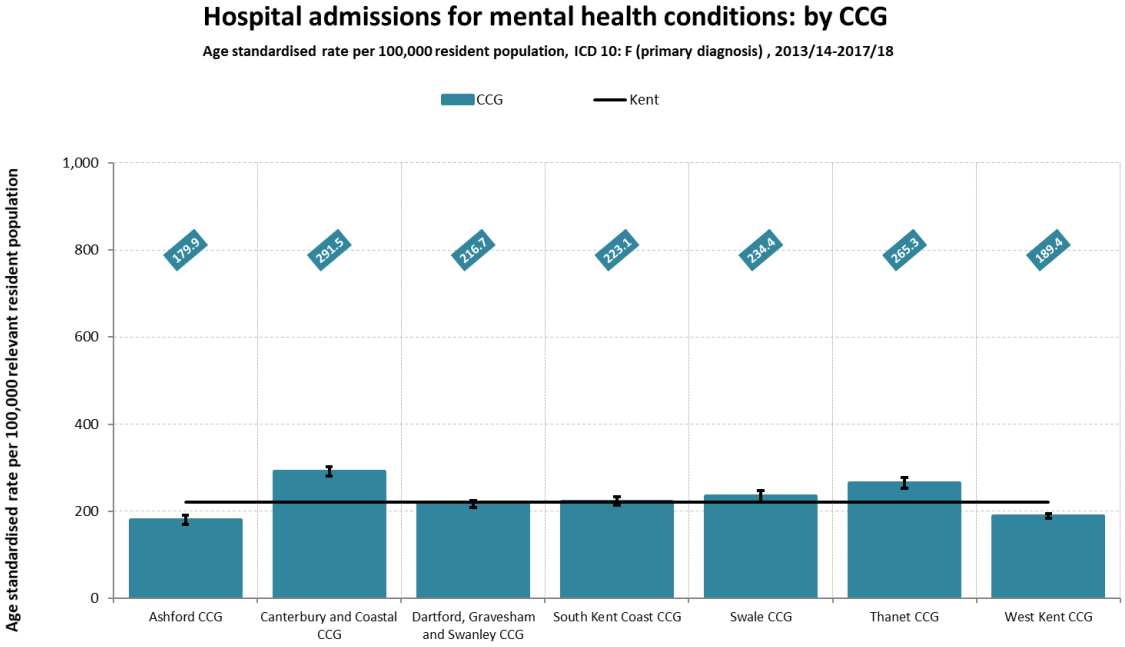


Source: QOF, prepared by KPHO (RK), Jan-19

The rate of emergency admissions to hospital for mental health conditions in North Kent is similar to the Kent average. There is significant variation across wards, with 7 wards in DGS and 6 wards in Swale CCGs having significantly higher rates of emergency hospital admission than the Kent average:

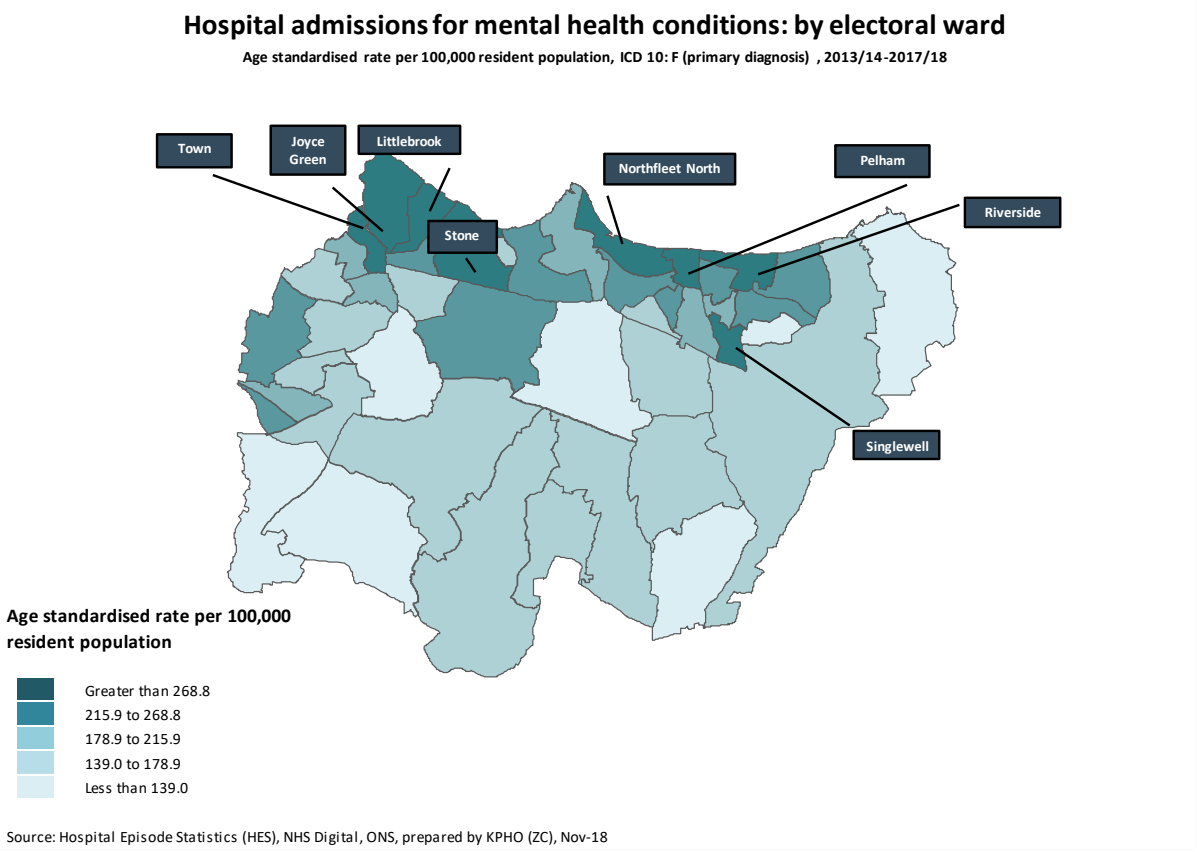
- Joyce Green
- Leysdown & Warden
- Milton Regis
- Murston
- Northfleet North
- Pelham
- Riverside
- Sheerness East
- Sheerness West
- Singlewell
- St Michaels
- Stone
- Town

Figure 142: Hospital admissions for mental health conditions – by CCG (of residence)

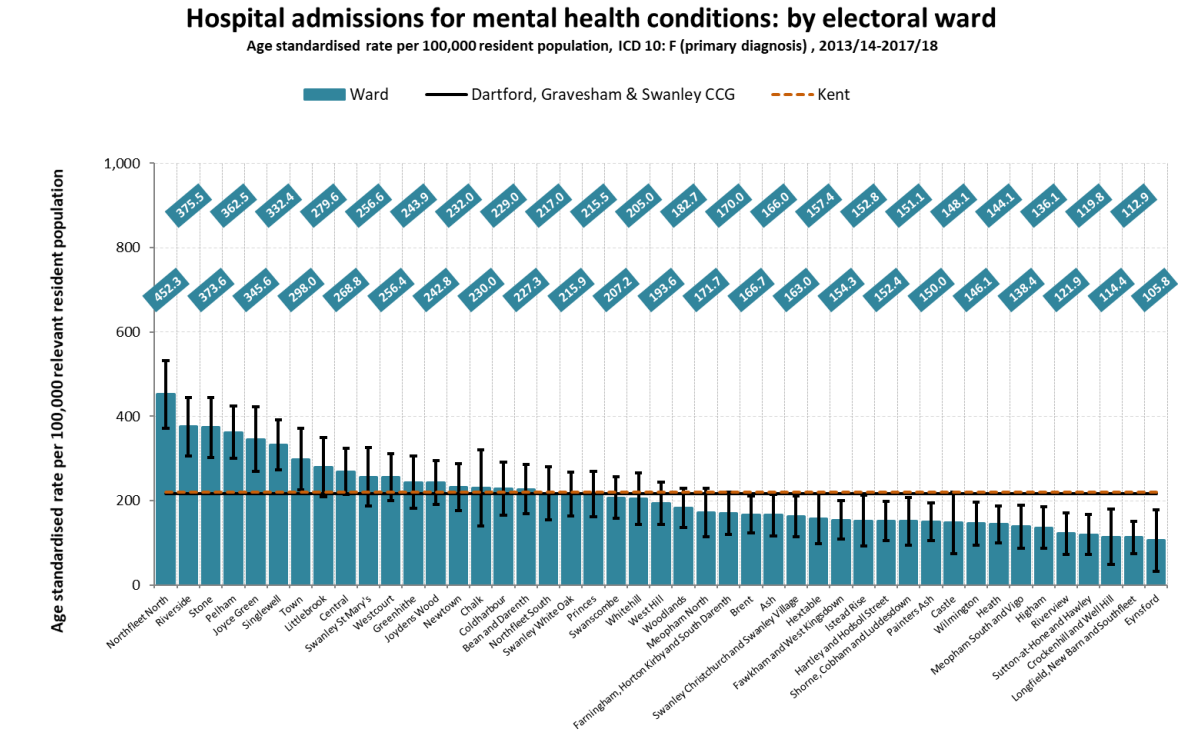


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (ZC), Nov-18

Figure 143: Hospital admissions for mental health conditions – by ward



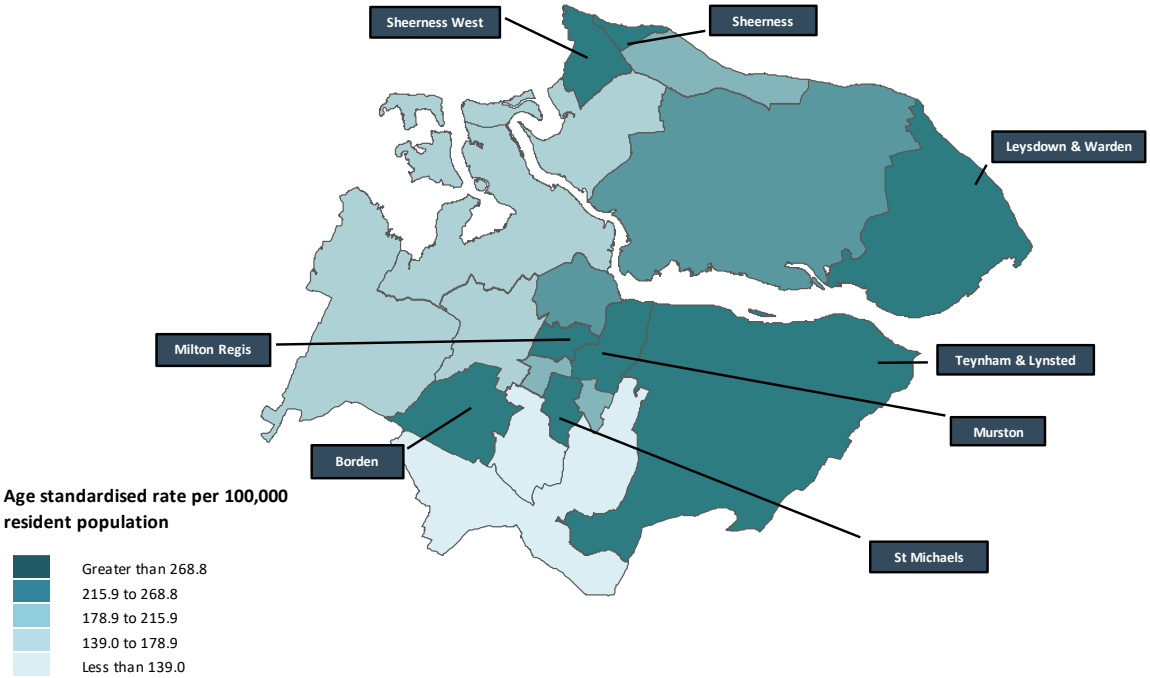
Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (ZC), Nov-18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (ZC), Nov-18

Hospital admissions for mental health conditions: by electoral ward

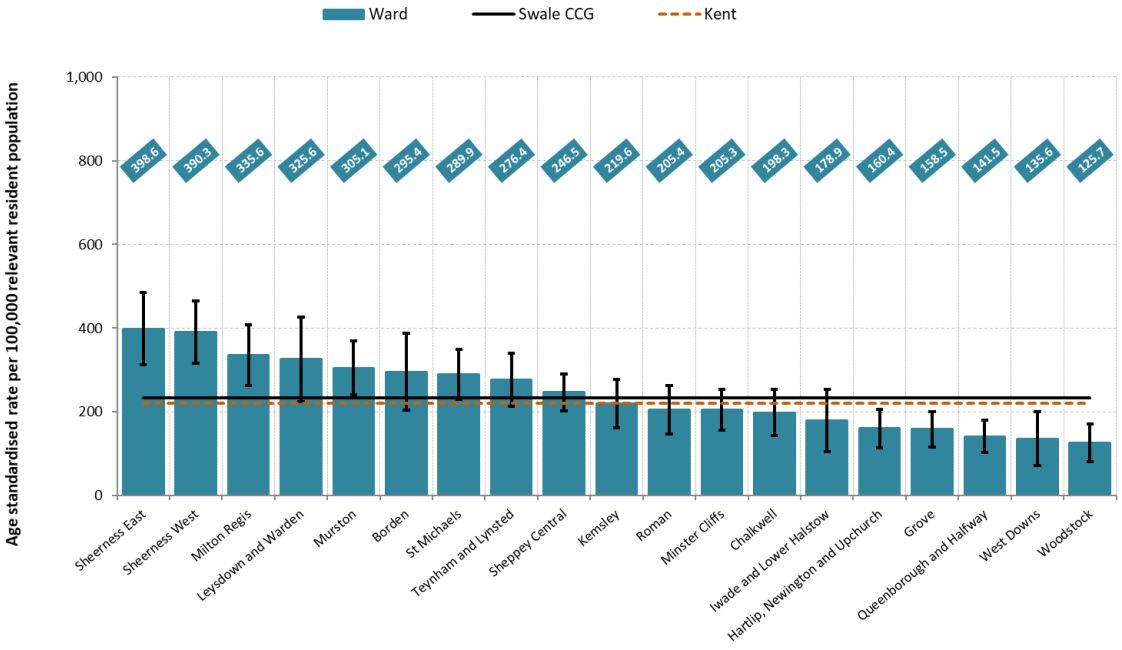
Age standardised rate per 100,000 resident population, ICD 10: F (primary diagnosis) , 2013/14-2017/18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (ZC), Nov-18

Hospital admissions for mental health conditions: by electoral ward

Age standardised rate per 100,000 resident population, ICD 10: F (primary diagnosis) , 2013/14-2017/18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (ZC), Nov-18

It is estimated that 12% of the DGS and 12.3% Swale CCG populations aged 16-74 years old are suffering from a common Mental Health Disorder, compared to 15.6% nationally[5]

Depression

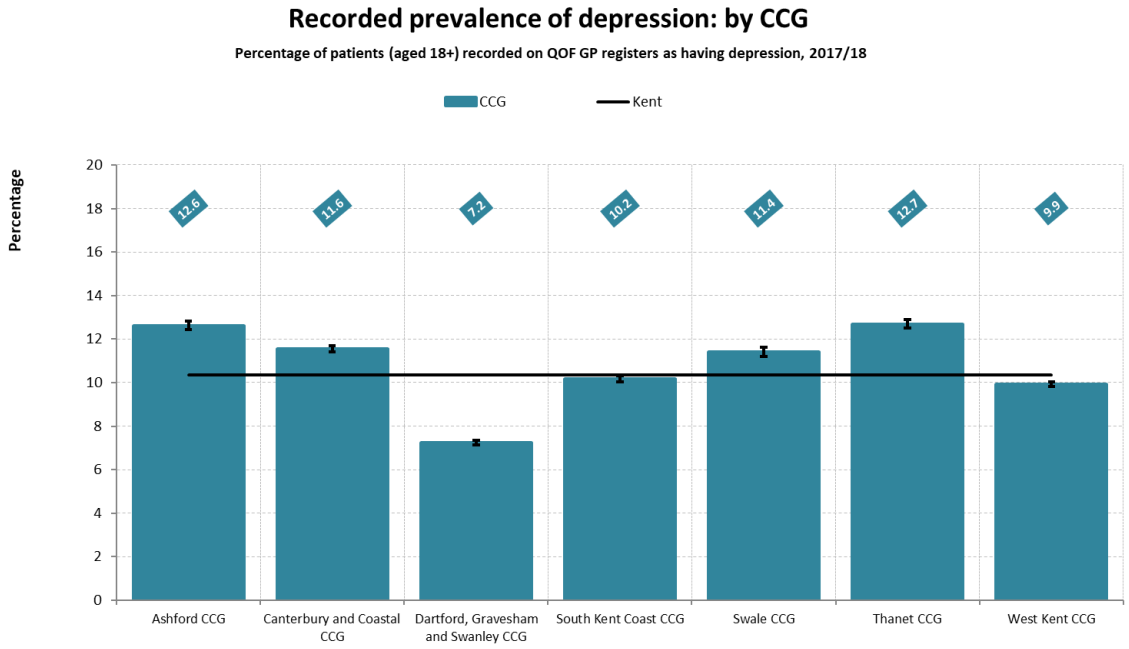
Recorded prevalence of depression is above the Kent average in Swale CCG, but well below the Kent average in DGS. There are 4 practices in DGS and 8 practices in Swale CCG with significantly higher recorded prevalence of depression than the Kent average.

- Devon Road Surgery
- Grovehurst Surgery
- High Street Surgery Sheerness
- Horsman's Place Surgery
- Iwade Health Centre
- Jubilee Medical Group
- Memorial Medical Centre
- Old Road West
- Sheerness Health Centre
- Sheppey NHS Healthcare Centre
- St George's Medical Centre
- The Meads Medical Practice

There are 25 practices in DGS (and 5 practices in Swale CCG) with significantly lower recorded prevalence of depression than the Kent average.

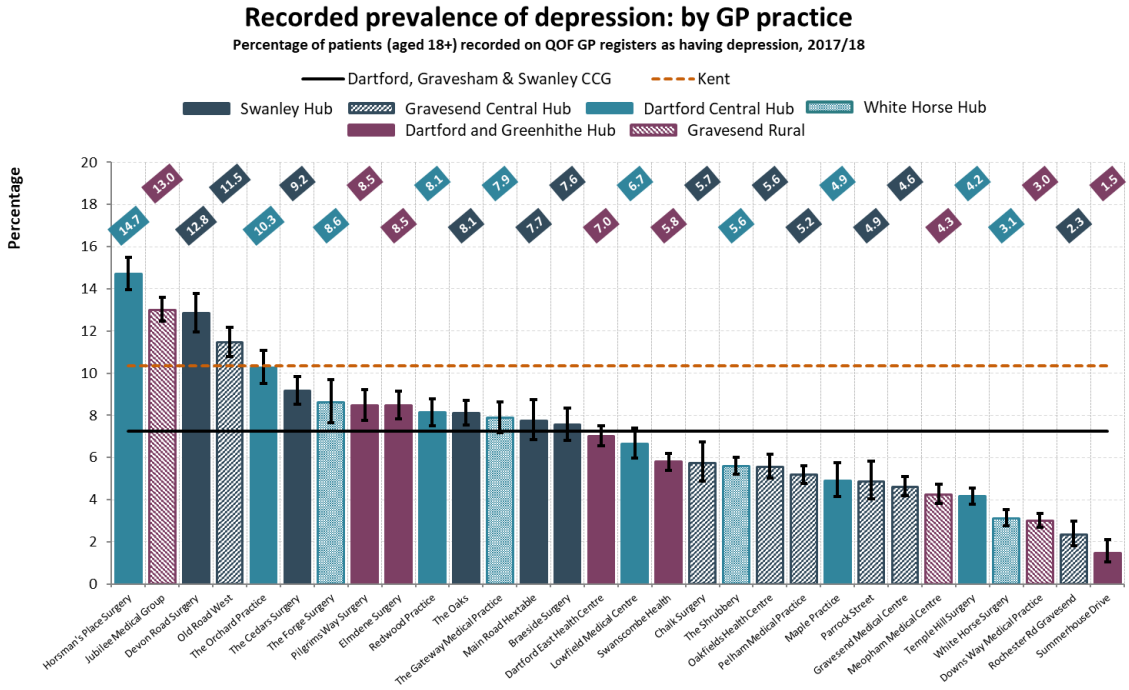
[5] https://fingertips.phe.org.uk/profile-group/mental-health/profile/common-mental-disorders/data#page/0/gid/1938132720/pat/46/par/E39000042/ati/154/are/E38000002

Figure 144: Recorded prevalence of depression – by CCG

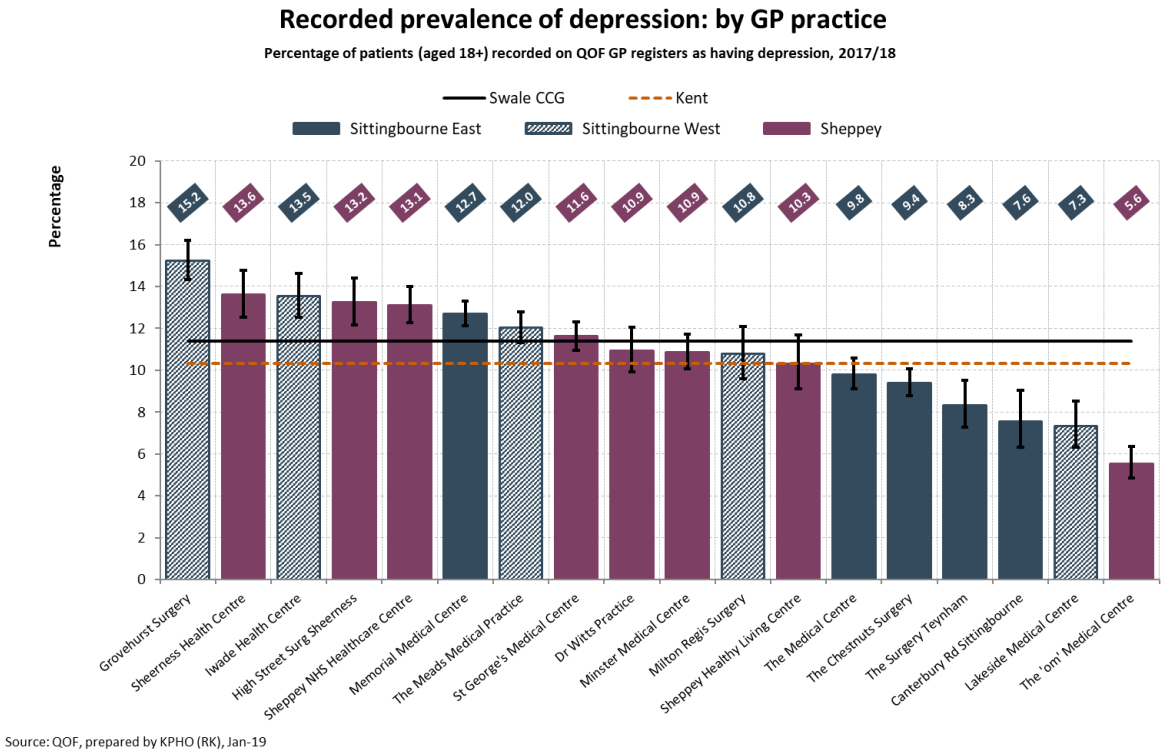


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 145: Recorded prevalence of depression – by GP practice



Source: QOF, prepared by KPHO (RK), Jan-19



Source: QOF, prepared by KPHO (RK), Jan-19

Psychotic disorders produce disturbances in thinking and perception that are severe enough to distort perception of reality. The main types are schizophrenia and affective psychosis. Overall, the prevalence of psychotic disorder in the past year has remained broadly stable at less than one adult in a hundred (0.4% in 2007, 0.7% in 2014). Because psychotic disorder has a low prevalence, data from APMS 2007 and 2014 have been combined to increase the number of positive cases for analysis. The 2007 Adult Psychiatric Morbidity Survey found that the prevalence of probable psychosis was found to be 0.5% in adults aged 16-74yrs. Based on this, predicted numbers of people living with the condition across the North Kent CCGs are outlined below:

Table 7: Numbers of North Kent patients with psychosis

North Kent CCG	2013	2016	2020
DGS CCG	630	634	643
Swale CCG	267	268	270
Total	**897**	**902**	**913**

13.10 Suicide prevention

Every suicide is a tragedy. The impact is devastating for the friends and family of the individual who died, as well as the wider community. Men are at greater risk of dying by

suicide than women, and middle-aged men are at the highest risk. Other groups at higher risk include;

- People in contact with secondary mental health services (particularly post discharge from inpatient settings)
- People in contact with the criminal justice system
- People experiencing social pressures (such as financial crisis or relationship breakdown)
- People with co-existing substance misuse and mental health conditions
- People with long term physical health conditions
- Groups who experience discrimination or abuse (eg LGBT or some BME groups)

Between 2015 – 2017, 98 people committed suicide in North Kent (60 males/38 females) - this equates to 9.1 per 100,000 population and 13.5 per 100,000 population in the respective CCG areas of DGS and Swale. As the table below show suicide rates vary across the different CCG areas within Kent and there is a socio-economic gradient to suicide with people in the most deprived communities experiencing higher rates of suicide. Suicide rates in DGS is one of the lowest compared to that for Swale which is one of the highest within Kent.

Table 8 – is it the correct alt text for this table – does there need to be a table heading

Directly age-standardised mortality rate per 100,000 residents for deaths from suicide and events of undetermined intent, 2006-08 - 2015-17 registrations, persons aged 15+ (three year rolling rates)

	Period age-standardised mortality rate per 100,000 persons resident									
CCG	2006-08	2007-09	2008-10	2009-11	2010-12	2011-13	2012-14	2013-15	2014-16	2015-17
NHS Ashford CCG	7.1	7.1	6.5	7.0	6.6	9.0	11.7	12.4	10.9	8.5
NHS Canterbury & Coastal CCG	9.3	10.1	9.3	10.0	9.0	10.8	10.8	11.3	10.5	11.7
NHS Dartford, Gravesham & Swanley CCG	8.2	9.0	7.7	10.1	10.1	12.1	13.0	13.3	11.4	9.1
NHS South Kent Coast CCG	9.2	10.1	9.7	12.2	12.7	12.5	13.7	12.9	13.0	11.5
NHS Swale CCG	10.4	10.0	11.3	9.0	7.9	9.1	14.3	16.3	15.5	13.5
NHS Thanet CCG	12.4	13.0	9.8	11.4	11.2	11.5	10.5	13.3	16.8	15.6
NHS West Kent	10.0	10.3	9.7	9.2	8.8	10.3	11.6	12.5	11.7	10.0
Kent	**9.5**	**10.0**	**9.2**	**9.9**	**9.6**	**10.9**	**12.0**	**12.8**	**12.3**	**11.0**

Source: PCMD, ONS, KPHO (JB)

13.11 Child and Adolescent Mental Health (CAMHS)

Enjoying mental health wellbeing is central to the overall development of children and young people. Mental health problems in children are associated with educational failure, family disruption, disability, offending and antisocial behaviour, placing demands on social services, schools and the youth justice system.

The children and young people's mental health system is subject to significant strategic policy focus. In Kent, this has included the Kent 'The Way Ahead'[6] and the Kent Transformation Plan for Children, Young People and Young Adult's Mental Health Provision[7] which is takes forward the targets of the 'NHSE Five Year Forward for Mental Health'[8]. The Kent Transformation Plan includes an ambition to increase research and resilience, early help and prevention, specialist and crisis services. Meeting the national access target for evidence-based community services is balanced with a need to increase early intervention and promote emotional and mental wellbeing.

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13.11.1 Incidence and prevalence

It is estimated that 50% of lifetime mental illness (except dementia) begins by the age of 14[12] and 75% by age 24[13]. The enduring nature of and deterioration of mental health disorders which start in childhood mean that intervening with children is critical for preventing adult mental health as well as the poorer life chances that result from mental ill health in childhood which have a cumulative impact into adulthood. The current best estimates of the prevalence of mental illness in children and young people suggests that 12.8% of children aged 5 to 19 years have a diagnosable mental health condition[14]. These prevalence estimates date from research conducted in 2017. This is a slight increase in prevalence from 2004, which is being driven by an increase in emotional health conditions.

[6] https://www.kent.gov.uk/__data/assets/pdf_file/0003/46821/Emotional-Wellbeing-Strategy-part-1-strategic-framework.pdf
[7] https://www.kent.gov.uk/about-the-council/strategies-and-policies/health-policies/transforming-health-and-social-care-in-kent-and-medway
[8] https://www.england.nhs.uk/wp-content/uploads/2016/02/Mental-Health-Taskforce-FYFV-final.pdf
[9] https://www.kent.gov.uk/__data/assets/pdf_file/0003/46821/Emotional-Wellbeing-Strategy-part-1-strategic-framework.pdf
[10] https://www.kent.gov.uk/about-the-council/strategies-and-policies/health-policies/transforming-health-and-social-care-in-kent-and-medway
[11] https://www.england.nhs.uk/wp-content/uploads/2016/02/Mental-Health-Taskforce-FYFV-final.pdf
[12] Kessler RC, Amminger GP, Aguilar-Gaxiola S, Alonso J, Lee S, Bedrihan Urstun T (2007). Age of onset of mental disorders: a review of recent literature. Current Opinion in Psychiatry 20(4): 359-364.
[13] Kessler R, Berglund P, demler o et al. (2005) lifetime prevalence and age-of-onset distributions of dsM-Iv disorders in the national comorbidity survey Replication. Archives of General Psychiatry 62: 593–602.
[14] https://digital.nhs.uk/data-and-information/publications/statistical/mental-health-of-children-and-young-people-in-england/2017/2017

The prevalence of mental health conditions increases with age, with higher prevalence amongst young people aged 17-19.

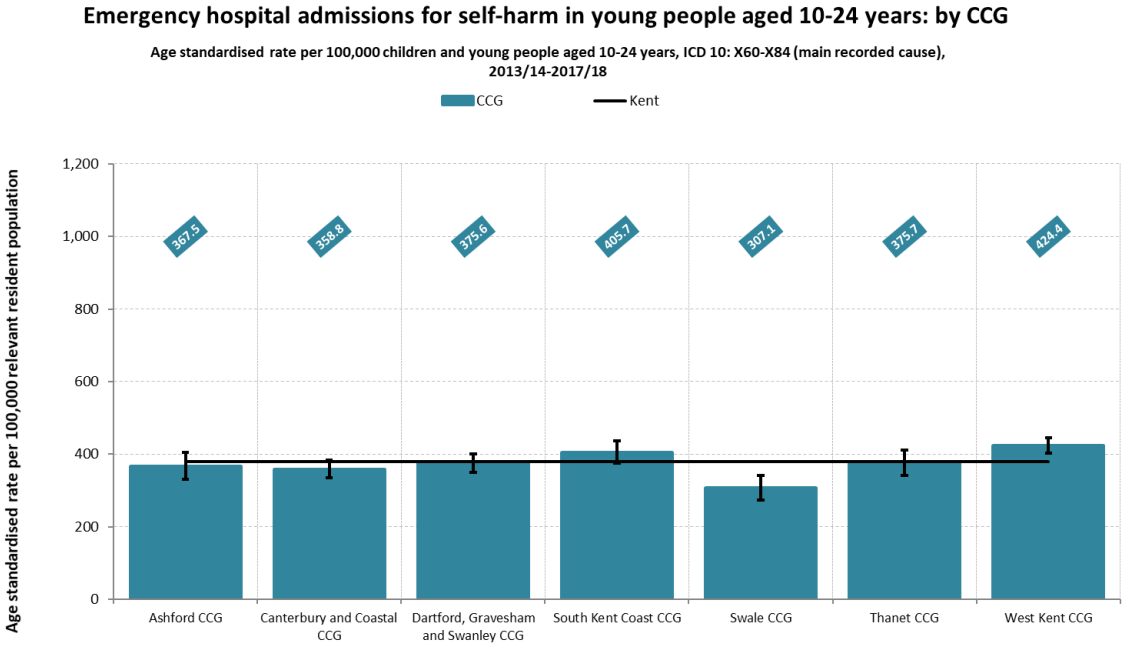
13.11.2 Acute activity

It is estimated that 22% of 15-year olds have ever self-harmed, 32% of young women and 11% of young men. Emergency admissions and presentations to acute care for self-harm are therefore not reflective of the prevalence of the behaviour in the population.

The rate of emergency admissions to hospital for self-harm amongst young people in DGS is similar to the Kent average, but it is relatively lower in Swale CCG.

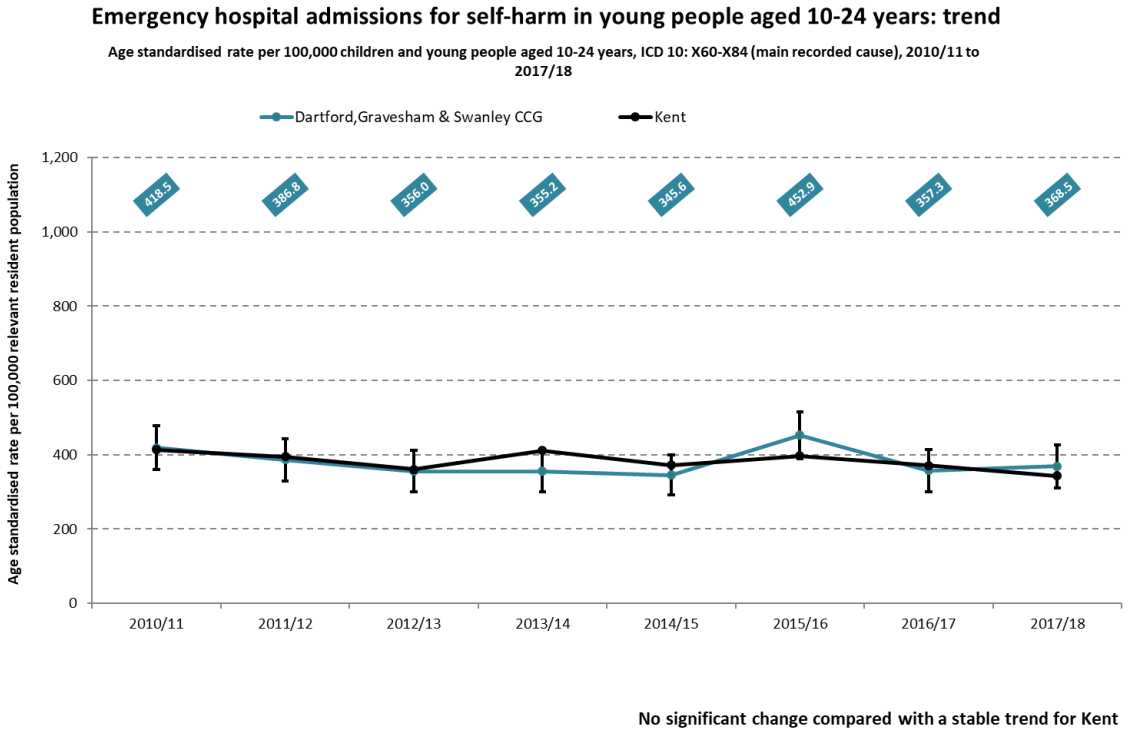
There is a significant gap between young people living in the most and least deprived parts of Kent, although the size of this gap is decreasing due to decreasing admission rates in the least deprived areas.

Figure 146: Emergency hospital admissions for self-harm in young people – by CCG

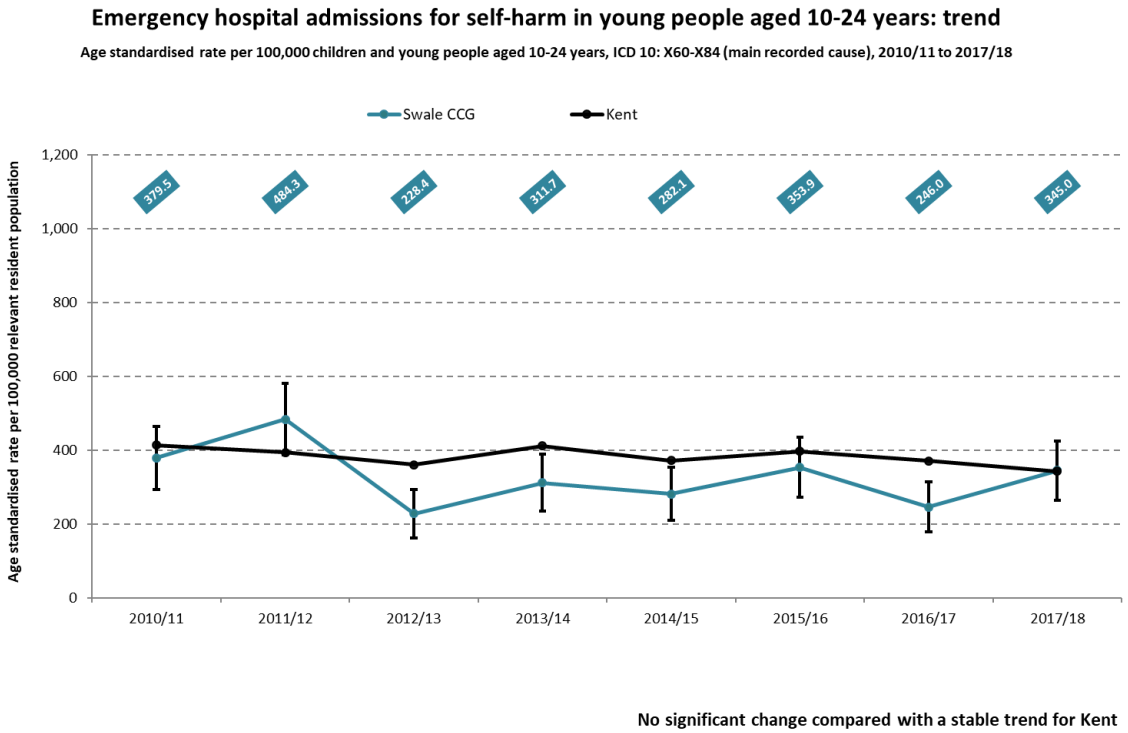


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Nov-18

Figure 147: Emergency hospital admissions for self-harm in young people – trend

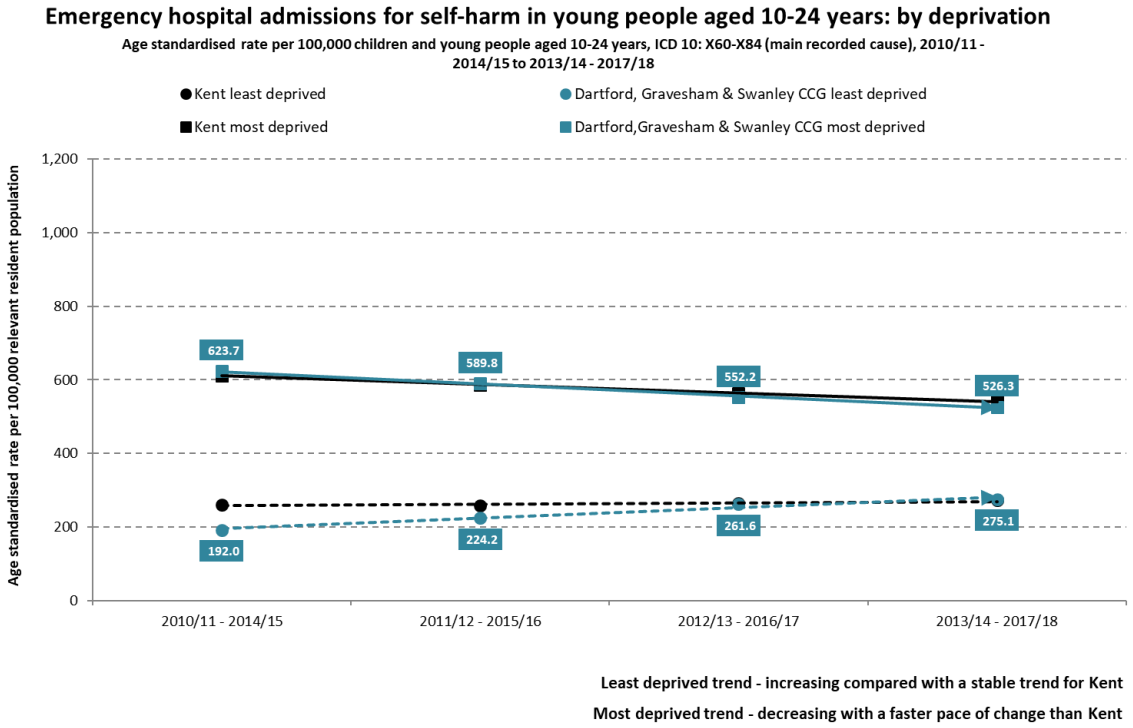


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Nov-18

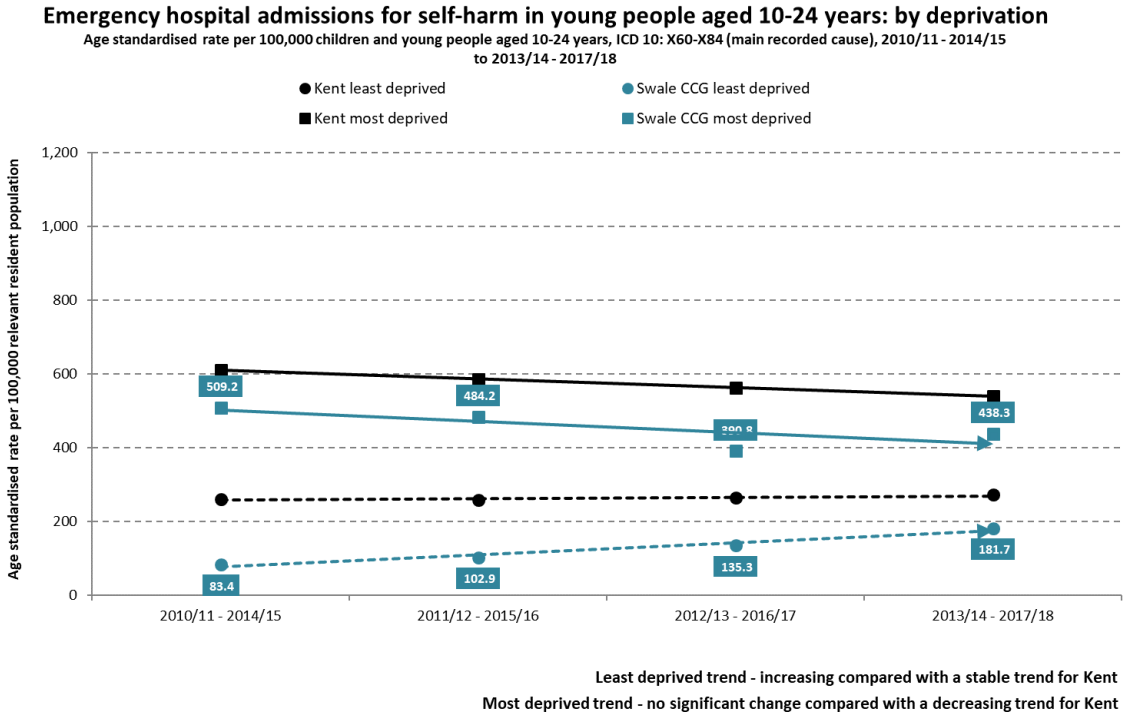


Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Nov-18

Figure 148: Emergency hospital admissions for self-harm in young people – by deprivation



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Nov-18



Source: Hospital Episode Statistics (HES), NHS Digital, ONS, prepared by KPHO (RK), Nov-18

13.11.3 Services

Across Kent and Medway, NELFT provide specialist Mental Health Services for children and young people (CYP) alongside KMPT for Early Intervention Psychosis services.

In Kent, NELFT collaborate with KCHFT to deliver a single point of access for children and young people's mental health conditions. KCHFT provide advice and information on emotional and behavioural health conditions as well as access to structured one to one intervention for children and young people with mild to moderate mental health needs.

Addaction's Mind and Body Programme provides an early intervention self-harm programme in secondary schools across Kent. The Mind and Body programme consists of an assembly regarding risk taking behaviours, a preliminary baseline assessment to screen for individuals at high risk of self-harming, eight group sessions and three one-to-one sessions with a practitioner for needs-based support.

KCHFT are commissioned by Kent County Council to provide the School Public Health Service to Primary and Secondary school children, including Tier 1 and Tier 2 interventions. Targeted mental health services offer support and treatment for mild to moderate emotional wellbeing and mental health problems of CYP.

In 2018/19 North Kent CCGs commissioned The BeYou Project, provided by Porchlight in order to support LGBTQ CYP. The LGBTQ support service has a website and youth groups set up for CYP in the LGBTQ community and aims to raise awareness in their local area, connect young LGBTQ people and provide a safe, welcoming, non-judgemental space with support, mentorship and advice.

