Camden ISLINGTON
Working in partnership

NHS
Camden
Clinical Commissioning Group

CAMDEN HEALTH EQUITY AUDIT
PUBLIC HEALTH INTELLIGENCE

Musculoskeletal disorders

December 2016

About this profile

Purpose

This Health Equity Audit (HEA) aims to establish the current prevalence of musculoskeletal (MSK) disorders within Camden's adult population and assess how current MSK services and resources are distributed in relation to the population's needs. This HEA will be used to inform future MSK services.

Contents

Further information and feedback

This was profile was created by Samantha Warnakula (Public Health Information Analyst). We would like to thank Tom Aslan and Simon Landergan from Camden CCG, for their input and assistance with the profile.

It was reviewed by Sarah Dougan (Deputy Director of Public Health) and Dalina Vekinis (Principal Public Health Intelligence Specialist).

For further information, please contact Samantha Warnakula.

Email: publichealth.intelligence@islington.gov.uk Tel: 020 7527 1242

We would also very much welcome your comments on these profiles and how they could better suit your individual or practice requirements, so please do contact us with your ideas.

Recommendations and key messages

OVERVIEW AND RECOMMENDATIONS

1. **Over the past ten years, the overall prevalence of MSK in Camden has risen steadily from 23% in 2005 to 46% in 2014/15,** with approximately 88,000 people now living with a MSK condition at any one time. Given the high life expectancy of Camden's population compared to England as a whole, the number of people living with a painful MSK condition is likely to increase and health services will need to be able to respond appropriately.

2. **Black people have a significantly higher prevalence of MSK (59%) compared to all other ethnic groups (range 39% to 48%);** recorded differences in sex, occupation, smoking and weight between ethnic groups only partly explained the higher prevalence. It is important that primary care is aware that people of Black ethnicity may be at increased risk of MSK, despite absence of typical risk factors such as smoking and obesity.

3. **The current prevalence of both smoking (21%) and obesity (16%) in people with MSK are significantly higher than those observed within the general population.** Better control of these MSK risk factors can prevent the development and progression of MSK conditions, resulting in long-term healthcare cost-savings and wider societal benefits such as reduced work absence. **We should ensure staff are confident to give brief advice on healthy lifestyles and that all MSK services have clear established referral pathways to local lifestyle services such as Adult Weight Management, Exercise on Referral and Stop Smoking services.**

4. **Empowering self-management can help improve the health of MSK patients by tackling health beliefs and improving self-efficacy.** The MSK CATS service should increase promotion of self-management through the provision of appropriate advice and reassurance; such programmes can improve an individual's symptoms, quality of life and their confidence to manage their symptoms without using health services.

5. **Annual monitoring of patients with rheumatoid arthritis (RA) is recommended to monitor progression or complications, and to enable prevention and management of comorbidities.** While the majority of Camden GP practices are average or above average for monitoring of RA patients in comparison to the London (87%) and England (84%), the proportion of RA patients who had a recent face-to-face interview was significantly lower for the Keats Group Practice (59%) and Westfield Medical Centre (46%), highlighting some opportunities for improvement.

6. **23% of Camden's GP registered population who had an elective inpatient admission between 2014 and 2015 had no previous diagnosis of MSK in primary care.** This signals the importance of raising the awareness of signs and symptoms to promote early detection to the public and healthcare professionals. **Enhanced education, alongside the development of a clear pathway from primary to secondary care for MSK patients should be encouraged and implemented.**

Recommendations and key messages

OVERVIEW AND RECOMMENDATIONS

7. **40% of patients who had a knee replacement were classified as obese and the average adjusted EQ-5D health gain for these patients was significantly lower when compared to all other London CCGs and the England average;** the poor average EQ-5D score is likely to be attributed to obesity. Therefore, patients with a BMI of 35 kg/m^2 or more should be actively supported to engage with local weight management programmes to reduce BMI. This will allow patients to maximise the functional benefit of surgery and reduce the risk of complications during or following surgery. Key providers of hip and knee replacements should better monitor the care pathway and ensure patients have received adequate physiotherapy before progressing to surgery.

8. **People residing in the most deprived areas in Camden are more likely to use MSK community services which highlights the complex inter-relationship between MSK disorders and deprivation.** Health care professionals should consider signposting to services related to support with the wider social determinants of health including WISH+ (referral hub for warmth, safety, income and health services), employment support, housing and adult social care, and it is recommended that **MSK service staff are trained in Making Every Contact Count to support them in doing this.**

9. **Poor MSK health is a major barrier to workplace participation and can lead to sickness absence, early retirement and unemployment. 70% of Camden patients diagnosed with osteoarthritis were issued a fit note** and the highest number of fit notes were issued to individuals with back, neck and musculoskeletal pain (although the reason for issuance of a fit note is not known). **Multi-disciplinary occupational health and vocational occupational therapy advice should be integrated into care pathways;** CCGs should encourage collaboration between primary care, secondary care and patients to ensure work becomes a positive and achievable clinical outcome.

10. **The workplace provides a unique opportunity for health promotion.** For employees, availability of healthy food at work, employment packages including support for physical activity and active transport, and early access to high quality occupational services, can help maintain MSK health and prevent associated sickness absence. **The CCG should act as an employer role model; for example, by committing to the mayor of London's Healthy Workplace Charter and by including workplace wellbeing clauses in contracts with their suppliers.**

11. **Living with a MSK condition and absence from work can lead to the development of anxiety, depression and other mental health conditions.** 742 patients were diagnosed with a mental health condition following diagnosis with MSK. **All MSK health professionals should be trained in recognising mental health symptoms**, e.g. through attendance of Mental Health First Aid courses that are already commissioned by Camden CCG. Patients should also be referred into Improving Access to Psychological Therapies (IAPT) services as appropriate.

Recommendations and key messages

OVERVIEW AND RECOMMENDATIONS (cont)

12. **High quality data are needed to help allocate appropriate resources towards tackling poor MSK health and addressing inequalities.** Only 4.8% of all community service appointments had information available for change in EQ-5D score; therefore, there is a **need for better recording of health improvements using standard PROs (e.g. EQ-5D and MSK-HQ) following delivery of MSK interventions, along clinical pathways.** Systematic and more complete capture of MSK community data is also needed to better understand what services/treatments are being provided, to whom, by whom, referral method, how often and for what conditions. Linkage of GP, SUS and community data would provide a more holistic overview of an MSK patient's care pathway and **providers should code referral to lifestyle and other services** so that this can be monitored**.**

Key messages

EPIDEMIOLOGY OF MSK

- The incidence of MSK disorders has risen year-on-year from 2,404 new cases per 100,000 population in 2005 to 3,376 new cases per 100,000 population in 2015. Similarly, the overall prevalence of MSK in Camden has risen steadily from 23% in 2005 to 46% in 2014/15; this equates to approximately 88,000 people currently living with a MSK condition within the borough. Noteworthy however, is that for historic years, the prevalence and incidence of MSK will be underestimated as the data only accounts for those individuals still living with the condition, and does not include MSK patients who have died or moved out of the borough. However, given the high prevalence of the disease, the impact of not capturing these individuals is likely to be minimal on the overall estimates and hence, has not been considered in this analysis. Prevalence rates for other London boroughs are not available for comparison.

- The MSK disorders have been categorised into six condition groups in accordance with the "NHS RightCare Commissioning for Value Focus Pack on MSK Conditions": (i) back, neck and musculoskeletal pain; (ii) osteoarthritis; (iii) rheumatoid and inflammatory arthritis; (iv) osteoporosis and fragility fractures; (v) other joint disorders; and (vi) other MSK. The most prevalent MSK condition group was 'other MSK' (30%), closely followed by back, neck and MSK pain (26%).

- The prevalence of MSK conditions significantly increases with age; 17-24 year olds have the lowest prevalence of MSK (24%), while those aged 75+ have the highest MSK prevalence (85%). A significantly higher proportion of women have been diagnosed with MSK (48%) than men (44%).

- Black people have a significantly higher prevalence of MSK (59%) compared to all other ethnic groups (range: 39% to 48%). Differences in recorded sex, occupation, weight and smoking status between ethnic groups partly explained the higher prevalence of MSK in Black people but following adjustment for these confounders, the odds of having MSK was still 50% higher in Black people than White people.

Key messages (cont)

MSK RISK FACTORS AND COMORBIDITIES

- The prevalence of smoking and obesity is significantly higher among MSK patients than the general GP registered population; the prevalence of obesity was 16% among MSK patients compared to 11% within the general population. 10 out of 34 practices were observed to have a higher prevalence of smoking in their MSK population than the Camden average for all MSK patients. Similarly, 11 out of 34 practices had a higher prevalence of obesity than the Camden average for all MSK patients.
- Thirty-six percent of MSK patients have 1 or more other long-term health conditions.
- Two percent (2,006) of Camden's MSK population have been diagnosed with a mental health (MH) condition. Approximately 35% of these MSK patients were diagnosed with their MH condition after diagnosis with MSK and the median time between the two diagnoses for these patients was 6 years (IQR: 2, 11 years).

UNDER DIAGNOSIS AND CURRENT MANAGEMENT OF MSK

- The recorded prevalence of hip osteoarthritis was lower than expected; under diagnosis was more prevalent within younger age groups, and the difference between expected and recorded prevalence ranged from 3% in the over 75s to 9% in the 45-64 year age group (youngest age group analysed). Under diagnosis of hip osteoarthritis is greater among women (10% difference between expected and recorded prevalence) than men (6% difference).
- Similarly, under diagnosis of knee osteoarthritis was greater within younger age groups; the difference between expected and recorded prevalence ranged from 6% in the over 75s to 16% in the 45-64 year age group. Under diagnosis of knee osteoarthritis was similar for both women and men.
- Eighty-five percent of Camden's GP registered population with RA had a recent face-to-face interview; this is in line with the averages for London (87%) and England (84%). However, for RA patients registered at the Keats Group Practice and Westfield Medical Centre, the proportions who had a recent face-to-face interview were significantly lower (59% and 46%, respectively), than the London and England averages.
- Eighty-one percent of those aged 50-75 years who have a fragility fracture and osteoporosis are currently treated with an appropriate bone-sparing agent; this is comparable to the London and England averages of 86% and 83%, respectively.

Key messages (cont)

FIT NOTE ISSUANCE

- Fit notes (or Statements of Fitness for Work) were introduced in April 2010 and are medical statements issued by health professionals to patients to provide evidence of the advice they have given about the patient's fitness for work. They record details of the functional effects of their patient's condition, so the patient and their employer can consider ways to help them return to work.
- This HEA analysed fit notes issued to the working age population (16-64 years old). The reason for issuing a fit note is not recorded and therefore, it cannot be determined whether a fit note is specifically related to MSK.
- On average, 9% of Camden's GP registered MSK patients were issued a fit note between April 2014 and March 2015; the percentage of patients issued a fit note ranged from 2% to 40% across GP practices. 70% of MSK patients with a record of osteoarthritis were issued a fit note but the greatest number of fit notes were issued for those with a record of back, neck and musculoskeletal pain (4,671) during this time frame.
- Older people with MSK were more likely to be issued a fit note than their younger counterparts and significantly more women were issued a fit note (9.6%) than men (8.5%). Individuals with 2 or more MSK condition groups had a higher prevalence of fit note issuance than those with 1 MSK condition group.