In addition, Porchlight also provide a Primary Care Mental Health Specialist Transition Service in DGS & Swale CCGs which works with the NELFT teams, GPs and Secondary Care to provide support for patients who are 16 -25 years old. During quarter 4 of 2018/19 there had been a steady flow of referrals from the GPs and Secondary Care to the PCMHS Service, but referrals from NELFT for those young people transitioning to adult services have been more variable.

Good Mental Health Matters is an NHS initiated resource that empowers young people, in school years 6 to 13, by encouraging them to take personal responsibility for their own wellbeing. It offers simple, positive strategies and advice that can be accessed by teachers and professionals, parents and young people through their schools to promote good mental health.

Fantastic FRED will be delivered in primary schools across Kent over the next two years. FRED is an acronym for the four practical ways in which children can help to look after their own good mental health:

- Food – eating the right foods
- Rest – getting enough sleep
- Exercise – being active

Digital Devices – managing time online *Headstart* Kent is a Big Lottery funded programme which is part of Kent County Council's Early Help and Preventative Services. It is a research and development programme which aims to build resilience in 10-16-year olds preventing them from experiencing common mental health problems. Headstart Kent's programme takes a universal and targeted approach. It includes the development of a Resilience Hub which provides access to resources for children and young people, parents and carers and professionals and includes a toolkit for whole school health improvement, access to training on Resilience focussed conversations with young people. HeadStart Kent's targeted offer includes mentoring, online counselling 'KOOTH'.

Dartford Gravesham and Swanley and Swale CCGs have been successful in a bid to be a Trailblazer for Mental Health Teams in Schools, which is a policy initiative of the Green Paper for Children's Mental Health. This Trailblazer is led by NELFT and will provide a whole school approach to mental health, building on practice developed by HeadStart, identify senior leaders in schools with responsibility for mental health and a team of mental health practitioners who can deliver evidence based individual and group intervention into school settings.

13.11.4 Access to services

Children and Young People's access to Mental Health Services is monitored by NHS England through the *Mental Health Services Dataset*. The Five Year Forward View aims to ensure that 35% of the estimated diagnosable mental health need is met by evidence-based interventions in community settings by 2020/21, with annual incremental access targets. Performance data for 2017/18 (target 30%), collected by NHS Digital indicated that 32.1% of CYP with a diagnosable MH condition in DGS CCG and 57.1% of CYP in Swale CCG were able to access mental health services. While both North Kent CCGs exceeded the target and the national access rate of 30.5%, there are still high levels of unmet need. The NHS Long Term Plan outlines the ambition to ensure that 100% of CYP who need specialist MH care when they need it can access it within the decade[15]. There are known limitations associated with this dataset, including the methodology of calculating access.

13.11.5 Services outcomes

From April 2020, CCGs and providers will be monitored by NHS England regarding outcomes from Mental Health services and work is currently happening to establish an outcomes metric which could be implemented universally across services. Currently, providers collate their own outcomes measures based on reliable and valid measures suitable for the cohort of young people they work with.

[15] https://www.longtermplan.nhs.uk/wp-content/uploads/2019/01/nhs-long-term-plan.pdf

NELFT

NELFT are currently piloting outcomes metrics in line with the anticipated NHS England outcomes metric.

Mind and Body (Addaction)

A review of Mind and Body's early intervention self-harm programme has recently been conducted by Addaction and the University of Bath[16]. Overall, the Mind and Body programme resulted in an efficient identification, referral and support for young people engaging in self-harm and/or risk-taking behaviour. Mind and Body had a positive impact on young peoples' awareness, thoughts, feelings, behaviours relating to self-harm and risk-taking and on their overall well-being.

Between July 2018 and February 2019 in the North Kent CCGs, 960 children and young people (CYP) aged between 13 and 17 years received information and advice about self-harm and risk-taking behaviours (560 in DGS and 400 in Swale); 72 CYP completed the Mind and Body programme[17] within this time period (55 in DGS and 17 in Swale). Across Kent, compared to their pre-intervention interviews, the following outlines the findings from the survey:

- Of the 285 CYP that participated in Mind and Body programme, 79.3% of CYP reported an overall improvement in their mental wellbeing following participation (target 70%).
- Around 87% of participants reported a reduction in number of days in which they thought about self-harming, 27% points above the 60% target (n =146),
- 93.7% (target 70%, n=259) of participants reported they were better able to manage risks relating to self-harm following participation

KCHFT

For those who finished the service between January and March 2018 across Kent, 41% of CYP reported their problems had changed in a 'much better' direction and 44% reported they were 'a bit better'. Nearly a third (29%) said the intervention had been 'a great deal' helpful in other ways, and a further 44% reported that the intervention had been 'a medium amount' helpful in other ways[18].

The BeYou project

Qualitative data from CYP accessing the BeYou service suggests positive benefits from the BeYou service, for example:

[16] https://www.addaction.org.uk/sites/default/files/public/attachments/mind_and_body_impact_report_2017.pdf

[17] Source: Mind and Body, March 2019

[18] Source: KCHFT, 2018

'I feel comfortable and accepted at this group and am always excited to attend. I look forward to giving updates on my life as I know that all will be supportive. It is a good service. You have my applause.'

CYP were asked on a scale of 1 to 6 (with 6 being highest) *'Do you feel that there has been an improvement to your emotional wellbeing as a result of accessing a BeYou group/mentoring?*'. The average response across participants was 5[19].

Headstart

Data from the Wellbeing Measurement Framework 2018[20] demonstrated that:

- Areas of strength were goal setting, empathy, family support and peer support.
- Younger students had a slightly better appraisal of their wellbeing and reported slightly less difficulties than older students.
- Males reported more difficulties in relation to behaviour, attention and peers.
- Females reported more emotional difficulties and had a less positive appraisal of their wellbeing.
- Students eligible for Free School Meals or with Special Education Needs reported more difficulties and had a less positive appraisal of their wellbeing.
- A large proportion of students had a high level of attention difficulties. However, younger students reported the same level of attention difficulties compared to last year and older students slightly less attention difficulties, suggesting an improvement.
- Overall, students in Year 8 reported more difficulties and had a less positive appraisal of their wellbeing compared to when they were in Year 7. However, they did report an improvement in their relationships with peers.
- Year 9 students reported less difficulties and had a better appraisal of their wellbeing compared to Year 9 students in the previous year, except for categories of school support and helping others.

[19] Source: Porchlight 2019
[20] Source: Headstart 2019

Conclusion

The QoF data 2015/6 shows two practices each in the CCGs (DGS: Horsman Place and Milton Regis) and Swale: Sheppey Health and The Orchard) have significantly high prevalence of mental health illness than the Kent average.

Whilst the rate of emergency admissions for mental health conditions in both CCGs are just slightly above Kent, there is significant variation across practices, with 13 practices across both CCGs having significantly higher admission rates compared to the Kent average. While recording of psychosis in primary care may be adequate; the management of psychosis can be improved – evidenced by high rates of emergency admission, suggesting a need for more support for primary care.

The rates of emergency admissions to hospital for self-harm amongst young people in DGS is similar to the Kent average, but it is relatively lower in Swale CCG. The rate of self-harm in Kent and England is a problem as there is a rise in self harm among young people. However, the lower rates in DGS & Swale are encouraging as they suggest services are meeting some of the need of young people and will hopefully continue to fall.

Recommendations

The rates of severe depression are rising national and in Kent. This is also seen in DGS& Swale. Clarity in management of severe depression is a priority and linked to suicide prevention plans (e.g. training and awareness). Self-harm remains an issue in DGS & Swale. Best practices to increase access to early CYP intervention services should be investigated in DGS.

The increased levels of emergency admissions indicate a problem in the management of psychosis. More support for primary care to manage severe mental illness is needed and better support from specialist services for psychosis will be important to reduce emergency admissions.

Support for people with psychosis after emergency admission will also be important to increase recovery rates and avoid relapse. Recovery services need to be targeted to people with long term vulnerabilities – understanding that severe depression and psychosis are long term health conditions that are chronic and relapsing. Importance of placing mental health into local care and improving the pathways for the management of depression. Crisis phone number, the physical health of people with severe mental illness and provision of psychology and counselling services

Priority for Children and young people. Their specialist mental health services are significantly underfunded with a national target to meet just 35% of the need for specialist services. In Swale it is predicted to be 45% in 2018-9.

Physical health check targets for people with serious and common mental illnesses should be conducted and appropriate support offered as part of commissioned core mental health services. Mental health service commissioners should continue to ensure people with long term conditions are encouraged to access NHS Talking Therapy services. Commissioners should monitor national progress on quality improvement in care planning approaches.

Understanding of mental health needs at practice level needs to be developed and patients with co-morbidities who would benefit by more intensive support from services identify, particularly mental illness that co-occurs with CVD and substance misuse. Equity audits focussed on access and outcomes for vulnerable groups' e.g. BME, LGBTQ,, and people in poorer communities.

13.12 Dementia

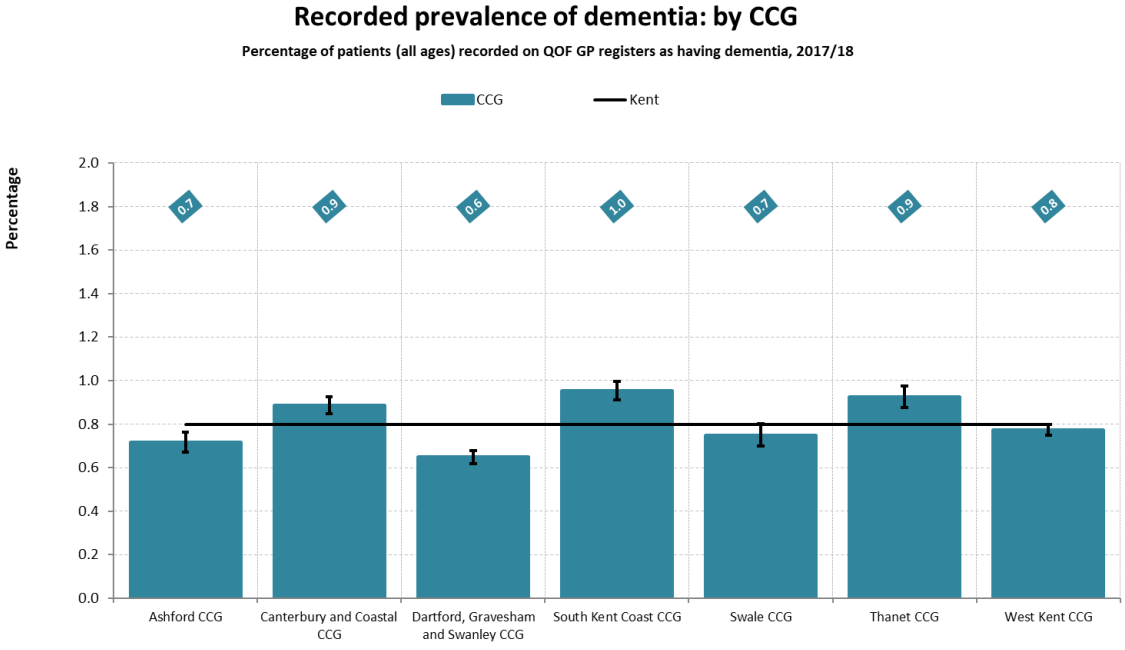
The term 'dementia' is used to describe a syndrome, resulting in progressive decline in multiple areas of function such as decline in memory, reasoning, communication skills and the ability to carry out daily activities. The individual with dementia may also develop behavioural and psychological symptoms such as depression and psychosis.

Increases in life expectancy and population demographics is projected to increase the proportion of the older population living with dementia In Kent, the expected number of elderly people aged 65+ years with a limiting long-term illness is expected to increase from 120,000 in 2012 to 145,000 in 2020. Of which those living with dementia is projected to be nearly 25,000 by 2020.

Recorded prevalence of dementia in North Kent is lower than the Kent average, but there is high variability across practices. There are 2 practices in DGS and 2 practices in Swale CCG with significantly higher recorded prevalence of dementia than the Kent average:

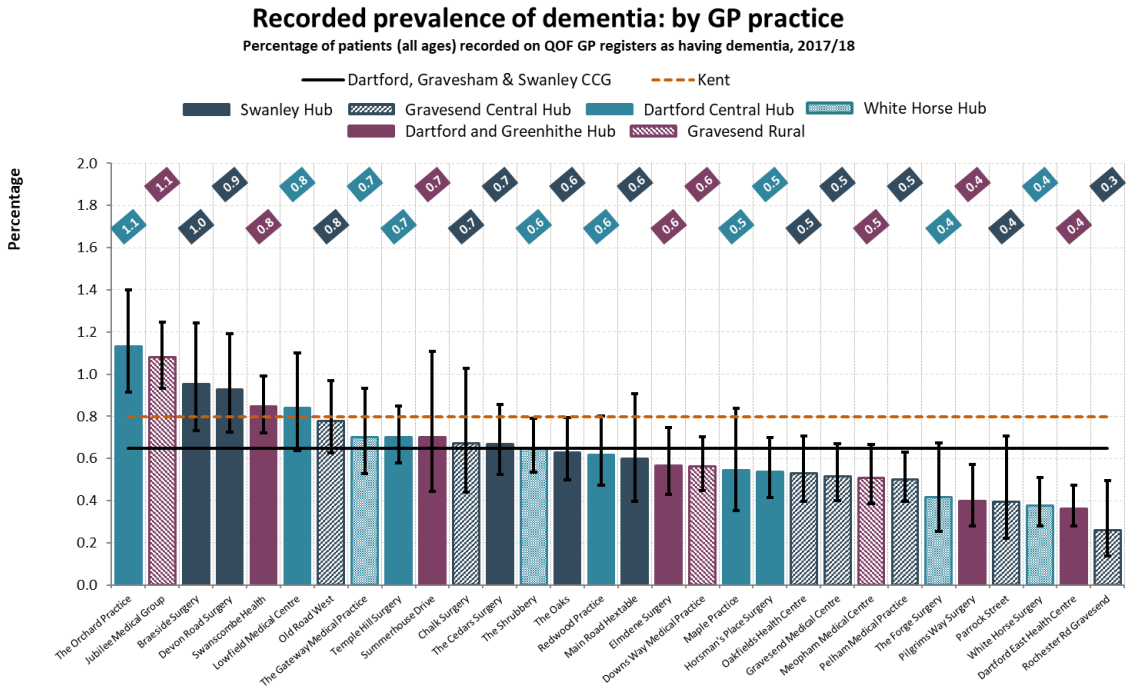
- Jubilee Medical Group
- Sheerness Health Centre
- The Meads Medical Practice
- The Orchard Practice

Figure 149: Recorded prevalence of dementia – by CCG (of registration)

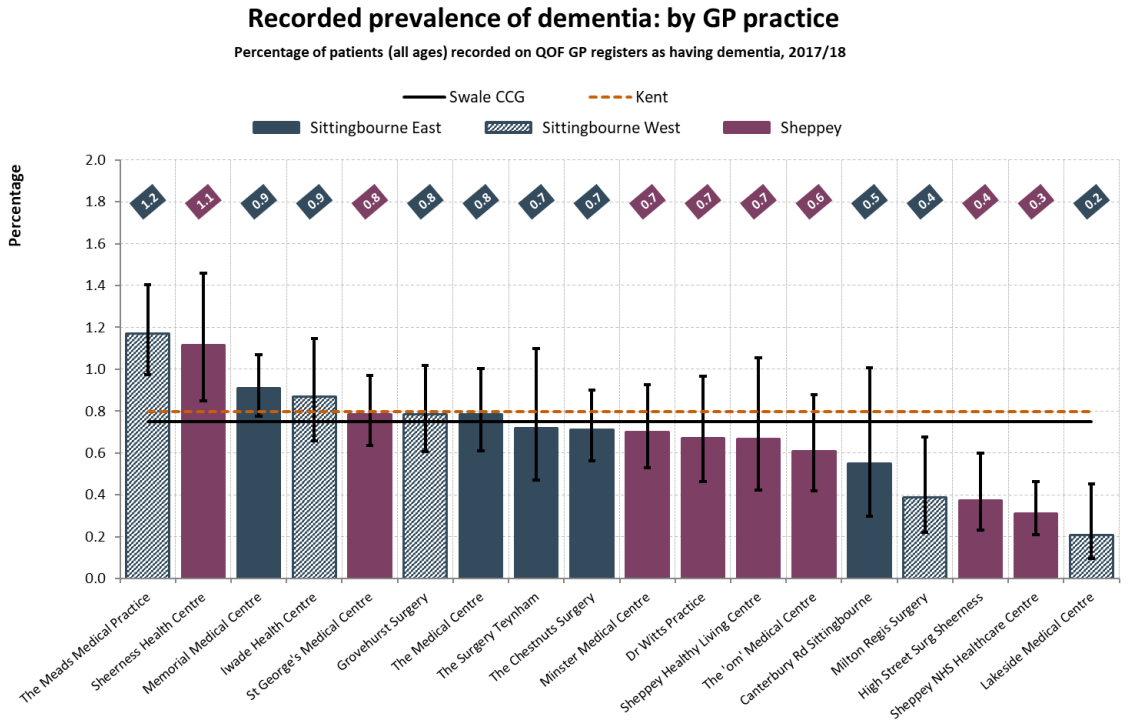


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 150: Recorded prevalence of dementia – by GP practice



Source: QOF, prepared by KPHO (RK), Jan-19



Source: QOF, prepared by KPHO (RK), Jan-19

Dementia mainly affects older people, and so an ageing population has significant implications in respect of potential future dementia prevalence. The largest increases for the condition will occur in the oldest age brackets of 80 and above. The number of people 65+ in the North Kent CCGs that could be living with dementia over the next 10 to 15 years is indicated in the table below:

Table 9: Projection of dementia prevalence in North Kent CCGs – 2020-2035[21]

Year	DGS	SWALE	NORTH KENT
2020	1690	954	**2644**
2025	1837	1075	**2912**
2030	2055	1232	**3288**
2035	2272	1375	**3647**

KCC has commissioned a range of services and support for People Living with Dementia and their Families/Carers to promote inclusive, Dementia Friendly Communities community where people living with dementia and their carers are active participants within community life.

Conclusions

Dementia prevalence in the North Kent CCGS is lower than the Kent average, and a high variation across practices, with four of these having significantly higher rates than Kent - Jubilee Medical Group, Sheerness Health Centre, Meads Medical Practice and the Orchard Practice.

Recommendations

Develop an evaluation of existing services to determine the impact of dementia friendly initiatives on health and social care demand and establish the case for further investment in this area.

Awareness of practices with higher rates of Dementia and appropriate structure of their services.

[21] 2018 PHE dementia prevalence of 3.6% and 4.2% applied to the DGS and Swale CCG 65+ ONS 2016-based projected population

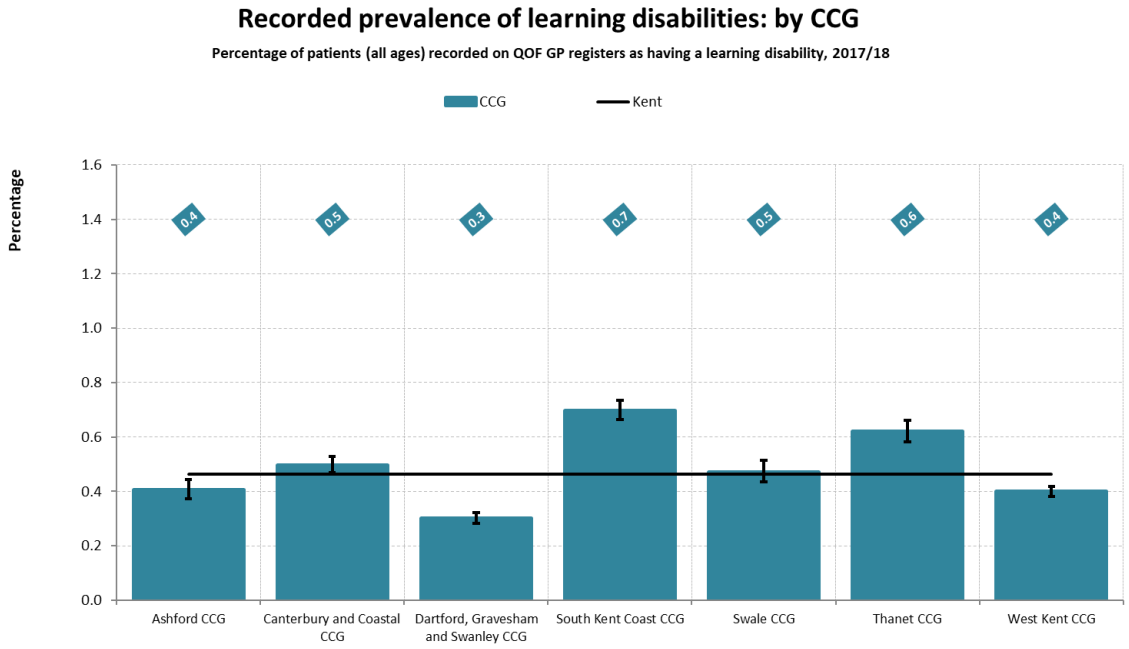
13.13 Learning disability

The term 'learning disability' commonly refers to a group of individuals with a history of developmental delay, a delay in or failure to acquire a level of adaptive behaviour and/or social functioning expected for their age and in whom there is evidence of significant intellectual impairment. Individuals with learning disabilities have an increased risk of early death and the risk of dying before the age of 50 has been found to be 58 times greater than in the general population. People with Down's syndrome have a higher incidence of medical problems than the general population; 30-45% have congenital heart disease; 6% have gastrointestinal anomalies; 1% develop childhood leukaemia; there is an increased incidence of hypothyroidism; the majority of individuals develop early-onset dementia; 70% have hearing problems; 50% have sight difficulties and many have increased levels of severe periodontal disease (Learning Disability JSNA 2010).

Recorded prevalence of learning disability in Swale CCG is similar to the Kent average, but in DGS it is lower than the Kent average. There is high variability across practices, with 1 practice in DGS and 2 practices in Swale CCG having significantly higher recorded prevalence of learning disabilities than the Kent average:

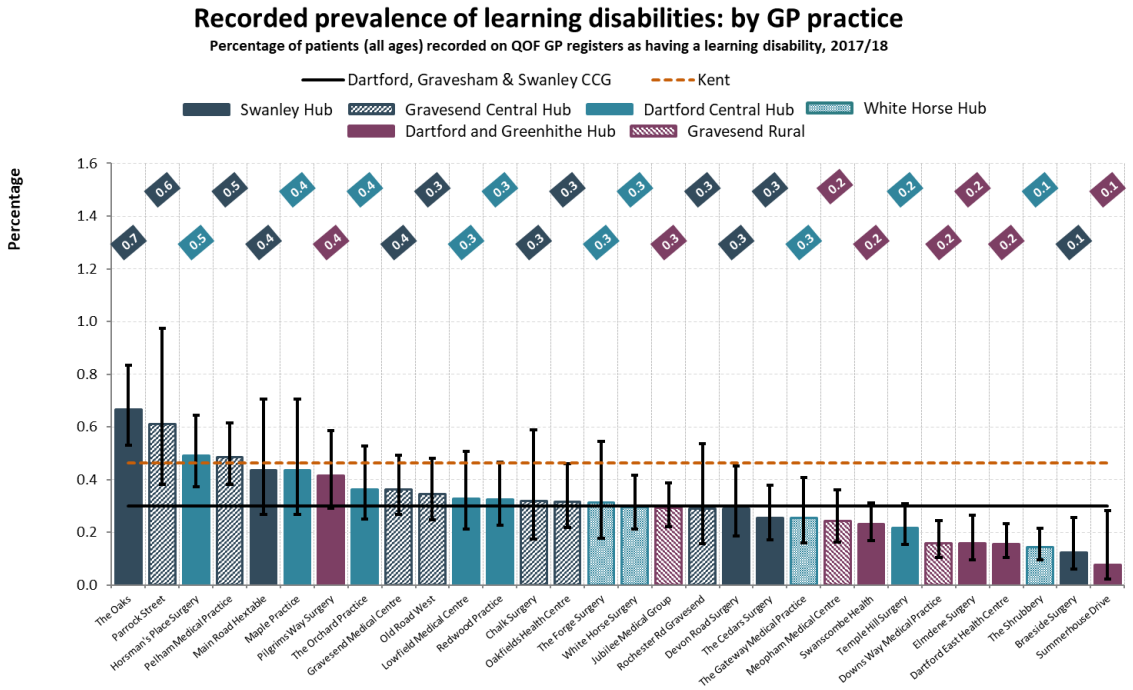
- Sheppey Healthy Living Centre
- The Oaks
- The Surgery Teynham

Figure 151: Recorded prevalence of learning disabilities – by CCG (of registration)

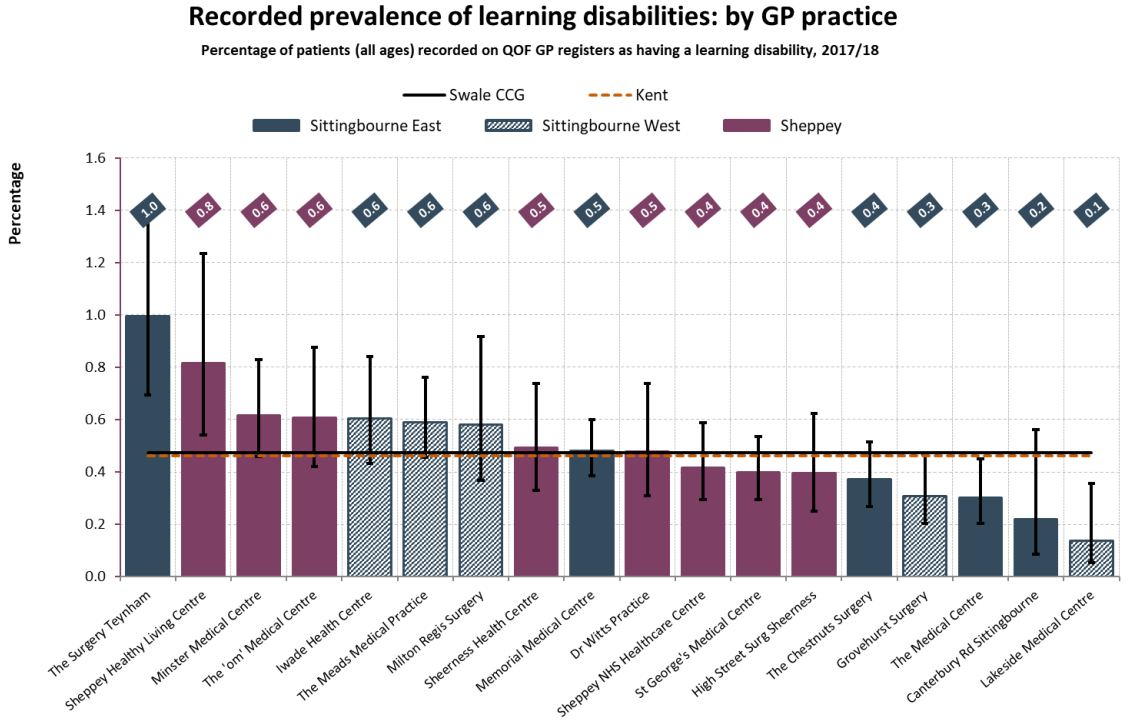


Source: QOF, prepared by KPHO (RK), Jan-19

Figure 152: Recorded prevalence of learning disabilities – by GP practice

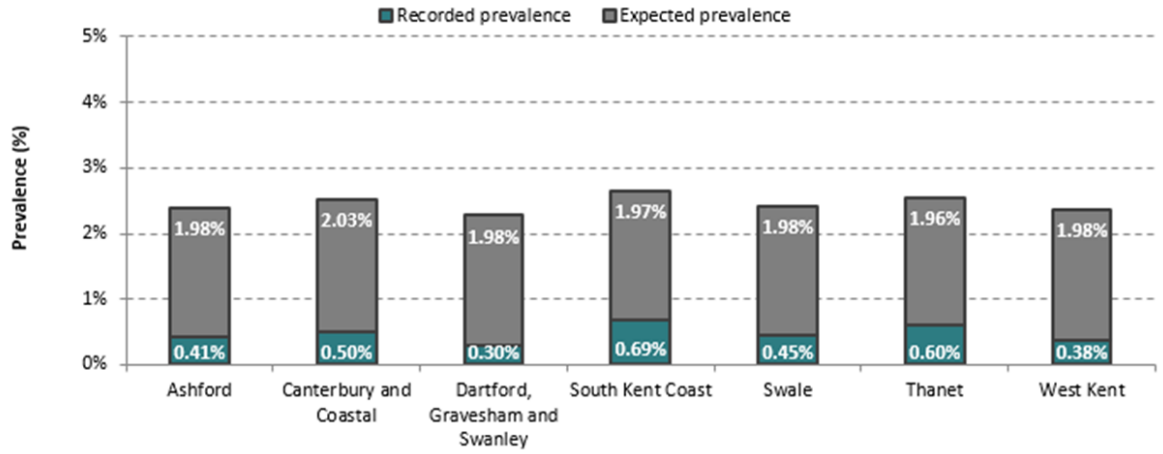


Source: QOF, prepared by KPHO (RK), Jan-19



Source: QOF, prepared by KPHO (RK), Jan-19

Figure 153: Recorded and expected prevalence of learning disabilities

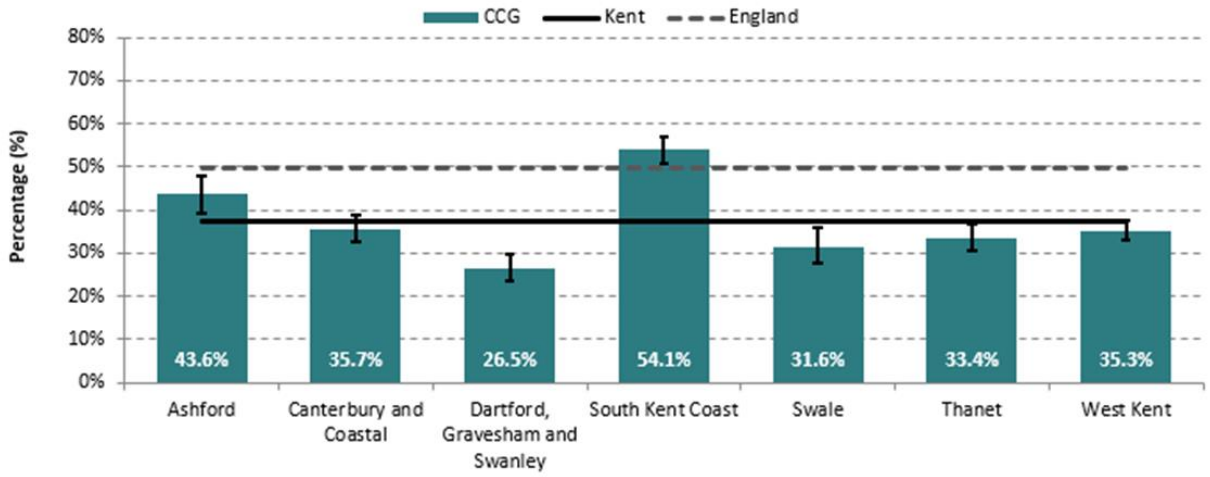


Source: Emerson 2004, PCIS, QOF, prepared by KPHO (ZC), August 2018

Comparing the gap between expected and recorded prevalence of learning disabilities, this may equate to as many as 24,000 undiagnosed cases across Kent in 2016/17.

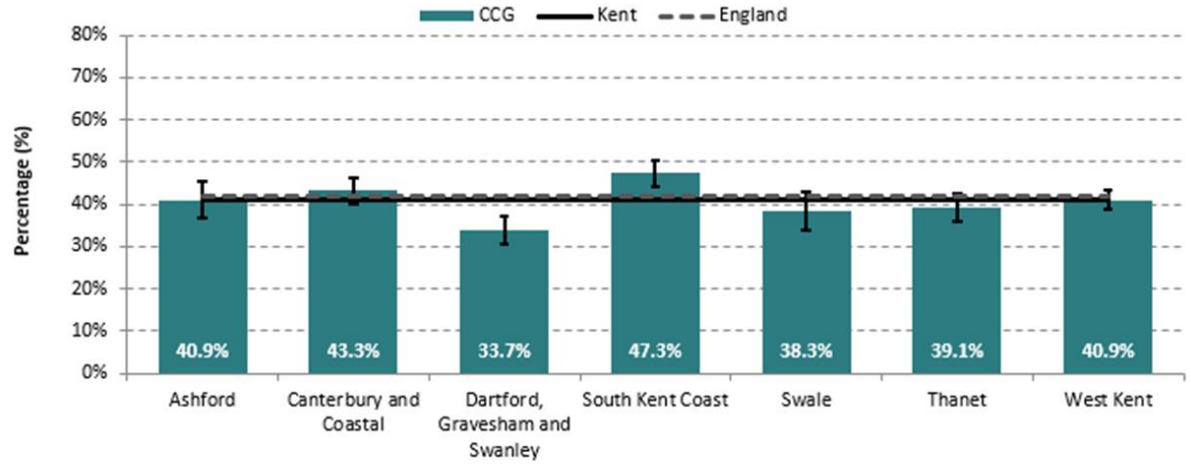
Uptake of health checks amongst people with learning disabilities in Kent is lower than the England average, and uptake in North Kent is lower still. Uptake of seasonal flu vaccination in DGS amongst people with learning disabilities is also lower than the Kent average (but similar to the Kent average in Swale CCG). Cervical screening in females aged 24 to 64 with a learning disability in North Kent is similar to the Kent and England averages.

Figure 154: Health checks in people with learning disabilities



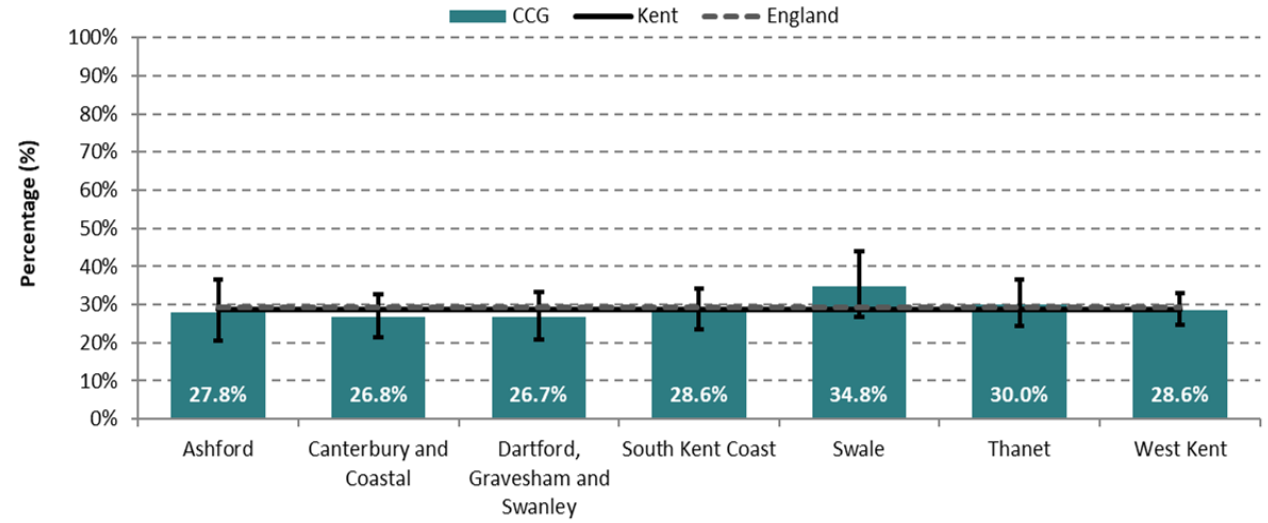
Source: NHS Digital, prepared by KPHO (ZC), August 2018

Figure 155: Seasonal influenza vaccination of people with learning disabilities



Source: NHS Digital, prepared by KPHO (ZC), August 2018

Figure 156: Uptake of cervical screening in people with learning disabilities



Source: NHS Digital, prepared by KPHO (ZC), August 2018

Conclusions

Learning Disability prevalence in Swale CCG is similar to the Kent average, but in DGS it is lower, and a high variation across practices. One practice in DGS and two practices in Swale CCGs having significantly higher rates than Kent - Sheppey Healthy Living Centre, The Oaks, and the Surgery Teynham.

Recommendations:

GP practices should sign up for the DES LD annual health check since this facilitates early intervention for the management of Long-Term Conditions.

More work should be done with the primary care teams to actively case find persons with learning disability particularly in those practices with low prevalence.

The provision of healthy diet and adequate opportunity for physical activity within residential accommodation for persons with learning disabilities should be appraised and the Service Level Agreements adjusted to maximise such healthy living opportunities – led by Adult Social Services.

All agencies should be rigorous in assuring that persons with learning disability receive appropriate services with regard to sight and hearing, in recognition that their population needs are predicted as being greater than the general population.

13.14 Multimorbidity

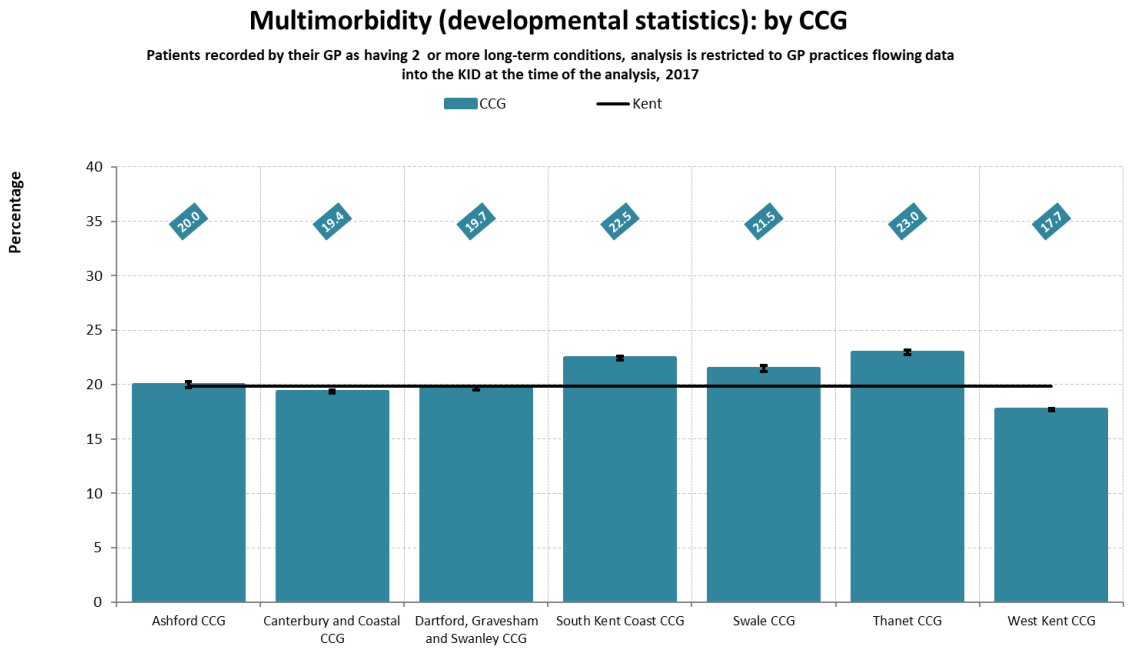
Analysis of multimorbidity has been conducted using data from the Kent Integrated Dataset (KID). Please see the methodology section for further details.

Based on the 44 North Kent practices flowing data into the KID at the time of the analysis, multimorbidity prevalence in DGS is similar to the Kent average, but it is higher than the Kent average in Swale CCG.

The number of morbidities (long term conditions) and the proportion of people with multimorbidity increases with age. More than half (55%) of those aged 65+ in North Kent are recorded by their GP as multimorbid, rising to 70% amongst those aged 85+. Amongst adults living in North Kent, multimorbidity prevalence also increases with the deprivation of the area in which people live.

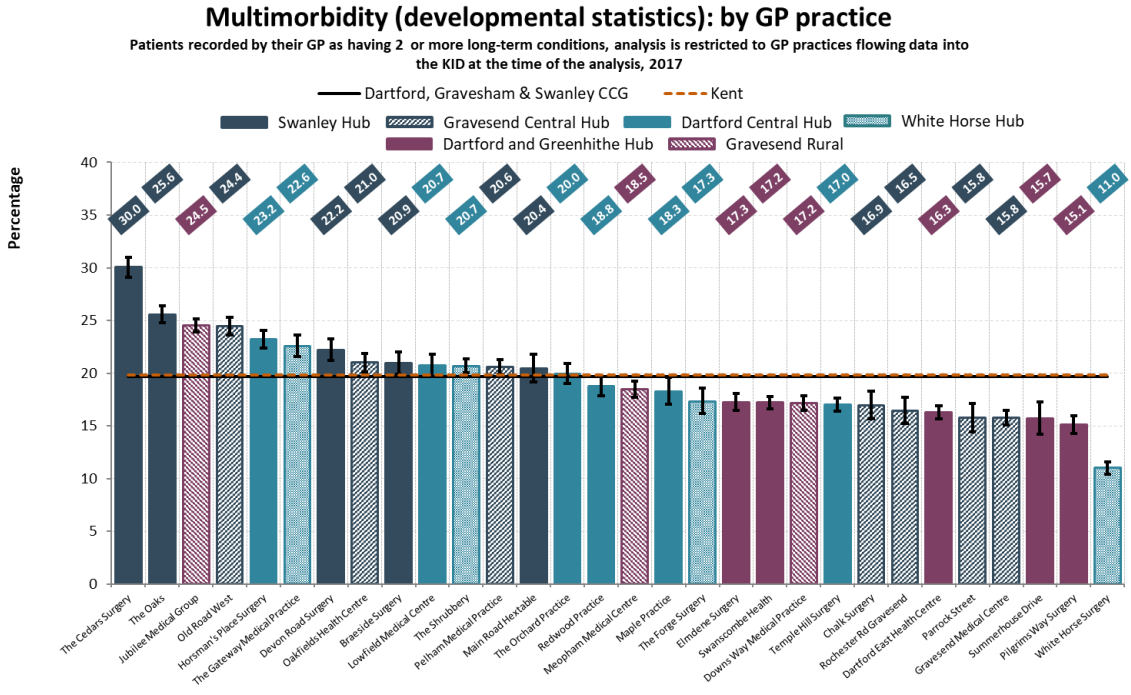
There are 10 practices in DGS and 6 in Swale CCG with significantly higher recorded prevalence of multimorbidity than the Kent average.

Figure 157: Recorded multimorbidity prevalence – by CCG (of registration)

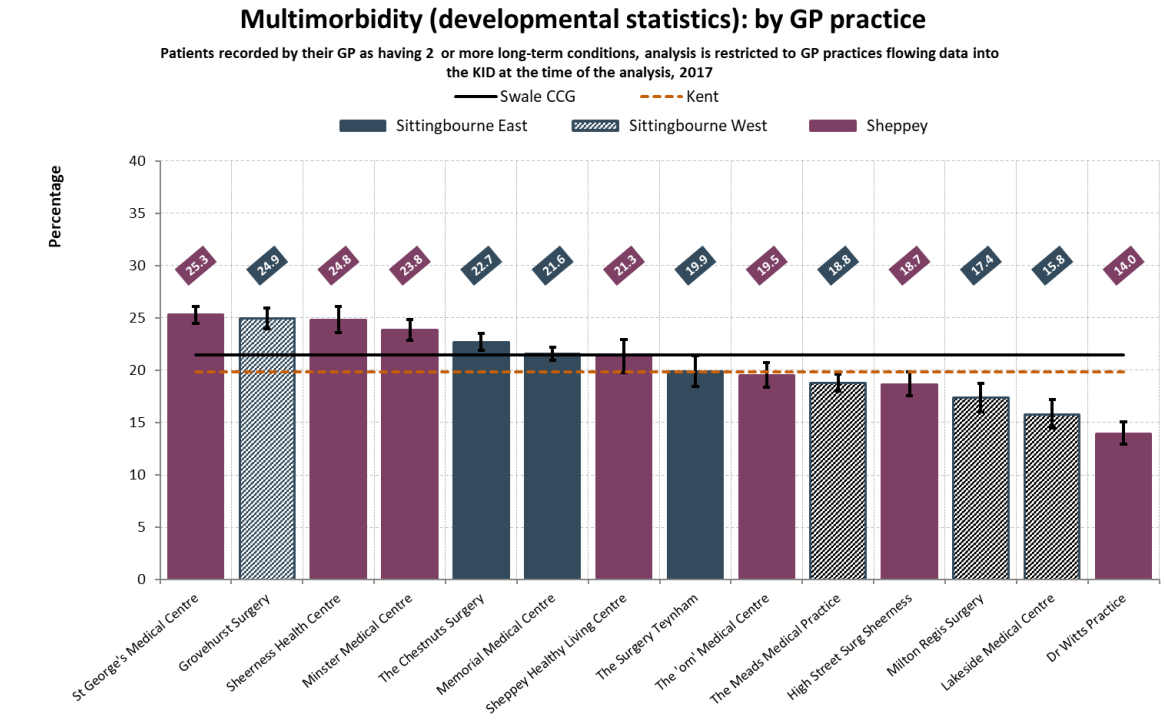


Source: Kent Integrated Dataset (KID), prepared by KPHO (RK), Jan-19

Figure 158: Recorded multimorbidity prevalence – by GP practice

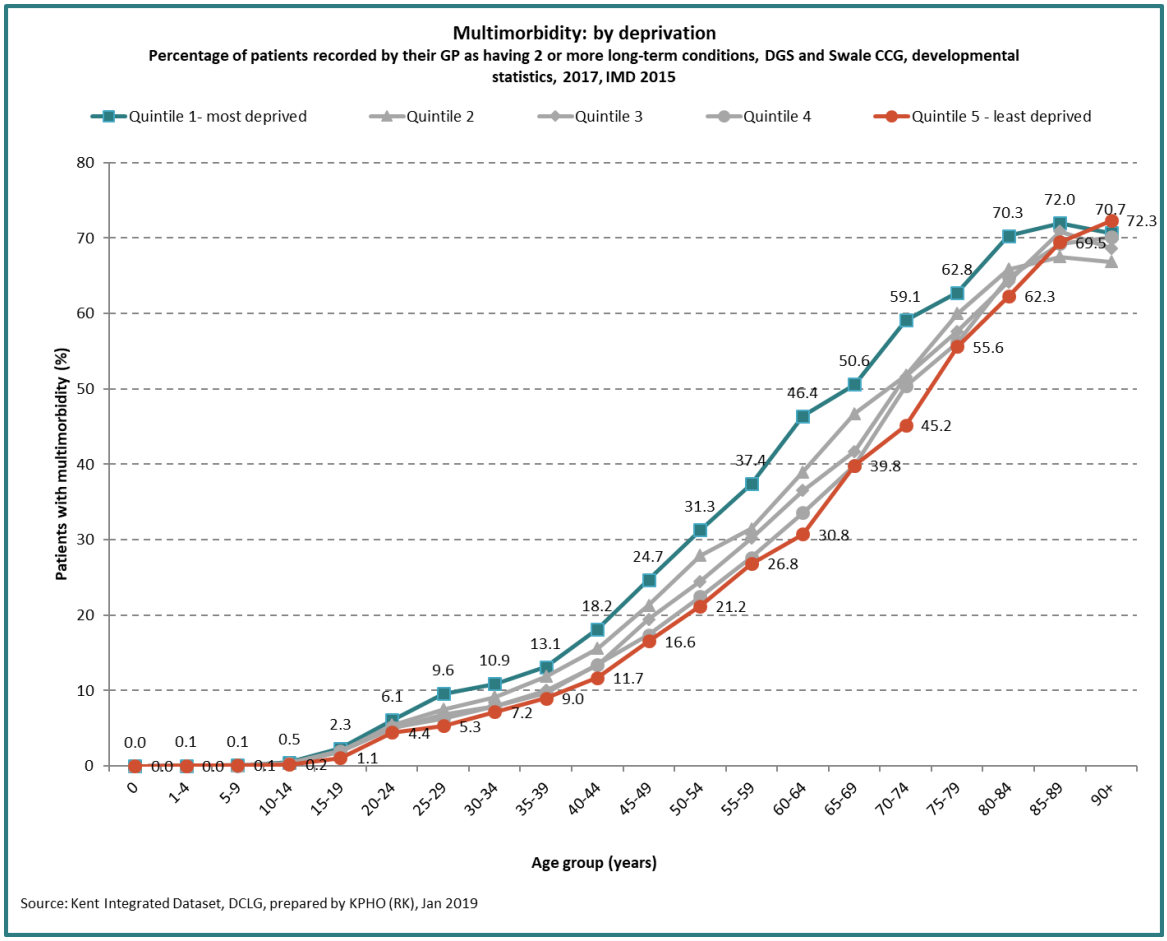


Source: Kent Integrated Dataset (KID), prepared by KPHO (RK), Jan-19



Source: Kent Integrated Dataset (KID), prepared by KPHO (RK), Jan-19

Figure 159: Recorded multimorbidity prevalence – by age and deprivation

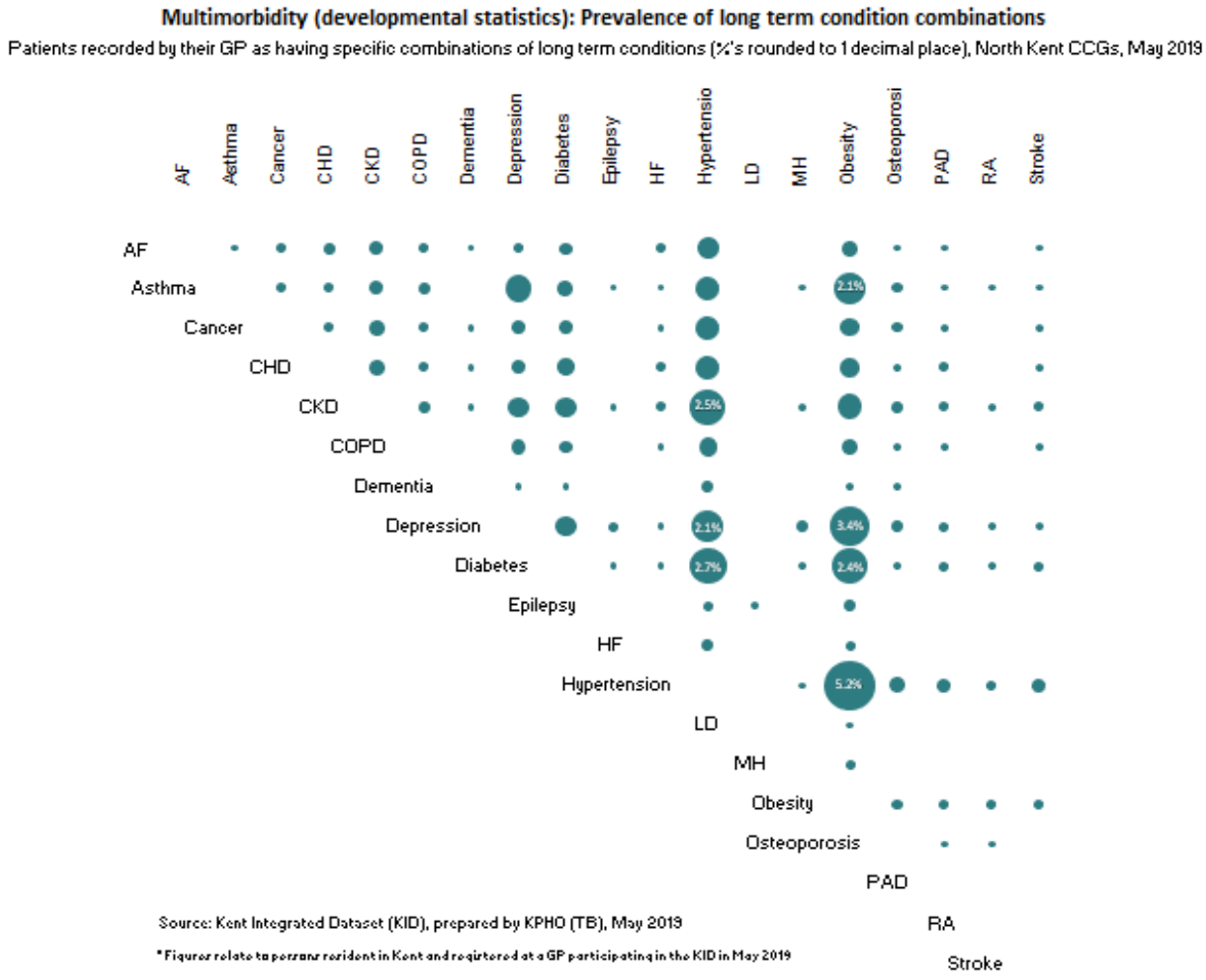


Source: Kent Integrated Dataset, DCLG, prepared by KPHO (RK), Jan 2019

13.14.1 Long-term condition combinations

Across North Kent, 5.2% of those registered with a GP flowing data into the Kent Integrated Dataset (KID) at the time of the analysis are recorded by their GPs as having both hypertension and obesity. Other common combinations of multimorbidity in North Kent are obesity and depression (3.4%), diabetes and hypertension (2.7%), chronic kidney disease and hypertension (2.5%), diabetes and obesity (2.4%) and depression and hypertension (2.1%), and asthma obesity (2.1%).

Figure 160: Recorded multimorbidity prevalence – disease combinations (North Kent) – alt text



Conclusions

The multimorbidity analysis using North Kent GP data indicates the most common combination of morbidities ranked in decreasing order are as follows:

- hypertension and obesity,
- depression and obesity,
- diabetes and hypertension,
- chronic kidney disease and hypertension
- diabetes and obesity,
- depression and hypertension and
- asthma and obesity

Recommendations

Further research is required to explore patterns of multimorbidity in North Kent population should facilitate improved primary care management including prescribing.

14 Modelling population health needs using Systems Dynamics

14.1 Background

This report builds on a project originally commissioned by Kent County Council to explore the potential contribution that a 'stock and flow' modelling approach can make to understanding future population health needs. System dynamics (SD) modelling and linked population data provided by the Kent Integrated Data set (KID) enables the simulation of the impact of exposures or interventions on population health and services in Kent and Medway. Use of SD models provides a prospective analysis using aggregated person level data and thus can serve as a system planning tool for commissioners.

That project demonstrated that such an approach, enhanced by the application of intelligence derived from the KID has the potential to complement the tools available to refresh the local Joint Strategic Needs Assessment (JSNA), as well as forming the basis on which wider engagement of key stakeholders can be supported in making informed strategic decisions relating to both the Health and Wellbeing Strategy (HWB) and the local Strategic Transformation Plans (STP).

The original modelling tool considered the whole Kent population, whilst this report provides outputs from a calibration of that tool to the North Kent registered population (North Kent include Dartford, Gravesham and Swanley CCG and Swale CCG). It summarises an approach to understanding local adult health and care needs in terms of 'population cohorts'. In broad outline these cohorts are: the healthy population; those that are at heightened risk of developing a long-term condition due to factors such as obesity or smoking; those with a single condition; people with multiple conditions or complex needs; and people who are frail. Importantly, for exploring alternative strategies for improving overall population health, the approach identifies the rates of progression of need using an evidence base rooted in the British Household Panel Survey and other sources. These translate into a dynamic modelling environment that is able to respond to different 'what-if' questions regarding health and wellbeing interventions.

Understanding local population dynamics is complex given:

- Continued growth in the total North Kent population to over 369,000 by 2037, from a current level of around 292,000;
- The significant contribution that is made to this growth by net inward migration;
- The changing nature of underlying risk factors that have the potential to lead to, or exacerbate, health and care needs – in this study we have focussed on levels of smoking, which are falling, levels of obesity, which are rising, diet which is improving and physical inactivity which is reducing;
- The natural ageing process at a population level as the 'baby boom' generation approach old age.

In this project, we have developed a 'better health' scenario based on engagement work carried out on the 7th January with the Kent County Council public health team. The 'Better Health Kent' exercise uses the cohort model to estimate the impacts of implementing a further 13 targeted primary prevention interventions upon the health of the Kent population. These are all proven indicators for the incidence of conditions that lead to poor health and reduced life expectancy. We compare this 'better health' against a hypothetical position in which underlying risk factor levels have been decreasing and demonstrate the contribution to improved life expectancy and the overall burden of health needs that improvements in health indicators will make upon the population.

Due to the underlying growth in the total population and using the modelling tool to explore possible future scenarios, it is reasonable to expect an increase in all major cohorts of need. However, when split into four simple groups of the healthy, those with a recognised single condition, those with multiple or complex conditions and those who are frail, and considered in percentage terms, we have arrived at a scenario in which the next 25 years will see:

- Small reductions in the proportion of the population with a health condition, either single, multiple or complex;
- Small increases in the proportion of the population who are healthy from the 2020s;
- Continued rises in the proportion of the population who are frail. This will result in significant increases in the absolute number of people within the severe frailty cohort.

In this picture 2020/21 appears to be a turning point for the moderation in growing health needs associated with diagnosed conditions, something that is attributable to the continued benefits into old age of reductions in smoking. The growth in the proportion of people who are frail, however, continues in its current trend almost irrespective of the scenarios run using the model. The proportion of the population we expect to be frail, on the definition used in the report, has already grown from just below 3% in 2017, to reach nearly 3.3% by 2037.

The modelling tool has provided us with an initial appreciation of some of the medium to longer term challenges of improving population health and wellbeing. We have noted already the significantly increasing proportion of the population who we expect to be frail. In addition, the model throws light on the following:

- **Life expectancy:** this continues to increase, but the modelling has suggested that any further increases could plateau during the 2020s and 30s with or without further prevention interventions;
- **Disability free life expectancy:** current indications are that the years spend in poor health, including being frail, are increasing at a greater rate than total life expectancy, meaning reduced life expectancy condition or disability free – our

modelling suggests that this will have been particularly the case during the early 2020's but will moderate during the latter 2020s and 30s, although any reversal of this is not within scope of the combined prevention measures included in the model at the moment;

- **The number of deaths:** these will continue to rise, currently estimated at c.3,000 per year, rising to c.3,000 per year by the end of the 2030's,
- **Service utilisation:** the modelling has demonstrated the impact of changing population health needs on different health and care services, although our assumptions have not been 'normalised' to North Kent – increases above the growth in total population are evident across all service types included, but particular increases are noted in services relating to the increase in the frailty population.

This report demonstrates progress in developing an improved understanding of changing population health needs, and what can be done to address them, using 'stock and flow' modelling.

14.2 Context

The Whole Systems Partnership (WSP) were asked to work with the Kent County Council Public Health Intelligence Team to develop a System Dynamics model that could demonstrate the impact of prevention and other 'whole population' interventions on overall health needs over the medium to longer term. The local presence of the Kent Integrated Dataset provides an invaluable opportunity to harness such intelligence in the development of a key public health contribution to the local STP planning process, something that Kent Council were keen to explore before wider engagement with Medway Council and the local health community.

The goal of the project was to demonstrate the potential contribution this approach can make to the development of the Joint Strategic Needs Assessment, and therefore also to the Health and Wellbeing Strategy. The output from the work is a simulation model based on aggregate 'stock and flow' information relating to the health status of the whole adult population segmented into broad cohorts of need (application to children's health and care needs is possible but was considered out of scope for this initial exercise).

WSP brought together its experience of working on similar systems elsewhere and worked closely with the Intelligence Team to develop and align the simulation tool to the local Kent population. We also held two workshops at which the approach and framework for this modelling was shared and based on which it was refined. This report summarises the approach, the key assumptions, outputs and learning from the project.

14.2.1 Purpose for the project

The objectives for this modelling were:

- To create a System Dynamics model that will provide population level projections of adult health needs with a view to identifying overall population health and wellbeing, and demands placed upon health and care services;
- To identify, and project forward, the impact of key public health interventions and/or strategies on health and care outcomes and utilisation.

The approach to modelling the health need and demands for adults included:

- A population approach to cohort groupings;
- The British Household Panel Survey to provide epidemiological analysis of the incidence, mortality and recovery of cohort groups;
- A system dynamics approach to model the health need and demand for adults aged 18 years and over from 2012 to 2037;
- Validation using local data sources, including the housing-based population projection and local death statistics.

The 'touch-points' with the Kent Integrated Dataset (KID) were discussed throughout the project, with close involvement of the KID team, to ensure that future development of the approach could be fully informed by intelligence drawn from this source.

The preliminary results of this work were presented at an engagement event on the 21st February 2017. They show that it has been possible to create a model that produces reliable estimates for adult health needs for the Kent population, and is repeatable for other regions, and potentially at lower geographical levels. The demand for health care identified in the analysis is likely to be less reliable and requires local triangulation to validate due to the different models of care in different regions, but still provides a very useful starting point for debate and further analysis. This is where the use of the KID will be most important.

The main deliverable, described below, is a dynamic model of the relationship between population cohort needs and demand. The model outputs a monthly forecast of the overall shape of population health needs and demand for services over a 25-year period from 2012. The approach that this report describes contributes to a potentially wider application that combines three complementary approaches, namely:

- The use of the cohort study to provide the underlying epidemiology about incidence, prevalence and recovery of adult disease and illness, as well as inputs about demand for services such as hospital admissions and GP attendances.

- A spreadsheet-based template containing detailed analysis of demographic projections, epidemiology, hospital utilisation rates and assumptions. This analysis provides the assumptions that are fed into the third element of the tool.
- A System Dynamics modelling tool that combines this data in a simulation environment where future 'what if' scenarios can be explored.

Together these provide the context for more local application and operational planning for the future need and demand for health and care services and the impacts of population health risk factor changes. The model requires a range of input data, described in more detail below. Current values for various parameters in the model were chosen using a combination of available evidence and / or the knowledge and experience of the local stakeholders. Model validation and calibration work has also explored the sensitivity of the model to changes in input parameters. These are described later in the report.

14.3 Using the Model to Explore Scenarios

14.3.1 Factors contributing to changing health needs in North Kent

It is very difficult from the data and cohort studies available to obtain an accurate estimate of future prevalence on a whole population basis, largely due to a focus in the evidence on single condition studies. However, our analysis of the BHPS has ensured that there is no double counting of people who might have more than one condition. By developing this approach based on KID in the future there will be further improvements in our ability to ensure people's needs are properly categorised as single condition, multiple conditions or frailty. The factors contributing to demographic change, and therefore to the shape of future health needs, include:

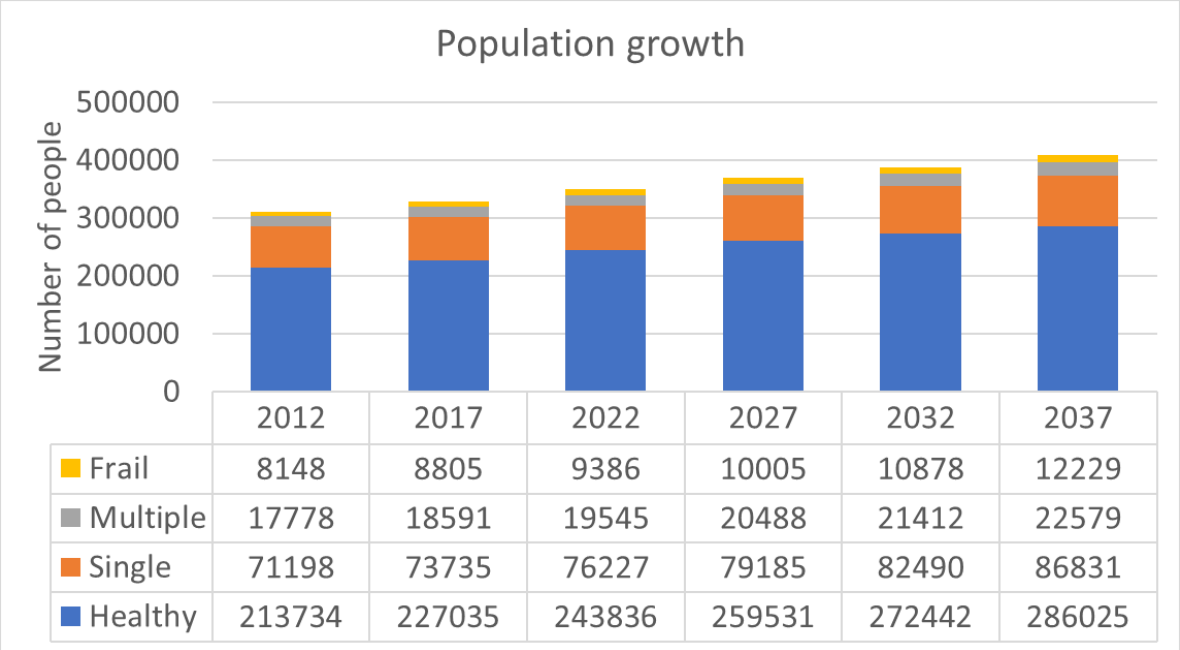
- Natural demographic growth, which will contribute an ageing process reflecting the national picture and will lead to increases in the very old who are likely to be frail;
- Net-migration, which in Kent is significant, and in the short term adds relatively young and therefore overall healthy people;
- The prevalence of risk factors that impact on the incidence of specific health conditions, leading to an increase in people with specific or multiple conditions.

We have described how these are addressed in terms of the modelling in the previous section. This section combines the different population dynamics described above into a single model, with the ability to explore the impact of reducing key risk factors.

14.3.2 Underlying population growth

Figure 154 shows the underlying growth in the overall adult population of North Kent, by broad cohort groupings. This output considers the change in population as a result of underlying risk factor changes in the population shown in Figure 153.

Figure 154: North Kent population growth – healthy, with a health condition, with multiple and complex condition and frail (underlying risk factor change only)



	2012	2017	2022	2027	2032	2037
Frail	8148	8805	9386	10005	10878	12229
Multiple	17778	18591	19545	20488	21412	22579
Single	71198	73735	76227	79185	82490	86831
Healthy	213734	227035	243836	259531	272442	286025

14.3.3 Scenarios for overall "better health" calculations

The 'Better Health Kent' exercise uses the cohort model to estimate the impacts of implementing a further 13 targeted primary prevention interventions upon the health of the Kent population. Table 14 illustrates the baseline, target %, timescale and outcome from the intelligence gathered at the engagement exercise on the 7th January. Insights were also gathered on the day about the definitions used for certain interventions. For example, the impacts for hypertension have been adjusted to consider the proportion of the population undiagnosed as well as those diagnosed but not being treated to achieve clinical standards. The impacts for alcohol are weighted for the population of North Kent relative to Kent as a whole.

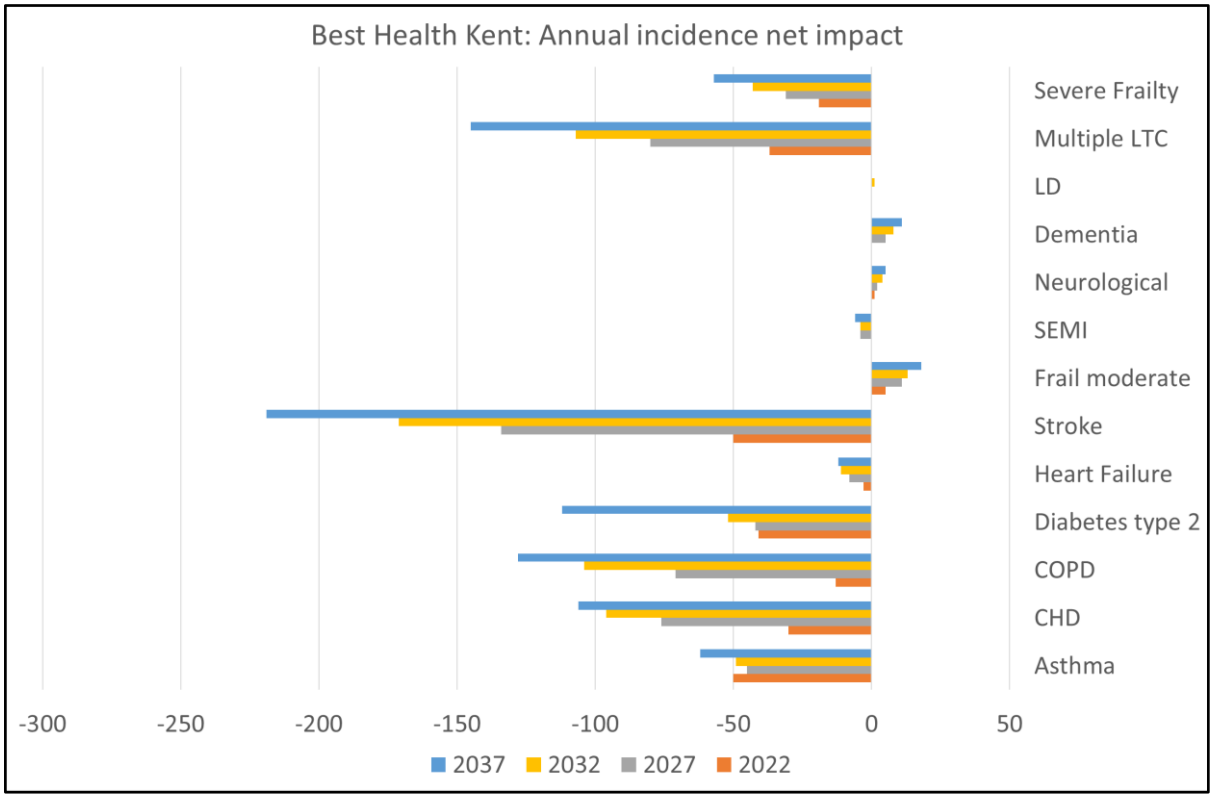
Table 14: Better Health Kent Targets

Scenario	Title	Baseline	Target (%)	Number	Start	End	Outcome
1	Increase breastfeeding at 6-8 weeks	45.2	20		2019	2024	65.2
2	Reduce smoking in pregnancy	13.9	-6		2019	2025	7.9
3	Reduce child obesity	16.5	-20		2019	2025	13.2
4	Reduce fuel poverty in children	17.4	-20		2019	2022	13.9
5	Reduce ACE in childhood	24.0	-20		2020	2030	19.2
6	Improve recognition and treatment of hypertension	40.0	30		2020	2025	28.0
7	Improve recognition and treatment of CVD risk	50.0	30		2020	2025	35.0
8	Improve smoking cessation	20.0	-8		2019	2024	12.0
9	Increase weight management	25.0	-10		2019	2024	22.5
10	Alcohol screening	n/a	Screening	50000	2019	2025	n/a
11	Alcohol treatment	n/a	Treatment	5000	2019	2030	n/a
12	Reduce fuel poverty for older people	11.5	-20		2019	2024	9.2
13	Reduce ACE at 15 years	7.5	-20		2020	2030	6.0

14.3.4 Impacts upon incidence

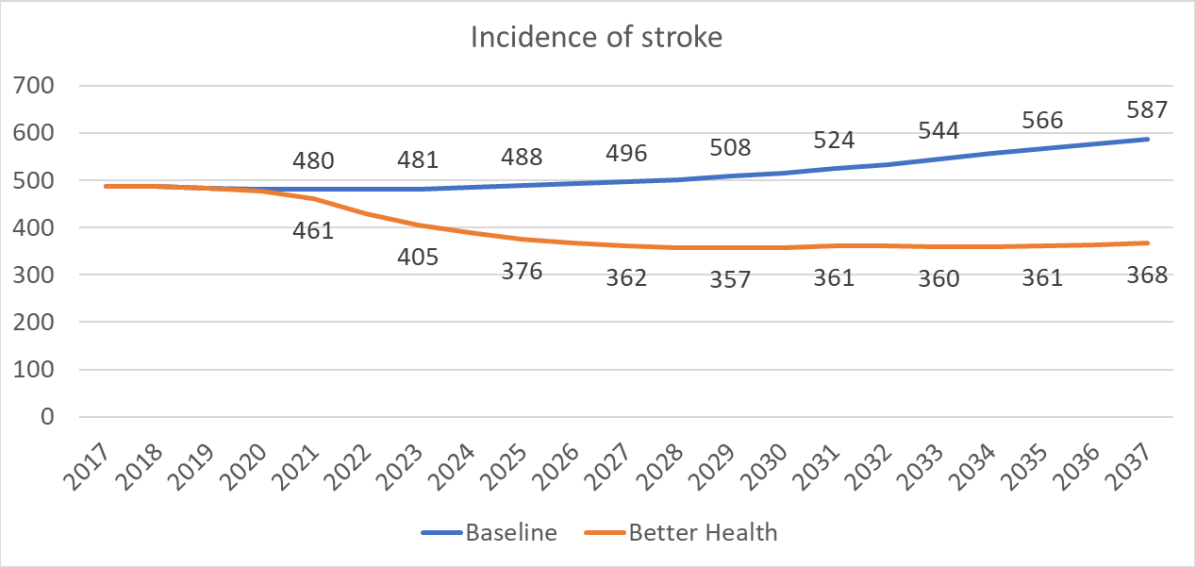
The modelled Better Health Kent target has a significant impact upon the annual number of new occurrences for most of the cohorts included within the model (Figure 155).

Figure 155: Net impact upon cohort incidence of Better Health Kent compared to baseline



The highest individual impact was upon CVD and the largest impact within cohorts was for strokes, with a 10%, 27%, 32% and 37% reduction for 2022, 2027, 2032 and 2037 respectively. This results in an estimated annual reduction in absolute stroke incidence of 50, 134, 171 and 219 over the same time period (Figure 6). Or approximately 2,400 less strokes from 2017 to 2037.

Figure 156: Incidence of stroke, baseline compared to Better Health, 2017 – 2037



14.3.5 Impacts upon prevalence

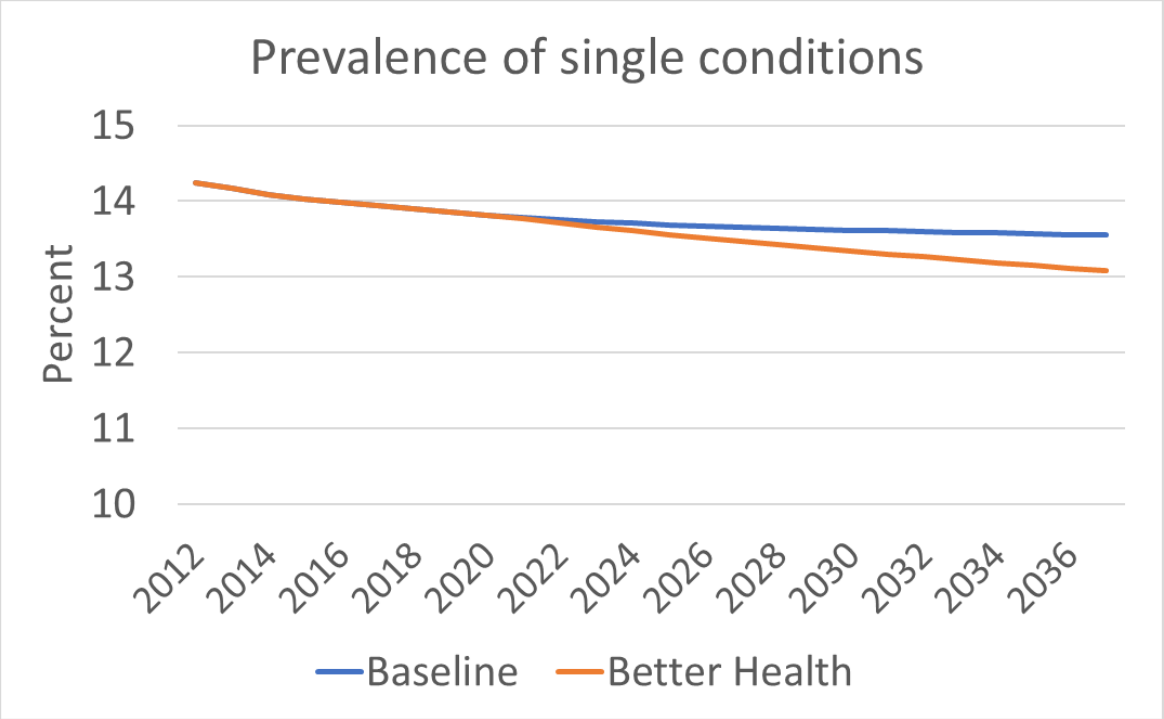
- The relative contribution of the Better Health scenario upon condition and cohort prevalence is illustrated in Figure 7. For each chart the:

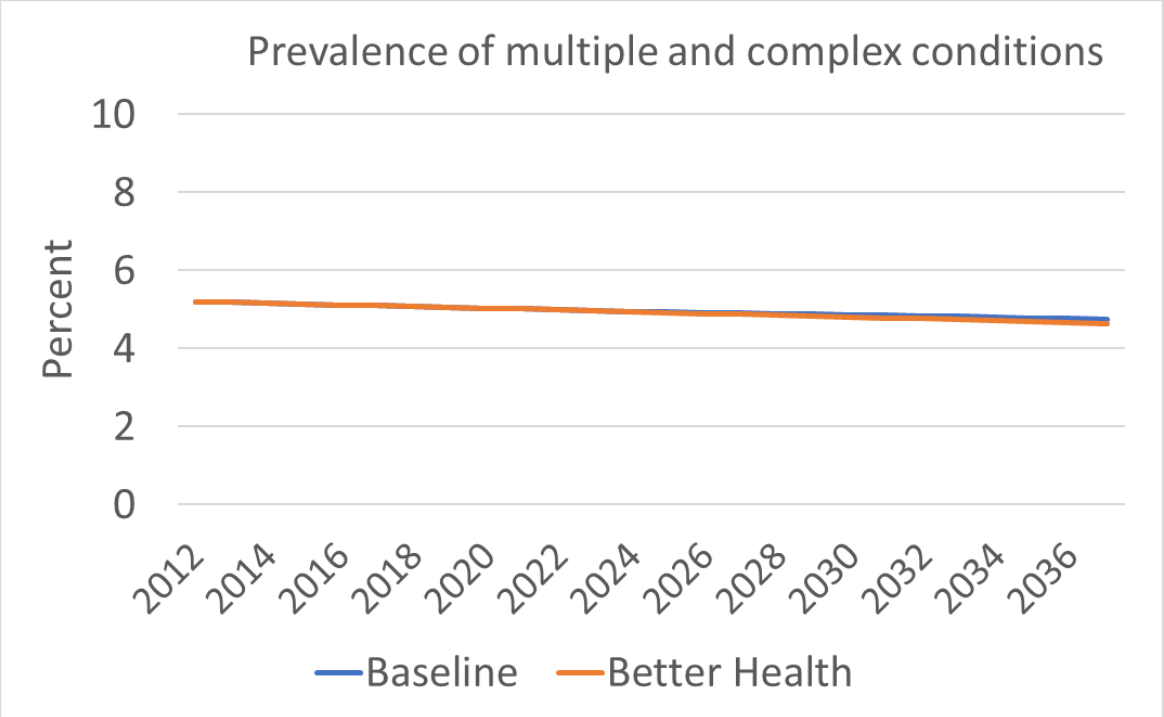
- **blue** line shows the change in prevalence as a result of underlying changes in risk factors and;
- **orange** line shows the change in prevalence as a result of underlying changes in risk factors and the Better Health scenario.

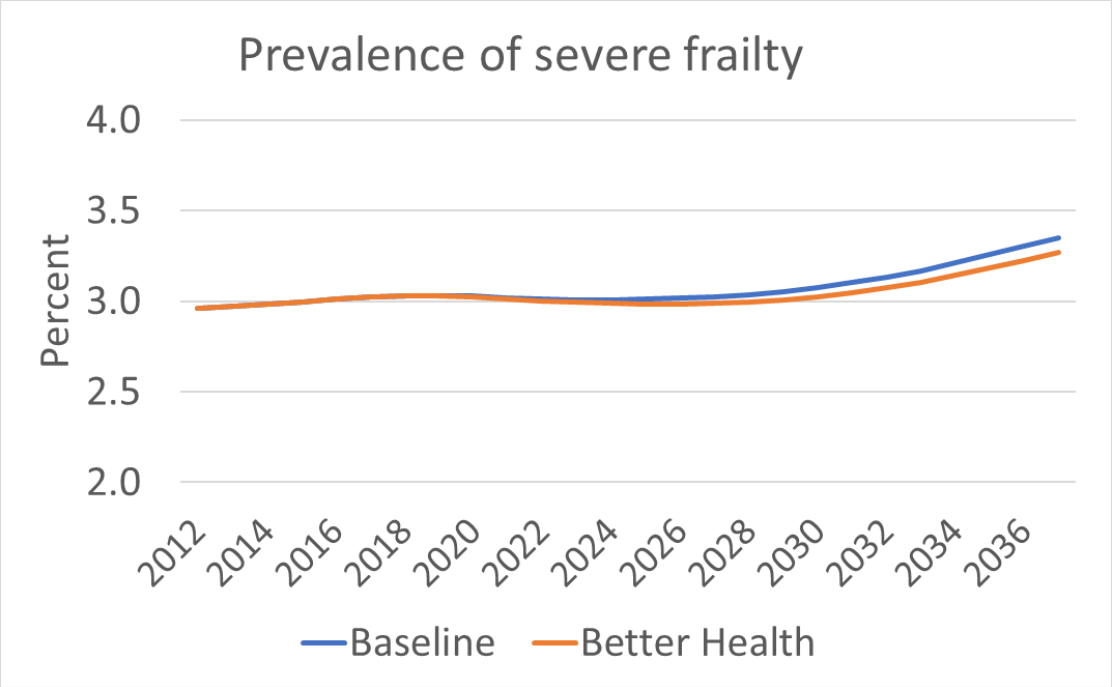
In summary, this suggests that Better Health:

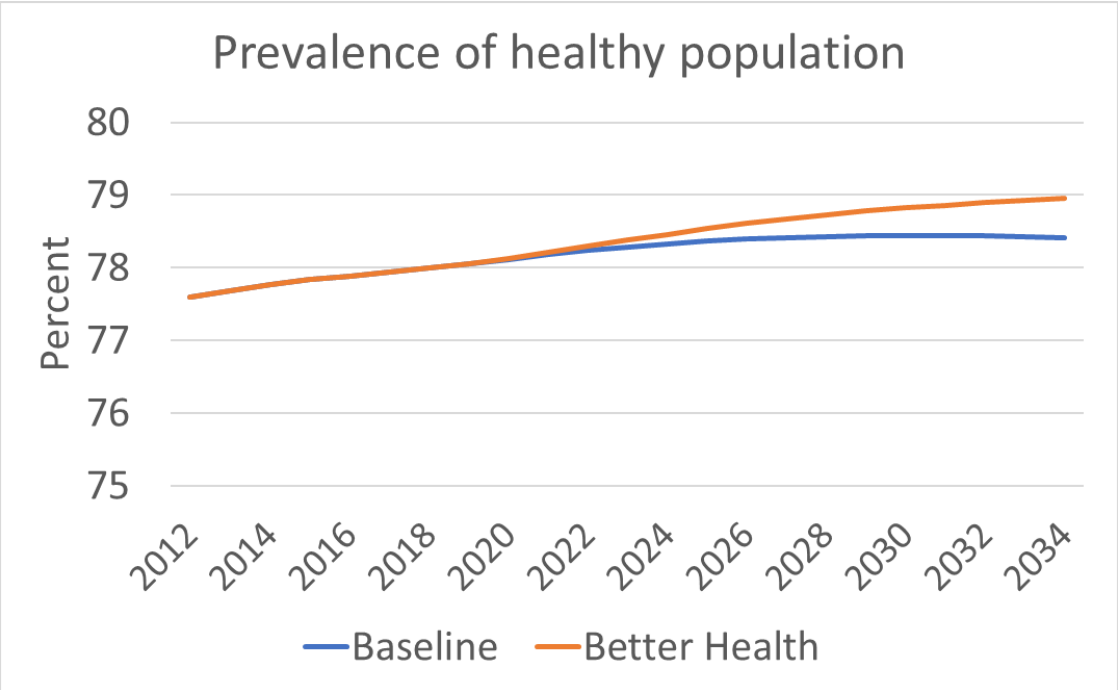
- The largest impact is upon the prevalence of single conditions, with an estimated absolute reduction of 4%;
- There are marginal reductions in absolute prevalence of multiple and complex and severe frailty. This suggests Better Health could delay the occurrence of these conditions rather them completely. In addition, some of the interventions are targeted at children and won't have an impact until beyond the scope of this model;
- There is growth in the healthy population but the impacts of Better Health scenario could be dampened by the fact that the population will be older and therefore more at risk of health problems.

Figure 157 The percentage of people with a health condition, healthy, multiple and complex or frail under five different scenarios









- The model results illustrate a continued increase in the absolute growth in some conditions / cohorts mainly as a result or the continued growth in the older population. Table 6 presents the change in prevalence across conditions illustrating the:

- reductions expected in cardiovascular and respiratory conditions;
- the increase expected in diabetes, due to continued increases in obesity and;
- the increase in dementia, neurological and frailty.

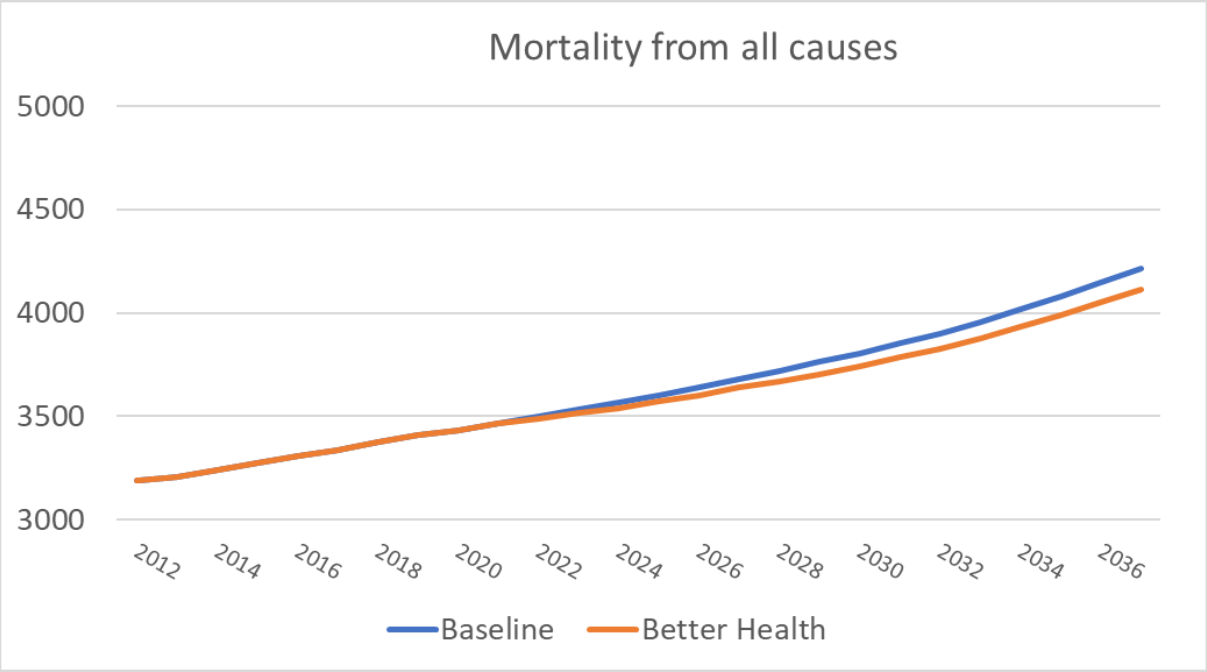
Table 15: Modelled prevalence of individual conditions (including overlap of conditions with multiple and frail cohorts)

Condition	2012	2017	2022	2027	2032	2037	Change 2017 to 2037
Asthma	9.0	8.8	8.4	8.1	7.9	7.6	-15.6
CHD	4.1	3.9	3.4	3.1	3.0	2.9	-28.4
COPD	2.5	2.5	2.2	2.0	1.8	1.7	-32.4
Diabetes	4.9	5.0	4.9	5.0	5.2	5.3	6.9
HF	0.3	0.3	0.3	0.3	0.3	0.3	-14.6
Stroke	2.2	2.1	1.8	1.5	1.4	1.4	-38.7
Frail moderate	2.8	2.8	2.8	2.8	2.8	2.9	2.8
Multiple	4.6	4.6	4.5	4.4	4.3	4.3	-8.2
SEMI	0.5	0.5	0.5	0.5	0.5	0.5	-17.4
Neuro	0.3	0.3	0.3	0.3	0.3	0.3	7.7
Dementia	0.7	0.7	0.7	0.7	0.7	0.7	9.4
LD	0.3	0.3	0.3	0.3	0.3	0.3	-7.4
Frail severe	3.0	3.0	3.0	3.0	3.1	3.3	10.7

14.3.6 Impacts upon mortality

- The impacts upon mortality were also significant, with a gradual downward trend in mortality from 2017 to 2037 (Figure 158). Over the same period the total reduction in deaths reached nearly 950.