ELECTIVE INPATIENT ADMISSIONS

- 1,445 Camden GP registered patients had an MSK-related inpatient admission; however, 329 of these patients had no prior record of MSK in their GP history.
- Six percent of all Camden elective inpatient admissions between April 2014 and March 2015 were MSK-related. The proportion of MSK-related elective inpatient admissions was highest among 17-24 year olds (11%) and lowest among 75+ year olds (4%); however, the greatest number of attendances are made by individuals in the 45-64 age group, while the 17-24 group have the lowest number of attendances.
- The proportion of MSK-related elective inpatient admissions is significantly higher for women (8%) than men (5%), and the number of MSK-related elective inpatient admissions in females is 1.5 times that of males.
- The median length of inpatient stay (excluding day case admissions) is similar across genders but appears to increase with age (1 day for 17-24 age group versus 5 days for 75+ age group). Individuals with osteoarthritis have the greatest median length of inpatient stay (4 days, IQR: 3,6 days) compared to other MSK condition groups.
- Between 25-30% of patients aged 17-64 years underwent a high spend procedure classified as "other" (**see page 82**). Fifty-five percent of "other" high spend procedures were performed on men.

Key messages (cont)

HIP AND KNEE REPLACEMENTS

- There were 120 hip replacements and 94 knee replacements performed between April 2014 and March 2015.
- Knee and hip replacements are more prevalent among those aged 65+ years compared to patients <65 years.
- University College Hospital (UCH) and the Royal Free Hospital accounted for the highest proportions of hip and knee replacements. Out of 120 hip replacements performed in 2014-15, 37 were conducted by Dr Garlick at the Royal Free Hospital and 44 were conducted by Dr Haddad at UCH. Out of the 94 knee replacements performed, 29 were conducted by Dr Galea at the Royal Free Hospital, while Dr Haddad and Dr Oussedik conducted 20 and 16 of the surgeries at UCH, respectively.
- Twenty-two percent of patients who had a hip replacement and 40% of patients who had a knee replacement were classified as obese.
- The average adjusted EQ-5D health gain following primary hip replacement was 0.43; this is in line with the London and England averages of 0.43 and 0.44, respectively.
- For patients who had a primary knee replacement, the average adjusted EQ-5D health gain was 0.18; this was the lowest observed out of all London CCGs and lower than the London (0.28) and England (0.31) averages.

COMMUNITY CARE

- Fifty-eight percent of MSK community appointments between 2015 and 2016 were for physiotherapy or podiatry and just under a quarter of appointments were for the physioline service. 89% of all MSK community appointments were attended by Camden residents and 10% were attended by residents of other London local authorities.
- Forty-three percent of patients accessed two or more different MSK community services between 2015 and 2016; this highlights the inefficiency of the current silo approach to delivery of MSK services across providers.
- Women accounted for 62% (approximately 32,000) of all appointments, with physiotherapy and podiatry being the most common appointment among both men (11,900) and women (19,900).
- There is a clear relationship between deprivation and use of MSK community services. Over 35,000 appointments were attended by people living in the most deprived quintiles (quintiles 1 and 2). All service types showed a reduction in the number of appointments with increasing deprivation quintile.

Key messages (cont)

COMMUNITY CARE

- Twice as many women than men had MRI and ultrasound appointments (approximately 7,700 compared to 4,000); women accounted for 70% of ultrasound and 60% of MRI appointments. Almost half of ultrasound appointments and 45% of MRI appointments were attended by individuals within the two most deprived quintiles (quintiles 1 and 2).
- EQ-5D scores were only available for 4.8% (3,188) of all MSK community appointments. 86% reported an improvement in condition, while 14% reported that they felt worse following their appointment.

Indicator selection

Approach and methods

- PHE and NHS England published the **"NHS RightCare Commissioning for Value Focus Pack on MSK Conditions"** in May 2016. The main objective of the Focus Pack was to provide supporting tools to drive local action to reduce inequalities in access to services and in the health outcomes achieved. (Available from: https://www.england.nhs.uk/rightcare/intel/cfv/data-packs/london/#6).
- The indicators analysed in the Focus Pack were chosen with advice from national clinical leads and other key stakeholders including Arthritis Research UK, the National Osteoporosis Society and the North East Quality Observatory Service.
- This HEA builds on the indicators selected in the Focus Pack; it provides more detailed analyses on access to services and health outcomes by socio-demographic characteristics through analysis of Camden's local GP-Linked SUS database.
- Furthermore, as this HEA involves analysis of patient-level primary care, secondary care, community data, patient reported outcomes (EQ-5D) and employment data, it provides a more holistic overview of the inequalities in the MSK elective care pathway, health outcomes and the corresponding economic impact.

GP PH dataset and case definitions

Camden GP-SUS PH dataset

- Much of the epidemiological analysis in this profile has been undertaken using an anonymised patient-level dataset from GP practices in Camden, which has been linked with hospital admissions data. This has been done in agreement with local GPs and with governance from our multi-disciplinary Health Intelligence Advisory Group. Data was extracted on the 1st September 2015.
- The dataset includes key information on demographics, diagnoses, assessments, medications, secondary care admissions, attendances, inpatients and outpatients.
- This unique resource means that for the first time in Camden, it is possible to perform in depth epidemiological analyses to assess the healthcare needs of adults with MSK disorders, and identify how current MSK services and resources are distributed in relation to the population's needs

Case definitions for MSK condition groups and procedures

- This HEA replicates the same method as that used in the MSK Focus Pack to identify MSK patients within the SUS database. MSK patients were identified through a combination of ICD-10 and Programme Budget codes outlined on **page 74**. To identify MSK patients within the GP database, ICD-10 codes were mapped to Read Codes.
- OPCS and PBC codes used for analysis of high spend procedures are provided on **pages 76-82.**

Calculation of prevalence of MSK condition groups

- For life long MSK conditions (rheumatoid and inflammatory arthritis, osteoporosis and fragility fractures, osteoarthritis, other joint disorders and other MSK), the diagnosis could be at any point in the patient's history.
- However, for back, neck and musculoskeletal pain, patients only contributed to the analyses if their latest diagnosis for this condition was within the past 10 years (1st September 2005 to the 1st September 2015). This selection criterion was applied so that the analysis of current prevalence excluded historic diagnoses and only included those still likely to be living with the condition.
- Noteworthy however, is that for historic years, the estimated prevalence and incidence of MSK is underestimated, as the data only accounts for those individuals who are still living with the (i.e. it does not include MSK patients who have died or moved out of the borough). However, given the high prevalence of the disease, the impact of not capturing these individuals is likely to be minimal on the overall estimates and therefore, has not been considered in the analysis.
- Expected prevalence models for hip and knee osteoarthritis were obtained from Arthritis Research UK. Further details can be found on **page 83**.

Overview of MSK analyses

Primary care

- Prevalence and incidence of MSK over the past 10 years.
- Variation in current prevalence of MSK by socio-demographic characteristics.
- Prevalence of risk factors (smoking, obesity), LTCs, mental health conditions.
- Under diagnosis of hip and knee osteoarthritis.
- Current management of rheumatoid arthritis and osteoporosis.
- Fit note issuance and variation by socio-demographic characteristics.

Secondary care: elective inpatient admissions

- Overall frequency of elective inpatient admissions and variation by socio-demographic characteristics.
- Inequalities in length of elective inpatient stay.
- Frequency of high spend procedures, including hip and knee replacements.
- Providers and consultants for hip and knee replacements.
- Patient-reported outcomes following hip and knee replacements.

Community care

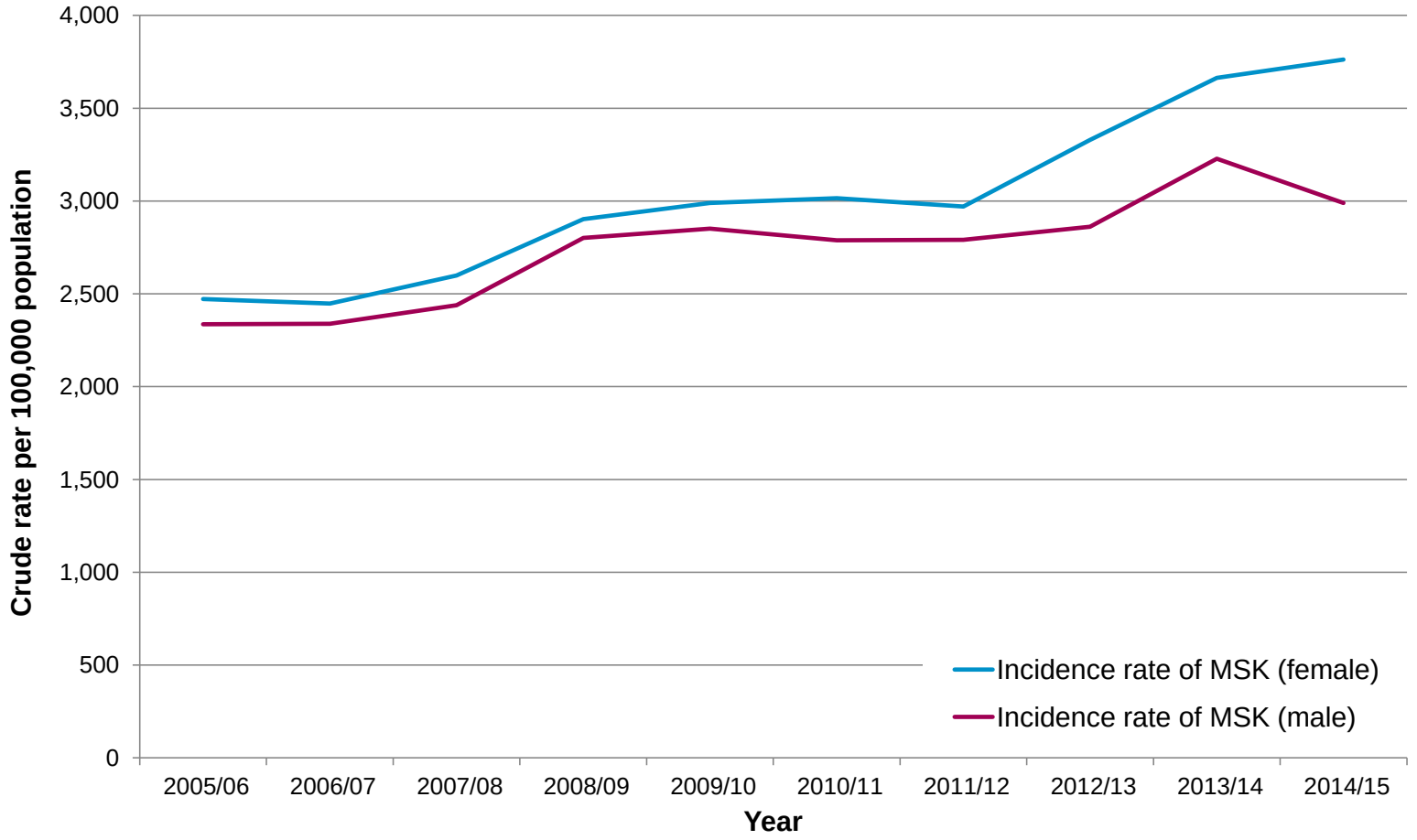
- Number of different community services accessed by patients.
- Overall frequency of physio and podiatry, physioline, CATS, CPAM and osteopathy appointments.
- Variation in frequency of appointments by socio-demographic characteristics.
- Patient-reported outcomes for community MSK services.

EPIDEMIOLOGY OF MSK DISORDERS

This section covers the incidence and prevalence of MSK disorders in the borough by socio-demographic characteristics and GP practice.