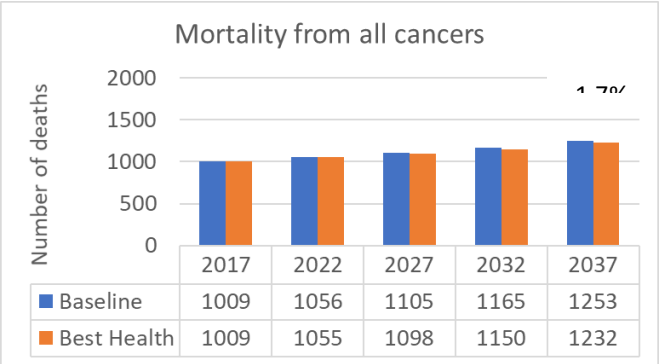
Figure 158: Number of deaths from all causes, baseline compared to Better Health, 2012 – 2037

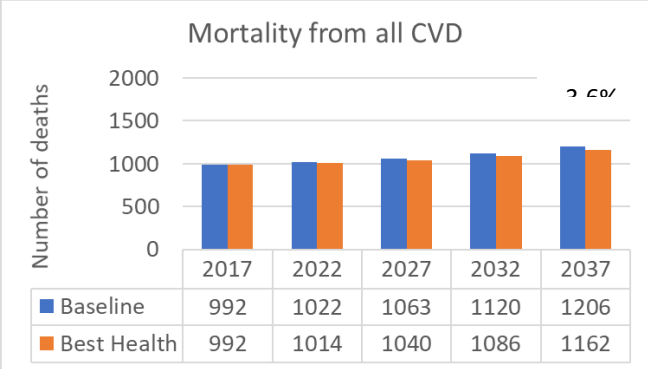


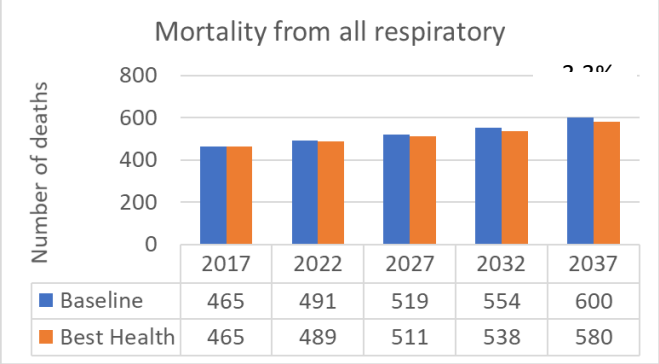
- The impact of Better Health targets, upon mortality was similar to incidence with CVD mortality having the most gains (Figure 159):

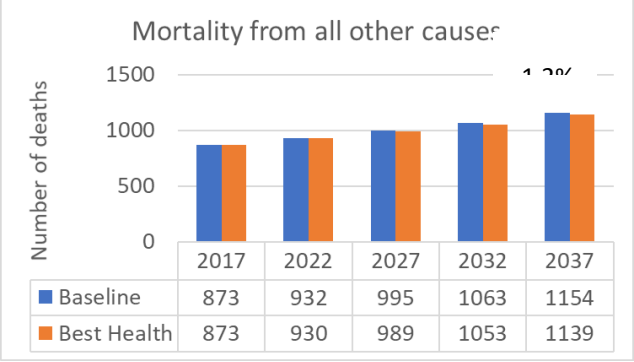
- Cancer mortality reduced by 1.7% by 2037, a reduction of 750 deaths from 2017 – 2037;
- CVD mortality reduced by 3.6% by 2037, a reduction of 1900 deaths from 2017 – 2037;
- Respiratory mortality reduced by 3.3% by 2037, a reduction of 780 deaths from 2017 – 2037;
- Other causes mortality reduced by 1.2% by 2037, a reduction of 540 deaths from 2017 – 2037;

Figure 159 – Number of deaths by cause, baseline compared to Better Health, 2012 – 2037









14.3.7 Impacts upon summary health measure

- The incidence and mortality data within the model can be used to estimate the change in life expectancy and disability free life expectancy (DFLE) from implementing the Better Health North Kent targets (Figure 160 and 161).

- The model shows that DFLE is expected to increase due to underlying improvements in behavioural risk factors by approximately 6 years over the next 20 years;
- The impact of the Better Health Kent targets adds 5 years of DFLE for the North Kent population.

- In comparison, the target within the NHS long term plan is to improve healthy life expectancy by 5 years by 2035.
- The impact upon life expectancy is estimated as an additional 5.1 years.

Figure 160: DFLE, baseline compared to Better Health, 2012 – 2037

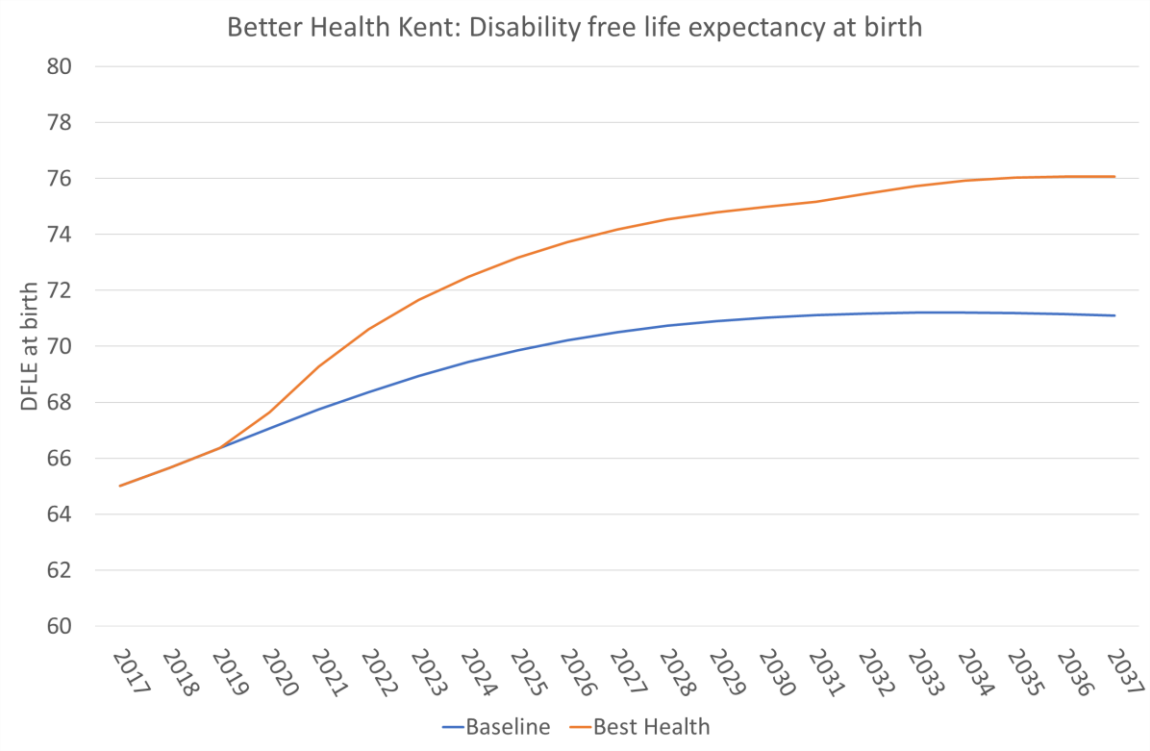
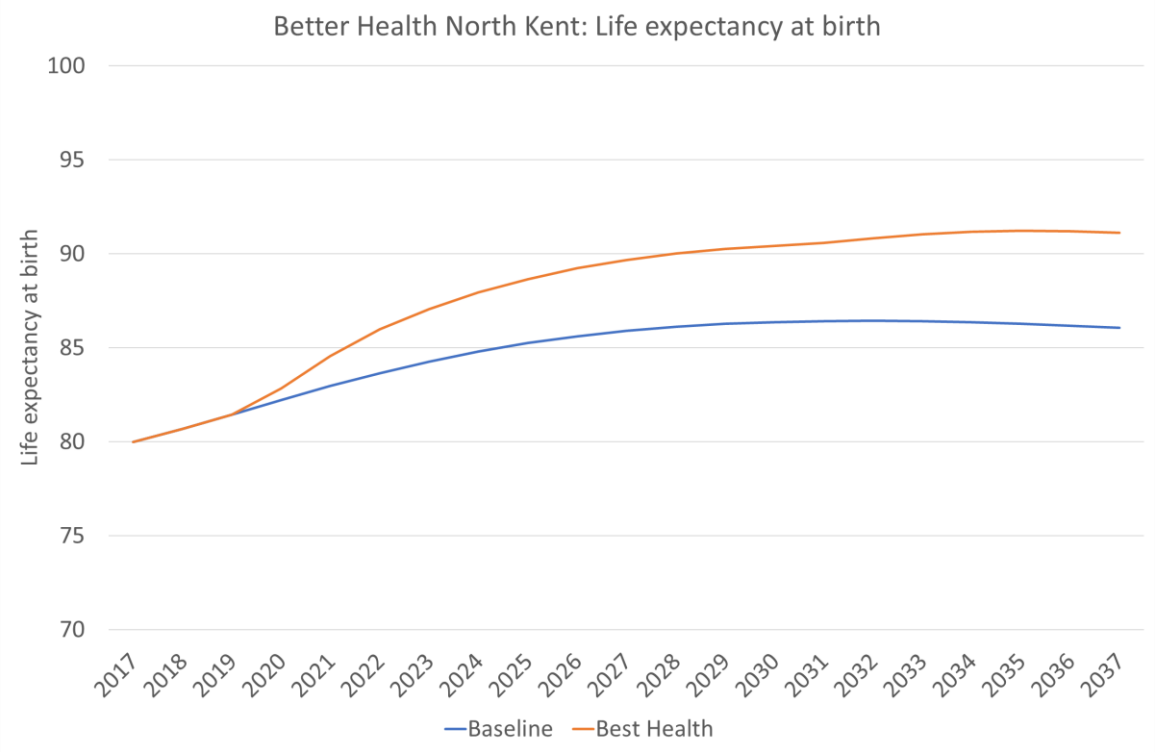


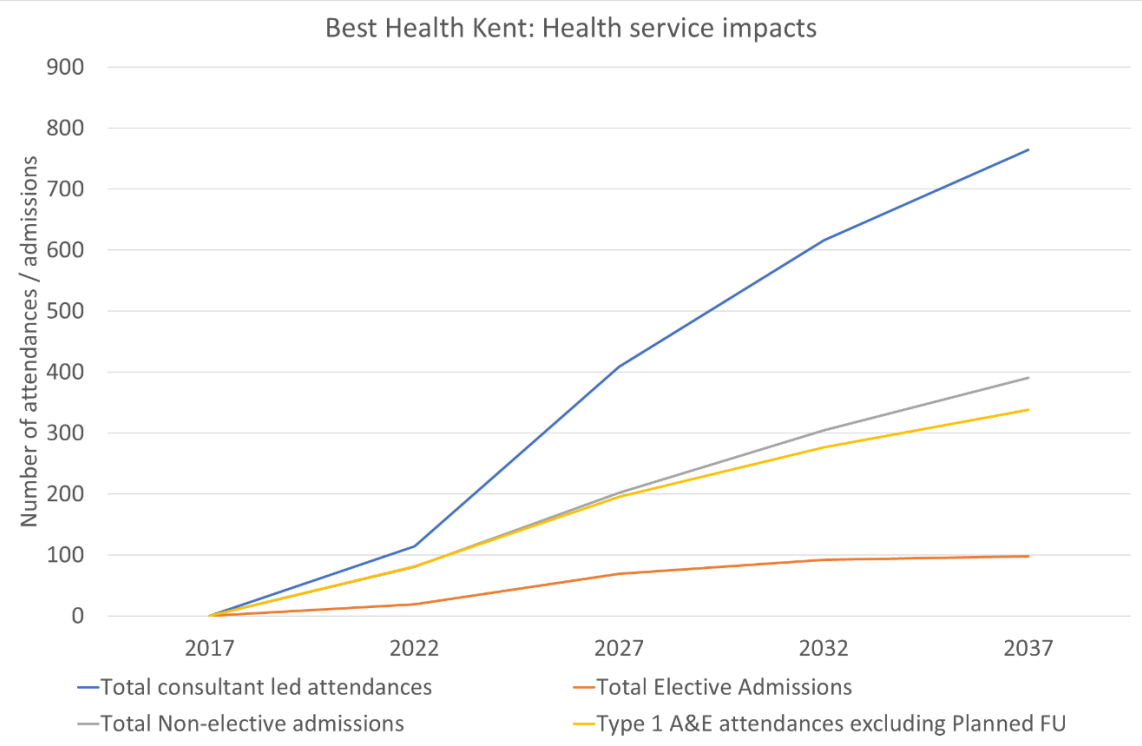
Figure 161: Life expectancy, baseline compared to Better Health, 2012 – 2037



14.3.8 Impacts upon healthcare utilisation and costs

- Using the rate of contact with health services for each cohort (from KiD data) the model estimates the difference in the annual number of contacts for Better Health compared to the baseline position (Figure 12).

Figure 162: Net reduction in health care contacts, baseline compared to Better Health, 2012 – 2037



From 2017 to 2037 the model estimates the impact of Better Health upon health services are:

- 7,200 less consultant led outpatients;
- 1,100 less elective admissions;
- 3,700 less emergency admissions and;
- 3,400 less A&E attendances.

Using average costs[22] for each of the health service contacts, could result in a £9.5 million saving for the health economy.

[22] Consultant appointment = £150; Elective admission = £1000; Emergency admission = £ 2000; A&E attendance = £150

14.4 Children and Young People

- The majority, of this report has focused upon model inputs and outputs for the adult population (aged 18 years and over). This section provides a look at some of the model outputs that can be generated from the cohort model for children and young people. In this case we are going to present a sample of model results related to children with Adverse Childhood Experiences (ACE).
- ACEs are, as the name implies, experiences that adversely affect children.
- The evidence cites issues commonly categorised as ACEs. This is not necessarily an exclusive list. In part based on the Center for Disease Control ACE[23] questions - refer to the respondent's first 18 years of life.
- Five Direct

- Sexual abuse by parent / caregiver.
- Emotional abuse by parent / caregiver.
- Physical abuse by parent / caregiver.
- Emotional neglect by parent / caregiver.
- Physical neglect by parent / caregiver.

- Five Indirect

- Parent / Caregiver addicted to alcohol / other drugs.
- Witnessed abuse in the household
- Family member in prison
- Family member with a mental illness.
- Parent / Caregiver disappeared through abandoning family / divorce.
- The impacts of a 20% decrease in ACE for North Kent CCGs would result in a:
- 4% reduction in severe mental illness in adults by 2037;
- 2% reduction in diabetes for adults by 2037;
- 7% reduction in stroke for adults by 2037 and:
- 11% reduction in harmful drinking for adults by 2037.

The result shows that improvements in ACE can impact upon adult health outcomes but delays in impact(s) exist.

[23] https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/index.html

Figure 163: The impact of a 20% reduction In ACE upon the prevalence of severe mental illness, 18 years and over

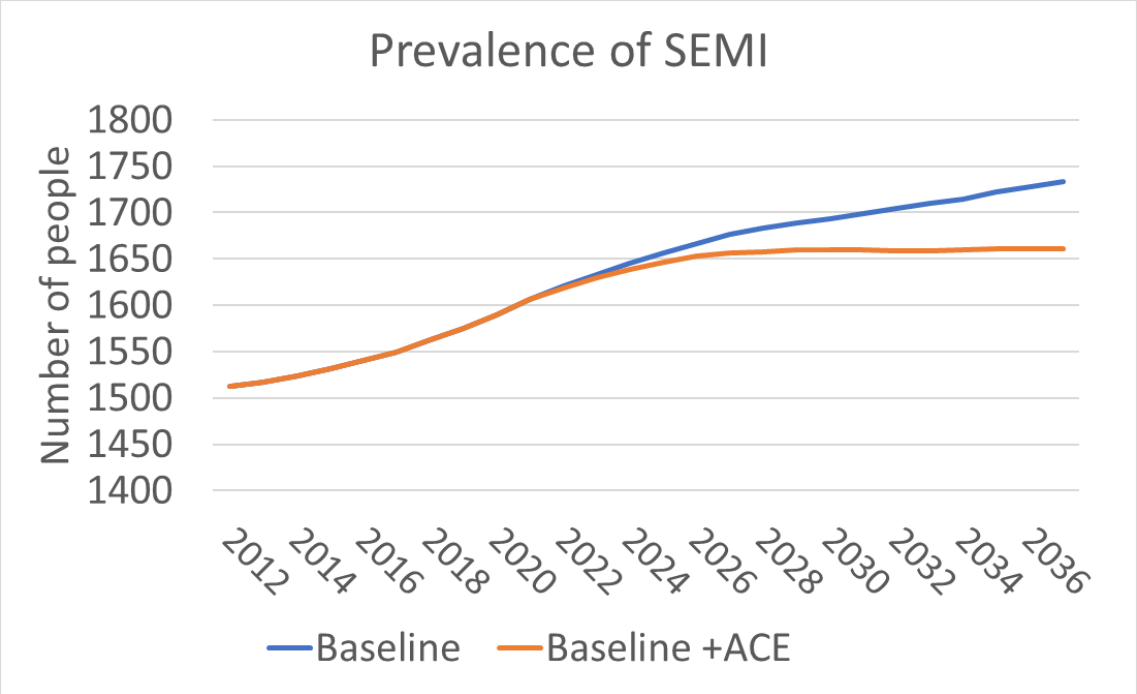


Figure 164: The impact of a 20% reduction In ACE upon the prevalence of diabetes, 18 years and over

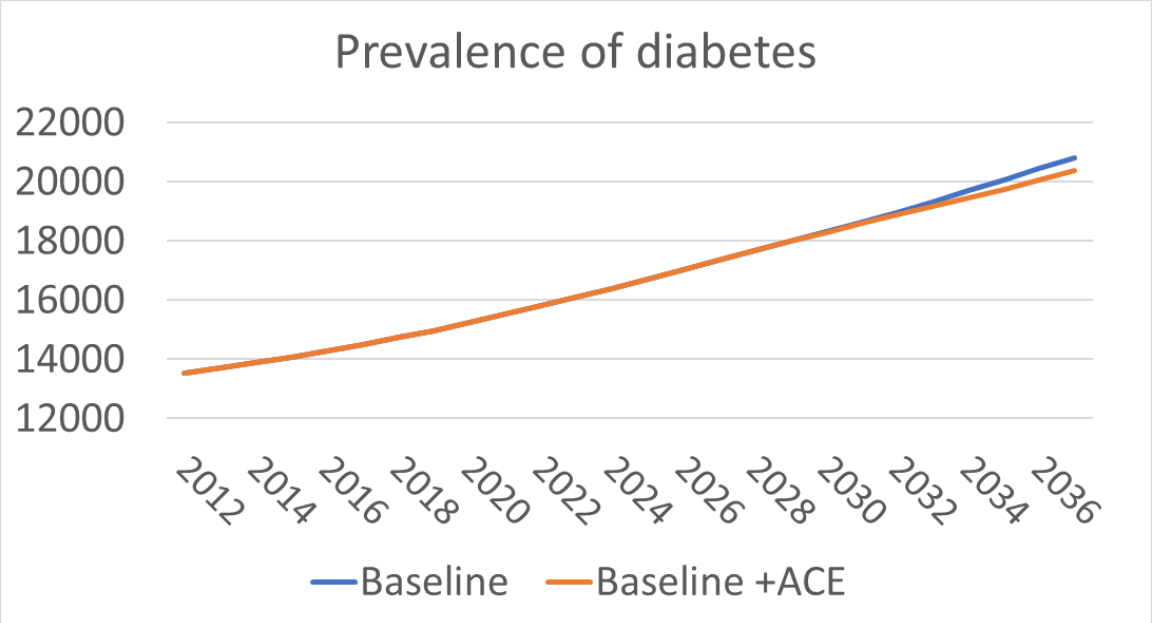


Figure 165: The impact of a 20% reduction In ACE upon the prevalence of stroke, 18 years and over

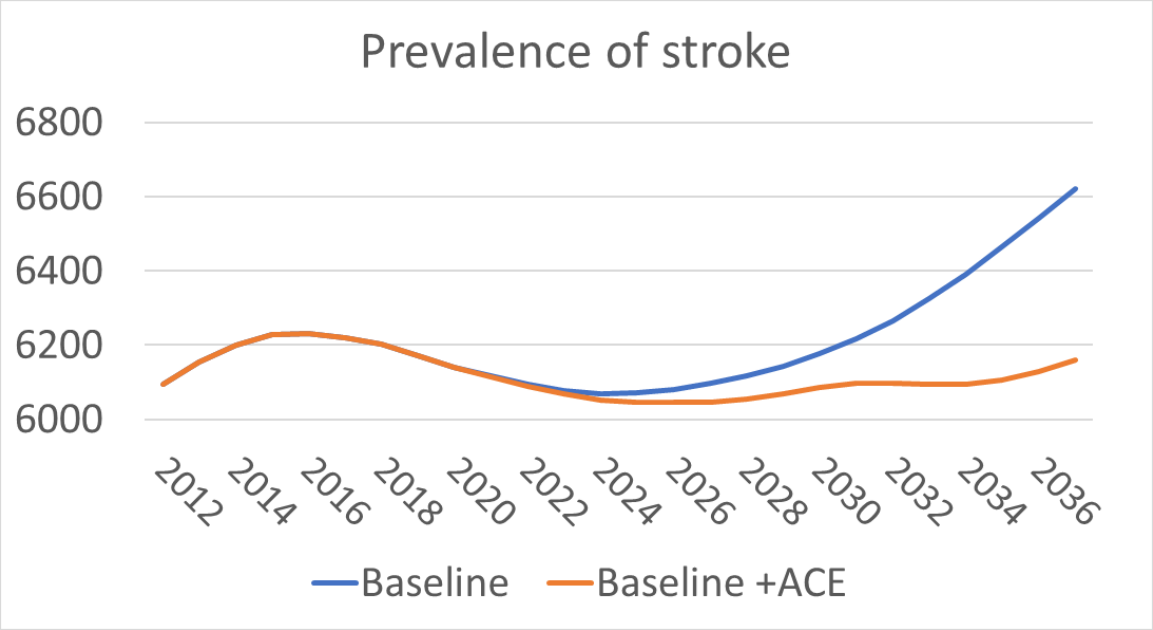
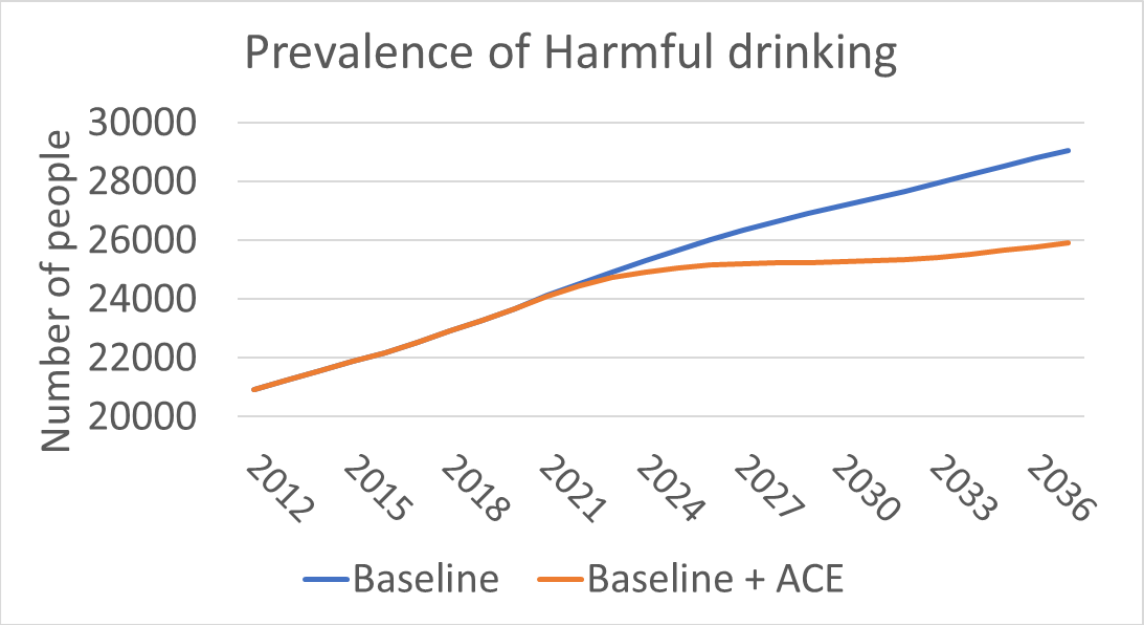


Figure 166: The impact of a 20% reduction In ACE upon the prevalence of harmful drinking, 18 years and over



14.5 Conclusion

14.5.1 Summary

This project has demonstrated a methodology using 'stock and flow' modelling and a cohort study to define and produce projections for health population needs using cohorts rather than individual diseases. It presents an exciting opportunity to inform the development of the Kent JSNA, Joint Health and Wellbeing Strategy and local commissioning plans at a time when 'whole population', 'whole system' solutions are required. It also therefore provides an invaluable contribution to help understand the wider context and challenges of sustainability within the local CCG.

The distinctives of the approach are the combination of both a population and a cohort approach, coupled with simulation modelling, in an environment that allows for testing future 'what if' questions, particularly those associated with prevention and wellbeing. Local incidence of conditions may vary from the BHPS and ELSA – and other cohort studies include more detailed collection of data about cohorts. However, the BHPS and ELSA has the most complete collection of health care utilisation data and has therefore provided a useful and comprehensive starting point that can now be supplemented by the KID and other evidence sources. For example, an area of limitation in the BHPS is a lack of a cohort data relating to memory / dementia and the relationship of these needs to frailty and old age but is included in more detail in the ELSA.

- The KID has helped provide the data that can be used to embed the approach in local intelligence, and as the way in which partners can evidence the relative impact of measures aimed at improving overall health. The KID also provides a link into understanding the contribution that wider determinants of health play. The modelling tool also provides the framework for the application of this approach at different geographies, and potentially for children and young people. The approach has the potential to be adapted to explore inequalities of health, although is not currently designed in this way.
- The results of this modelling approach illustrate that risk factor changes have a significant impact upon the future health of the population. It also shows that testing the implementation of public health interventions is useful and can illustrate the potential short and long-term impacts both for population health and for health care costs. Having said that the model also shows that the underlying demand for health and care services is still going to increase even though risk factors are generally improving. This is mainly due to the ageing population which has a significant influence upon the frail cohort but also because some risk factors such as BMI and obesity are going in the wrong direction.

14.5.2 Future modelling questions

Future service transformation is contingent on robust data analysis to help estimate potential impacts and benefits. While a significant amount of modelling has been done on the programme areas as well as the JSNA population cohort, further modelling scenarios need to be developed and tested such as the following:

Population

- How will the population outside of North Kent e.g. Bexley, Medway affect services, taking into consideration population growth?
- How significant will the impact be of transient people working and visiting in the NK area?
- In a 'do nothing' scenario how will inequalities naturally change over time, and how may interventions now and in the future affect health inequality across North Kent?
- What will be the impact on morbidity and mortality if more resources would be invested in specific prevention strategies (e.g. obesity)?

Mental Health

- What would be the impact of improved social and health care services such as back to work programmes, family support and community management of long-term conditions on mental health services usage?
- What would be the impact of improved mental health services for children and young people on presentation with mental health disorders later in life?
- What would be the impact of rising cases of dementia on acute services in a do-nothing scenario?

Services

- What will be the impact of integrating local health, mental health and social care services for long-term and complex conditions (e.g. in terms of demand on acute services, length of hospital stay)
- What will be the impact of investing in primary, secondary and tertiary prevention on delivery of care for chronic conditions in non acute hospital settings.
- What will be the impact of interventions supporting carers on admissions and length of hospital stay?
- What would be the impact of improved care of preceding conditions (CVD, AF, DM)?

Obesity

- What impact would improving maternal obesity have on paediatric health and social care usage?
- What impact would be decreasing childhood obesity make on health care services in 10 to 20 years?

Children and young people

- What impact would improvements (increase staff, paediatric training) in primary care workforce have on paediatric hospital admissions and A&E attendance for diabetes, epilepsy, asthma?
- What impact would invest in prevention services for injuries in 0-4 year olds and above on health and social care usage?

Cancer

- What will be the impact of investment in an increased workforce in cancer services?
- What will be the impact of improved primary prevention strategies e.g. stop smoking services, weight loss and physical activity programmes on demand on services?
- What will be the impact of introduction of new screening tests/direct access to diagnostics on overall cancer mortality?
- What will be the impact of cancer community hubs for delivering services (e.g. chemo, palliative) in community/home on secondary health services?

15 Recommendations

The aging population and advances in medical care that enhance life expectancy are increasing the prevalence of chronic diseases. A large proportion of chronic disease is due to preventable, behavioural causes.

This emphasises the importance of primary, secondary and tertiary prevention approaches encompassing e.g. obesity and tobacco smoking prevention in addition to vaccinations and cancer screening.

We have now come together as an STP programme to realize this in a concerted effort. Therefore, recommendations for commissioners are abstracted from the broader Kent and Medway STP programme and special emphasis is given to prevention.

15.1 STP Priorities

The four key priorities of Kent and Medway STP are prevention, local care, hospital care and mental health.

Prevention

The prevention programme will concentrate activities on obesity by changing diet to attain healthy weight, physical activity to improve wellbeing, mental health and reduce long term conditions such as CVD, cancers, etc. In addition, it will help in reducing alcohol-related harm, and preventing and stopping smoking.

Local Care

Local care will result in better access to care and support in the community. It is known that people with long term health problems want co-ordinated support by professionals, easy access to services and to only have to tell their story once.

Several extended practices will be set up across Kent and Medway and multi-disciplinary, place-based teams will form around these practices to integrate care, particularly for frail patients, people with complex needs including mental health needs and patients requiring end of life care support. Out of hours services will also be improved.

Hospital Care

Where hospital care is needed, the STP will ensure it is of the best quality, This will include a consideration of whether hospital is the right place for the patient or whether they would be better cared for at home.

Kent and Medway have consulted on stroke and vascular services and are reconfiguring services to improve care for stroke patients, including the development of Hyper-Acute Stroke Units (HASU) in the county.

Mental Health

It is important that mental health is seen as an integral part of local care and to have parity with physical health. To improve care, a single phone number for people in mental health crisis will be available. People needing a mental health bed will be placed in the county and people who have been placed out-of-area for specialist care will be brought back to the county, closer to their homes and communities.

Children and young people's mental health and emotional wellbeing will be prioritised, and early interventions will be put in place for those people experiencing psychosis for the first time.

15.2 Current Activities

- The STP prevention workstream aims to make prevention the responsibility of all health and social care services, employers and the public in Kent and Medway to allow delivery of prevention interventions at scale and realisation of improved population health outcomes. The involvement of secondary care clinicians in secondary and tertiary prevention is essential as these complement the population-level primary prevention initiatives of the STP. It is felt important that all health and social care pathways start with prevention and it is the aim of the workstream to ensure that this is reflected in all the work of the STP so that health inequalities are reduced and deaths from preventable conditions avoided.
- Much work has been done to co-produce the STP prevention work plan with GPs in North Kent. This has not only informed the local position in North Kent, but also influenced the plans for work across Kent and Medway.

The current plans include:

- Delivering workplace health initiatives, aimed at improving the health of staff delivering services;
- Industrialising clinical treatments related to lifestyle behaviours and treating these conditions as clinical diseases;
- Treating both physical and mental health issues concurrently and effectively;
- Concentrating prevention activities in four key areas which are described below:

The main areas for focus for prevention activities in Kent and Medway have been identified and are:

15.2.1 Obesity and Physical Activity:

Apply a whole systems approach including implementation of 'Let's Get Moving' physical activity pathway in primary care at scale across Kent and Medway. Increase capacity in Tier 2 Weight Management Programmes from 2,348 to 10,000.

15.2.2 Smoking Cessation and Prevention:

Acute trusts becoming smoke-free with trained advisors, tailored support for the young and youth workers, pregnant and maternal smokers and people with mental health conditions.

15.2.3 Workplace Health:

Working with employers on lifestyle interventions and smoking and alcohol misuse, providing training programmes for improved mental health and wellbeing in the workplace.

15.2.4 Reduce Alcohol-related harms in the population:

'Blue Light initiative' addressing change-resistant drinkers. 'Identification and Brief Advice' (IBA) in hospitals ('Healthier Hospitals initiative') and screening in GPs. Alcohol health messaging to the general population.

Business cases have been submitted to the STP Programme Board for tackling obesity, smoking cessation and prevention workstreams. These included national evidence on return on investment calculations for these initiatives, which demonstrated value for money. These business cases have been agreed in principle, but the funding required is not available from the public health budgets of Kent and Medway as these are already allocated to the prescribed functions of public health. The additional funding required has not yet been identified.

16 References

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- Kessler R, Berglund P, Demler, O et al. (2005) lifetime prevalence and age-of-onset distributions of dsM-Iv disorders in the national comorbidity survey Replication. Archives of General Psychiatry 62: 593–602.
- *https://fingertips.phe.org.uk/profile-group/mental-health/profile/cypmh/data#page/0* [accessed 14th May 2018]

Appendix A – GPs serving each Ward

The tables below show the percentage of the population resident in each Ward in North Kent registered with particular GPs[24]. For each Ward, GPs serving at least 10% of the population are listed.

[24] Source: NHS Digital, January 2019

Table 1

Ward	GP		Hub	% of ward population
Ash	G82097	Jubilee Medical Group	Gravesend Rural	97%
Bean and Darenth	G82221	Elmdene Surgery	Dartford and Greenhithe	40%
	G82122	Swanscombe Health	Dartford and Greenhithe	19%
	G82006	Dartford East Health Centre	Dartford and Greenhithe	16%
Brent	G82006	Dartford East Health Centre	Dartford and Greenhithe	42%
	G82212	Pilgrims Way Surgery	Dartford and Greenhithe	22%
	G82048	Horsman's Place Surgery	Dartford Central	10%
Castle	G82221	Elmdene Surgery	Dartford and Greenhithe	33%
	G82647	Temple Hill Surgery	Dartford Central	20%
	G82122	Swanscombe Health	Dartford and Greenhithe	19%
	G82006	Dartford East Health Centre	Dartford and Greenhithe	10%
Central	G82780	Gravesend Medical Centre	Gravesend Central	29%
	G82067	Old Road West	Gravesend Central	17%
	G82032	Pelham Medical Practice	Gravesend Central	12%
Chalk	G82690	Chalk Surgery	Gravesend Central	21%
	G82021	The Shrubbery	White Horse	15%
	G82809	Downs Way Medical Practice	Gravesend Rural	14%
	G82032	Pelham Medical Practice	Gravesend Central	12%
Coldharbour	G82021	The Shrubbery	White Horse	29%
	G82044	The Gateway Medical Practice	White Horse	16%
	Y02826	White Horse Surgery	White Horse	14%
	G82032	Pelham Medical Practice	Gravesend Central	12%
Crockenhill and Well Hill	G82225	The Oaks	Swanley	38%
	G82028	The Cedars Surgery	Swanley	29%
	G84020	*Chelsfield Surgery*	*Out of area*	*11%*
Eynsford	G82218	Braeside Surgery	Swanley	88%
Farningham, Horton Kirby and South Darenth	G82088	Devon Road Surgery	Swanley	57%
	G82218	Braeside Surgery	Swanley	35%
Fawkham and West Kingsdown	G82647	Temple Hill Surgery	Dartford Central	60%
	G82218	Braeside Surgery	Swanley	22%
Greenhithe	G82122	Swanscombe Health	Dartford and Greenhithe	50%
	G82221	Elmdene Surgery	Dartford and Greenhithe	17%
	G82647	Temple Hill Surgery	Dartford Central	17%
Hartley and Hodsoll Street	G82097	Jubilee Medical Group	Gravesend Rural	86%
Heath	G82185	Redwood Practice	Dartford Central	33%
	G82056	The Orchard Practice	Dartford Central	25%
	G82639	Maple Practice	Dartford Central	11%
Hextable	G82722	Main Road Hextable	Swanley	53%
	G82225	The Oaks	Swanley	23%
	G82028	The Cedars Surgery	Swanley	15%

Table 2

Ward	GP		Hub	% of ward population
Higham	*G82100*	*Highcliffe Medical Practice*	*Out of area*	*76%*
	G82809	Downs Way Medical Practice	Gravesend Rural	10%
Istead Rise	G82809	Downs Way Medical Practice	Gravesend Rural	86%
Joyce Green	G82647	Temple Hill Surgery	Dartford Central	55%
	G82006	Dartford East Health Centre	Dartford and Greenhithe	12%
	G82048	Horsman's Place Surgery	Dartford Central	11%
Joydens Wood	G82809	Downs Way Medical Practice	Gravesend Rural	47%
	G82206	Summerhouse Drive	Dartford and Greenhithe	21%
Littlebrook	G82647	Temple Hill Surgery	Dartford Central	39%
	G82006	Dartford East Health Centre	Dartford and Greenhithe	23%
	G82048	Horsman's Place Surgery	Dartford Central	12%
	G82212	Pilgrims Way Surgery	Dartford and Greenhithe	11%
Longfield, New Barn and Southfleet	G82097	Jubilee Medical Group	Gravesend Rural	61%
	G82809	Downs Way Medical Practice	Gravesend Rural	18%
Meopham North	G82073	Meopham Medical Centre	Gravesend Rural	81%
	G82809	Downs Way Medical Practice	Gravesend Rural	13%
Meopham South and Vigo	G82073	Meopham Medical Centre	Gravesend Rural	75%
	G82120	*Borough Green Medical Practice*	*Out of area*	*21%*
Newtown	G82006	Dartford East Health Centre	Dartford and Greenhithe	42%
	G82212	Pilgrims Way Surgery	Dartford and Greenhithe	22%
	G82048	Horsman's Place Surgery	Dartford Central	12%
Northfleet North	Y02826	White Horse Surgery	White Horse	30%
	G82044	The Gateway Medical Practice	White Horse	17%
	G82780	Gravesend Medical Centre	Gravesend Central	10%
Northfleet South	Y02826	White Horse Surgery	White Horse	23%
	G82021	The Shrubbery	White Horse	22%
	G82032	Pelham Medical Practice	Gravesend Central	14%
	G82044	The Gateway Medical Practice	White Horse	10%
Painters Ash	G82021	The Shrubbery	White Horse	22%
	G82044	The Gateway Medical Practice	White Horse	21%
	Y02826	White Horse Surgery	White Horse	14%
	G82096	The Forge Surgery	White Horse	11%
Pelham	G82780	Gravesend Medical Centre	Gravesend Central	30%
	G82032	Pelham Medical Practice	Gravesend Central	27%
	Y02826	White Horse Surgery	White Horse	10%
Princes	G82048	Horsman's Place Surgery	Dartford Central	30%
	G82143	Lowfield Medical Centre	Dartford Central	29%
Riverside	G82780	Gravesend Medical Centre	Gravesend Central	35%
	G82032	Pelham Medical Practice	Gravesend Central	11%
	G82648	Rochester Rd Gravesend	Gravesend Central	10%
	G82690	Chalk Surgery	Gravesend Central	10%
Riverview	G82021	The Shrubbery	White Horse	65%
Shorne, Cobham and Luddesdown	G82809	Downs Way Medical Practice	Gravesend Rural	38%
	G82073	Meopham Medical Centre	Gravesend Rural	28%
	G82021	The Shrubbery	White Horse	16%
Singlewell	G82808	Oakfields Health Centre	Gravesend Central	29%
	G82067	Old Road West	Gravesend Central	22%
	G82021	The Shrubbery	White Horse	16%

Table 3

Ward	GP		Hub	% of ward population
Stone	G82221	Elmdene Surgery	Dartford and Greenhithe	31%
	G82006	Dartford East Health Centre	Dartford and Greenhithe	28%
	G82212	Pilgrims Way Surgery	Dartford and Greenhithe	15%
Sutton-at-Hone and Hawley	G82088	Devon Road Surgery	Swanley	69%
Swanley Christchurch and Swanley Village	G82225	The Oaks	Swanley	49%
	G82028	The Cedars Surgery	Swanley	42%
Swanley St Mary's	G82225	The Oaks	Swanley	50%
	G82028	The Cedars Surgery	Swanley	45%
Swanley White Oak	G82225	The Oaks	Swanley	47%
	G82028	The Cedars Surgery	Swanley	43%
Swanscombe	G82122	Swanscombe Health	Dartford and Greenhithe	82%
Town	G82048	Horsman's Place Surgery	Dartford Central	24%
	G82185	Redwood Practice	Dartford Central	22%
	G82143	Lowfield Medical Centre	Dartford Central	11%
	G82639	Maple Practice	Dartford Central	10%
	G82056	The Orchard Practice	Dartford Central	10%
West Hill	G82185	Redwood Practice	Dartford Central	34%
	G82056	The Orchard Practice	Dartford Central	27%
	G82639	Maple Practice	Dartford Central	13%
Westcourt	G82032	Pelham Medical Practice	Gravesend Central	34%
	G82021	The Shrubbery	White Horse	21%
	G82808	Oakfields Health Centre	Gravesend Central	11%
Whitehill	G82122	Swanscombe Health	Dartford and Greenhithe	19%
	G82067	Old Road West	Gravesend Central	19%
	G82808	Oakfields Health Centre	Gravesend Central	16%
	G82021	The Shrubbery	White Horse	11%
	G82032	Pelham Medical Practice	Gravesend Central	10%
Wilmington	G82048	Horsman's Place Surgery	Dartford Central	17%
	G82143	Lowfield Medical Centre	Dartford Central	15%
	G82056	The Orchard Practice	Dartford Central	12%
	G82809	Downs Way Medical Practice	Gravesend Rural	11%
Woodlands	G82067	Old Road West	Gravesend Central	24%
	G82808	Oakfields Health Centre	Gravesend Central	22%
	G82032	Pelham Medical Practice	Gravesend Central	12%
	G82021	The Shrubbery	White Horse	11%

Table 4: Swale CCG

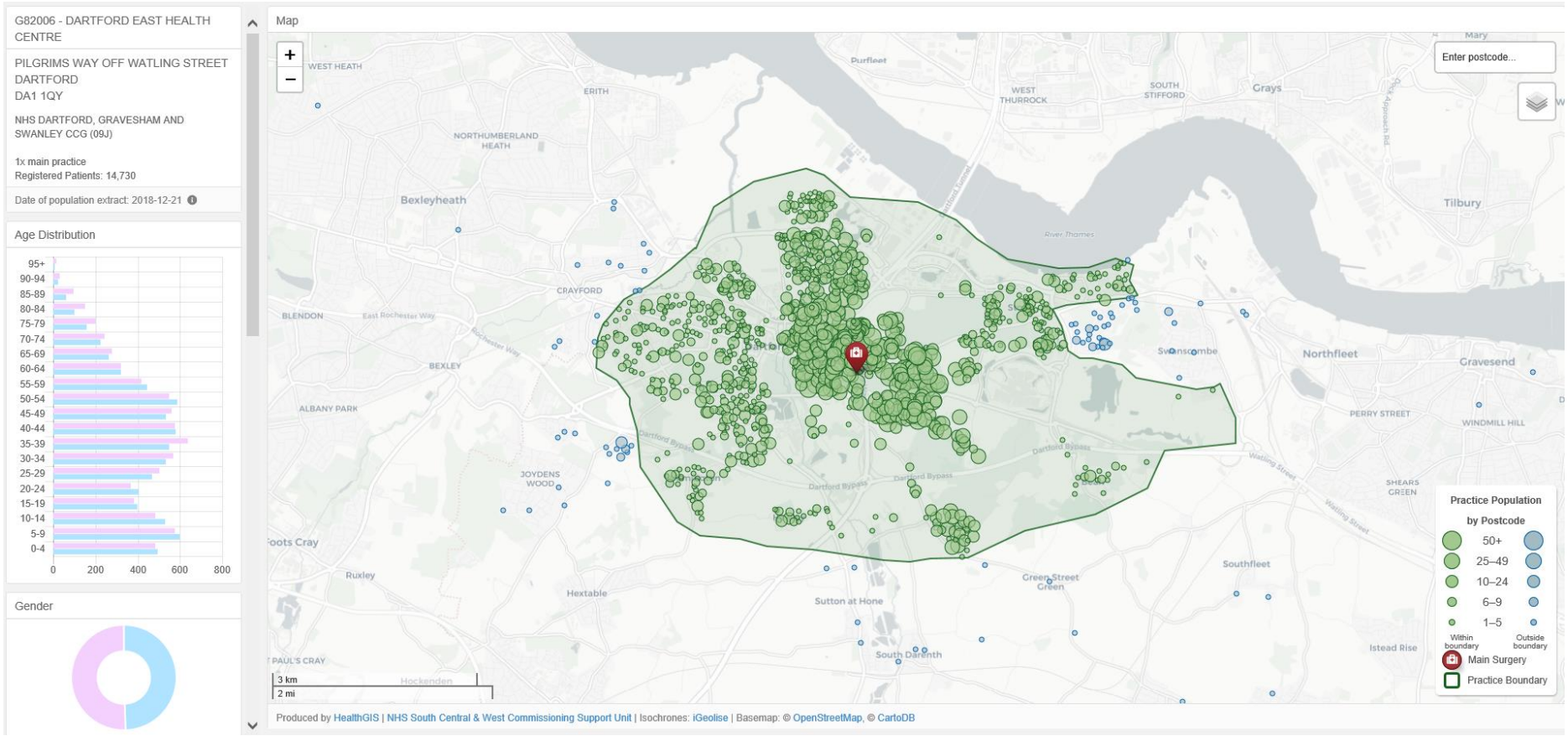
Ward	GP		Hub	% of ward population
Borden	G82693	Memorial Medical Centre	Sittingbourne East	36%
	G82231	The Medical Centre	Sittingbourne East	18%
	G82634	**The Meads Medical Practice**	**Sittingbourne West**	**15%**
	G82035	The Chestnuts Surgery	Sittingbourne East	12%
Chalkwell	G82231	The Medical Centre	Sittingbourne East	23%
	G82693	Memorial Medical Centre	Sittingbourne East	23%
	G82634	**The Meads Medical Practice**	**Sittingbourne West**	**17%**
	G82035	The Chestnuts Surgery	Sittingbourne East	13%
Grove	**G82634**	**The Meads Medical Practice**	**Sittingbourne West**	**34%**
	G82231	The Medical Centre	Sittingbourne East	14%
	G82693	Memorial Medical Centre	Sittingbourne East	12%
	G82035	The Chestnuts Surgery	Sittingbourne East	10%
Hartlip, Newington and Upchurch	*G82180*	*Maidstone Road Surgery*	*Out of area*	*17%*
	G82014	*Dr Nand Rishi*	*Out of area*	*12%*
	G82757	**Lakeside Medical Centre**	**Sittingbourne West**	**11%**
Iwade and Lower Halstow	**G82671**	**Iwade Health Centre**	**Sittingbourne West**	**46%**
	G82026	**Grovehurst Surgery**	**Sittingbourne West**	**13%**
Kemsley	**G82026**	**Grovehurst Surgery**	**Sittingbourne West**	**29%**
	G82634	**The Meads Medical Practice**	**Sittingbourne West**	**18%**
	G82757	**Lakeside Medical Centre**	**Sittingbourne West**	**17%**
	G82671	**Iwade Health Centre**	**Sittingbourne West**	**10%**
Leysdown and Warden	G82057	St George's Medical Centre	Sheppey	63%
	Y02506	Sheppey NHS Healthcare Centre	Sheppey	16%
Milton Regis	**G82634**	**The Meads Medical Practice**	**Sittingbourne West**	**26%**
	G82702	**Milton Regis Surgery**	**Sittingbourne West**	**17%**
	G82026	**Grovehurst Surgery**	**Sittingbourne West**	**14%**
	G82035	The Chestnuts Surgery	Sittingbourne East	11%
Minster Cliffs	G82686	Minster Medical Centre	Sheppey	25%
	G82057	St George's Medical Centre	Sheppey	18%
	Y02506	Sheppey NHS Healthcare Centre	Sheppey	17%
	G82682	The 'om' Medical Centre	Sheppey	13%
Murston	G82693	Memorial Medical Centre	Sittingbourne East	32%
	G82035	The Chestnuts Surgery	Sittingbourne East	25%
Queenborough and Halfway	G82791	High Street Surg Sheerness	Sheppey	21%
	G82023	Sheerness Health Centre	Sheppey	15%
	G82057	St George's Medical Centre	Sheppey	14%
	G82686	Minster Medical Centre	Sheppey	13%
	Y02506	Sheppey NHS Healthcare Centre	Sheppey	13%
	G82687	Dr Witts Practice	Sheppey	12%
Roman	G82693	Memorial Medical Centre	Sittingbourne East	35%
	G82035	The Chestnuts Surgery	Sittingbourne East	30%

Table 5

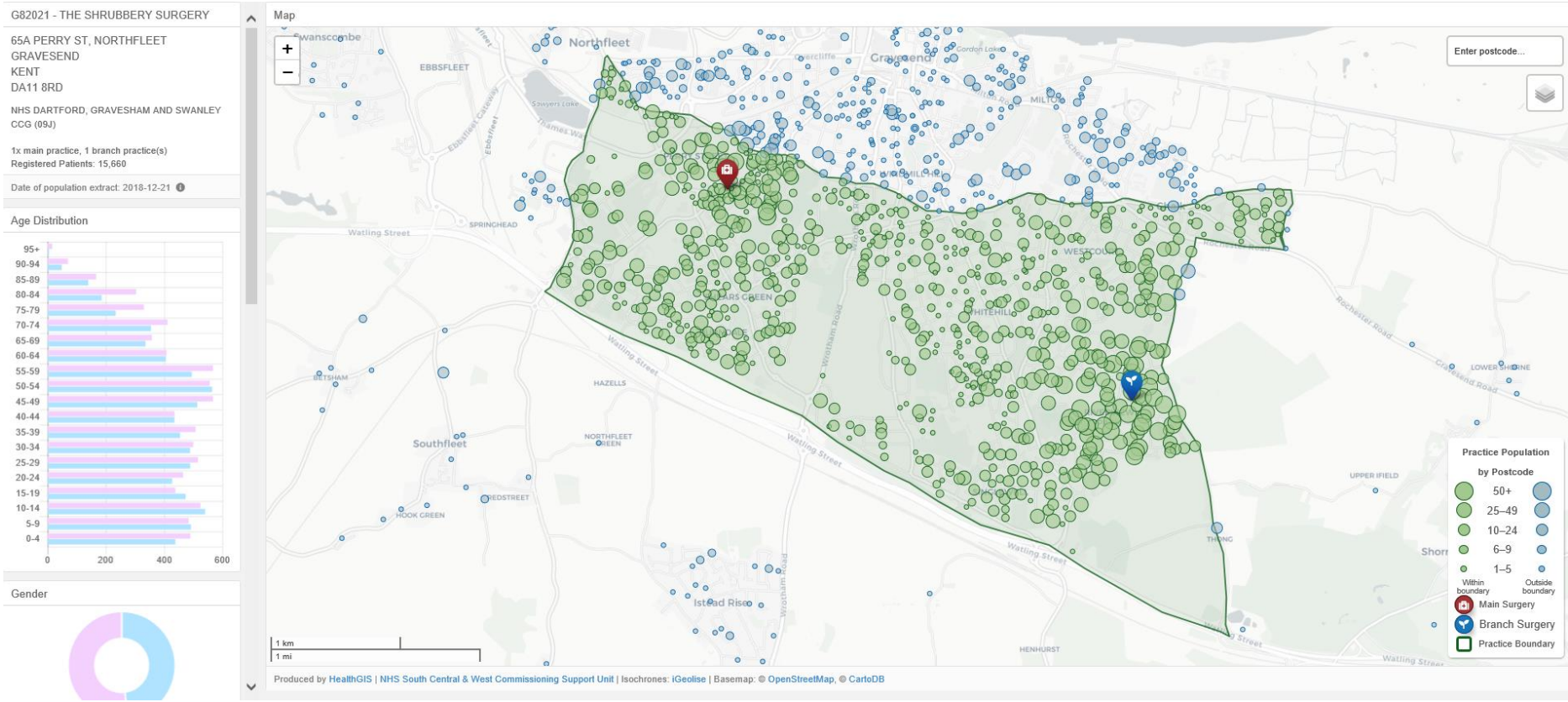
Ward	GP		Hub	% of ward population
Sheerness East	G82057	St George's Medical Centre	Sheppey	22%
	G82687	Dr Witts Practice	Sheppey	15%
	G82023	Sheerness Health Centre	Sheppey	14%
	G82799	Sheppey Healthy Living Centre	Sheppey	14%
	G82682	The 'om' Medical Centre	Sheppey	11%
	G82791	High Street Surg Sheerness	Sheppey	11%
Sheerness West	G82057	St George's Medical Centre	Sheppey	30%
	G82682	The 'om' Medical Centre	Sheppey	14%
	G82023	Sheerness Health Centre	Sheppey	13%
	G82791	High Street Surg Sheerness	Sheppey	12%
	G82687	Dr Witts Practice	Sheppey	11%
Sheppey Central	G82686	Minster Medical Centre	Sheppey	26%
	Y02506	Sheppey NHS Healthcare Centre	Sheppey	25%
	G82057	St George's Medical Centre	Sheppey	18%
St Michaels	G82693	Memorial Medical Centre	Sittingbourne East	46%
	G82035	The Chestnuts Surgery	Sittingbourne East	20%
	G82231	The Medical Centre	Sittingbourne East	13%
Teynham and Lynsted	G82698	The Surgery Teynham	Sittingbourne East	40%
	G82039	*Newton Place Surgery*	*Out of area*	*14%*
	G82027	*Faversham Health Centre*	*Out of area*	*11%*
West Downs	G82693	Memorial Medical Centre	Sittingbourne East	38%
	G82035	The Chestnuts Surgery	Sittingbourne East	17%
	G82231	The Medical Centre	Sittingbourne East	12%
Woodstock	G82693	Memorial Medical Centre	Sittingbourne East	38%
	G82231	The Medical Centre	Sittingbourne East	20%
	G82035	The Chestnuts Surgery	Sittingbourne East	17%

Appendix B – GP catchment maps

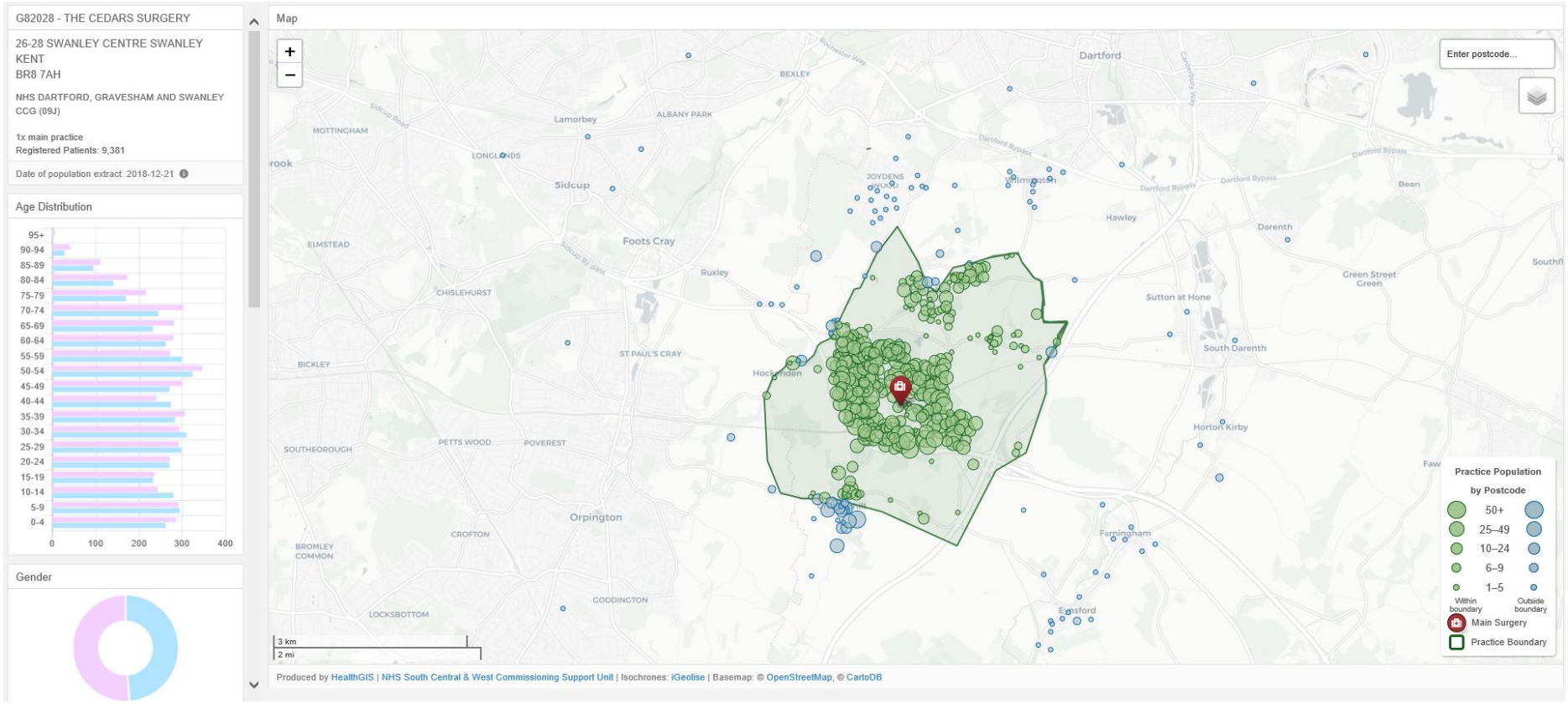
Dartford East Health Centre (G82006)



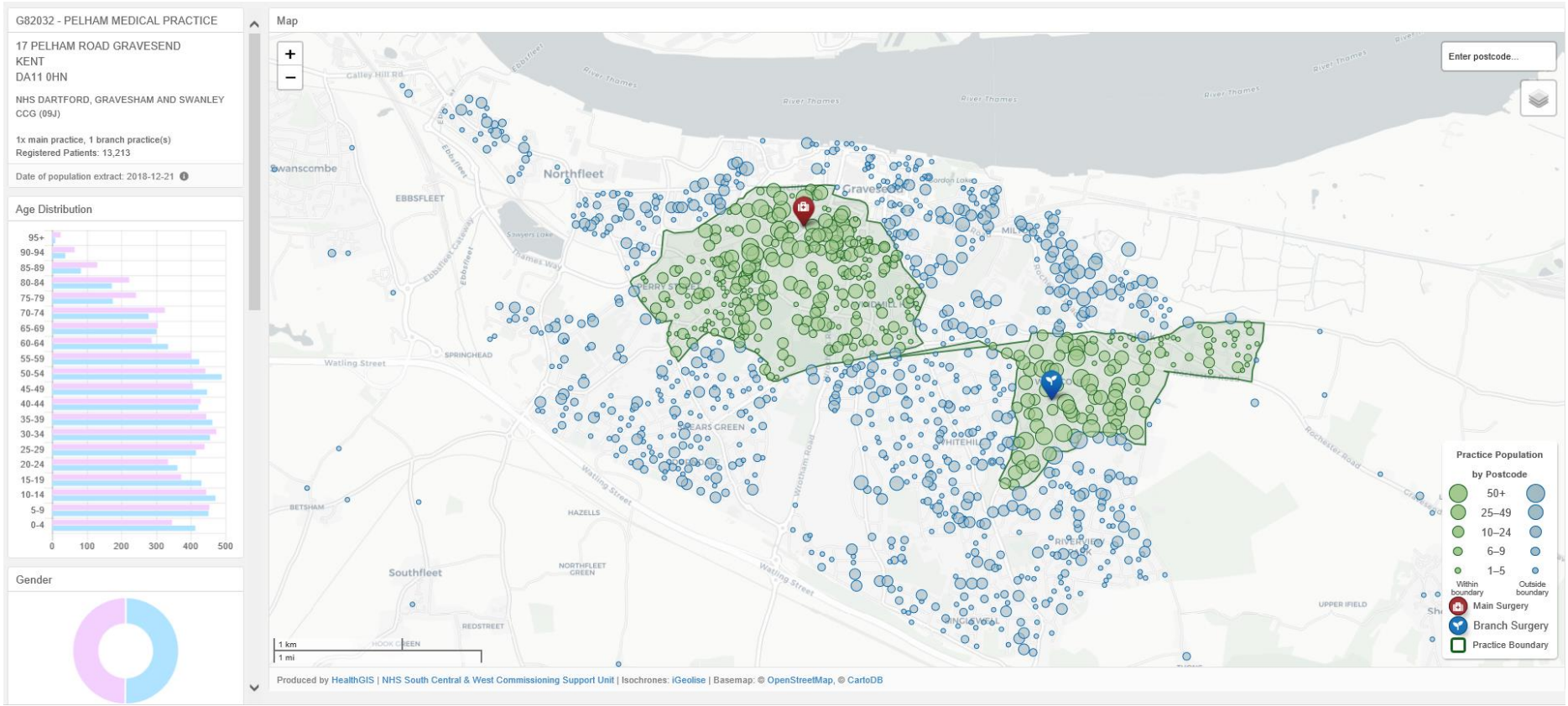
The Shrubbery Surgery (G82021)



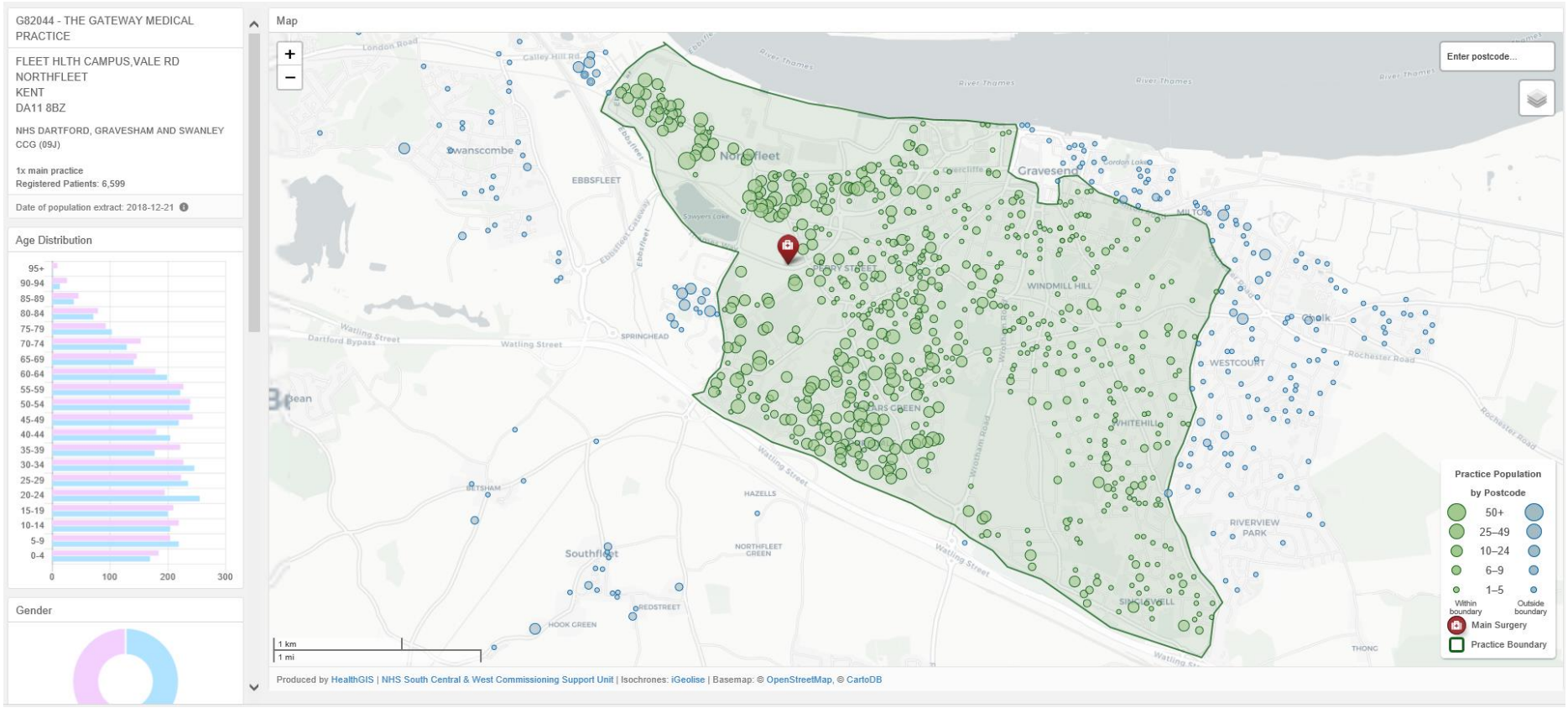
The Cedars Surgery (G82028)



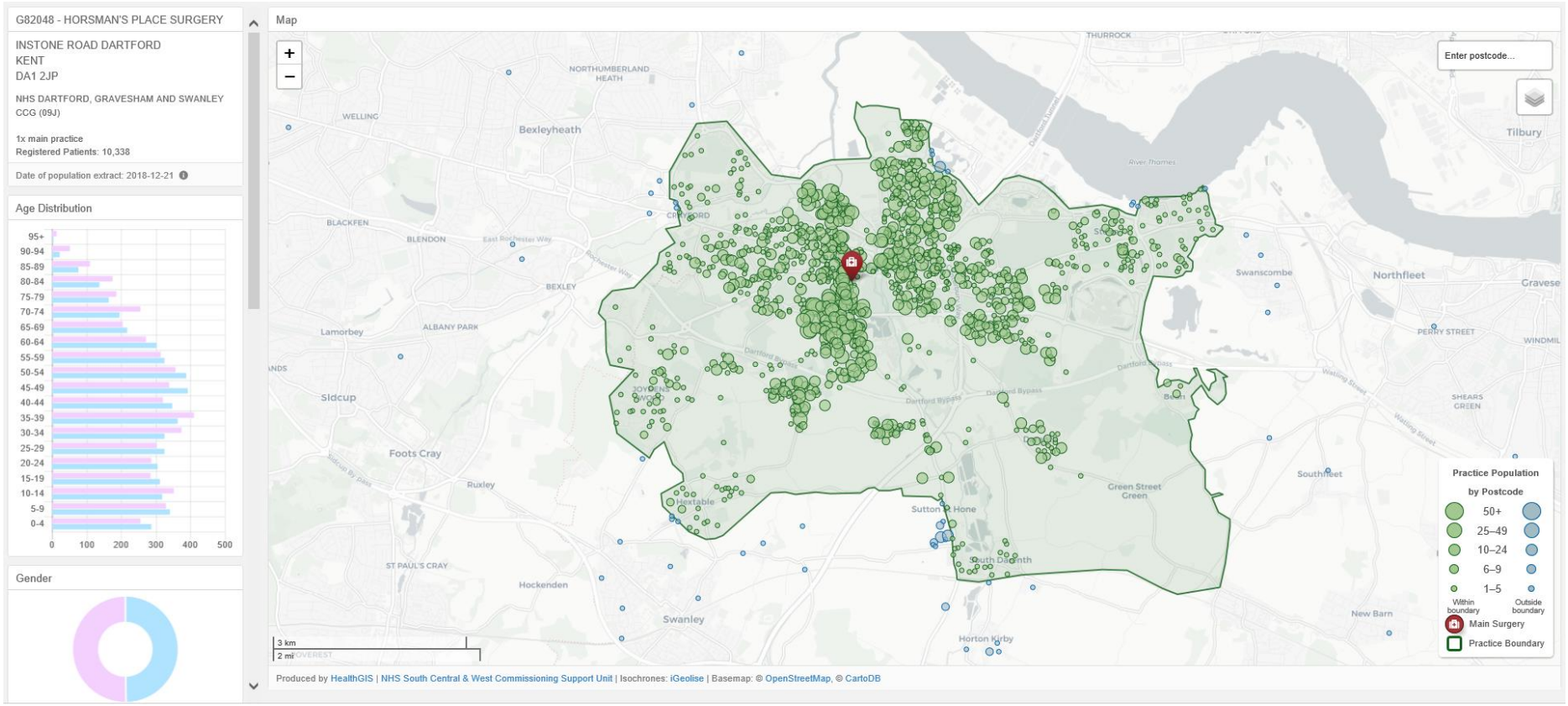
Pelham Medical Practice (G82032)



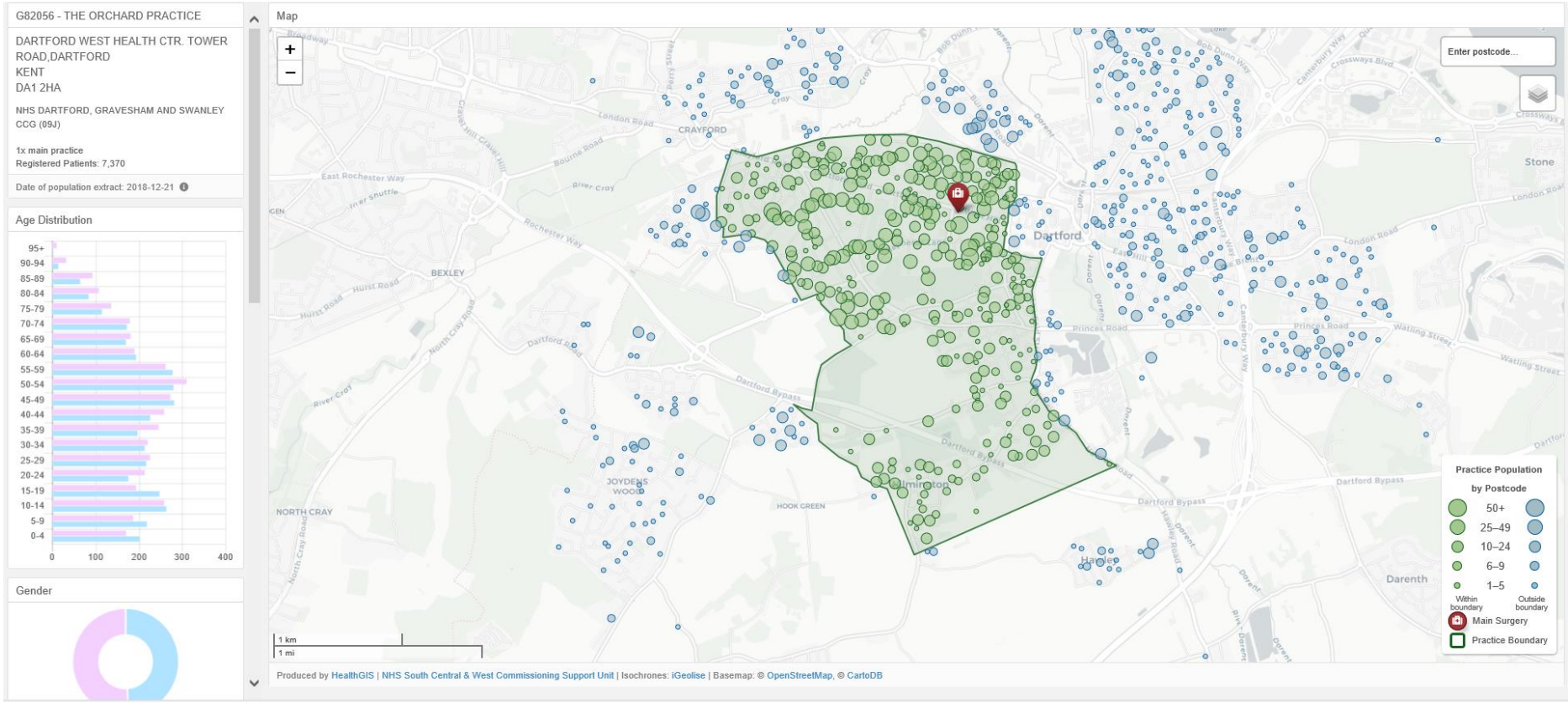
The Gateway Medical Practice (G82044)



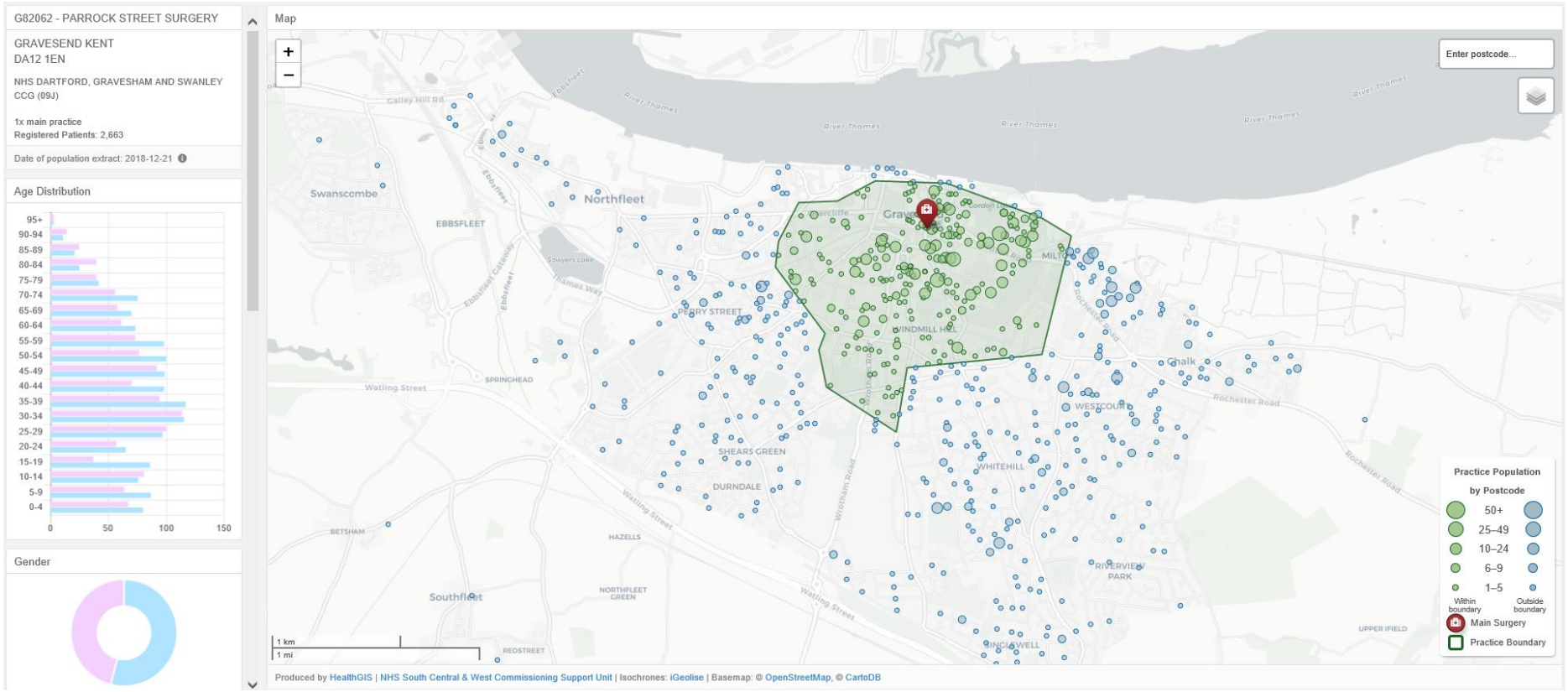
Horsman's Place Surgery (G82048)



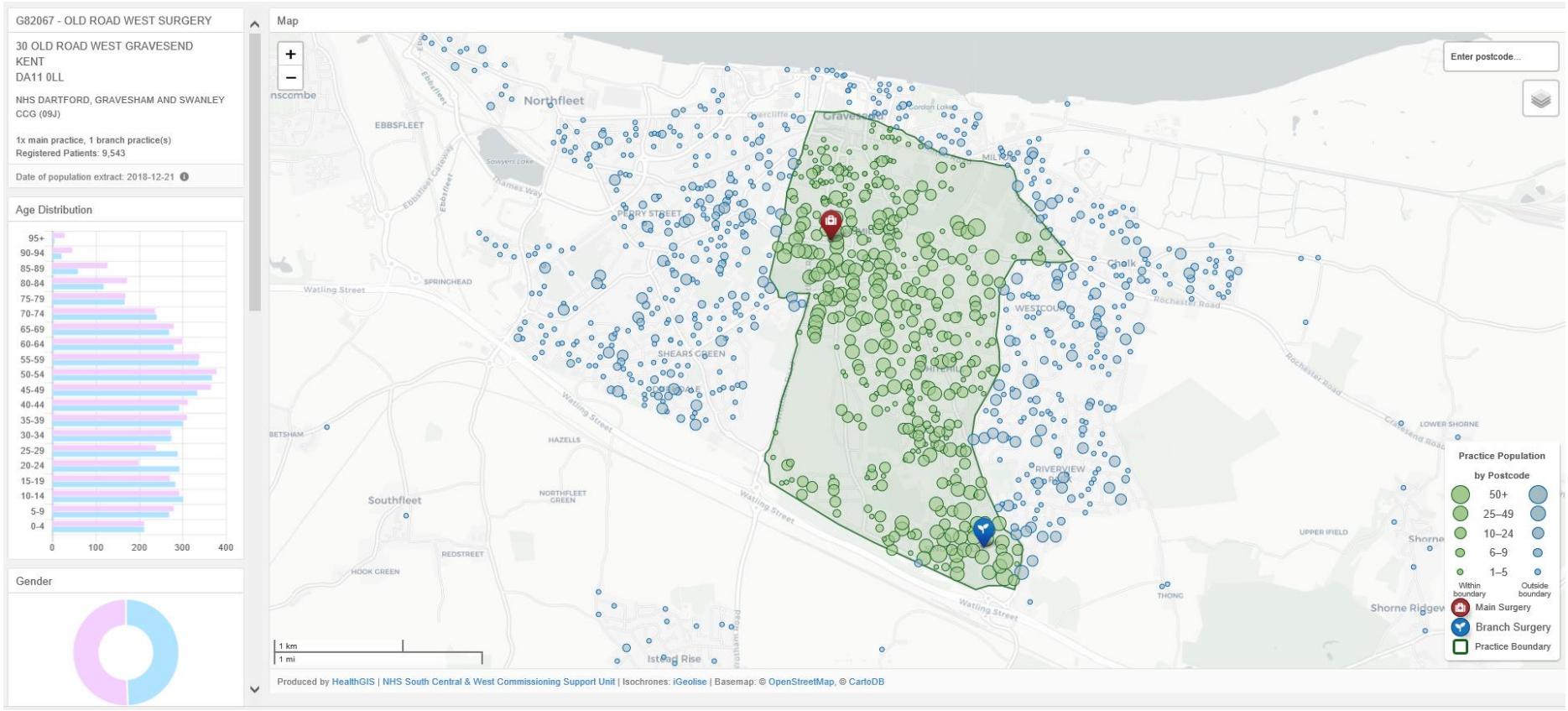
The Orchard Practice (G82056)



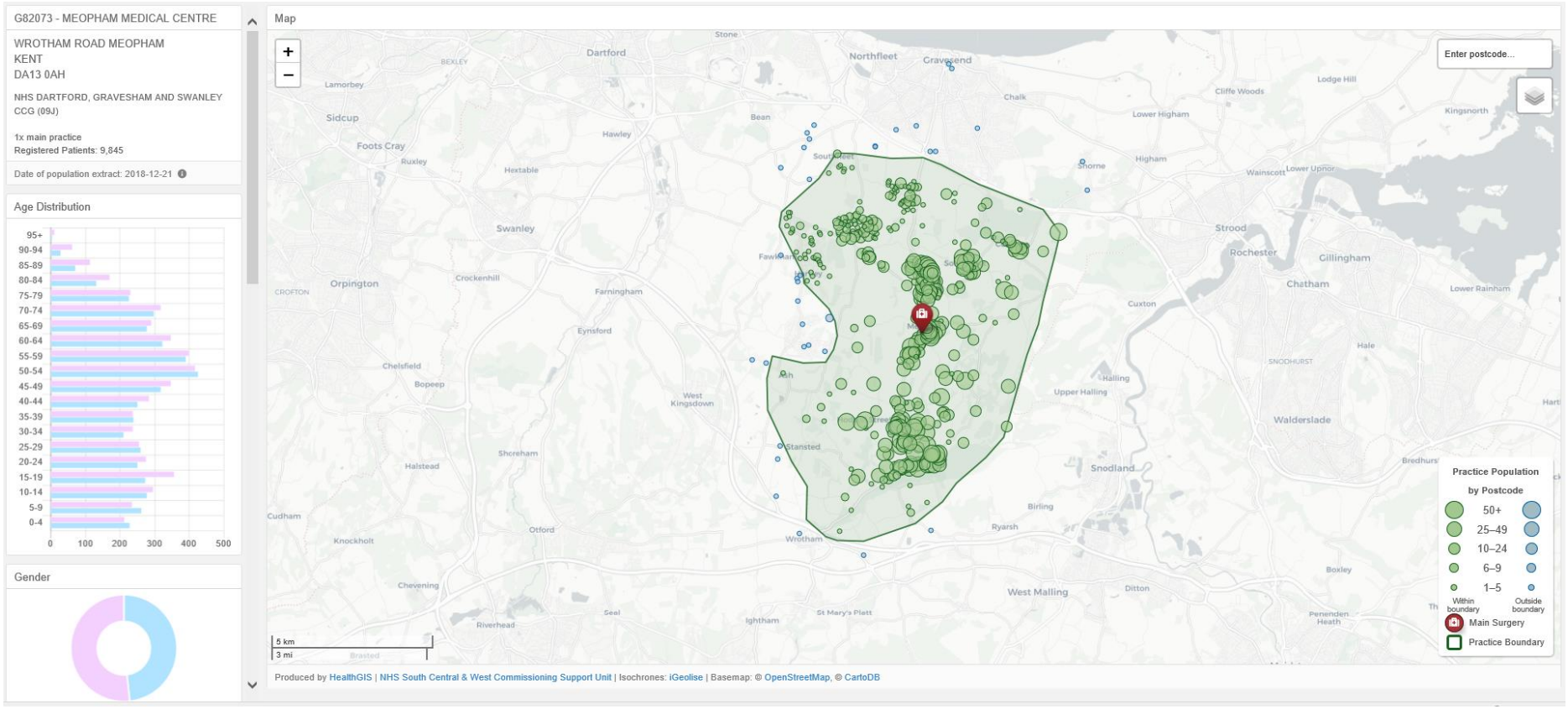
Parrock Street Surgery (G82062)



Old Road West Surgery (G82067)



Meopham Medical Centre (G82073)



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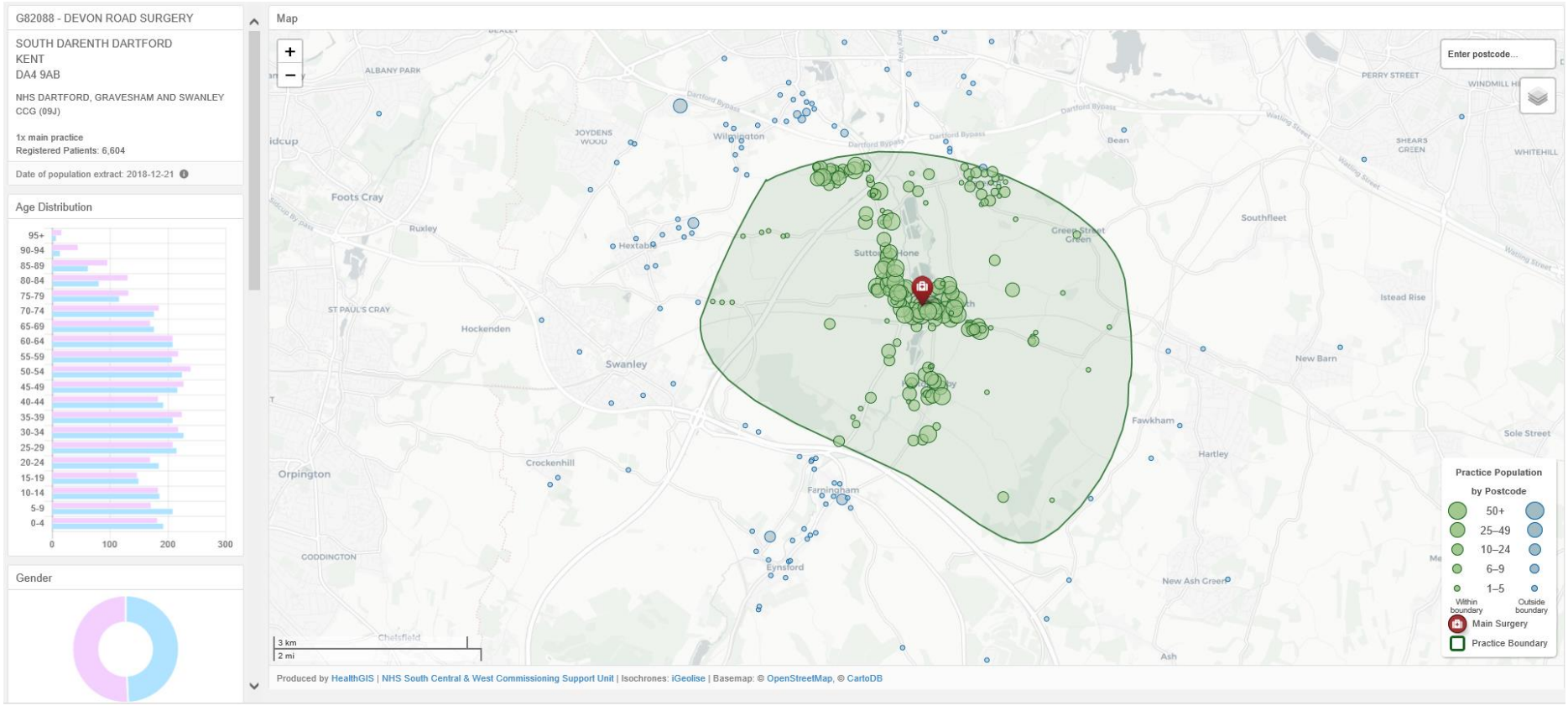

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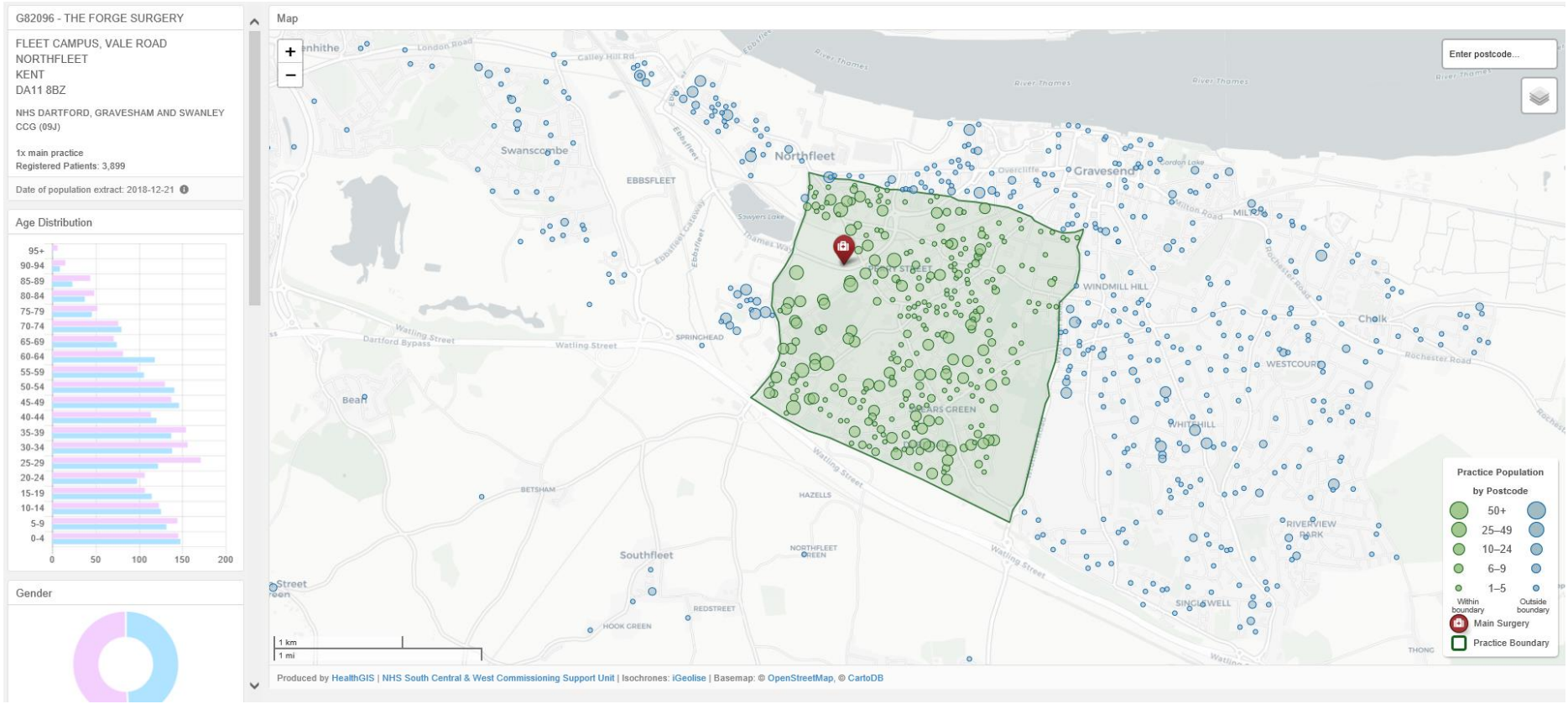