Incidence of MSK among Camden's population aged 17+, 2005-2015

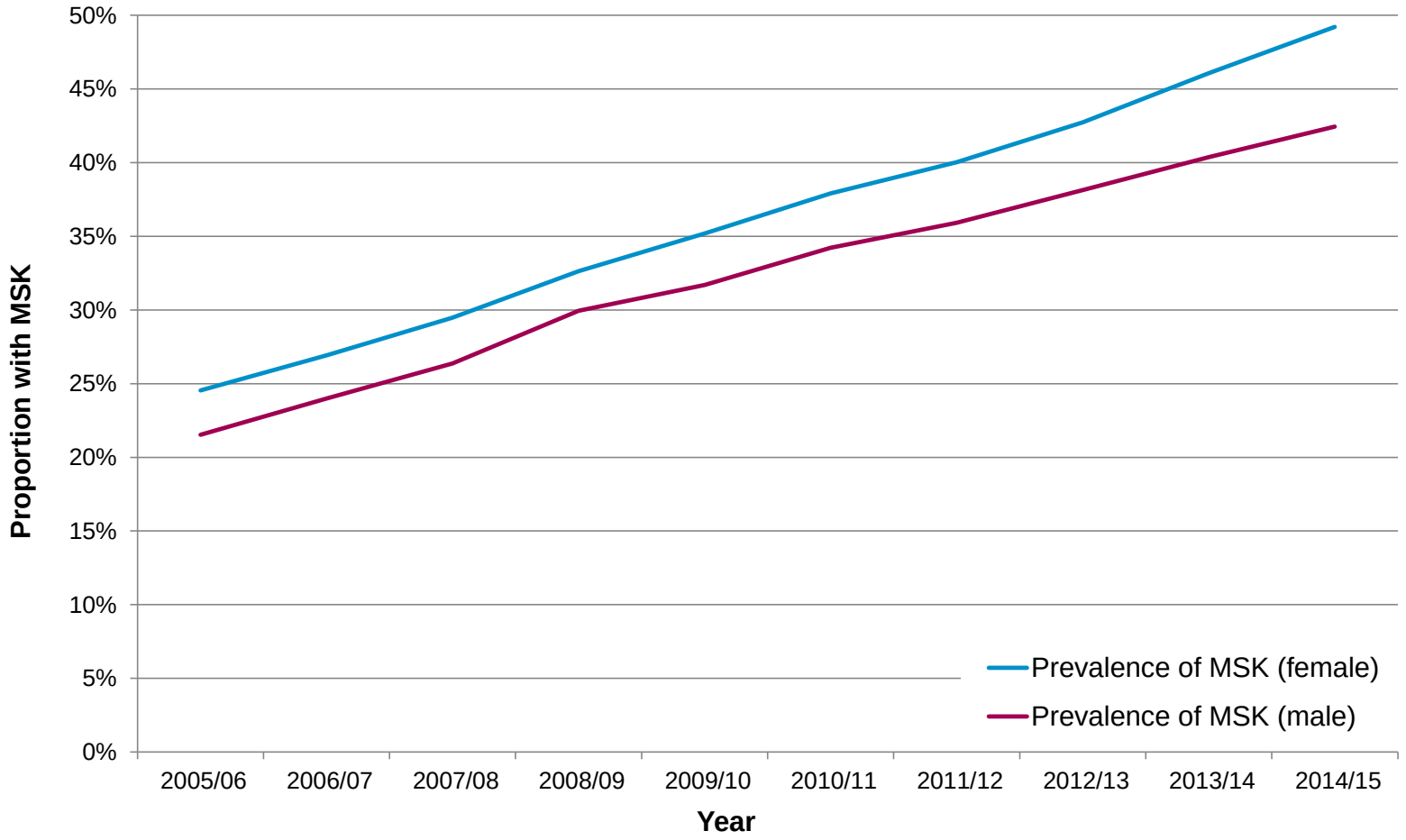
The incidence of MSK has risen year-on-year from 2,404 new cases per 100,000 population in 2005 to 3,376 new cases per 100,000 population in 2015 (although rates in men show a decrease in 2014/15). The incidence of MSK has been consistently higher for women than men.



Source: GP Linked Dataset (2015), GLA population projections (2015)

Prevalence of MSK among Camden's population aged 17+, 2005-2015

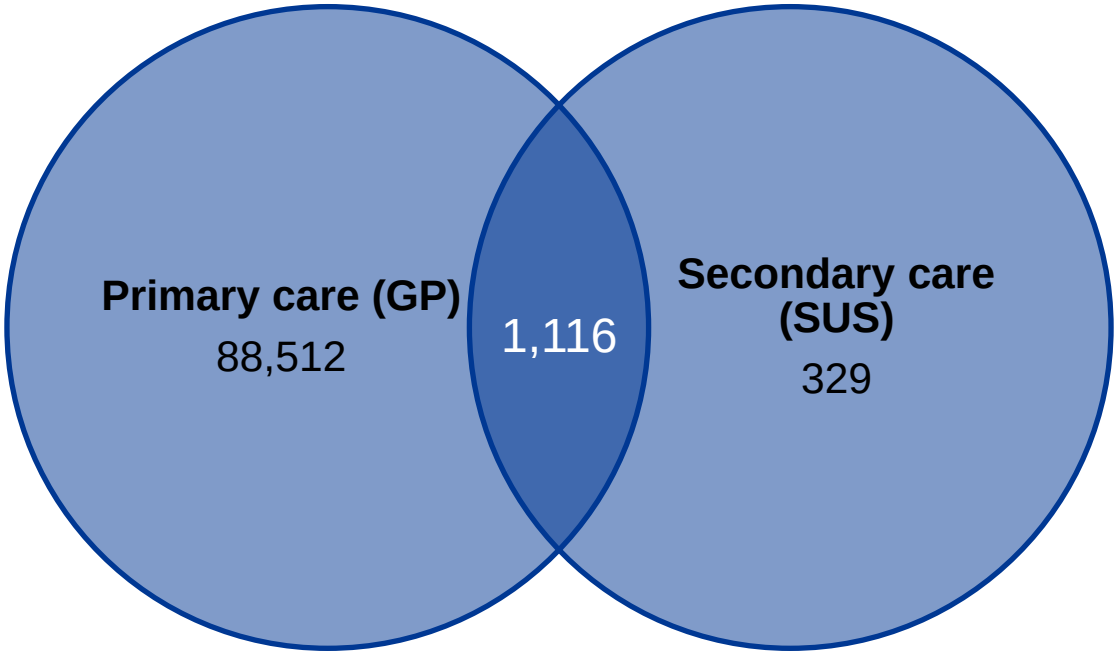
Over the past ten years, the overall prevalence of MSK has risen steadily from 23% in 2005 to 46% in 2014/15 and has been consistently higher in women than men.



Source: GP Linked Dataset (2015), GLA population projections (2015)

Recorded prevalence of overall MSK, by care setting

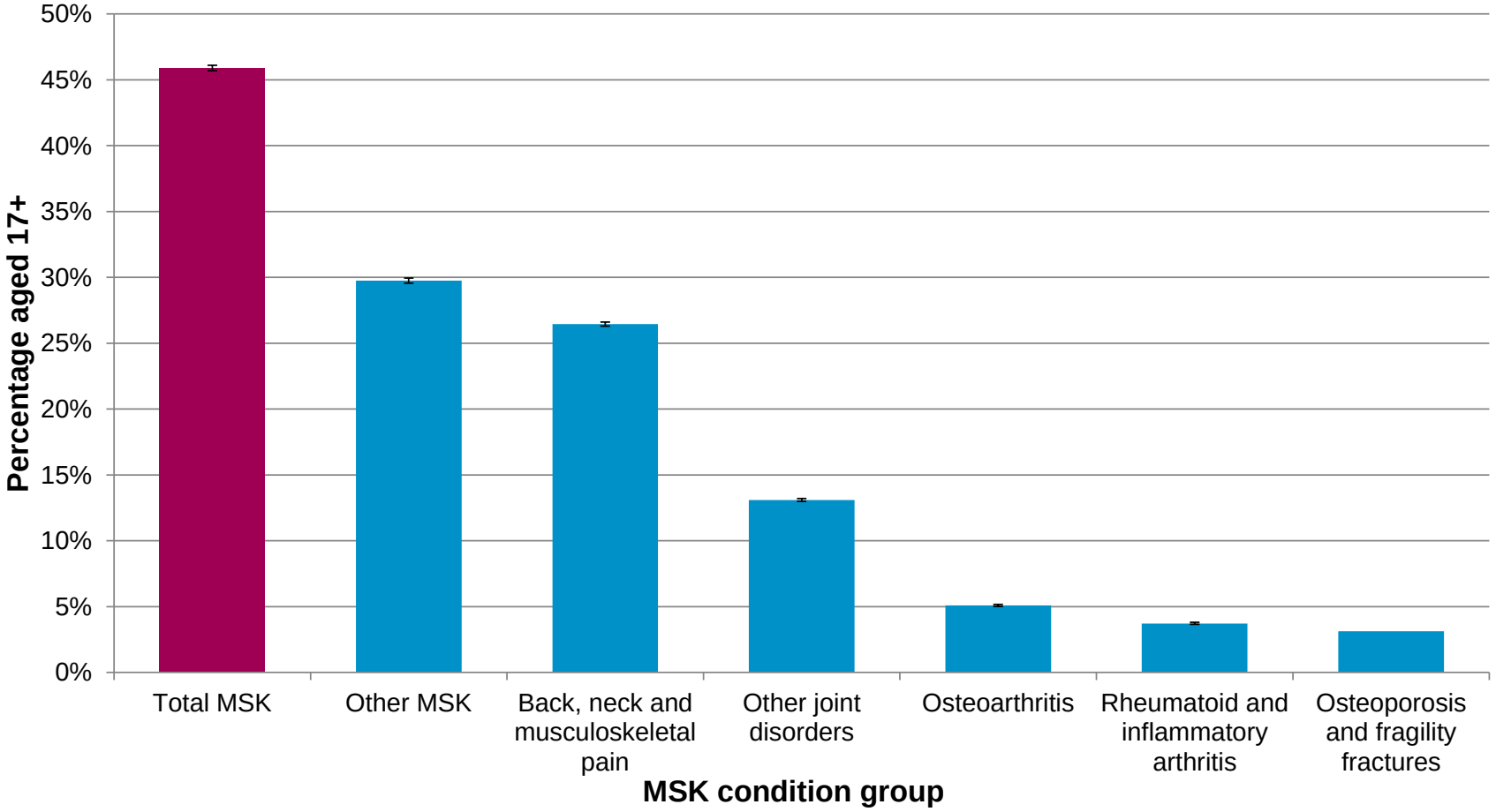
Over 88,000 patients had a diagnosis of MSK in their GP record prior to September 2015. Between April 2014 and March 2015, 1,445 Camden GP registered patients had an inpatient admission; however, 329 of these patients had no prior record of MSK in their GP history.



Figures represent number of MSK patients
Source: Camden GP-SUS Linked Dataset 2014/15

Prevalence of MSK condition groups within primary care

The overall prevalence of MSK among Camden's GP registered population is 46%; the most prevalent MSK condition group was 'other MSK' (30%), closely followed by back, neck and MSK pain (26%).