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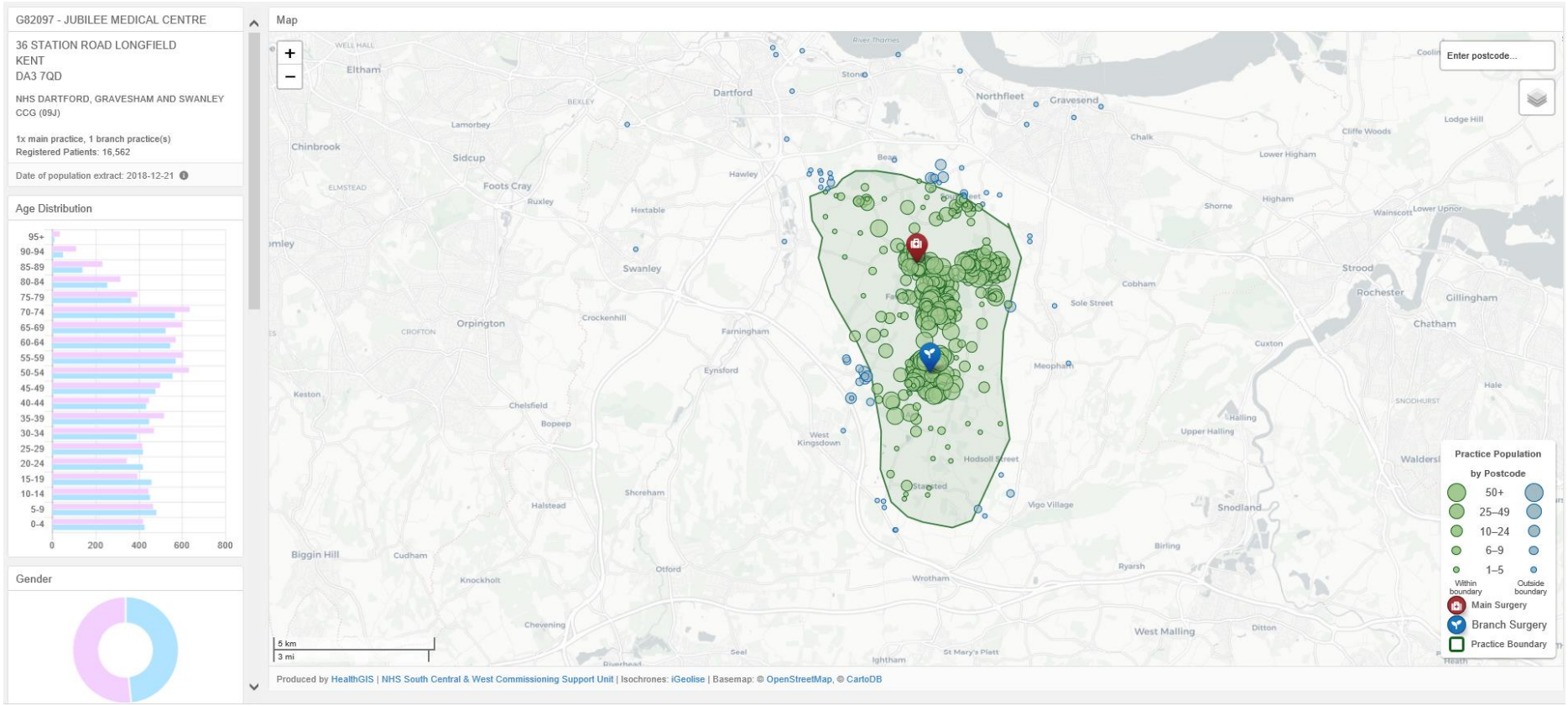

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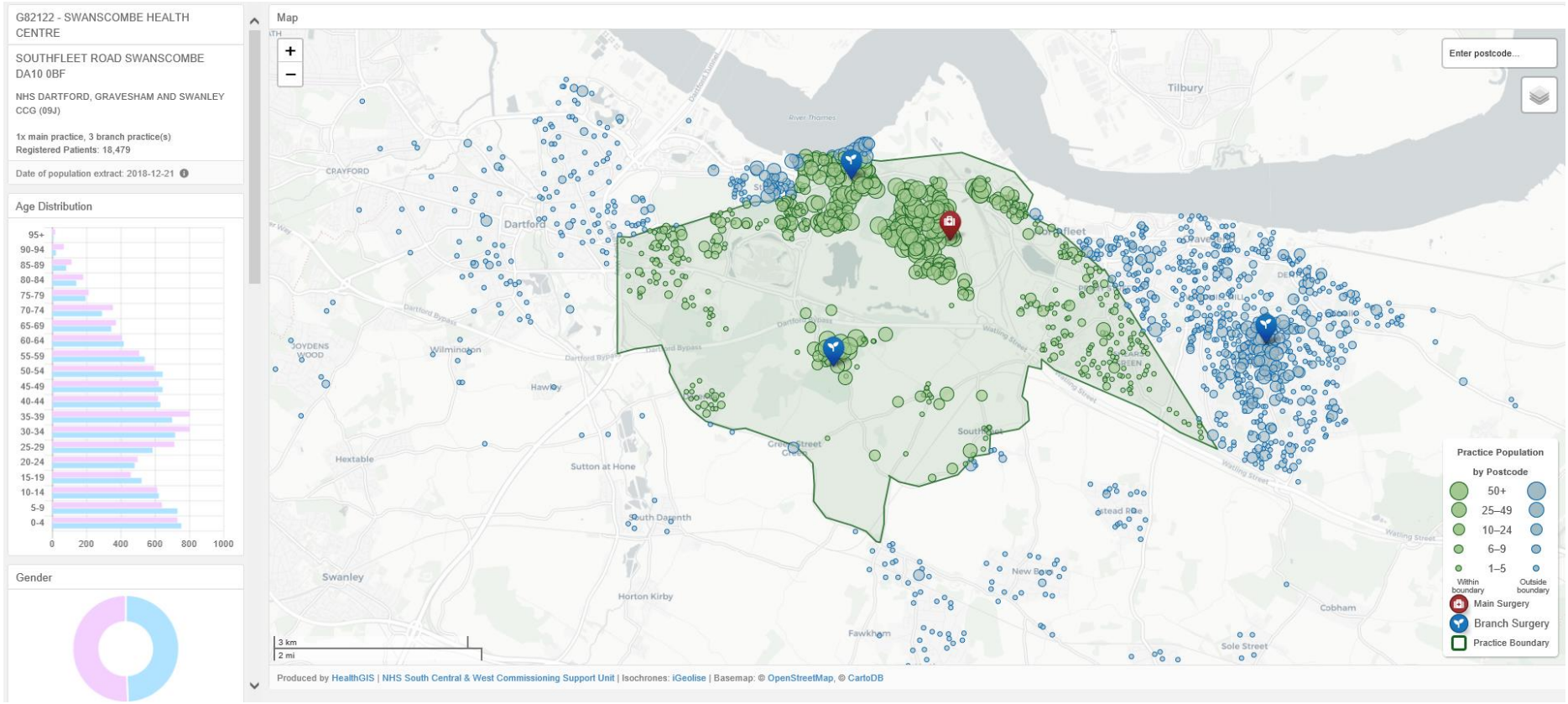

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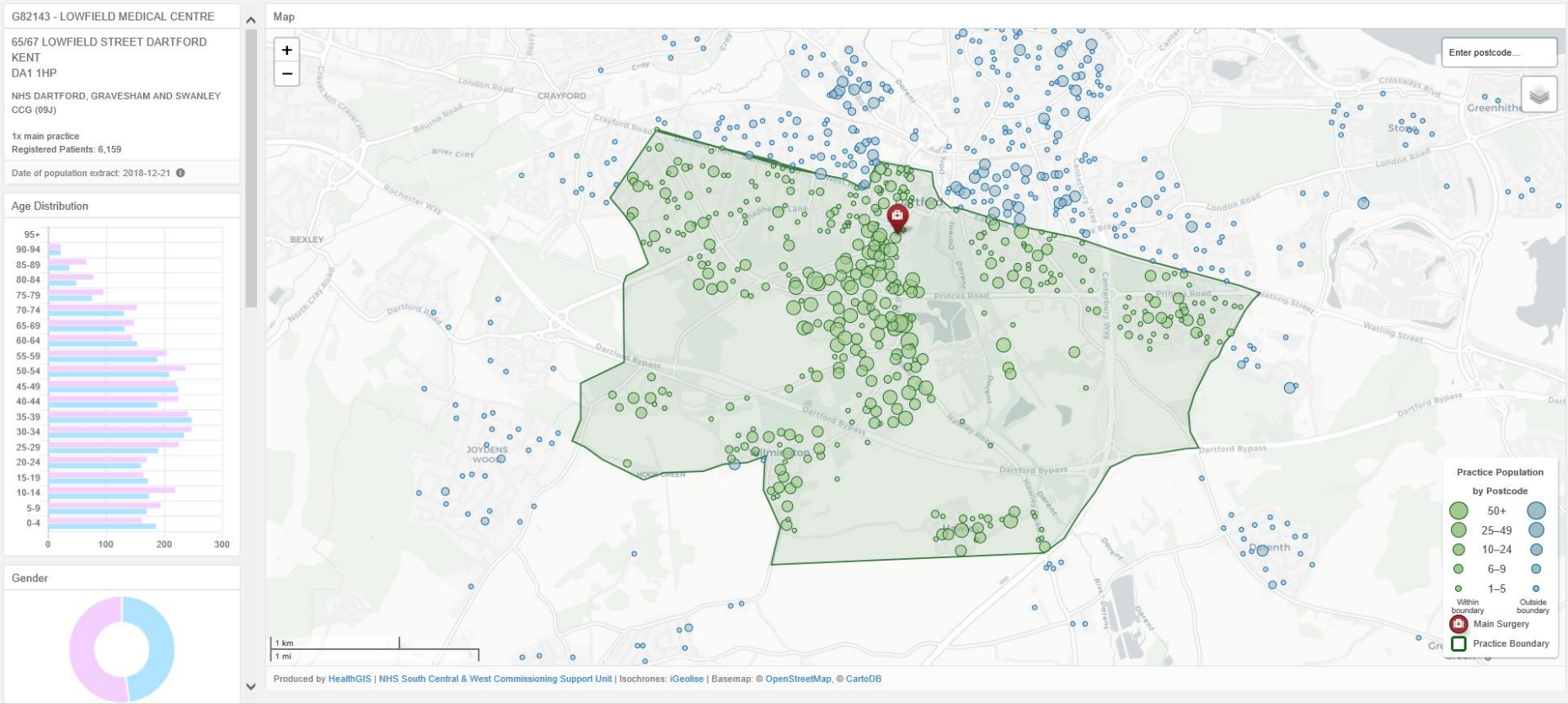

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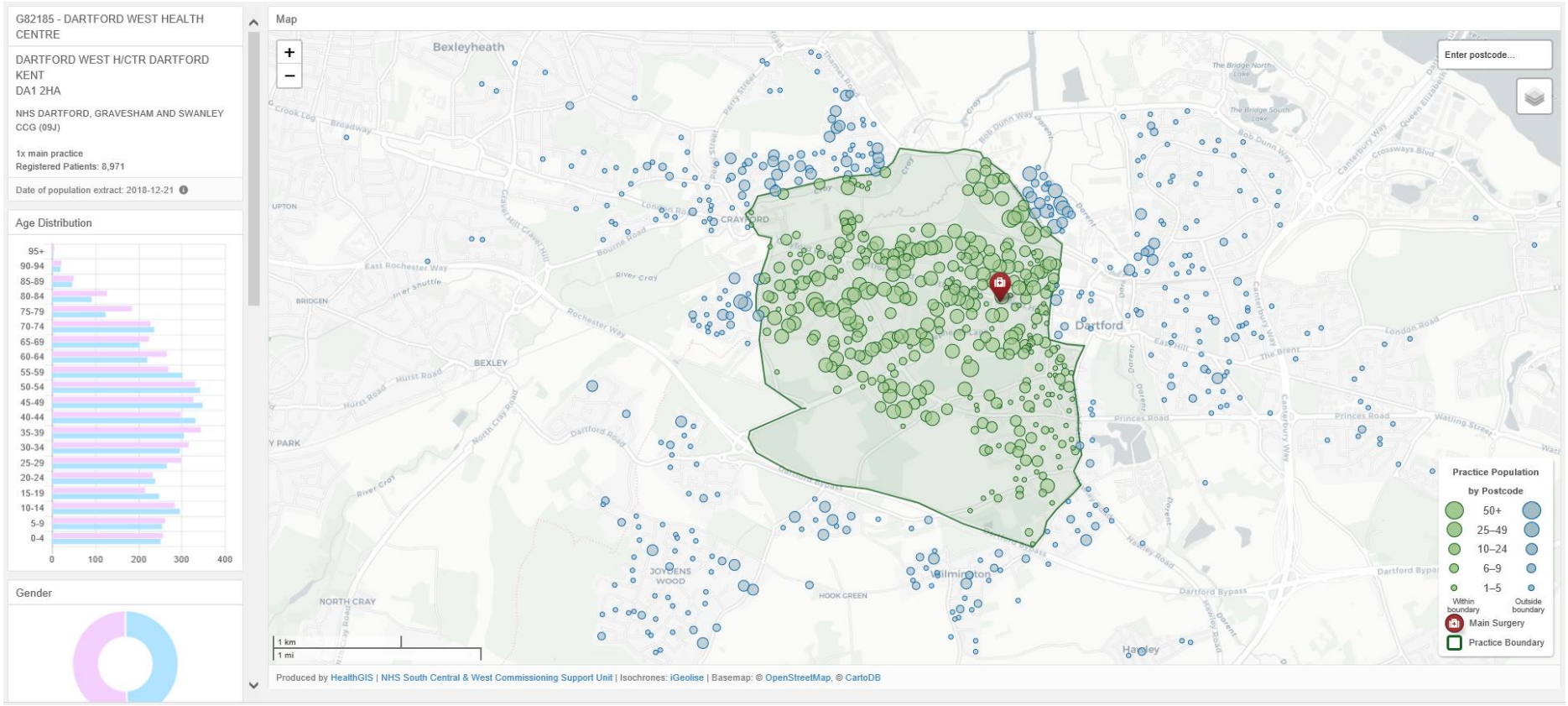

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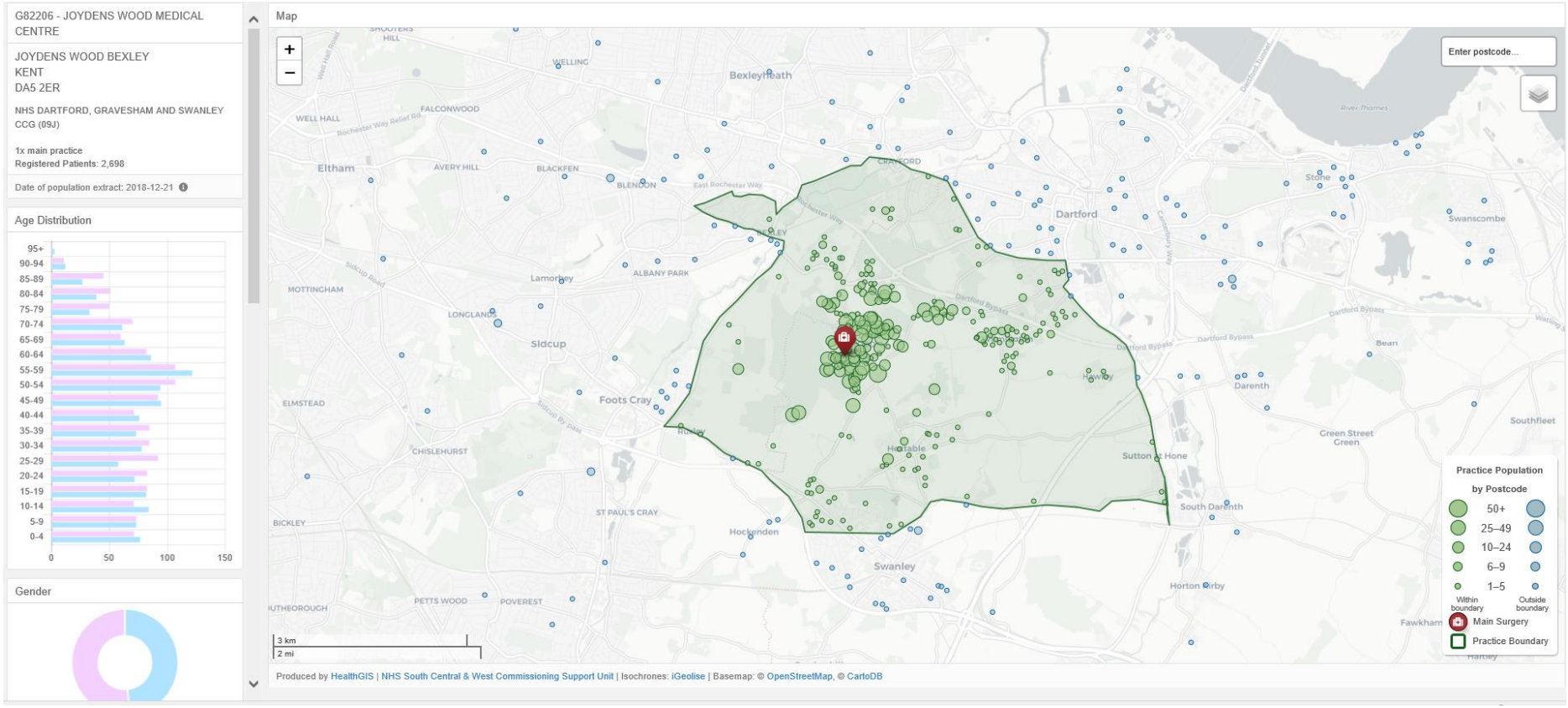

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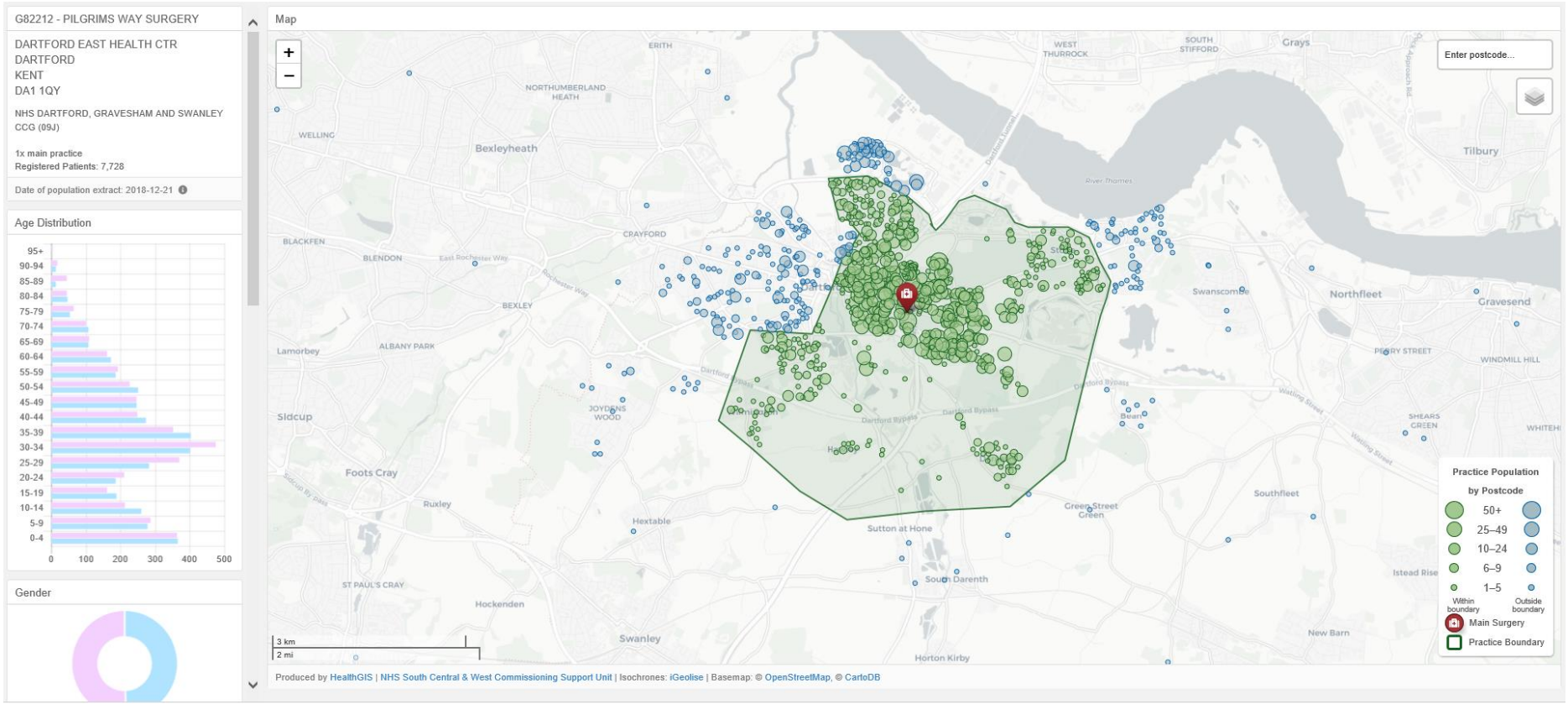

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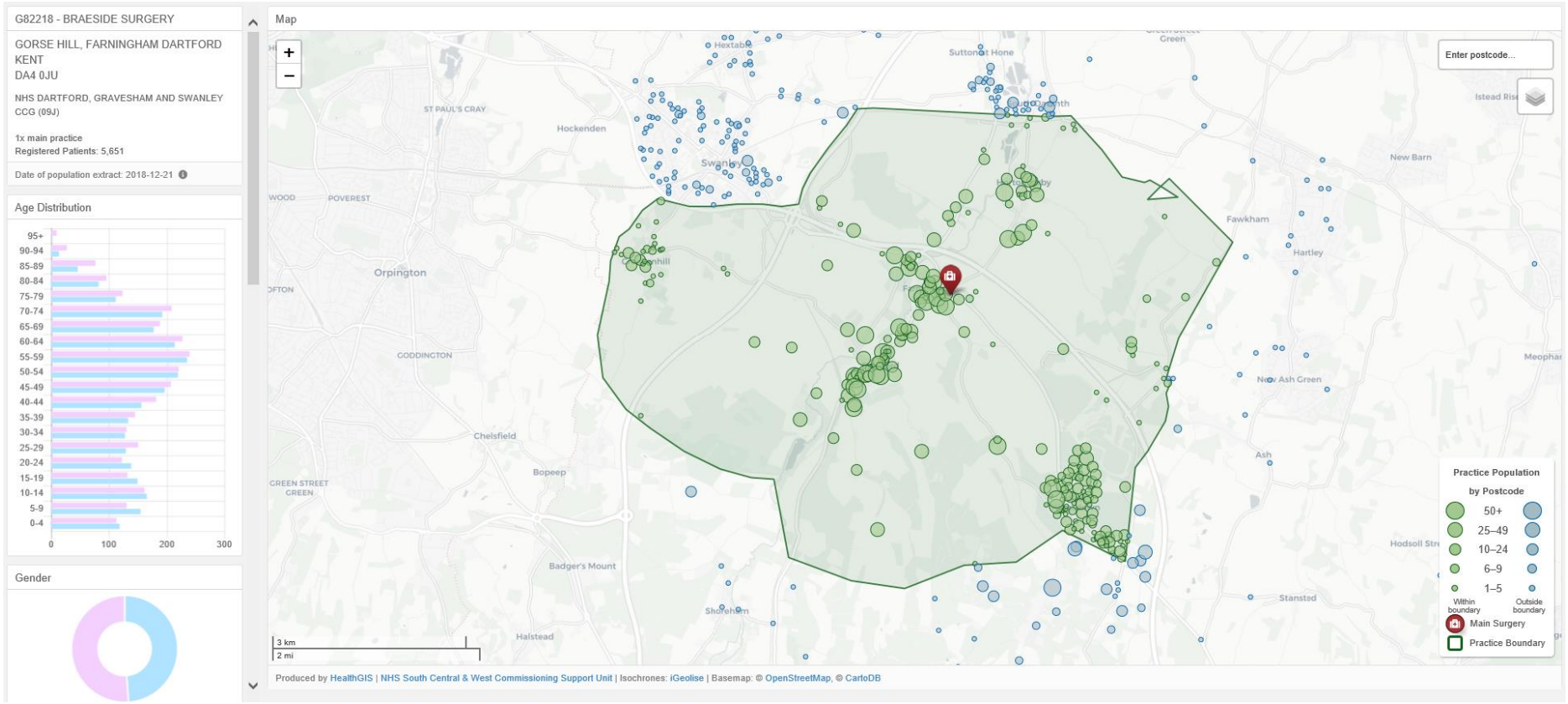

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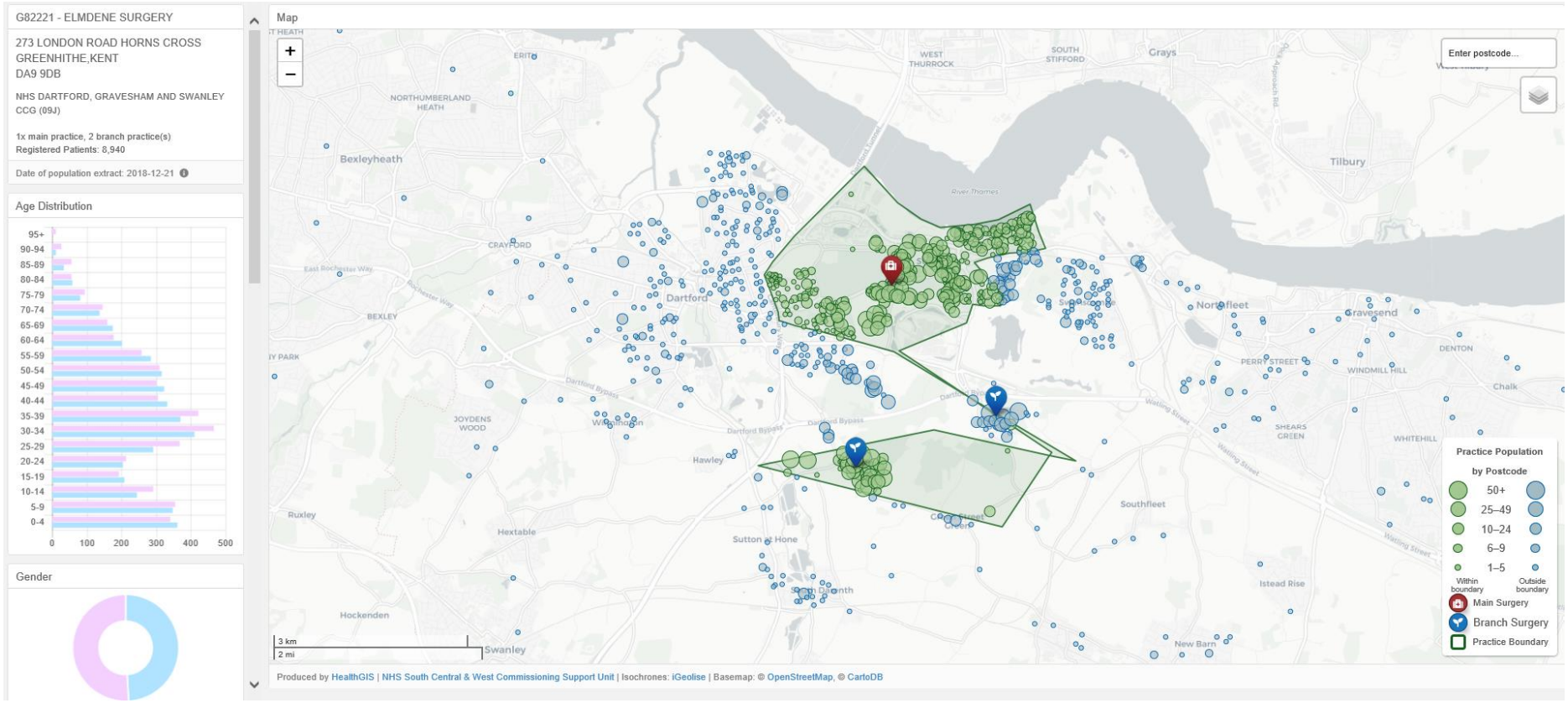

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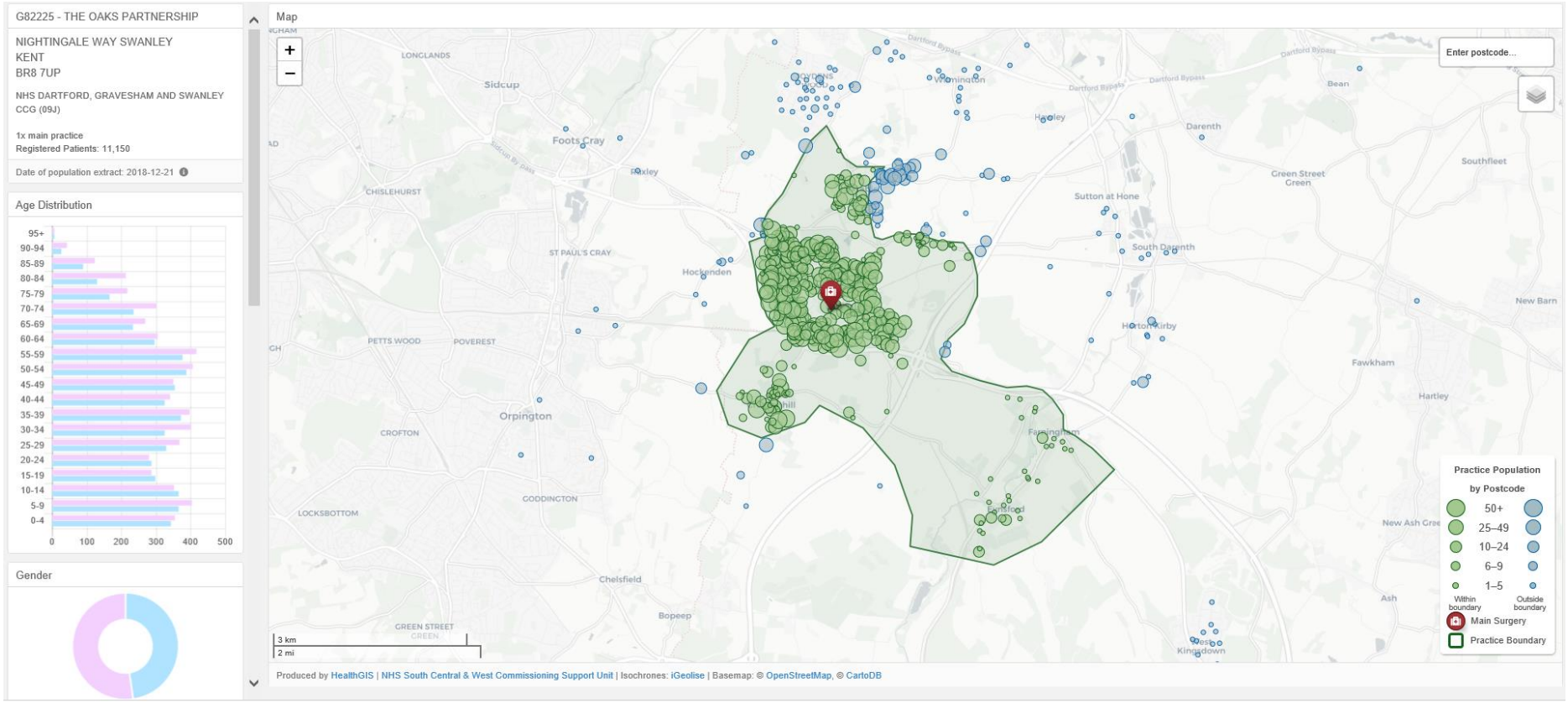

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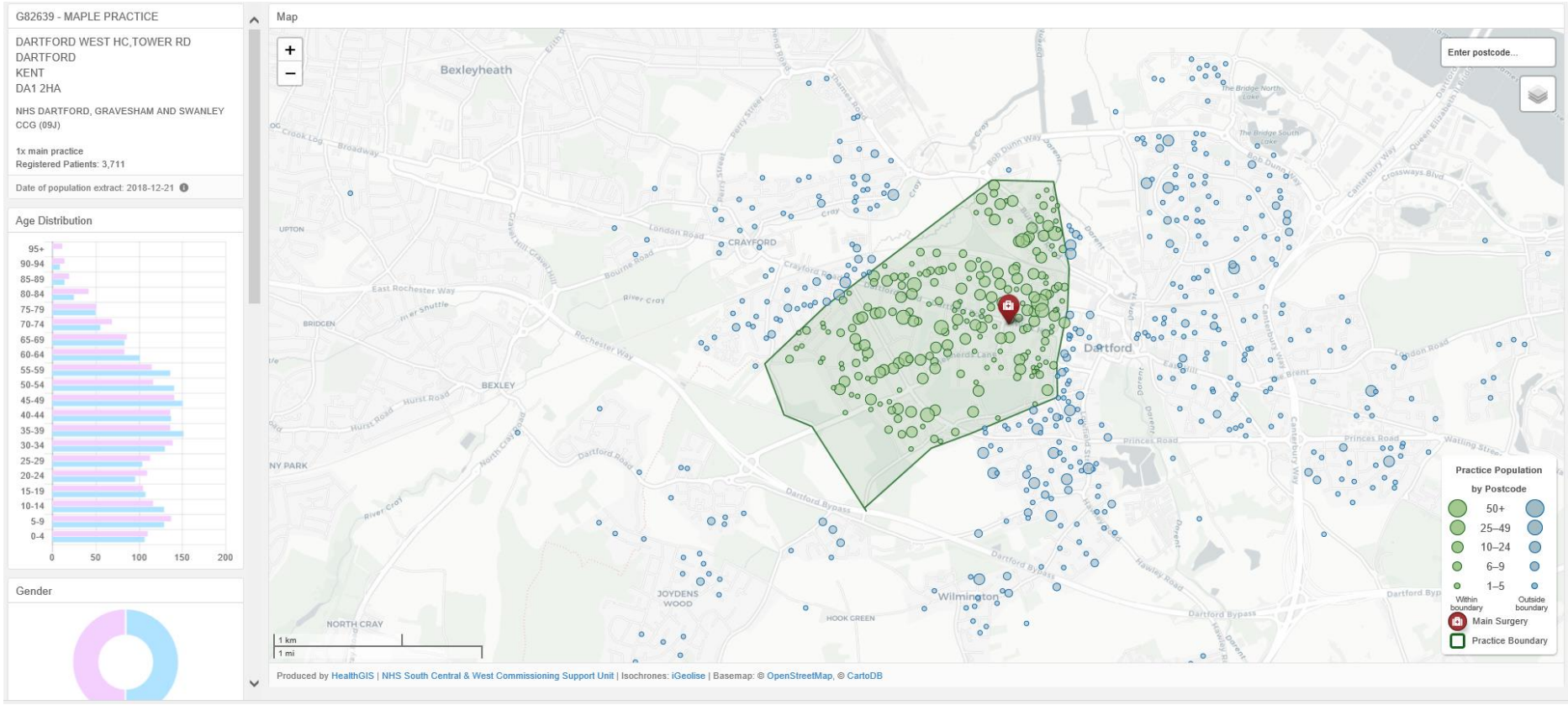

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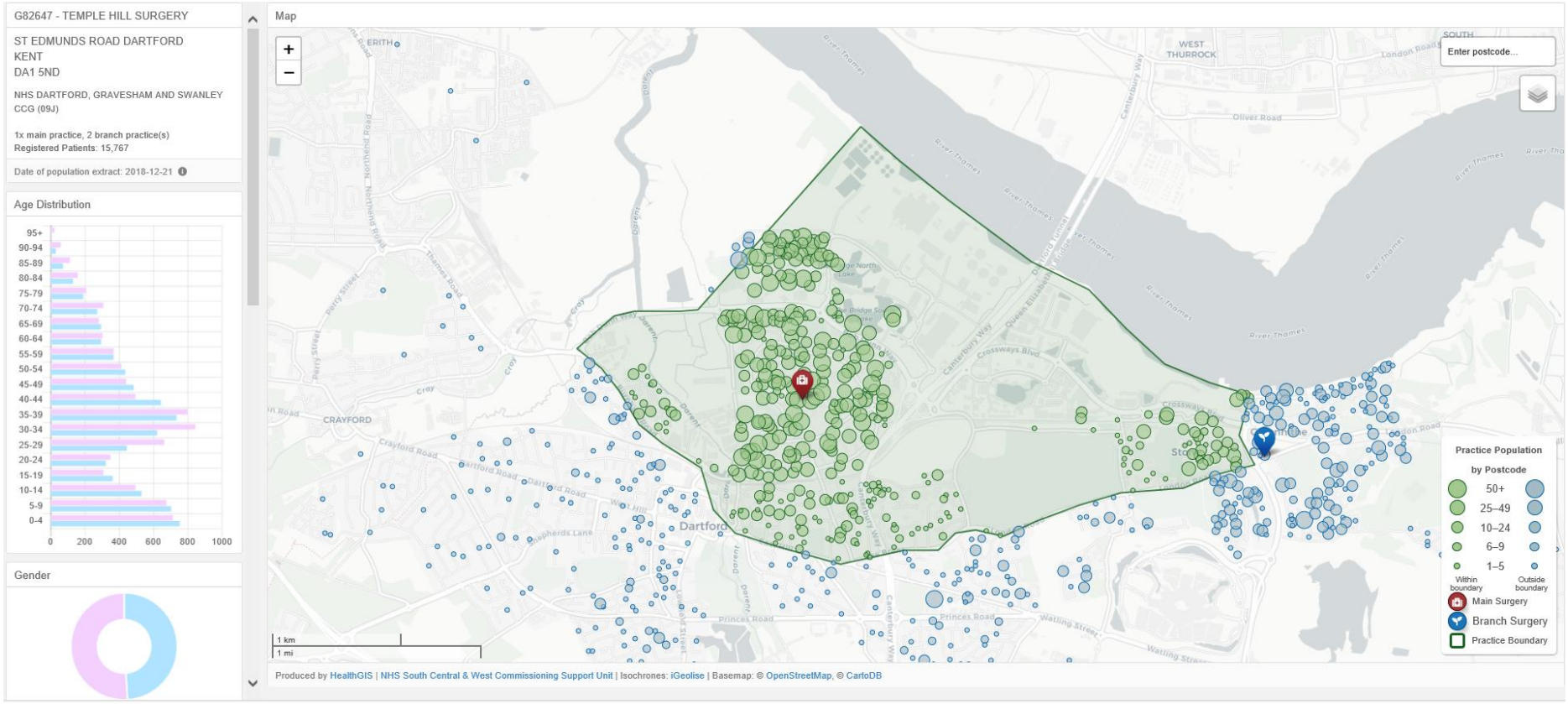

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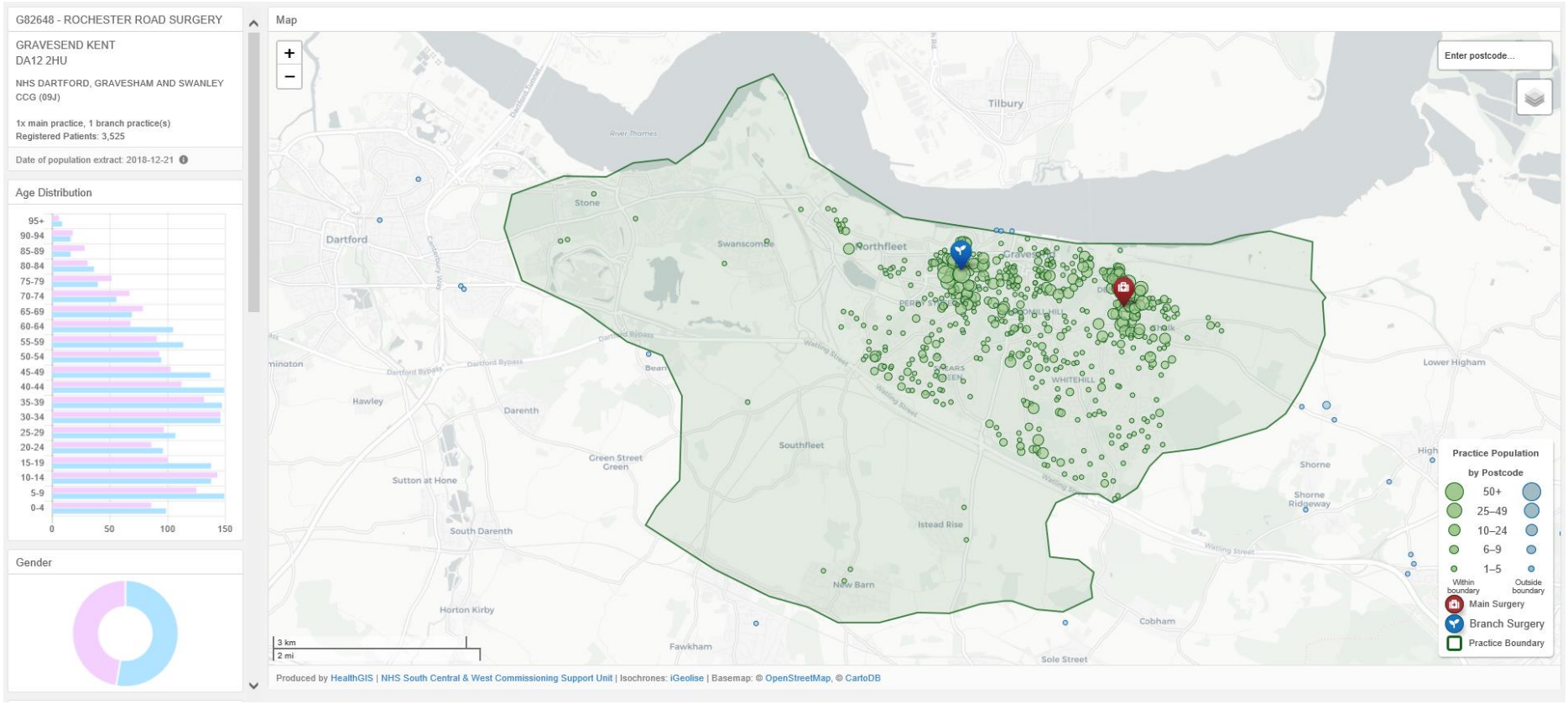

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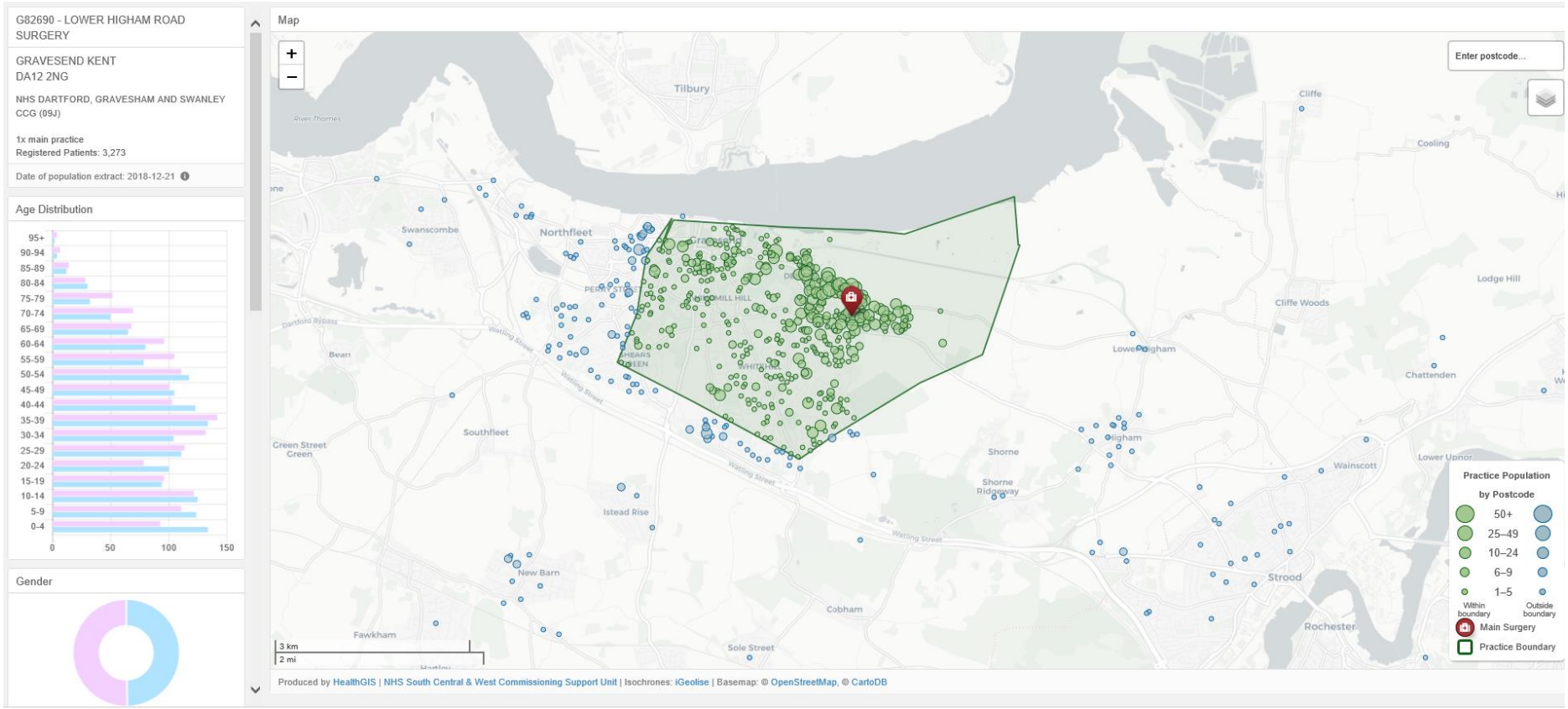