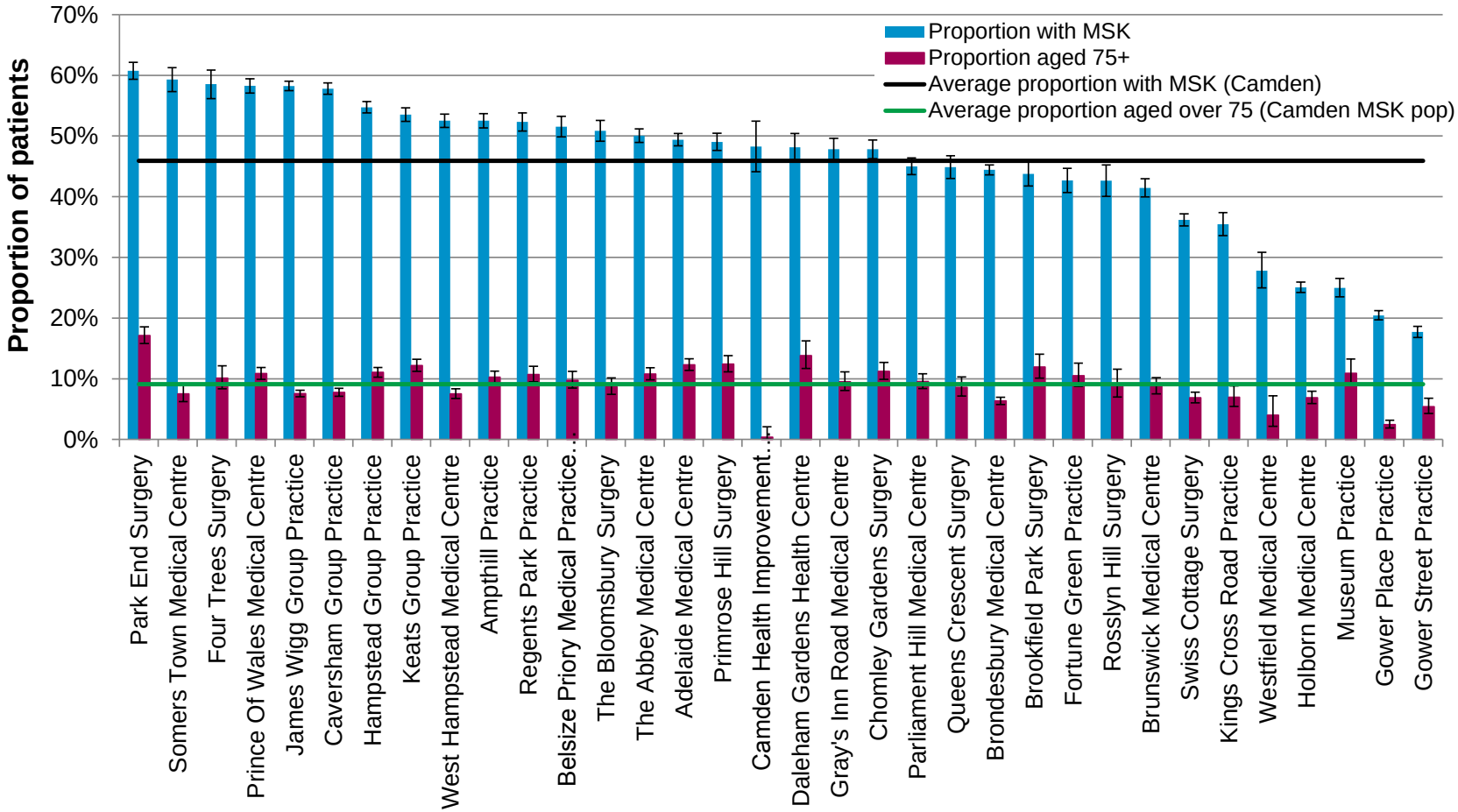


Note: Registered GP population aged 17+ in 2015. Other joint disorders does not include RA, inflammatory arthritis or osteoarthritis

Source: Camden's GP PH dataset 2015

Prevalence of MSK within primary care, by Camden GP Practice

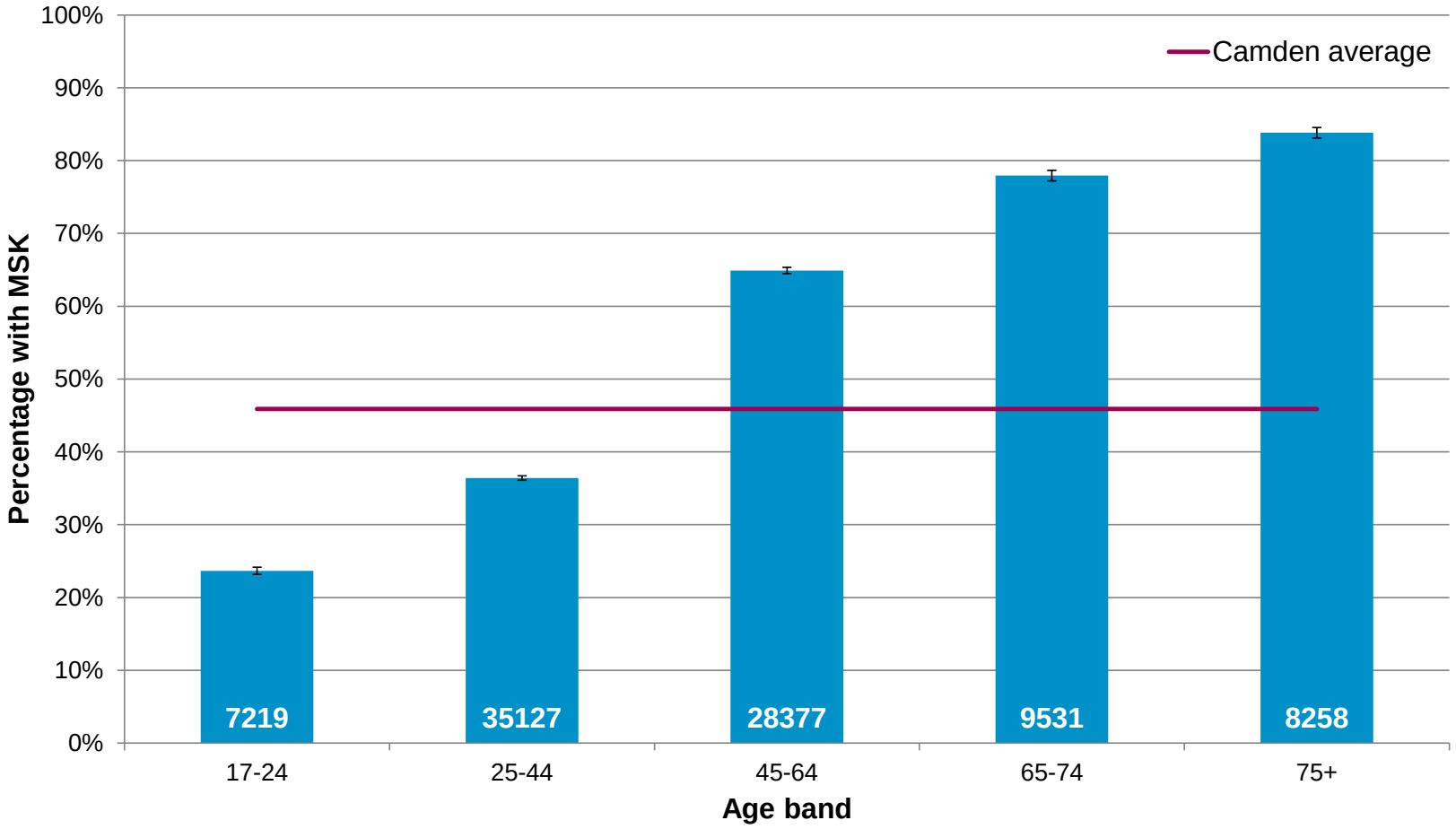
On average, 46% of Camden's GP registered population have been diagnosed with MSK and 9% of MSK patients are aged 75 years or older.



Note: Registered GP population aged 17+ in 2015
Source: Camden's GP PH dataset 2015

Prevalence of MSK within primary care, by age group

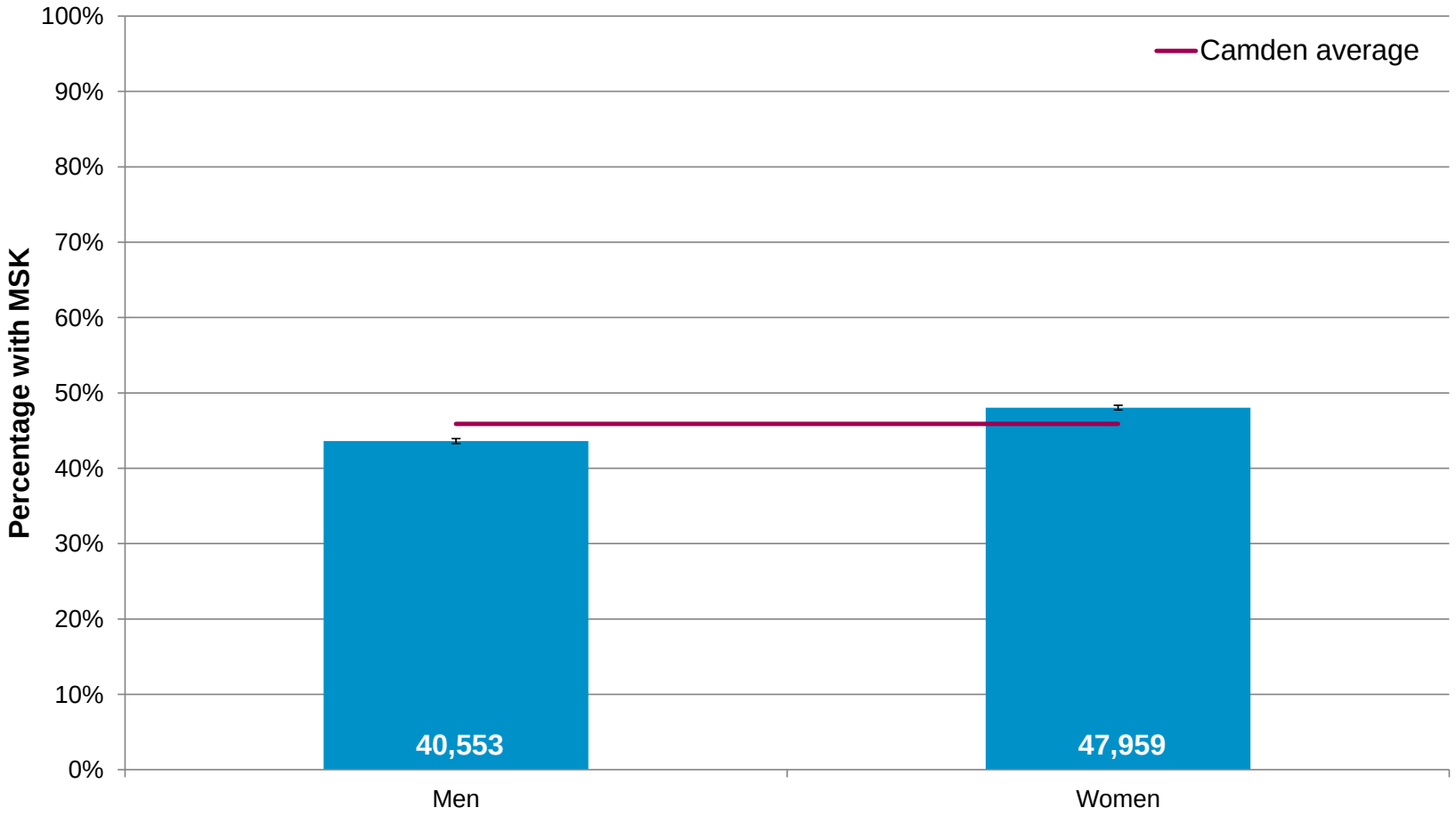
MSK prevalence significantly increases with age; 17-24 year olds have the lowest prevalence of MSK (24%), while those aged 75+ have the highest MSK prevalence (85%).



Note: Registered GP population aged 17+ in 2015
Source: Camden's GP PH dataset 2015

Prevalence of MSK within primary care, by gender

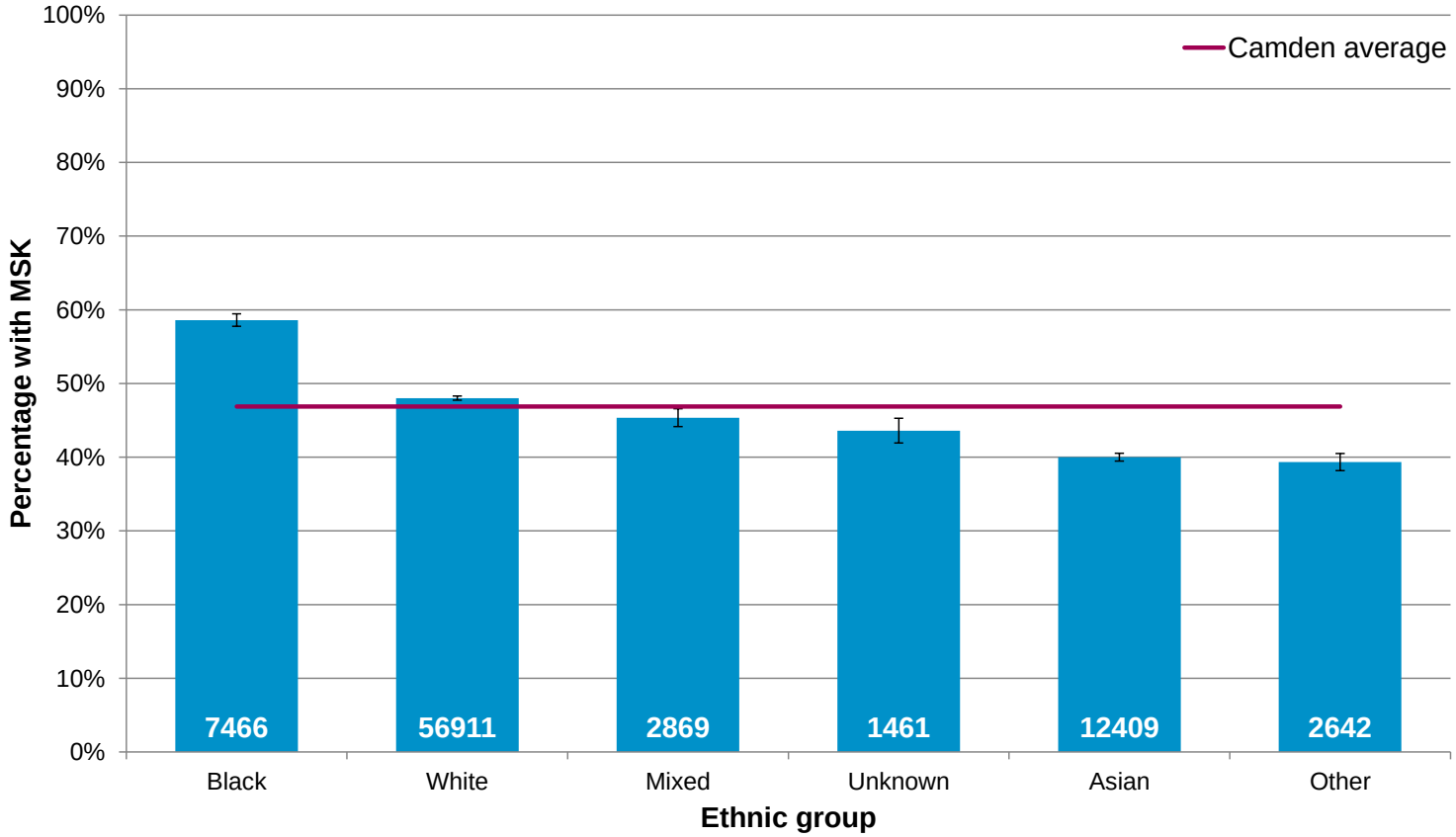
Women have a significantly higher prevalence of MSK (48%) compared to men (44%).



Note: Registered GP population aged 17+ in 2015
Source: Camden's GP PH dataset 2015

Prevalence of MSK within primary care, by ethnicity

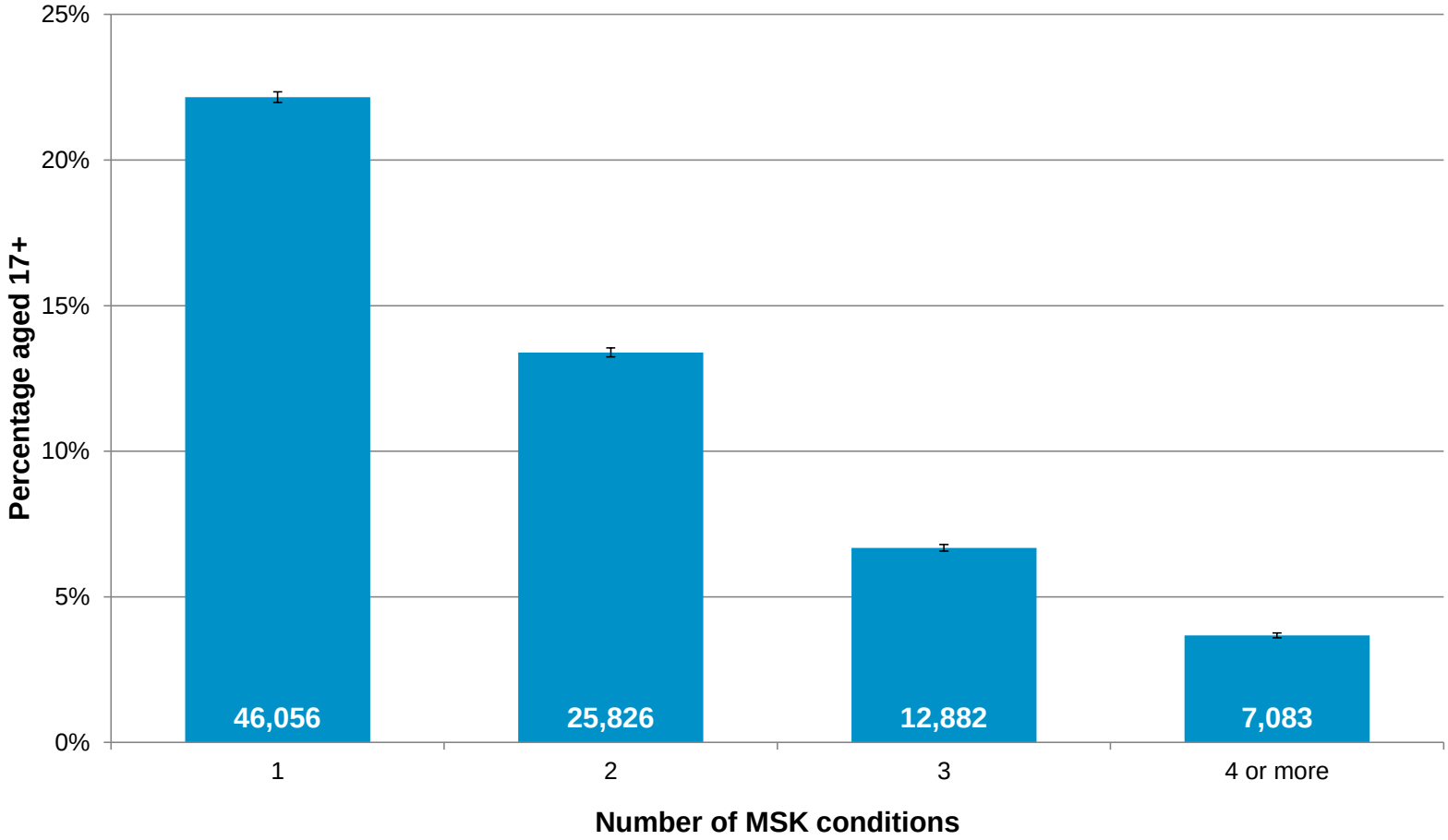
Black people have a significantly higher prevalence of MSK (59%) compared to all other ethnic groups. Differences in recorded sex, occupation, weight and smoking status between ethnic groups partly explained the higher prevalence of MSK in Black's but following adjustment for these confounders, the odds of having MSK was still 50% higher in Black's than White's.



Note: Registered GP population aged 17+ in 2015
Source: Camden's GP PH dataset 2015

Prevalence of the number of MSK condition groups within primary care

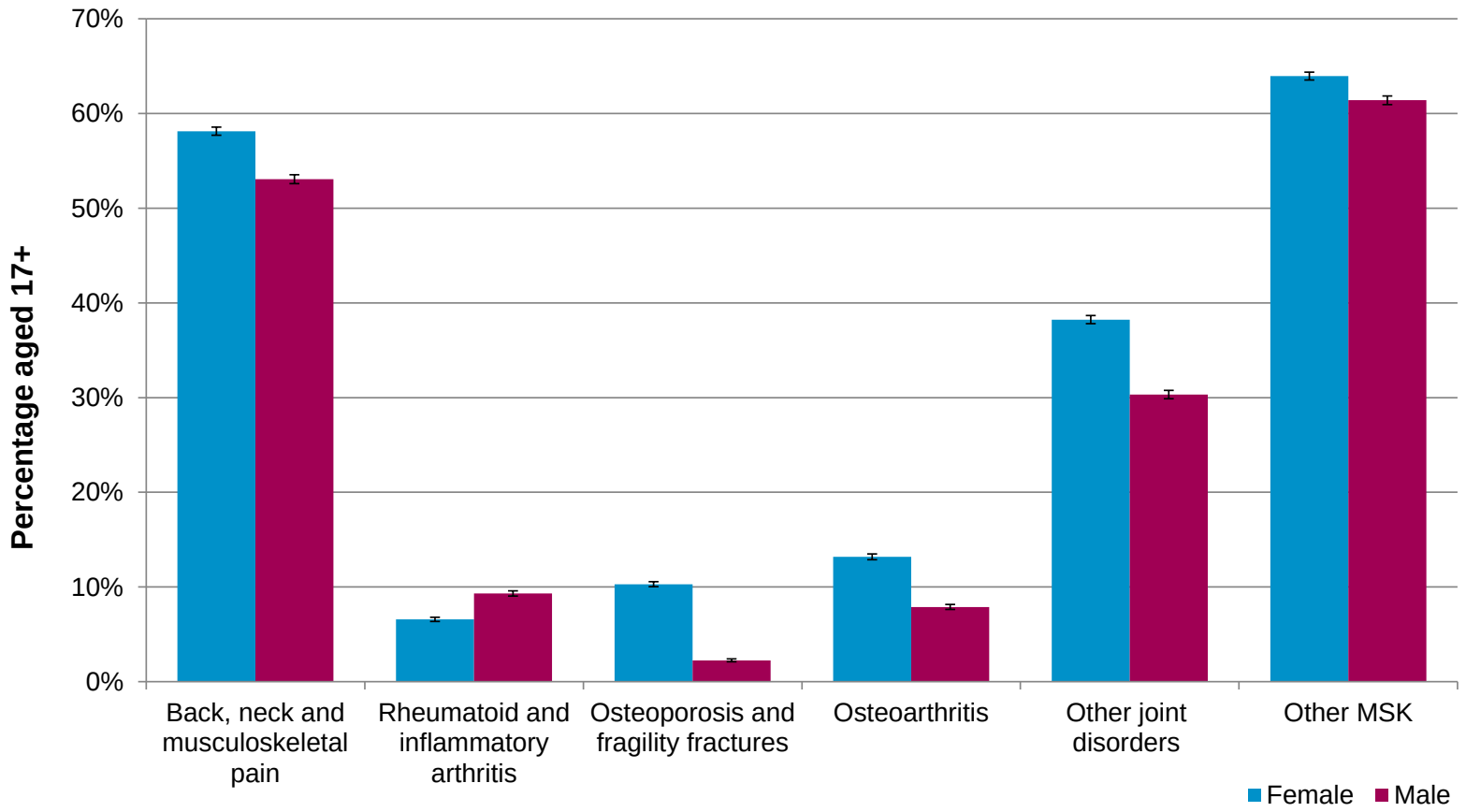
Most people diagnosed with MSK only have one MSK condition group (22%); prevalence decreases in proportion to increasing number of MSK conditions, with the 4 or more MSK condition group being the least prevalent (4%).