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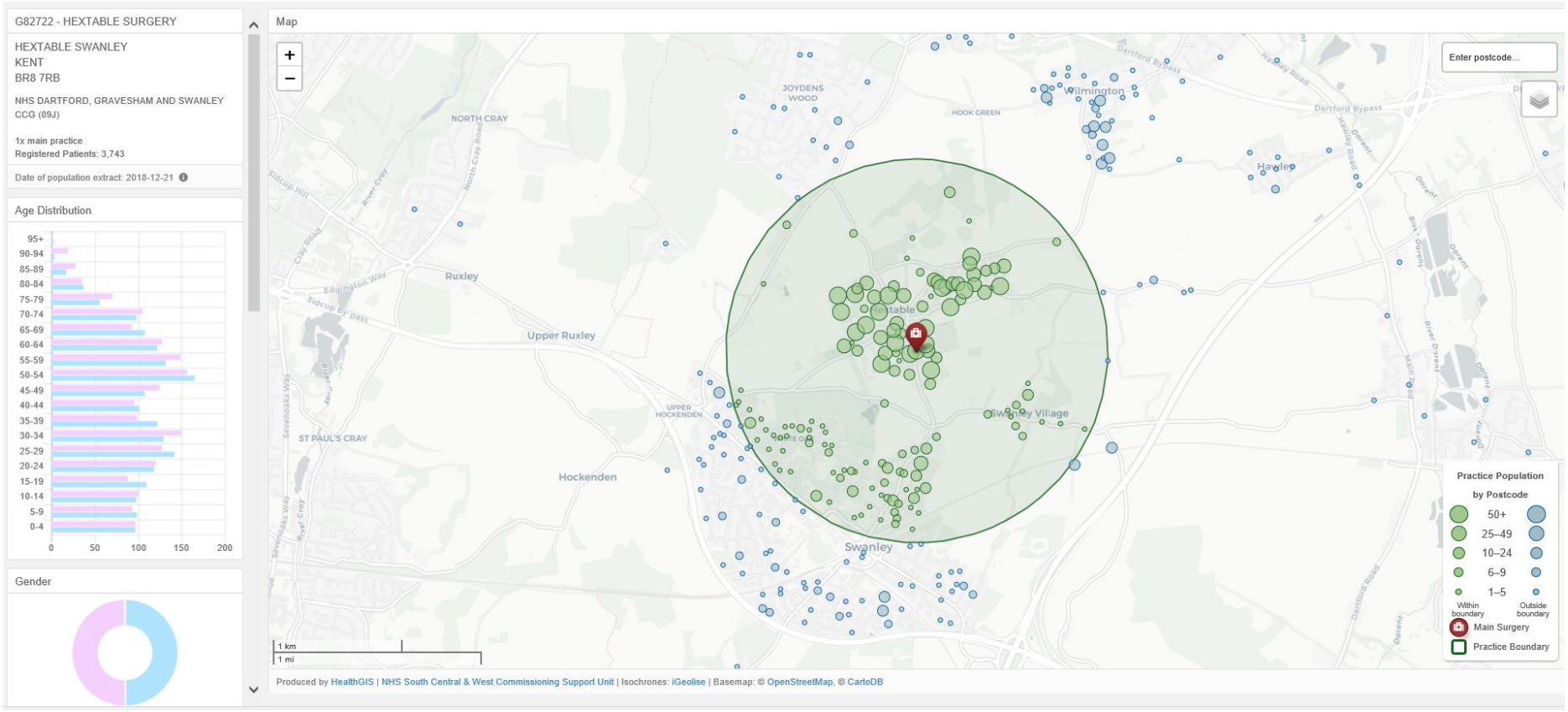

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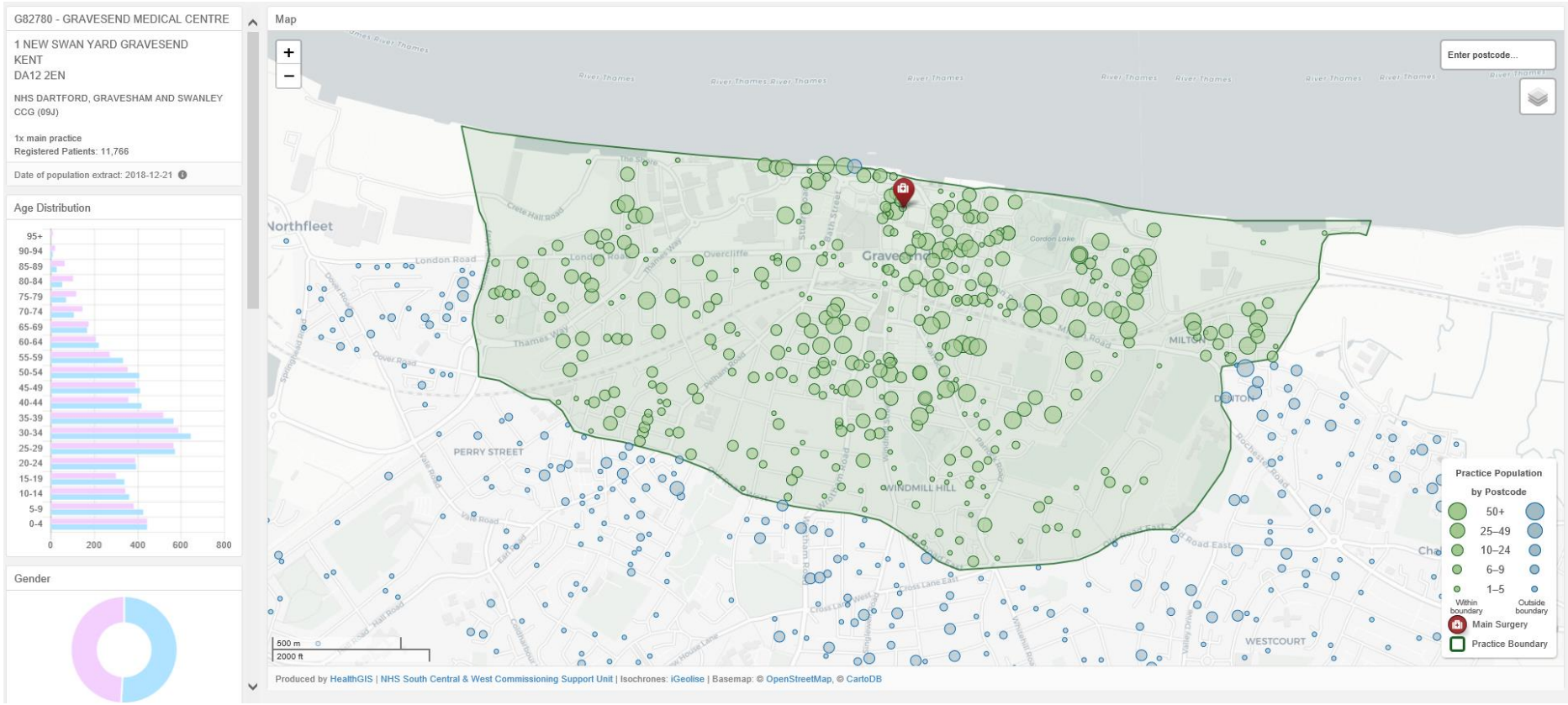

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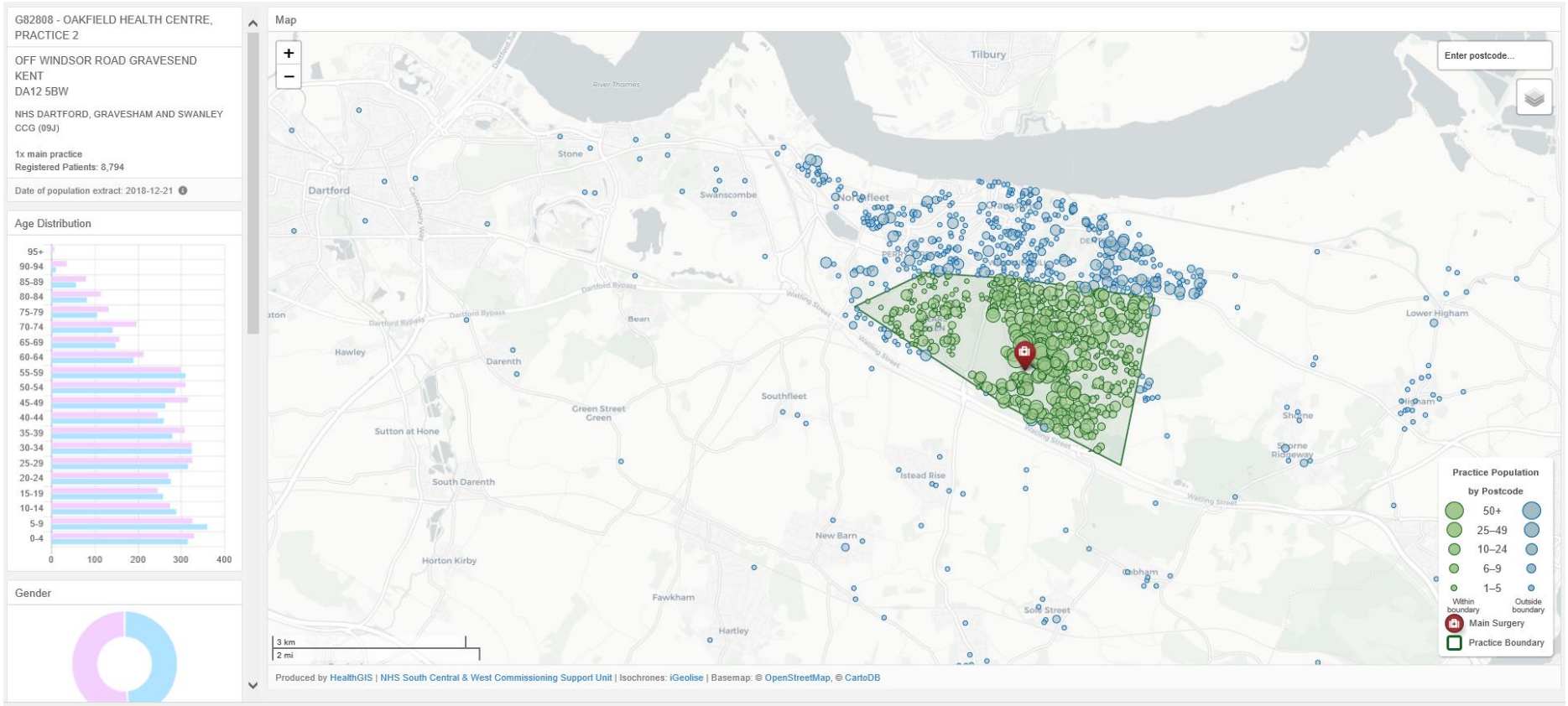

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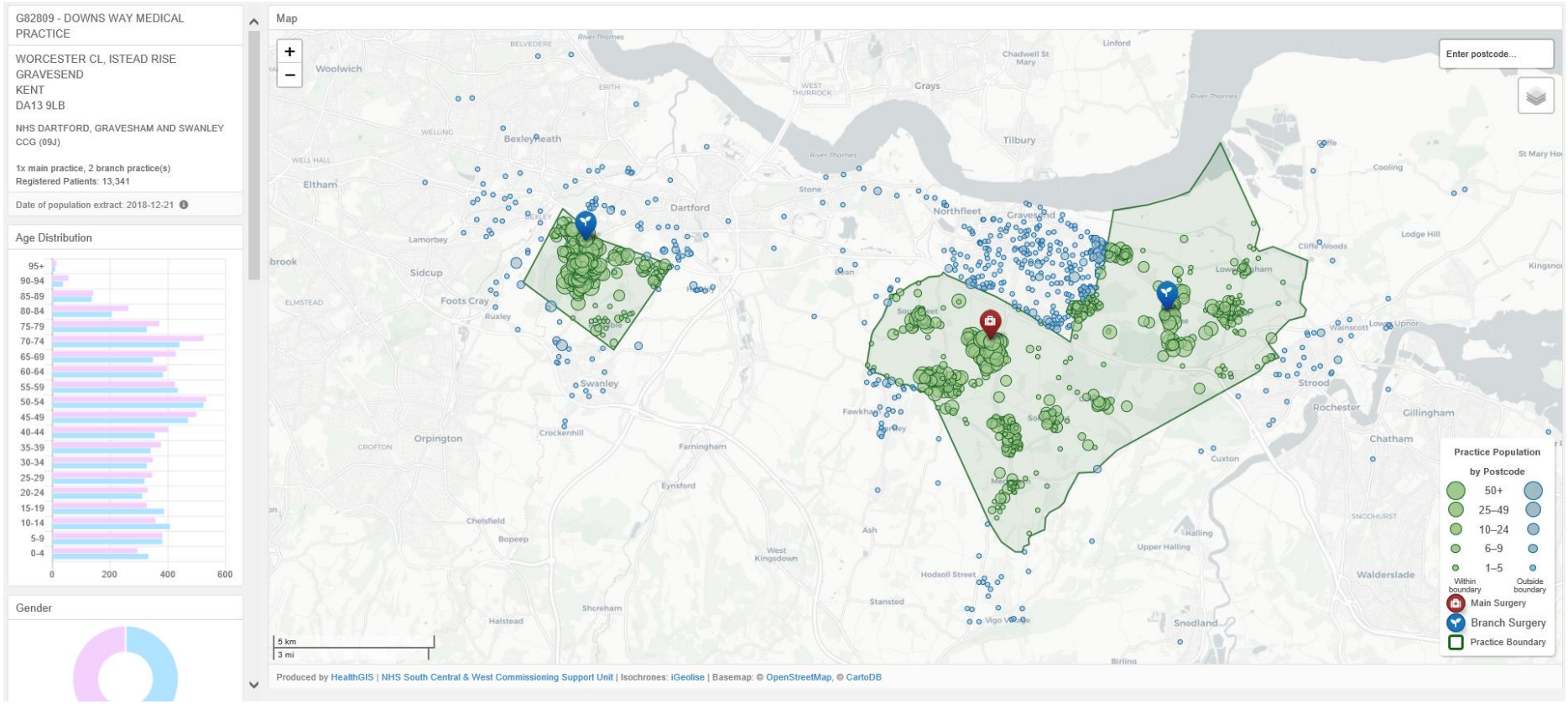

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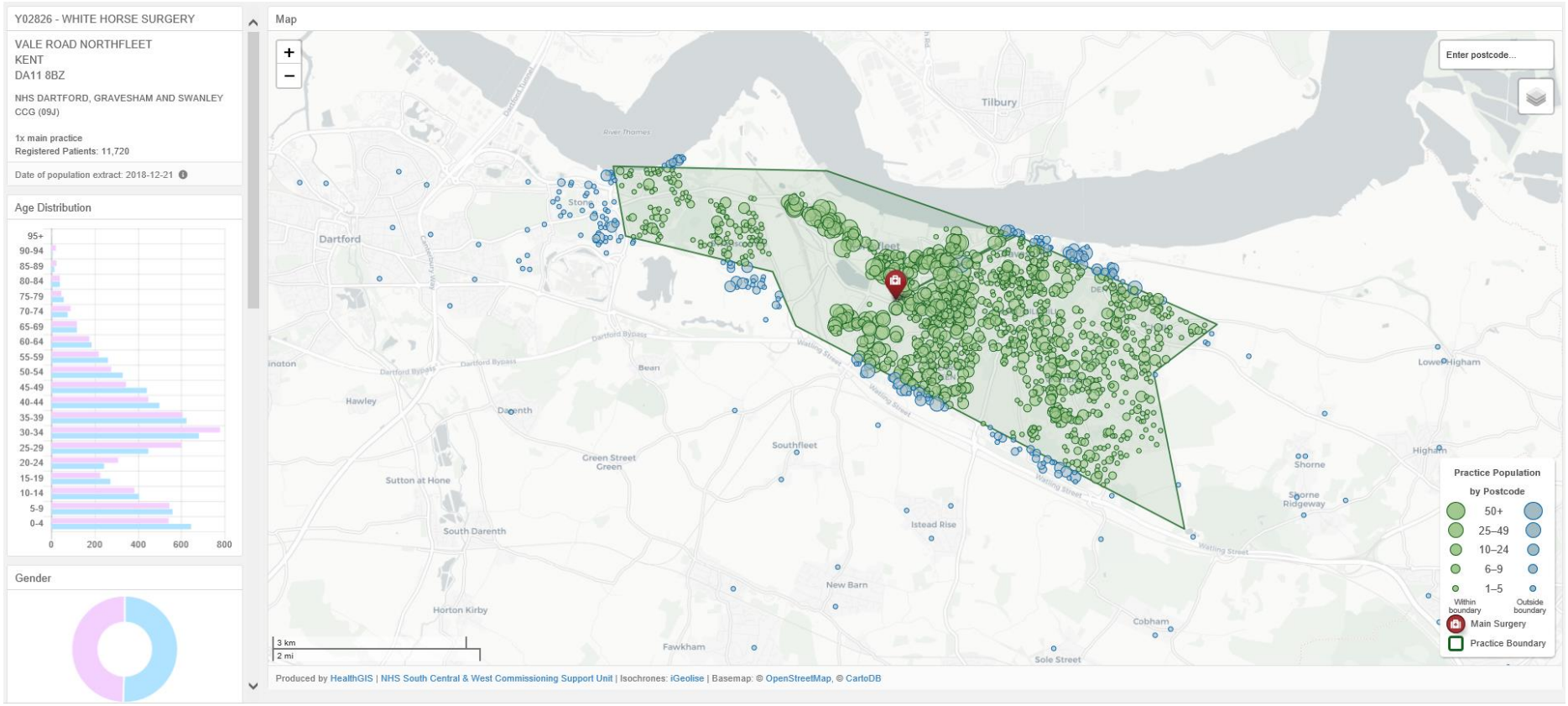

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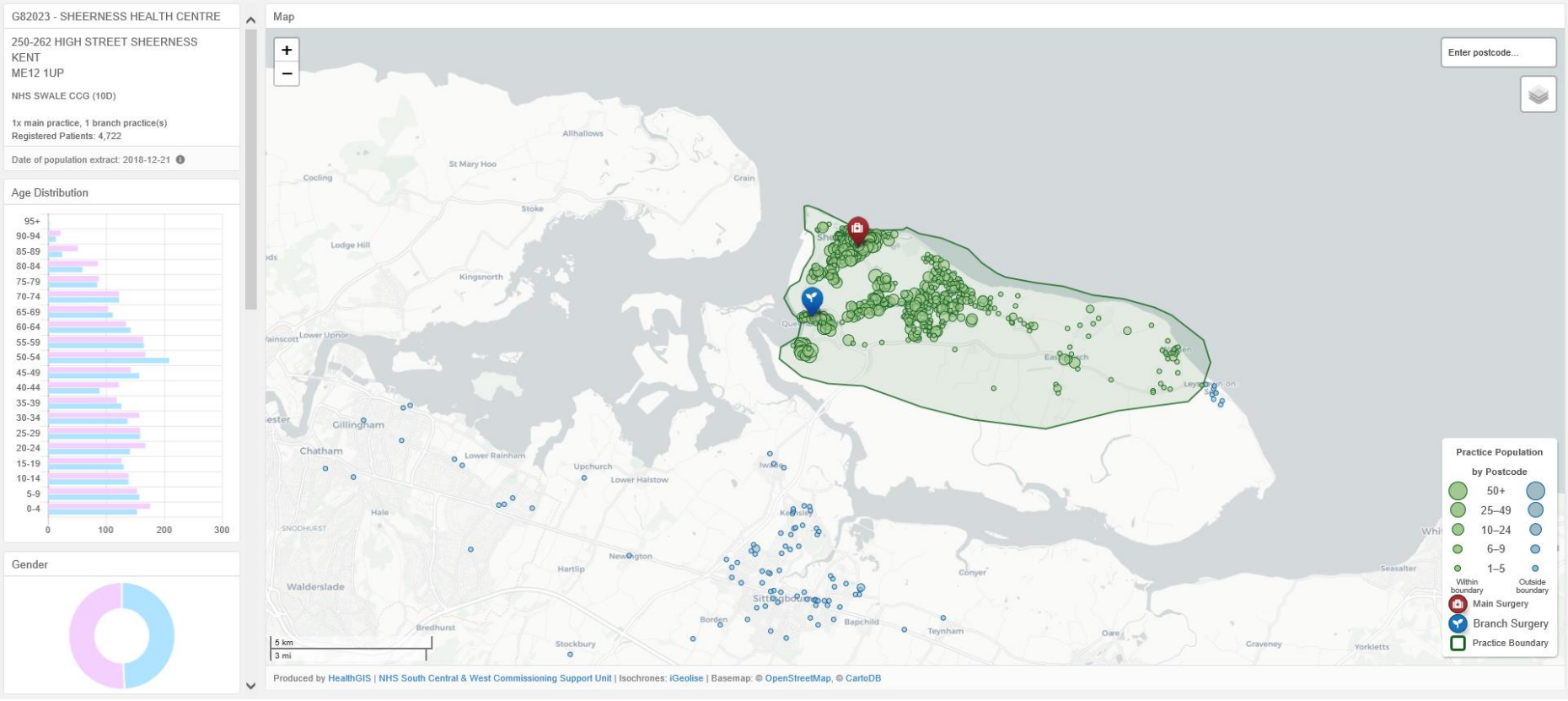

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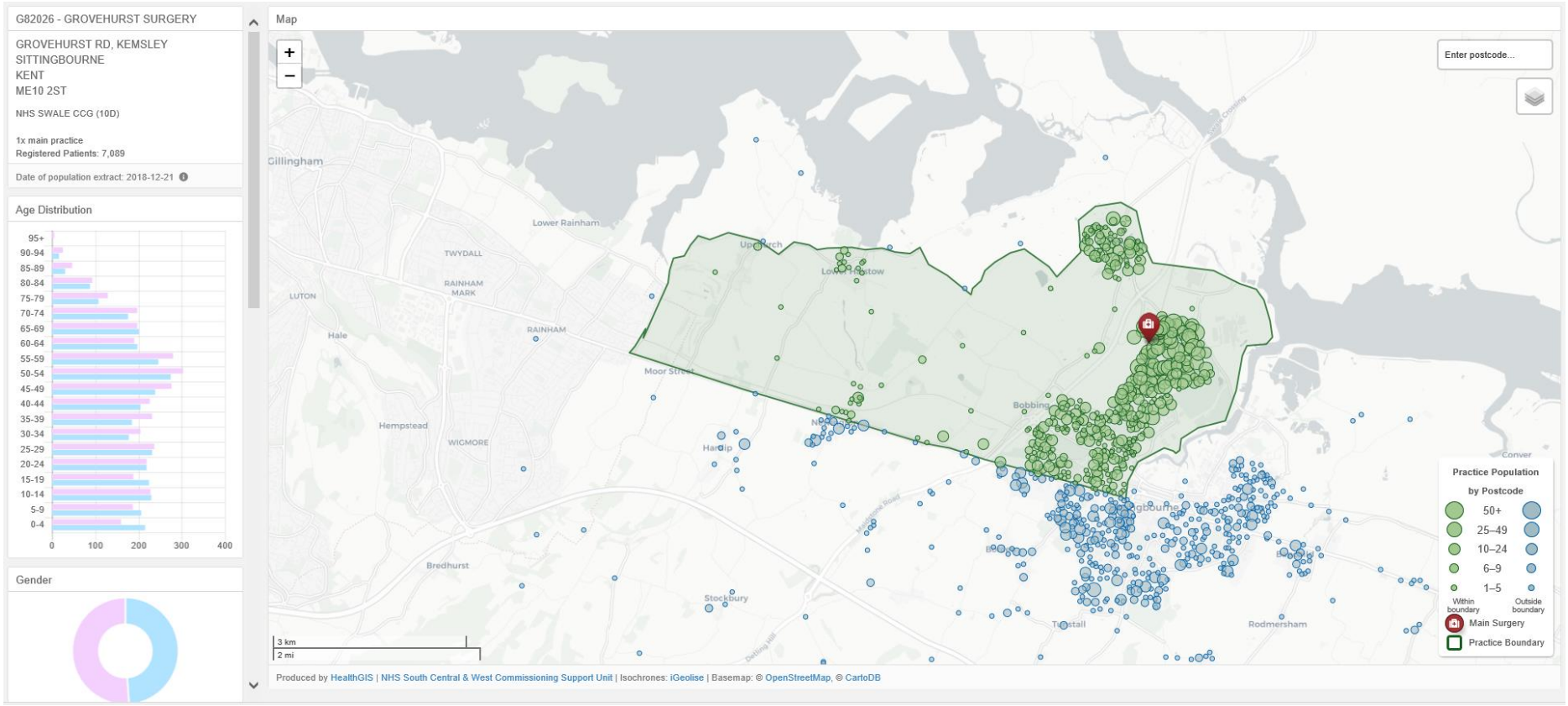

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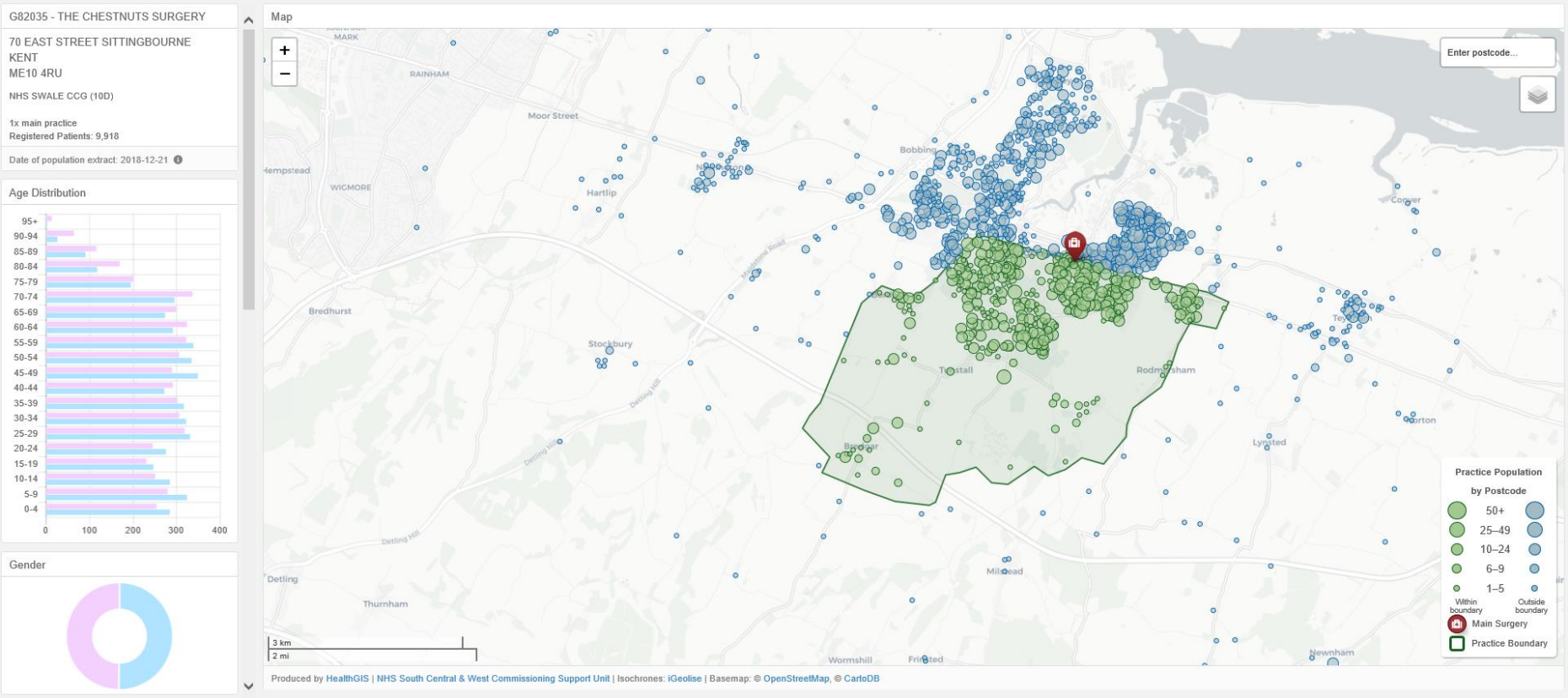

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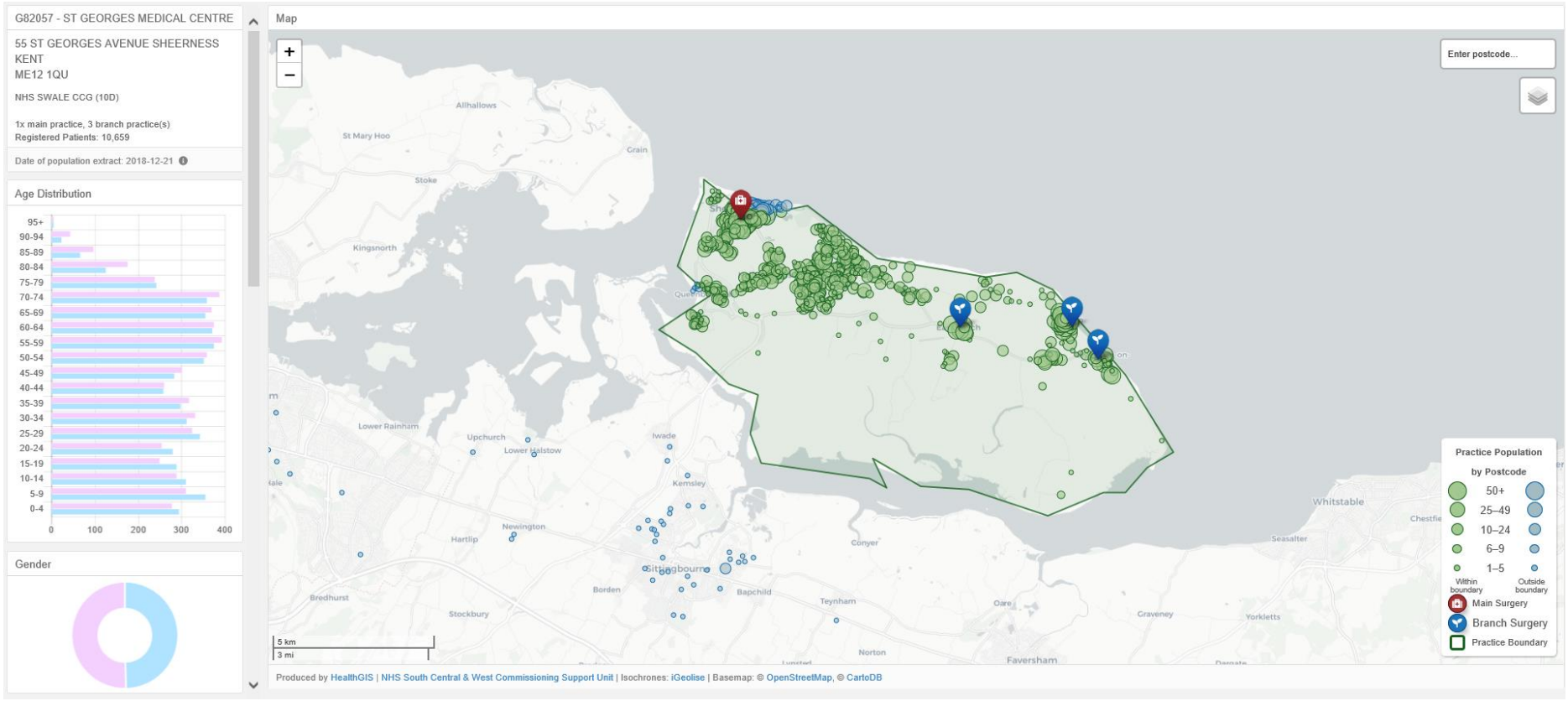

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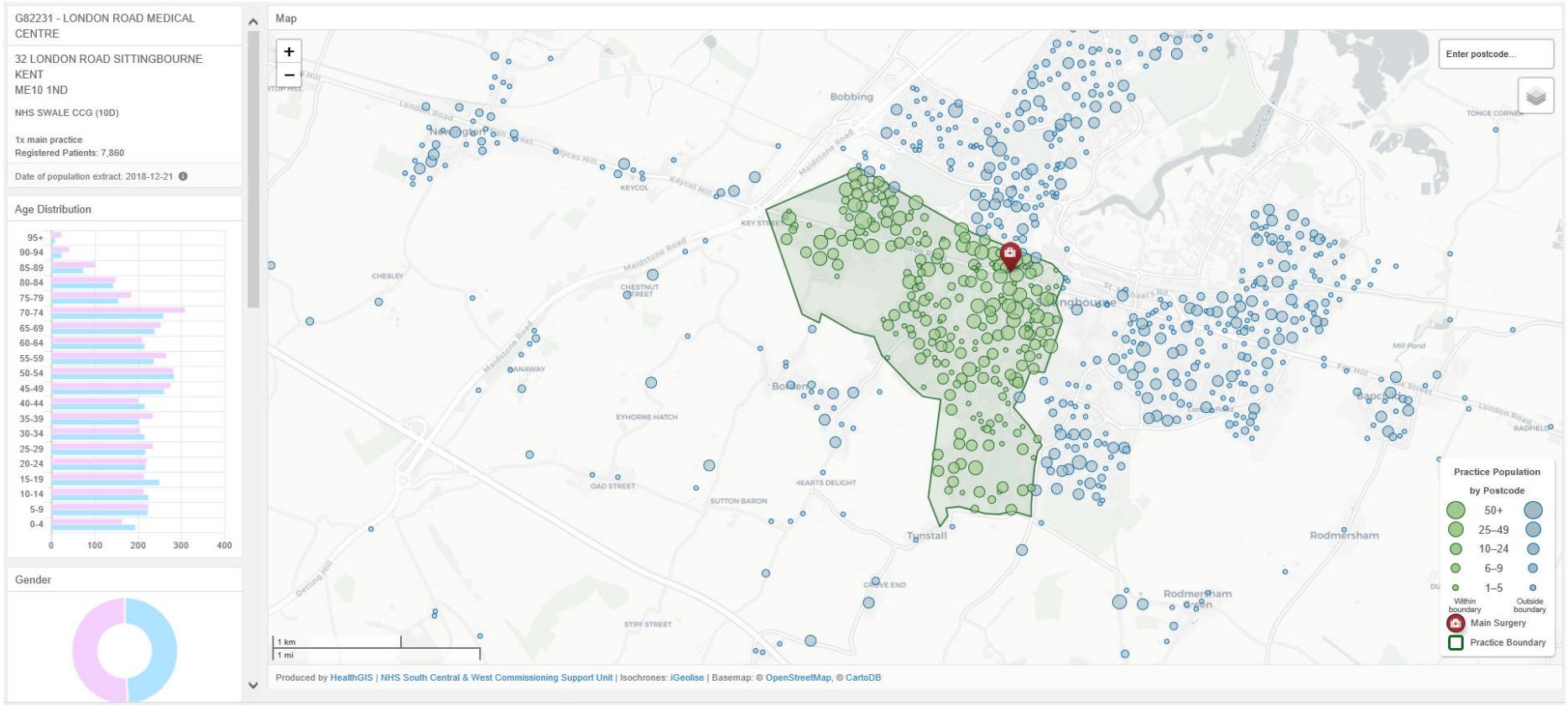

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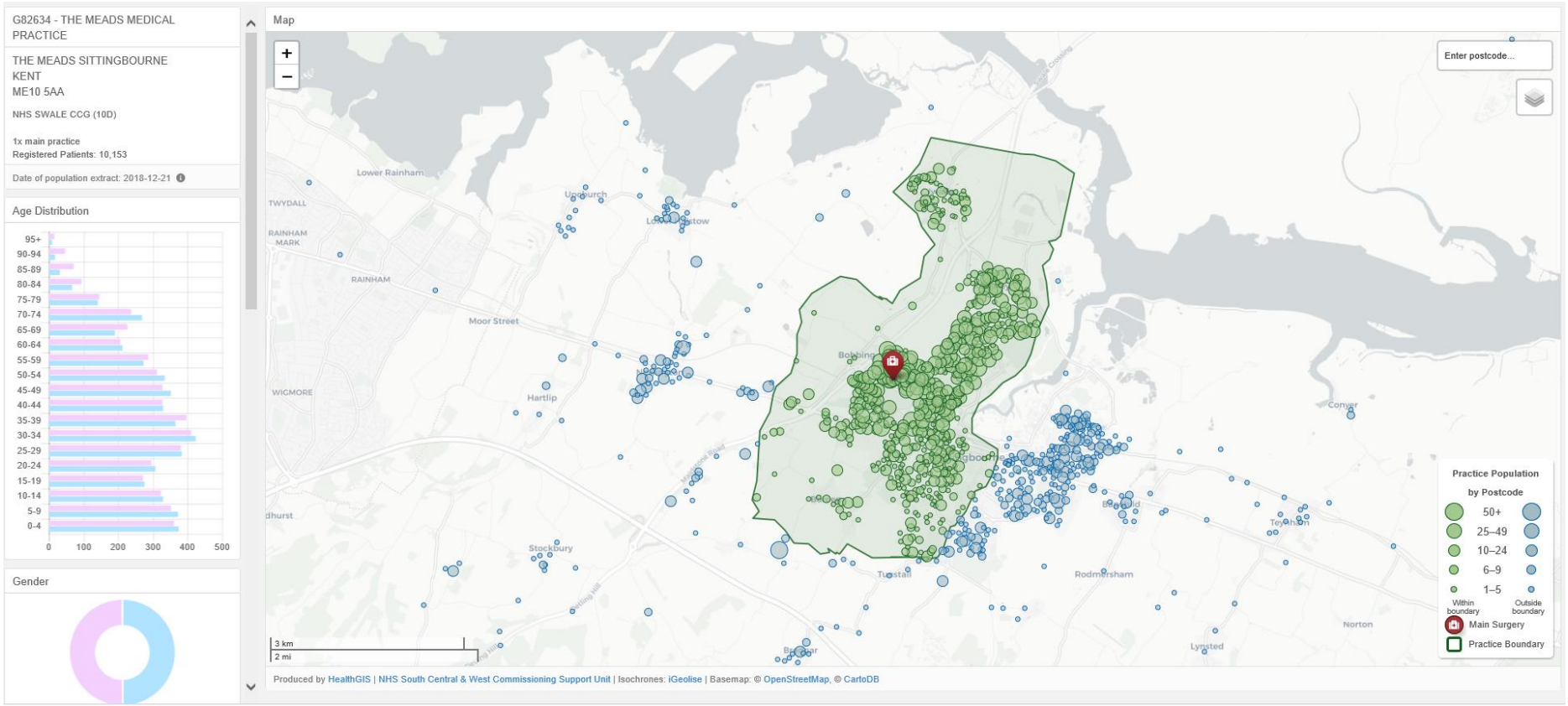

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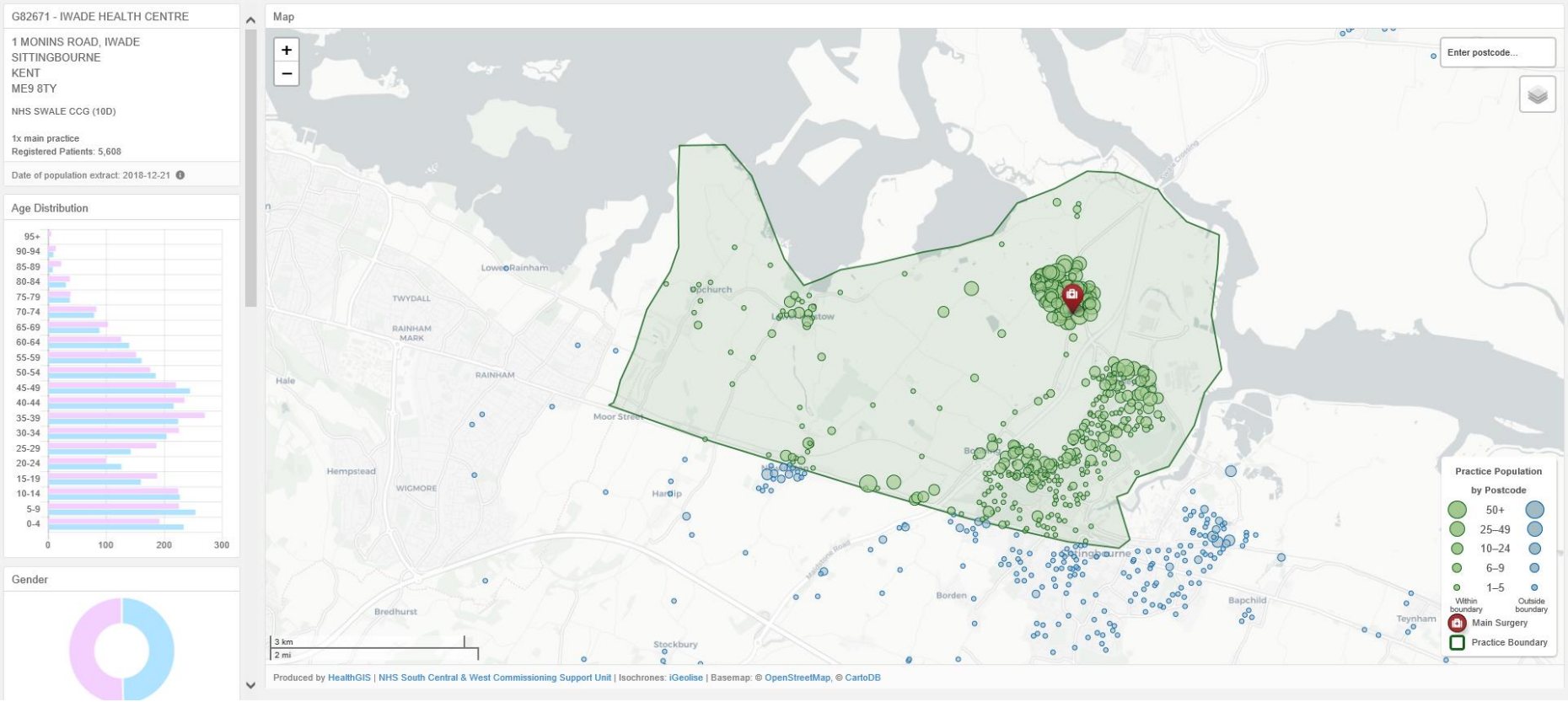