Note: Registered GP population aged 17+ in 2015
Source: Camden's GP PH dataset 2015

Prevalence of MSK conditions within primary care, by gender

Significant differences exist between genders across all MSK condition groups; MSK conditions are more prevalent among women than men, with the exception of rheumatoid and inflammatory arthritis.



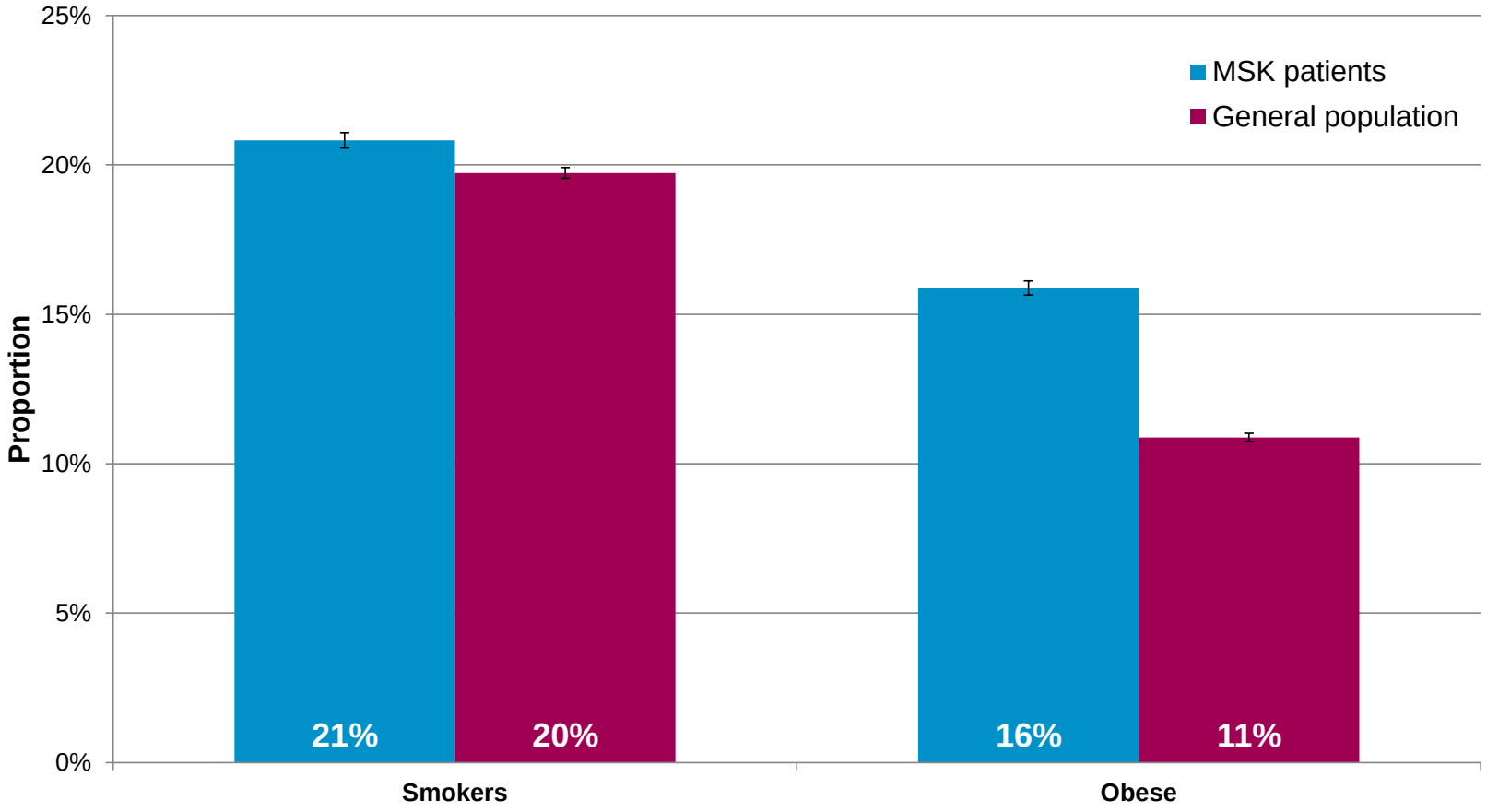
Note: Registered GP population aged 17+ in 2015. Other joint disorders does not include RA, inflammatory arthritis or osteoarthritis
Source: Camden's GP PH dataset 2015

MSK RISK FACTORS AND COMORBIDITIES

This section covers the prevalence of MSK risk factors (smoking and obesity), long-term conditions and mental health issues within Camden's MSK population.

MSK risk factors: Prevalence of smoking and obesity among MSK patients compared to the general GP registered population

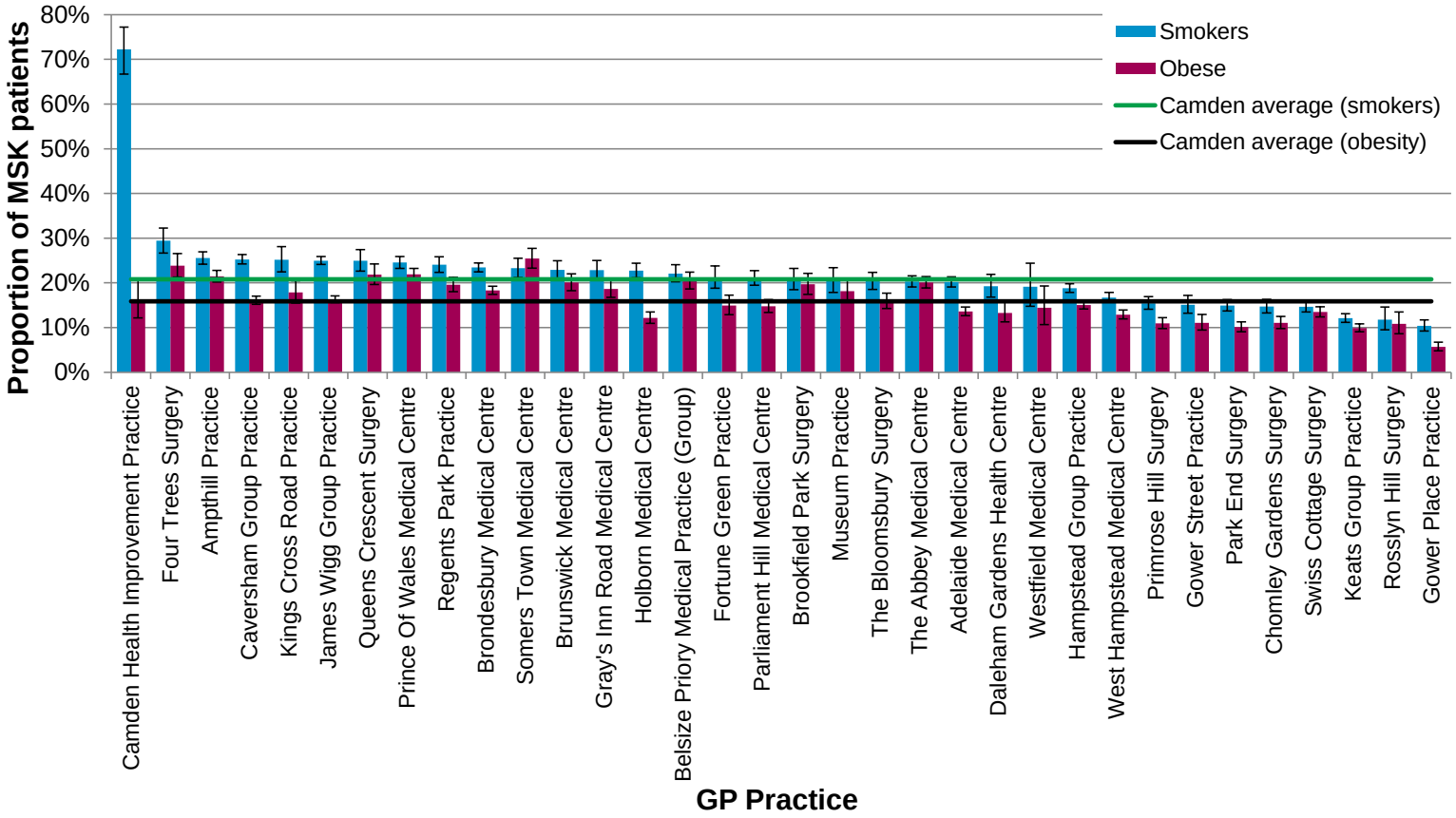
The prevalence's of both smoking and obesity are significantly higher among MSK patients than the general GP registered population.



Note: Registered GP population aged 17+ in 2015
Source: Camden GP Linked Dataset, 2015

MSK risk factors: Proportion of MSK patients who smoke or are obese, by Camden GP practice

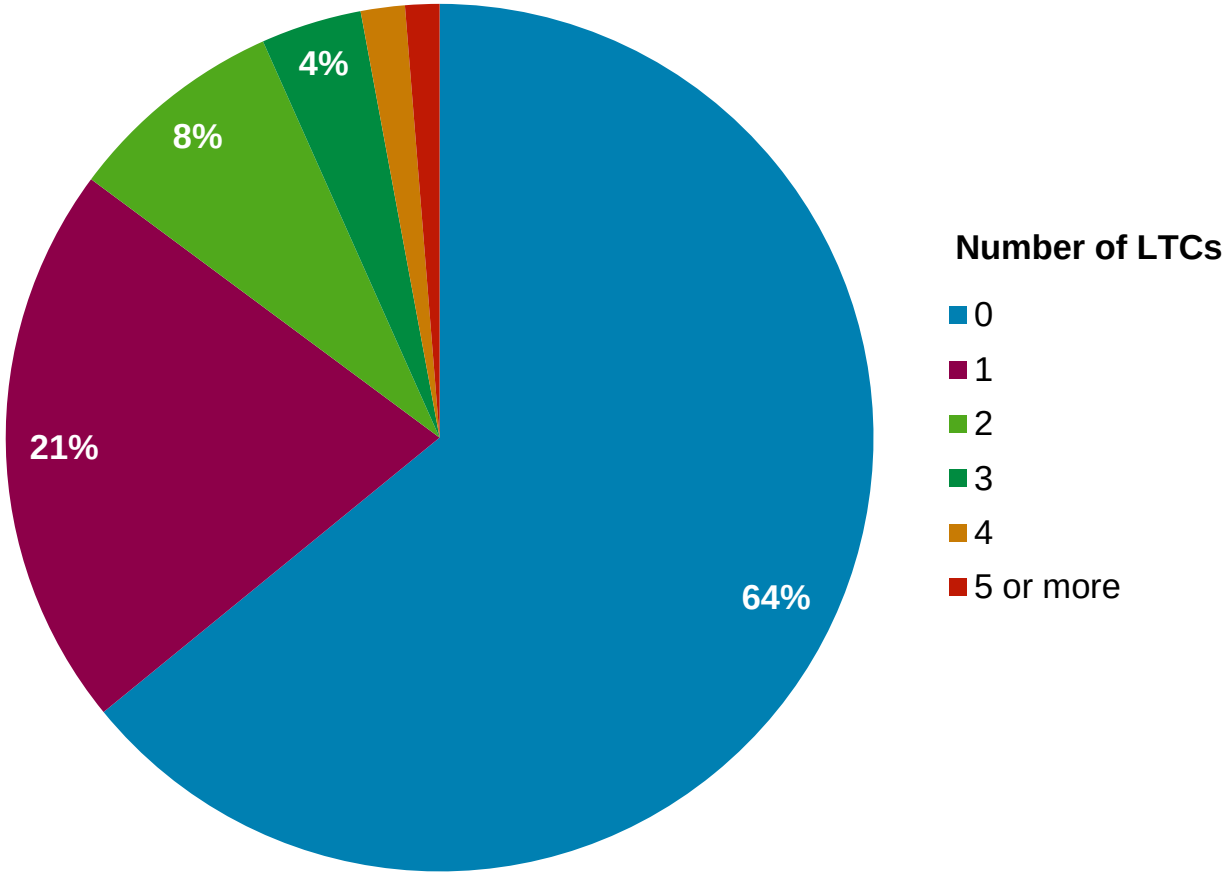
10 out of 34 practices were observed to have a higher prevalence of smoking in their MSK population than the Camden average for all MSK patients. Similarly, 11 out of 34 practices had a higher prevalence of obesity than the Camden average for all MSK patients.