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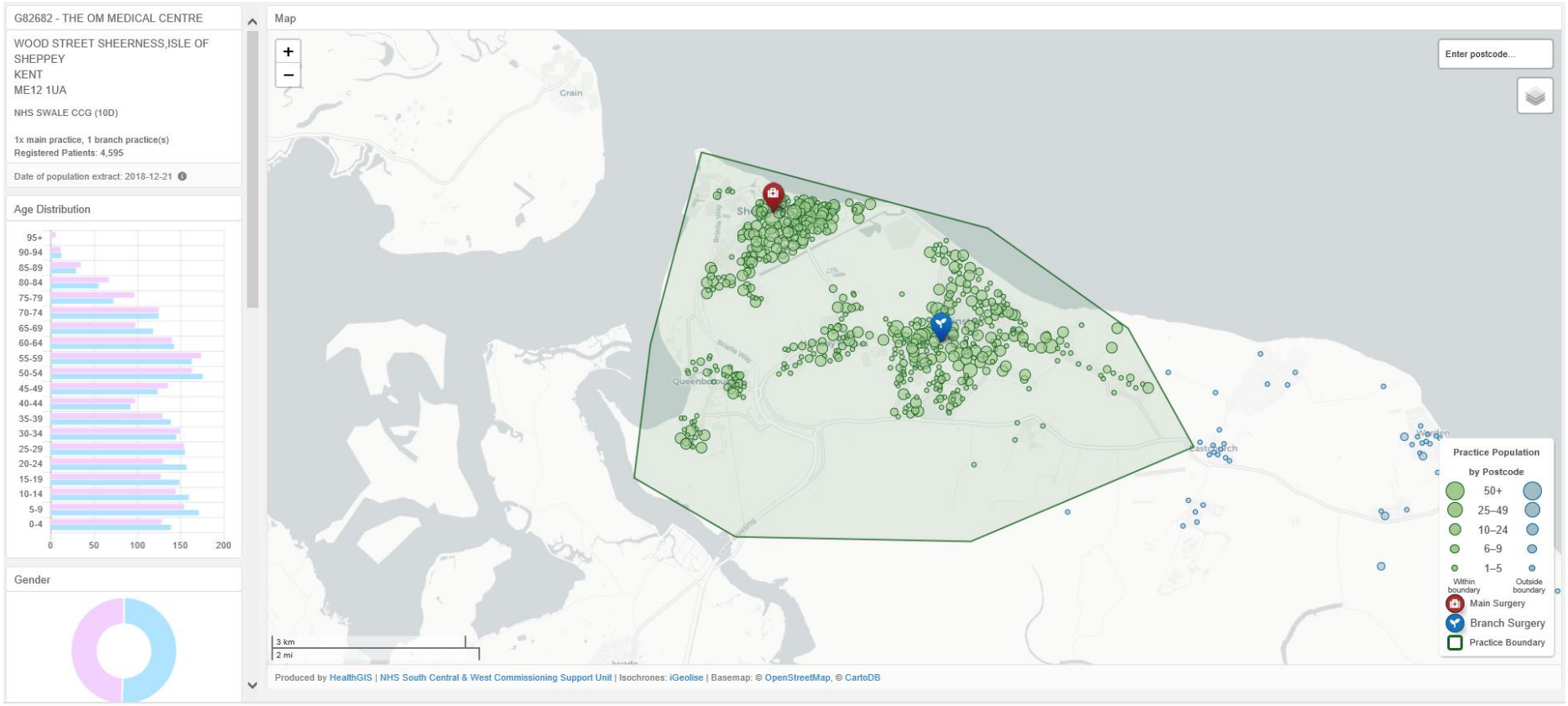

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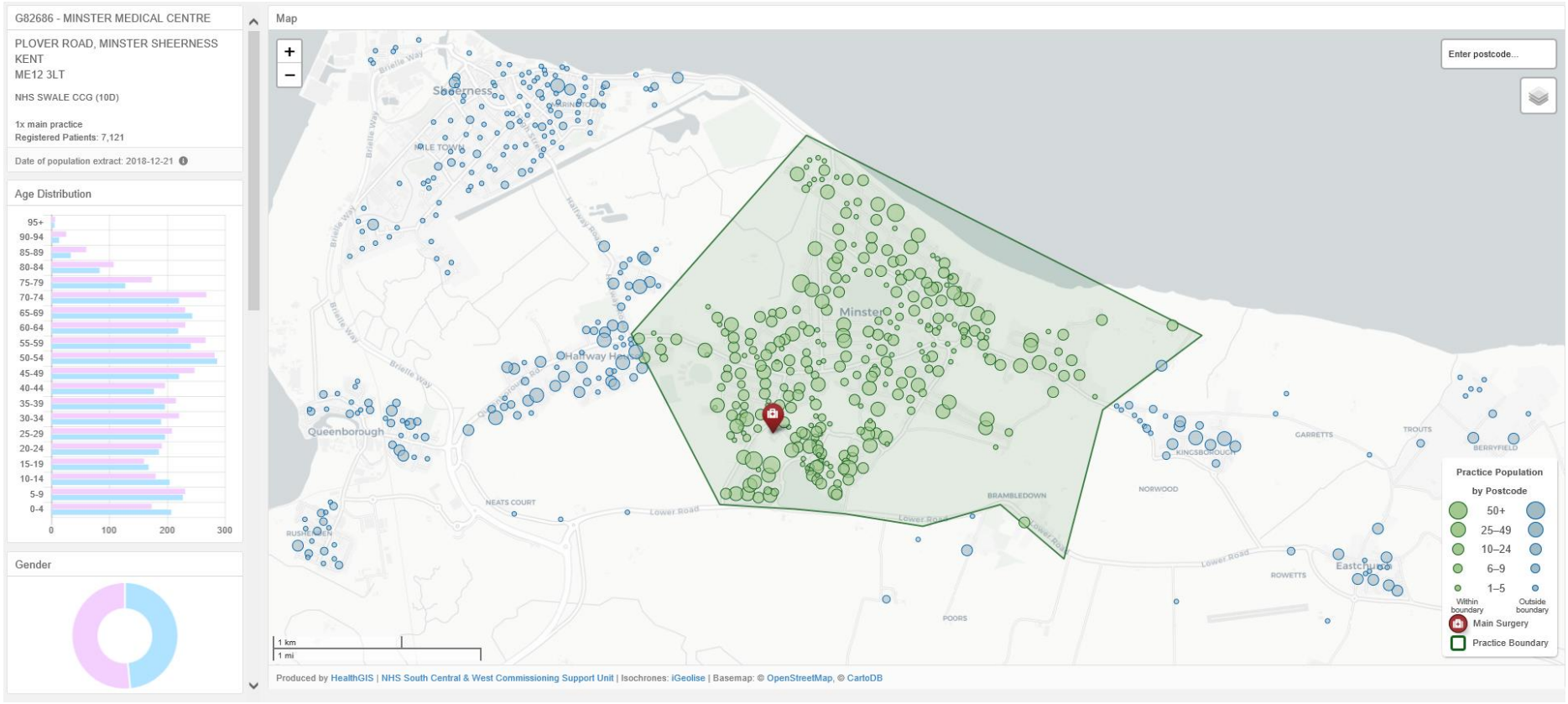

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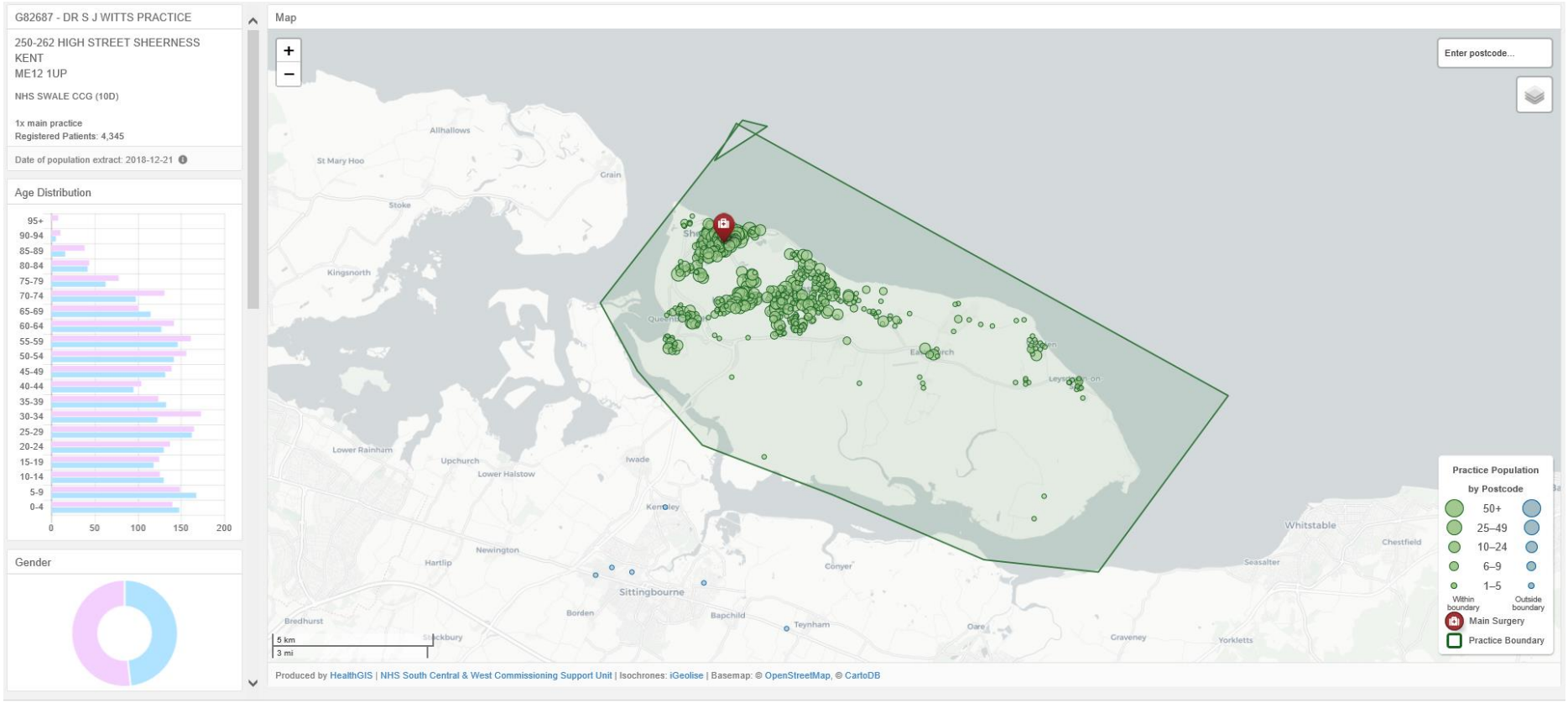

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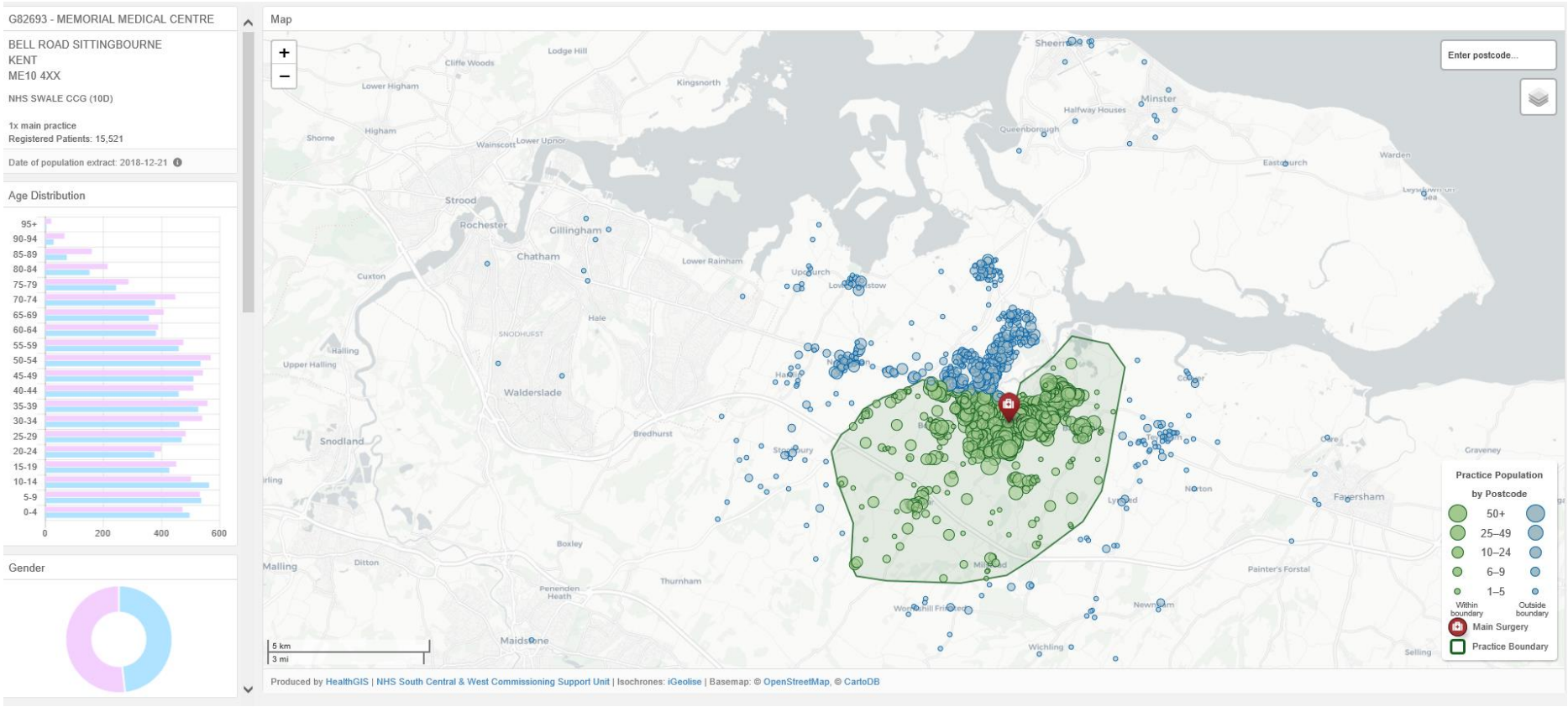

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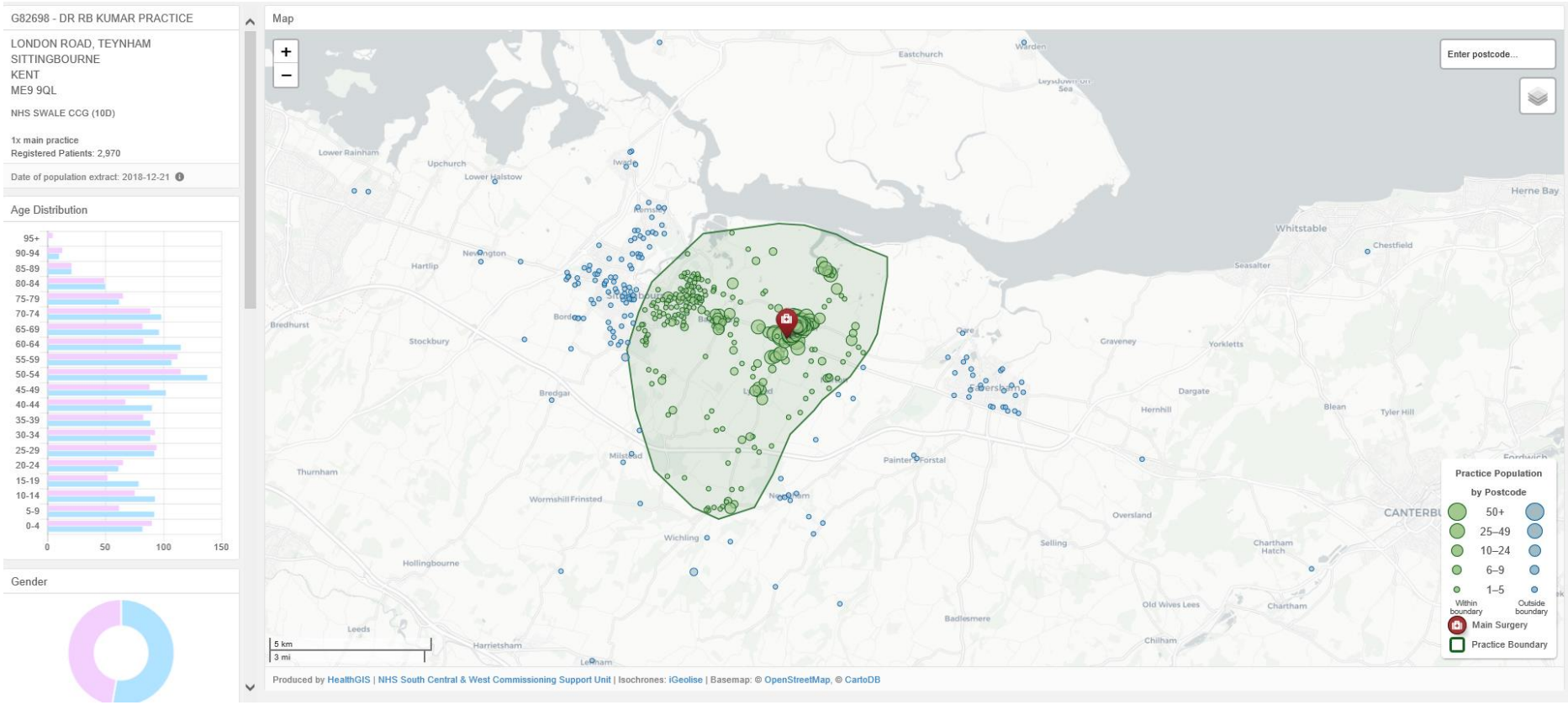

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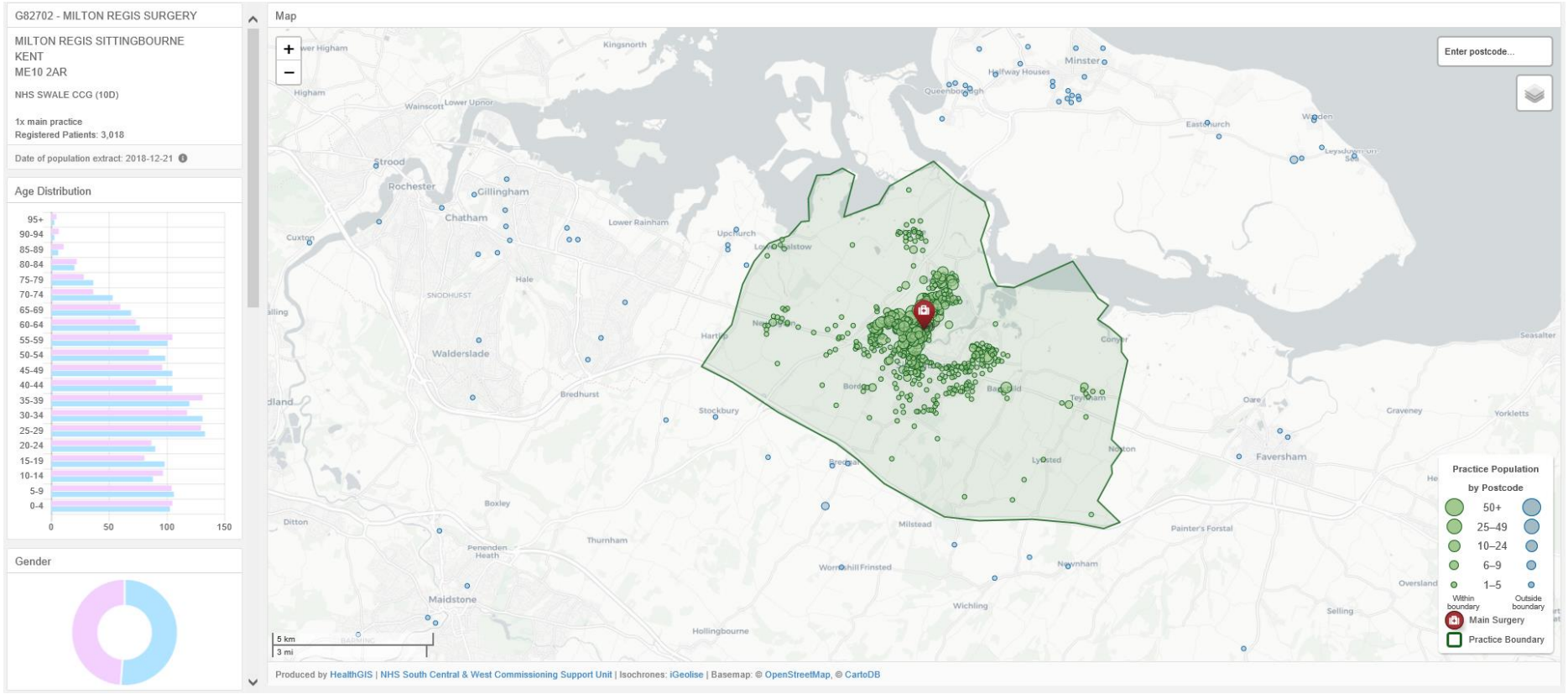

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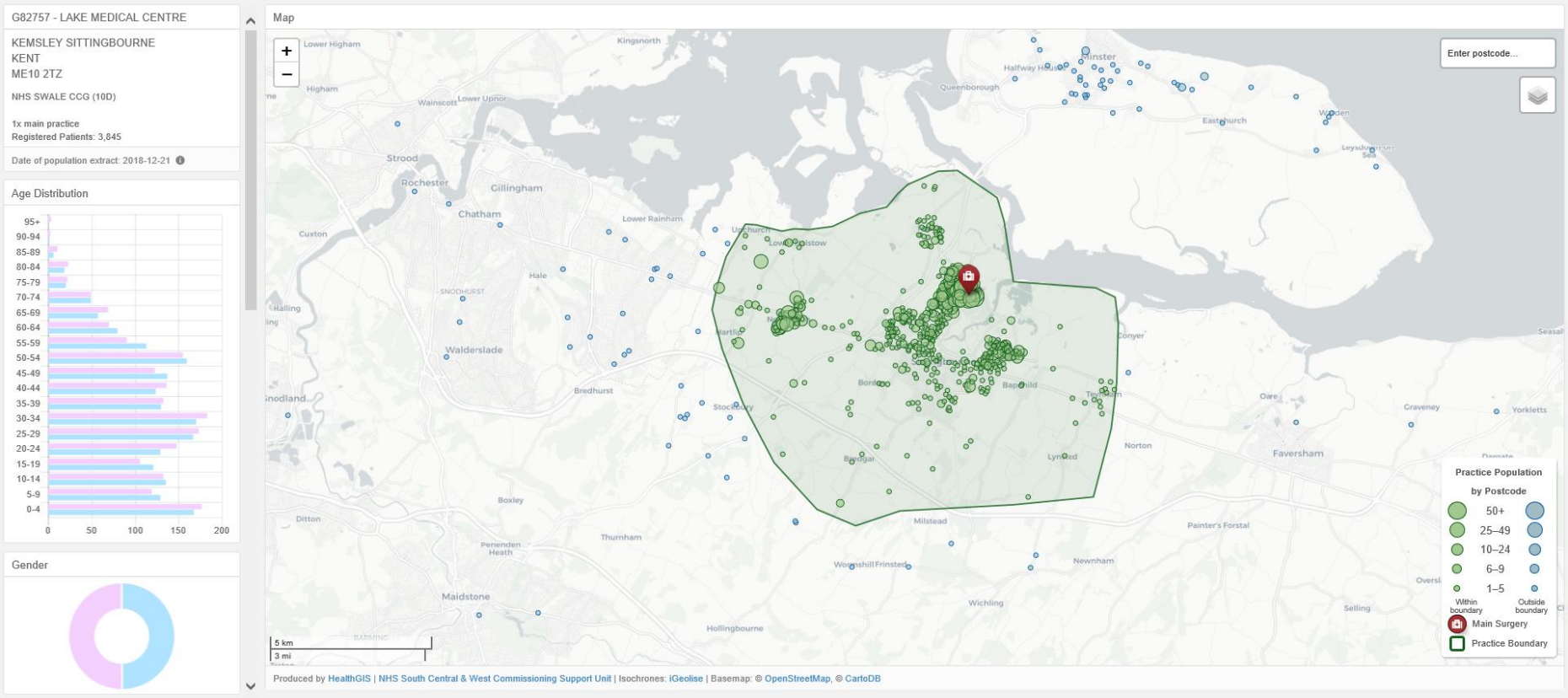

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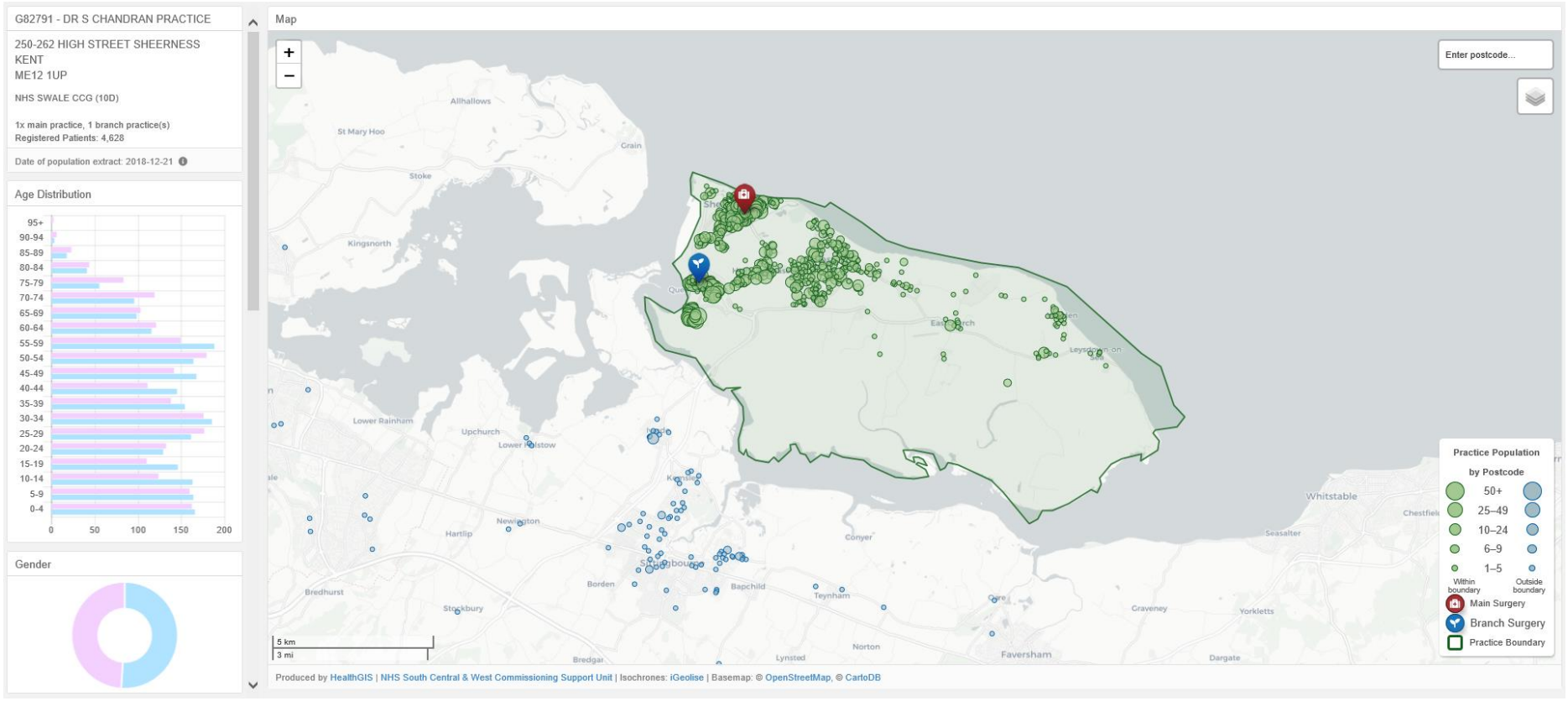

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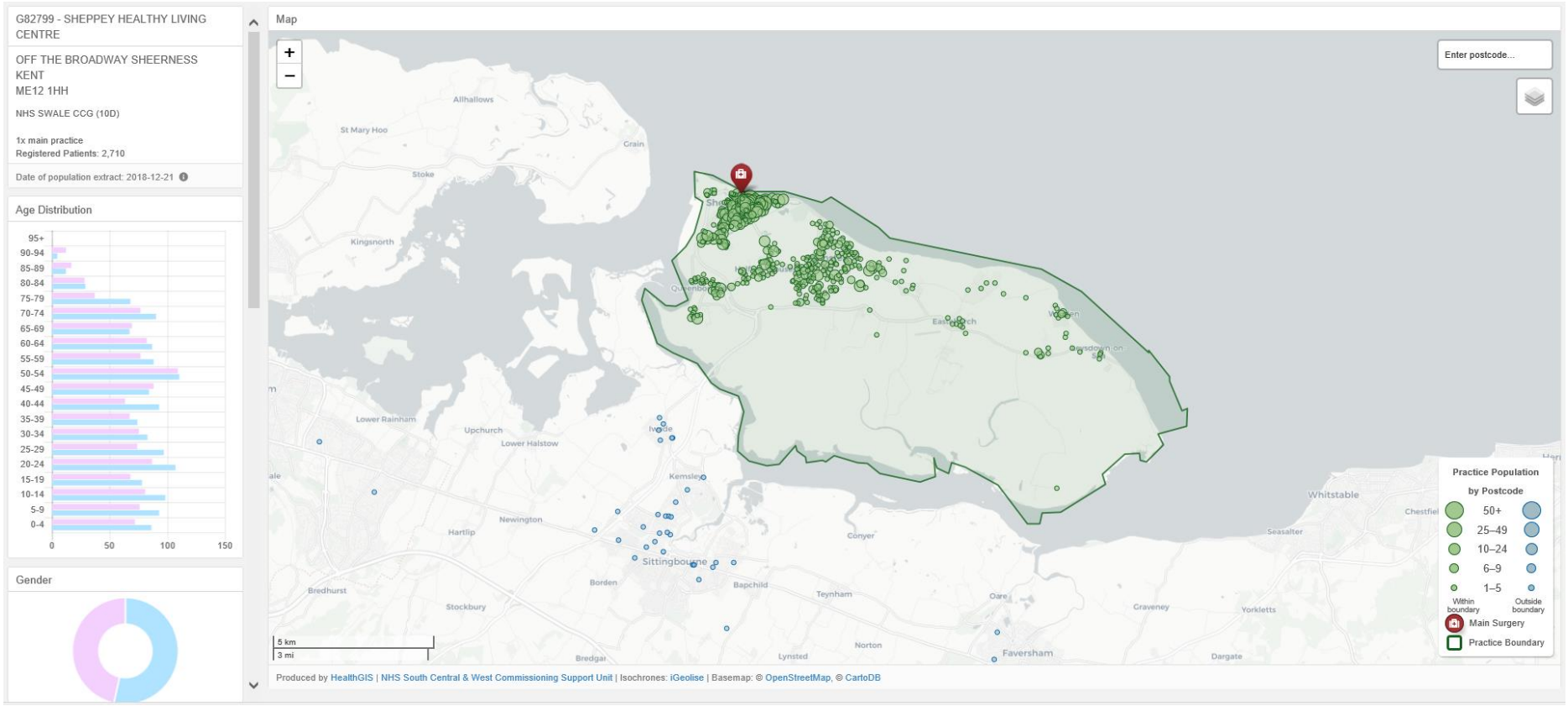

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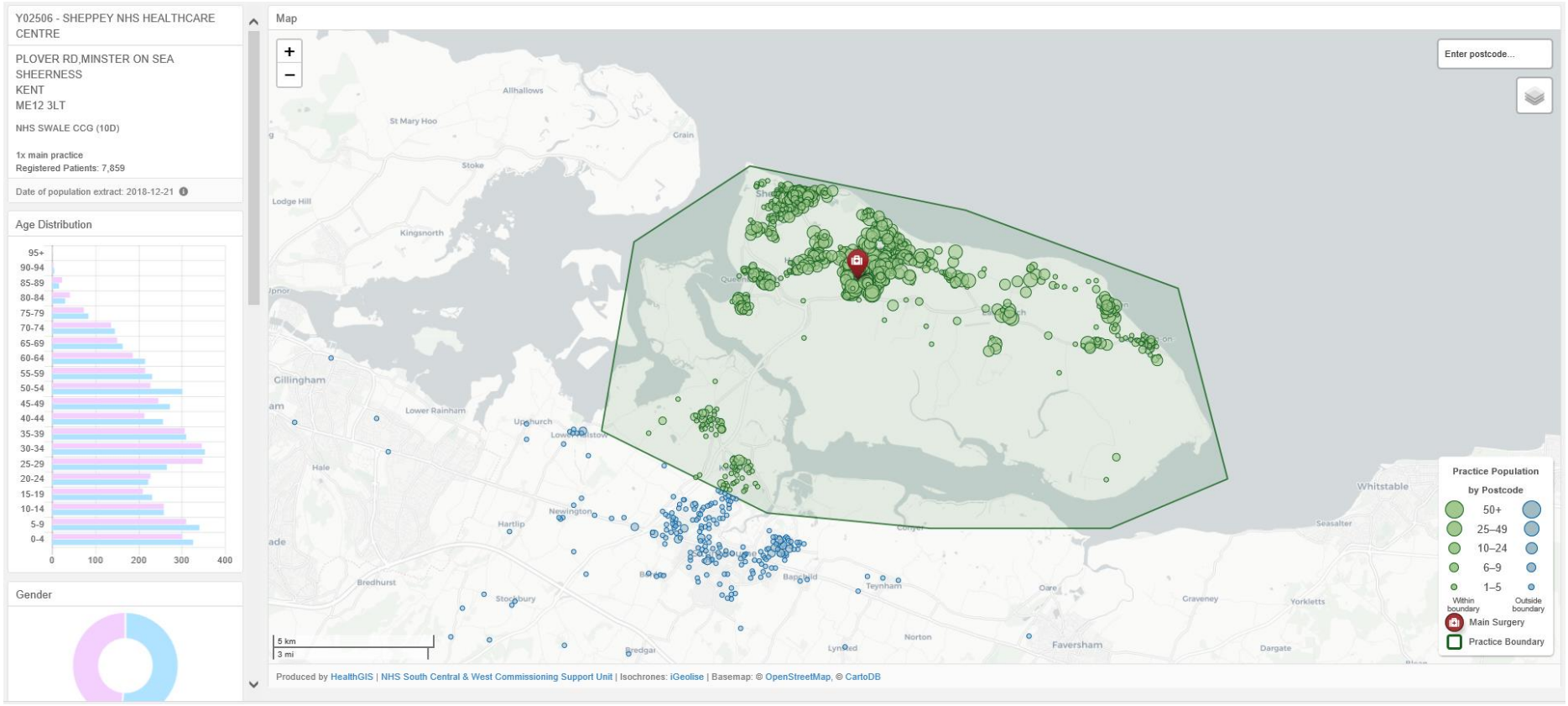


Appendix C – Developing the cohort model assumptions

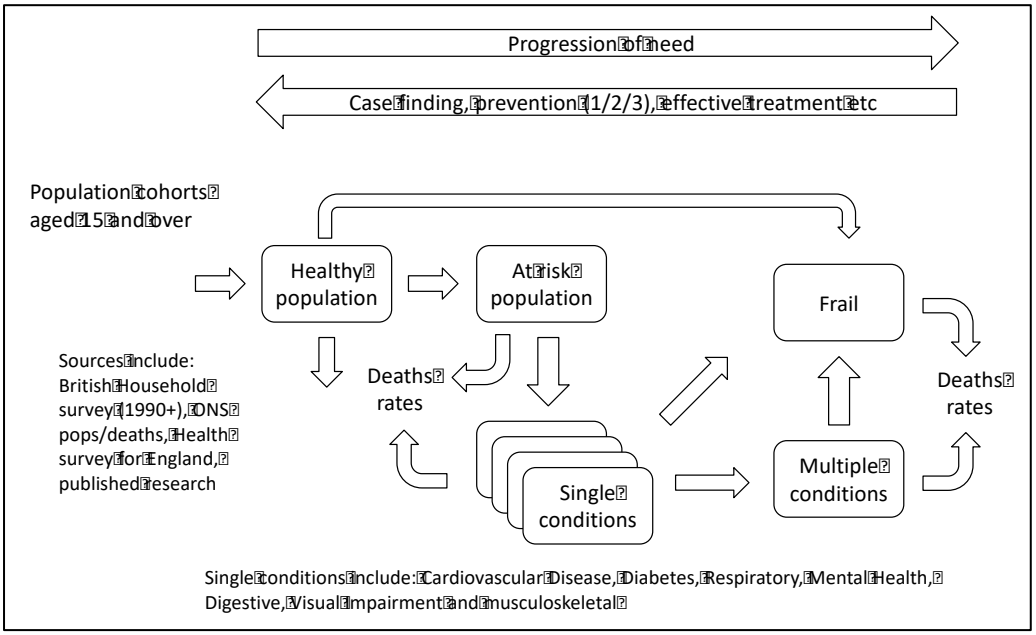
Cohorts of health needs for adults

- There is a lack of specialised studies that focus both on adult health problems and the link with health care demands. The *British Household Panel Survey* (BHPS) is an on-going survey of around 15,000 people aged 15 years and over. The data includes information on socio-demographic characteristics, health behaviours, health needs and demands including health and social care contacts. The modelling work has used the following data from the Cohort Study:

- Social classification;
- Condition linked to cohort;
- Disability (to create a frailty score for people aged 65 years and over);
- Number of health and care contacts by cohort.

- Previous engagement work and experience has developed a method to help identify the types of conditions that enable adults with different health needs to be grouped relative to their current and future demands for services (Figure 1).

Figure 1: Conceptualisation of population cohorts underpinning the modelling tool



Our initial modelling has been guided by the engagement work about cohorts and the use of a whole system approach. In this case we have used 14 cohorts that can be readily identified from the British Household Panel Survey and English Longitudinal Study of Ageing, each with differing needs and demands for health and care services. The cohorts are distinct from each other so that an individual can only be in one cohort at a time but can change cohorts from one-time step to the next. They are also grouped as a hierarchy so

that people who are frail have, on average, the highest health and care needs, followed by multiple conditions, coronary heart disease etc.

Table 1: Baseline cohort prevalence and mortality rates (ELSA)

	Age groups (years)					
Cohorts	18-49	50-59	60-64	65-74	75-84	85+
Healthy	89.6	76.8	70.2	58.8	43.2	31.8
Asthmat	7.0	8.5	7.0	6.3	4.1	2.9
CHD	0.2	1.6	3.0	5.2	8.3	5.6
COPD	0.2	1.1	2.3	1.7	1.4	1.0
Diabetes type 2	1.0	3.9	5.7	5.5	5.3	4.6
HF	0.0	0.0	0.0	0.0	0.0	0.0
Stroke	0.1	0.5	1.0	1.7	2.9	2.1
Moderately Frail	0.0	1.8	2.2	2.6	5.2	6.0
Multiple LTC	0.9	4.3	6.6	8.7	12.7	11.8
Severe mental health	0.6	0.8	0.5	0.2	0.0	0.0
Neuro	0.0	0.1	0.7	0.4	0.9	0.2
Dementia	0.0	0.3	0.5	0.4	1.7	1.9
LD	0.3	0.3	0.3	0.2	0.1	0.0
Severe Frail	0.0	0.0	0.0	8.5	14.2	32.2

To create the cohorts of health need, annual incidence, prevalence and mortality rates were calculated using the BHPS and ELSA. Baseline incidence, prevalence and mortality were used to calculate the ongoing prevalence of each cohort. Prevalence rates were combined with population estimates for the same age groups to produce the baseline position. The data is aggregated further into cohort and social class, which enables the number of adults by area to be calculated. This approach is used with the aim of adjusting health needs for deprivation when considering different geographical areas.

Table 2: Annual incidence per 1,000 population (ELSA)

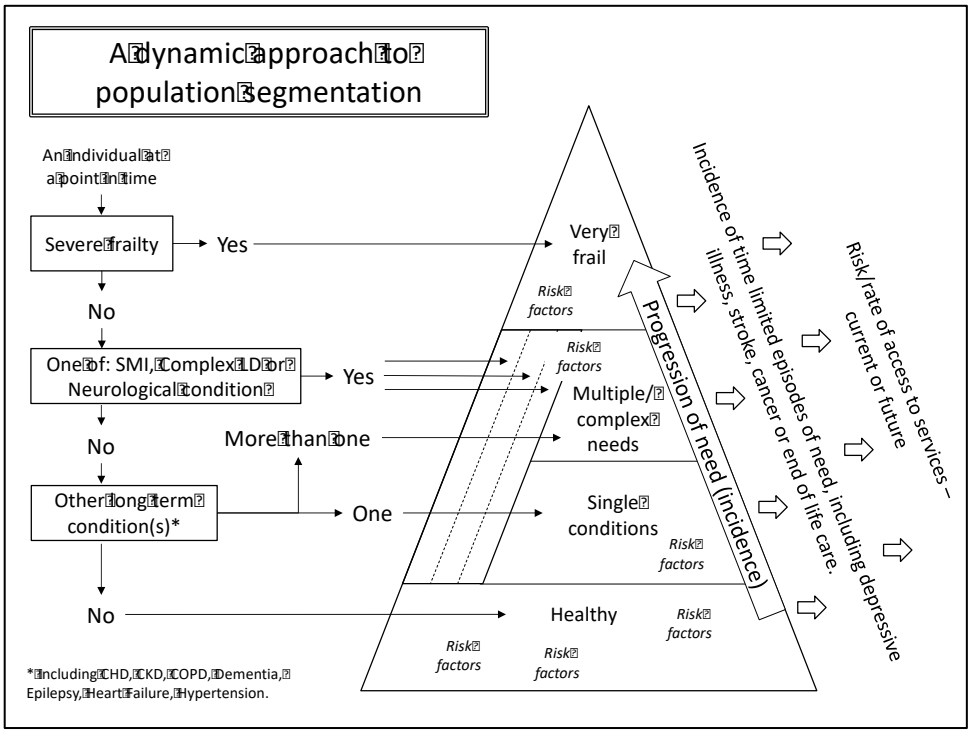
Cohort	Healthy to cohort	Single to multiple	Frail to severe	Death rate
Healthy	0.0	0.5	2.0	4.0
Asthma	1.5	10.7	2.4	3.7
CHD	1.6	25.3	8.0	24.0
COPD	1.1	43.6	25.8	36.9
Diabetes type 2	2.2	33.6	10.3	14.5
HF	0.0	0.0	0.0	0.0
Stroke	1.0	58.3	22.9	23.0
Moderately Frail	2.1	8.5	54.2	50.7
Multiple LTC	4.1		38.9	37.3
Severe mental health	0.1		10.5	8.0
Neuro	0.3		47.6	64.3
Dementia	0.6		65.6	73.8
LD	from CYP model		8.0	
Severe Frail				140.1

Table 2 shows how, using the British Household Survey, and adjusting for Kent socio-demographics, we arrived at an initial breakdown of needs for the purpose of this part of the project. The picture that emerges does not capture all comorbidities and is therefore an underestimate of this area of need, with corresponding increases in the estimate of numbers with single conditions.

In addition to the baseline demographics and need groupings, each cohort has a demand rating for health and care services, which includes GP appointments, outpatient attendances, hospital admissions, seen by a nurse, received social care support (home care, meals on wheels, social worker). When changes in the balance of cohort needs occur,

influenced by risk factors which impact on the incidence of certain conditions, we can model potential impacts on service utilisation. The prevalence of risk factors for smoking, bodyweight and hypertension are calculated from the cohort study and the health survey for England, and impact on the healthy cohort within the model.

Figure 2: Adult health needs: cohort hierarchy



The impact of risk factors on the population

- The rate of incidence and mortality for different cohorts is moderated by the impact of changing risk factors using the calculated population attributable fraction (PAF) for each risk factor. As previously mentioned, the three initial risk factors in this model were smoking prevalence (and cessation), pre-diabetes (and bodyweight) and untreated or treated hypertension. The PAF calculates the proportion of the incidence and/or mortality of a cohort that is related to individual risk factors. When the risk factor profile changes e.g. the number of people taking up or quitting smoking changes, the population attributable fraction is adjusted, which either increases or decreases the cohort incidence and mortality rate.

- The transition from the healthy cohort has been the focus of this work, but risk factors influencing the rate of death within each cohort, particularly in relation to secondary prevention for hypertension treatment have also been included.

- Trends in risk factors from 2000 to 2009 are used as the basis for future changes up to 2037 (Table 3). This shows that the percentage of people smoking is decreasing by approximately 0.4% per year, for BMI it is increasing 0.2 kg/m2, for BP it is reducing by 0.2 per mmHg, for cholesterol it is reducing by 0.01 mmol/l per year and untreated hypertension is decreasing by 0.2% per year. Data from the Kent public health team shows similar a prevalence in smoking to the national picture.

Table 3: Annual risk factor changes

	Change (+/-)
Smoking	-0.4
BMI	0.2
BP	-0.4
Cholesterol	-0.01
Physical inactivity	-0.5

-

Calibration and comparison with North Kent data

As mentioned previously the model has been calibrated to the Kent population in several ways. These include using the demographic profile, migration, age, deprivation and risk factors so that the model replicates as close as possible the changing shape of the Kent population over time, as currently reflected in the local Kent Housing led population projections.

Comparing the cohort prevalence and the local population projections illustrates that the model provides a reliable projection of total population (Figure 3). Further analysis of KID data would enable a comparison to individual cohort prevalence, but it is not in scope at the current stage of the project. Table 4 summarises the respective demographic and local assumptions to which the model has been calibrated.

Table 4 Local baseline demographic and deprivation data

Assumptions	Kent
Health areas	North Kent CCG
Baseline population (over 18)	275,440 (mid-2012), c.292,100 (2017) and 369,000 (mid-2037) – a growth of 26% over the 20 years between 2017 and 2037
Number of people migrating in per year	c. 1,600 people aged 18 and over net-migration into North Kent per year
Deprivation	North Kent has has a similar affluent profile of social class as England as a whole

Figure 3: Kent housing-led population projections and model outputs (2012 to 2037)