Note: Registered GP population aged 17+ in 2015
Source: Camden GP Linked Dataset, 2015

Prevalence of long-term health conditions within Camden's MSK population

36% of MSK patients have 1 or more other long-term health conditions.

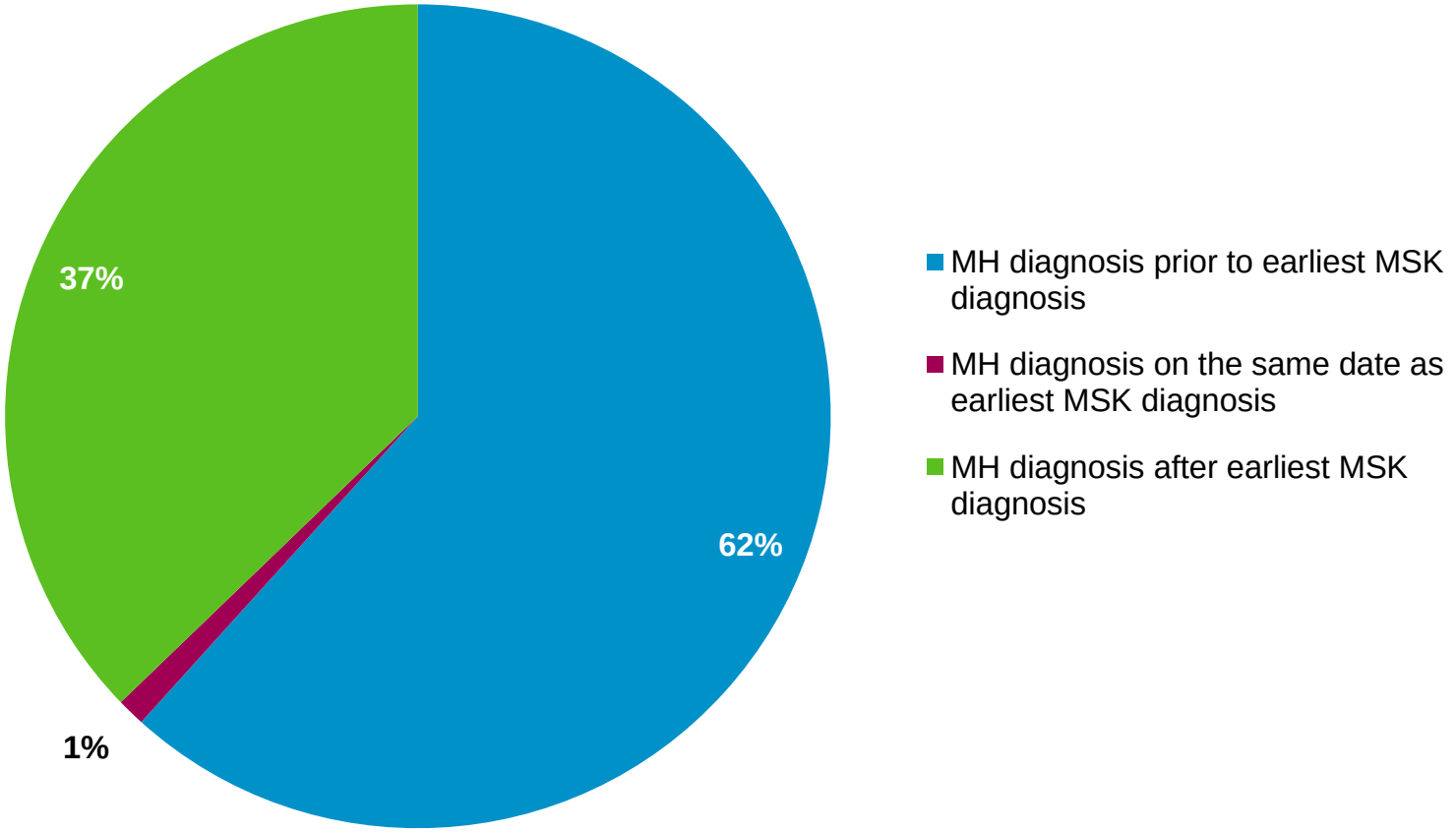


Source: Camden's GP PH dataset 2015

Note: long-term conditions counted as atrial fibrillation, heart failure, CHD, Stroke/TIA, PAD, cancer, diabetes, CKD, COPD, CLD, dementia, depression, serious mental illness, and learning disability

Prevalence of mental health conditions within Camden's MSK population

2% (2,006) of Camden's MSK population have been diagnosed with a mental health (MH) condition. 1,994 of the 2,006 MSK patients had information on date of diagnosis of their earliest active MH condition. 37% of these MSK patients were diagnosed with their MH condition after diagnosis with MSK and the median time between the two diagnoses for these patients was 6 years (IQR: 2, 11).



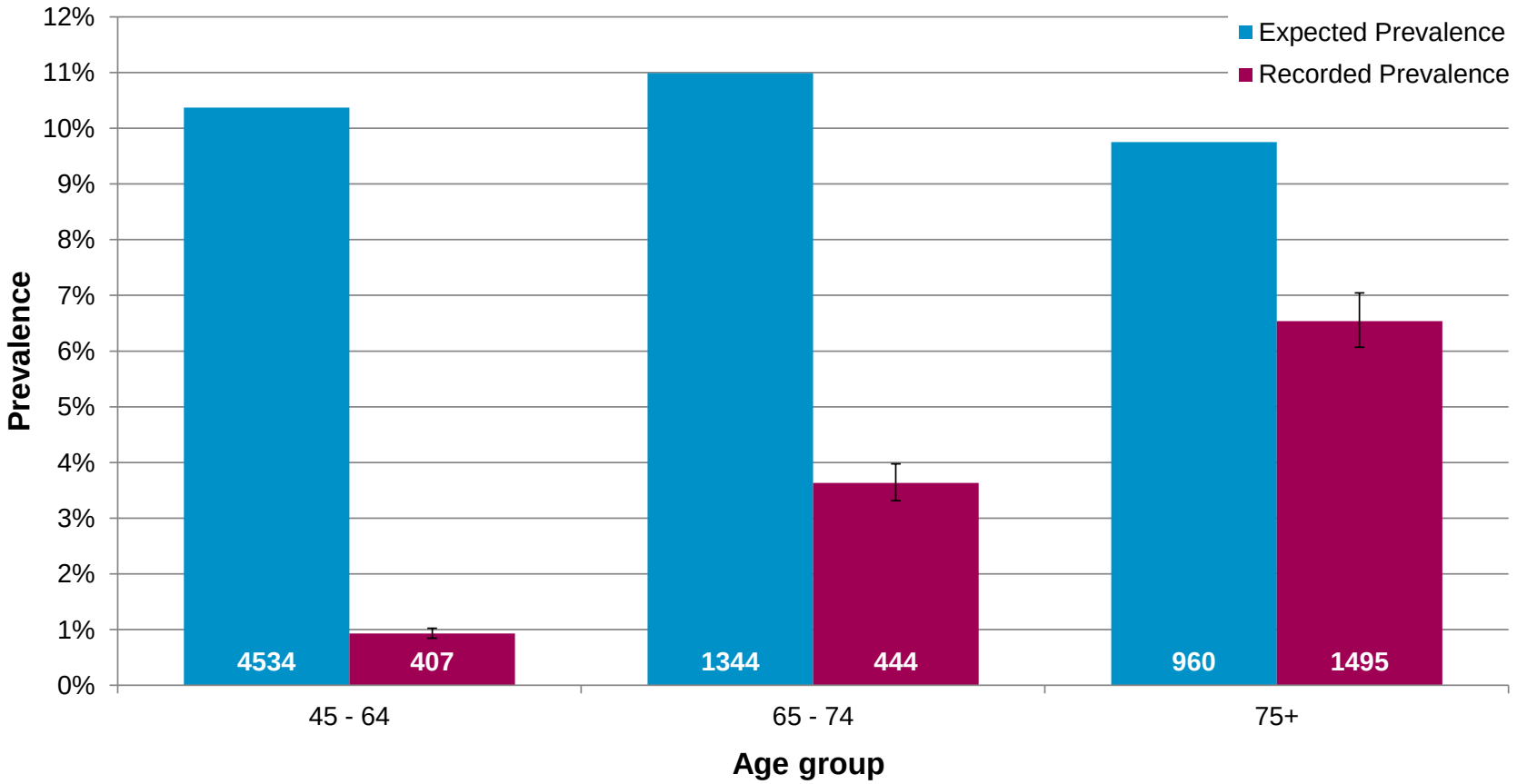
Source: Camden's PH dataset 2015

UNDER DIAGNOSIS AND CURRENT MANAGEMENT OF MSK CONDITIONS

This section covers estimated rates of under diagnosis for hip and knee osteoarthritis, as well as current management of rheumatoid arthritis and osteoporosis in primary care.

Expected versus recorded prevalence of hip osteoarthritis by age group, 2015

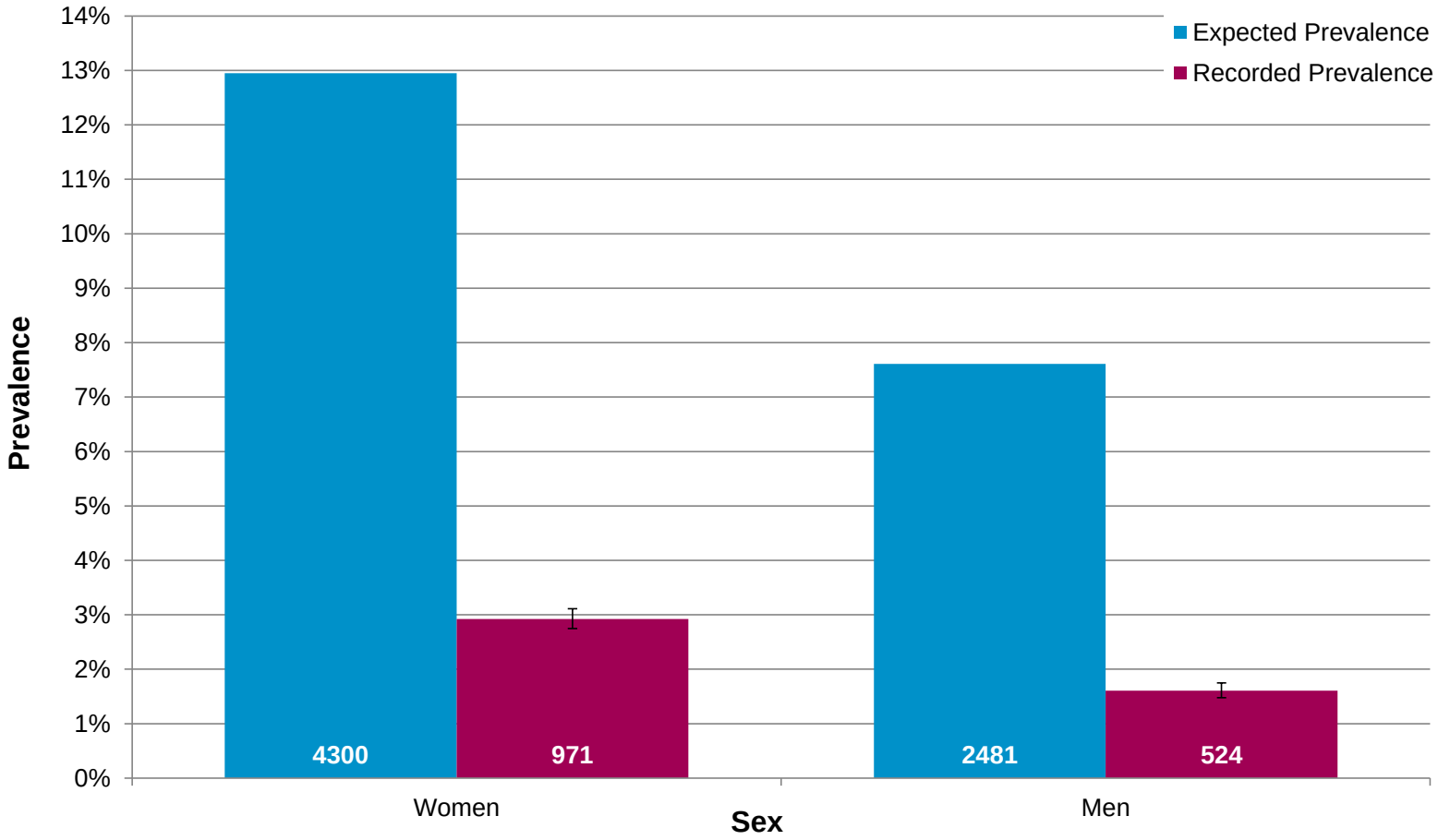
The recorded prevalence of hip osteoarthritis was lower than expected across all age groups. Under diagnosis was more prevalent within younger age groups; the difference between expected and recorded prevalence ranged from 3% in the over 75s to 9% in the 45-64 year age group.



Note: Recorded prevalence defined as all patients with a MSK diagnosis within the primary care setting , prior to 1st September 2015; numbers within each bar represent the number of recorded cases and the number of expected cases
Source: Recorded prevalence-Camden's GP PH Dataset 2015 ; Expected prevalence- Arthritis Research UK MSK calculator

Expected versus recorded prevalence of hip osteoarthritis by sex, 2015

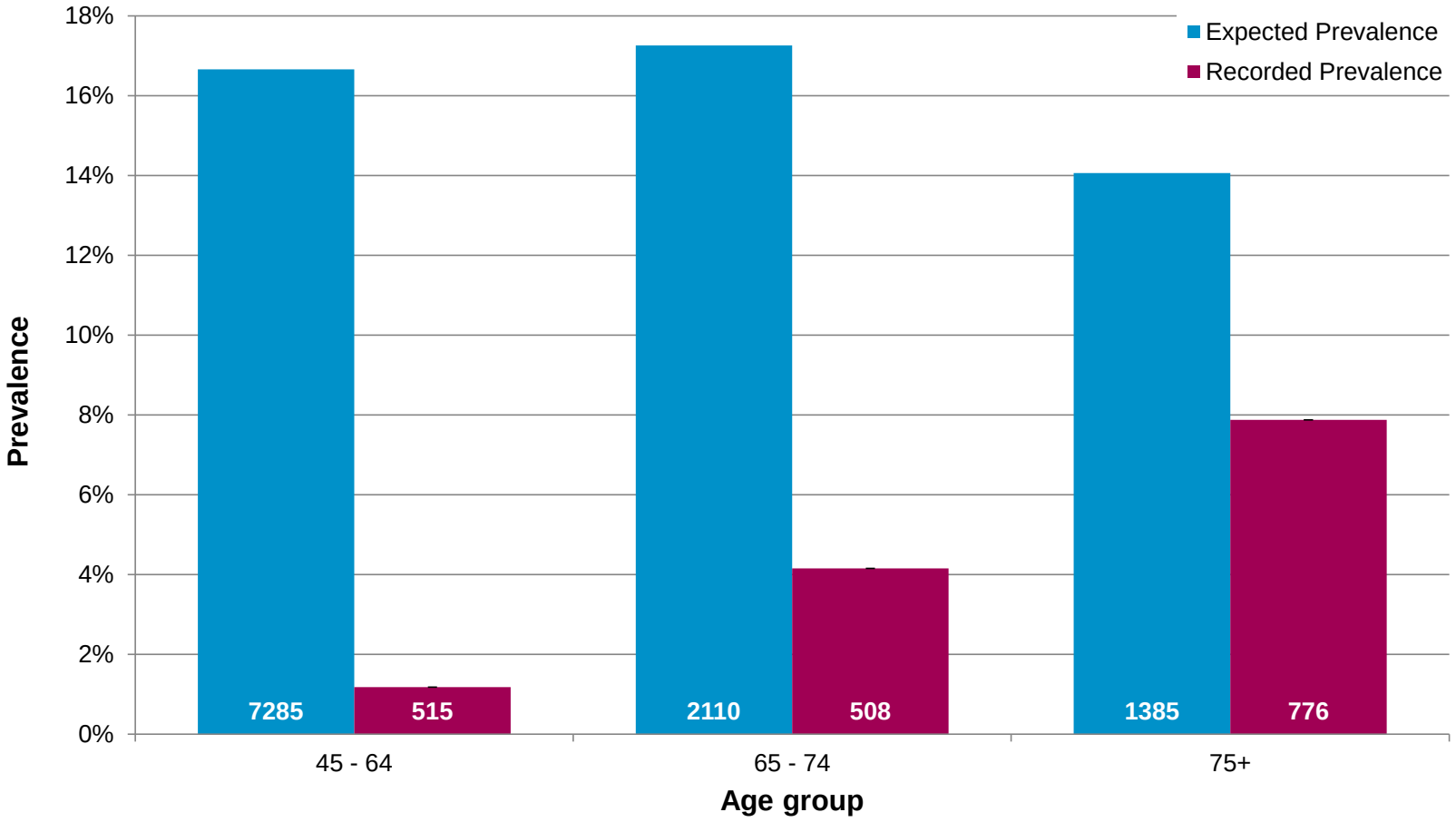
The recorded prevalence of hip osteoarthritis is 1% higher for women than men. Under diagnosis of hip osteoarthritis is greater among women (10% difference between expected and recorded prevalence) than men (6% difference).



Note: Recorded prevalence defined as all patients with a MSK diagnosis within the primary care setting , prior to 1st September 2015
Source: Recorded prevalence-Camden's GP PH Dataset 2015 Expected prevalence- Arthritis Research UK MSK calculator

Expected versus recorded prevalence of knee osteoarthritis by age group, 2015

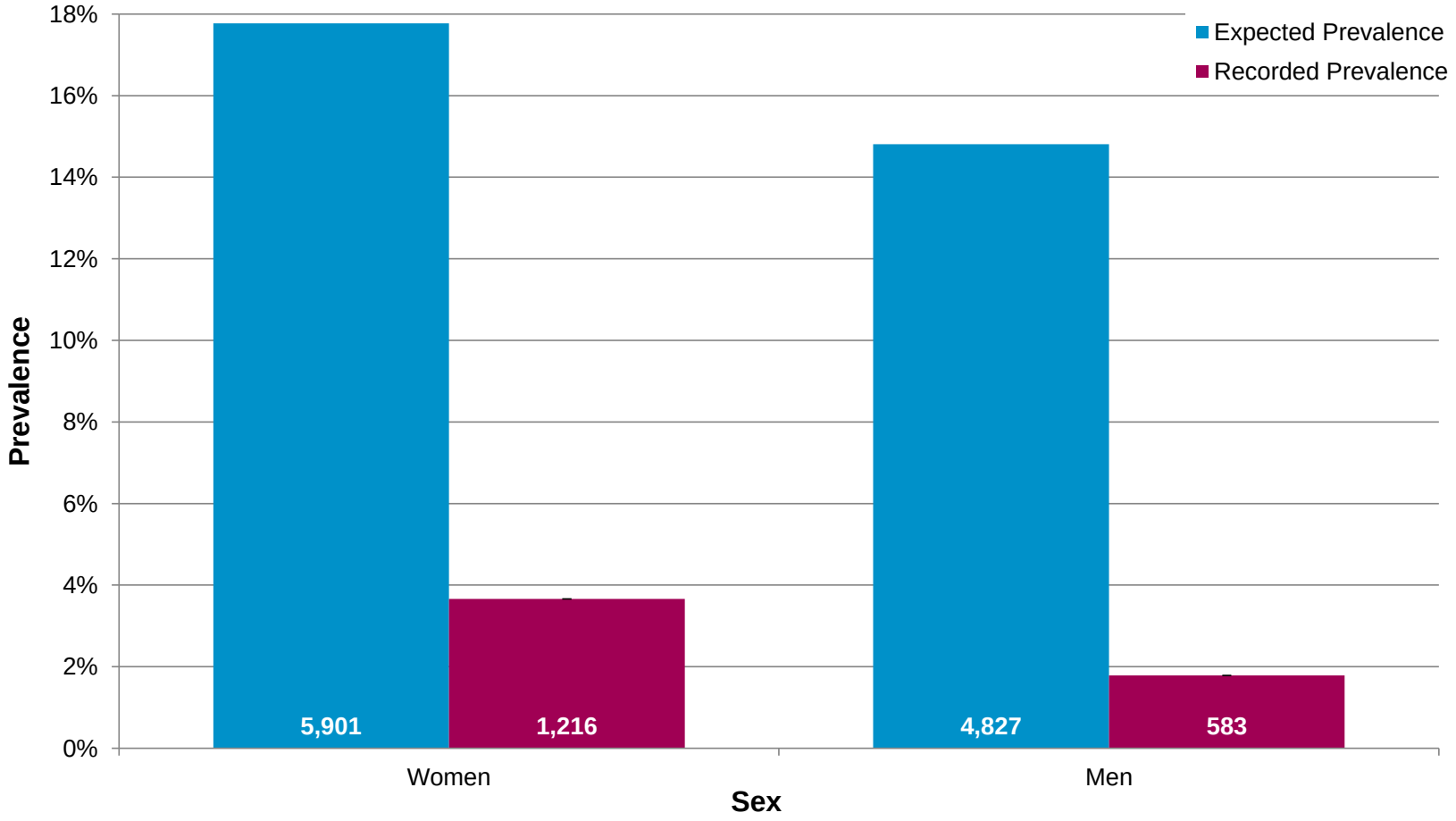
The recorded prevalence of knee osteoarthritis was lower than the expected prevalence across all age groups. Under diagnosis was more prevalent within younger age groups; the difference between expected and recorded prevalence ranged from 6% in the over 75s to 16% in the 45-64 year age group.



Note: Recorded prevalence defined as all patients with a MSK diagnosis within the primary care setting , prior to 1st September 2015
Source: Recorded prevalence-Camden's GP PH Dataset 2015 Expected prevalence- Arthritis Research UK MSK calculator

Expected versus recorded prevalence of knee osteoarthritis by sex, 2015

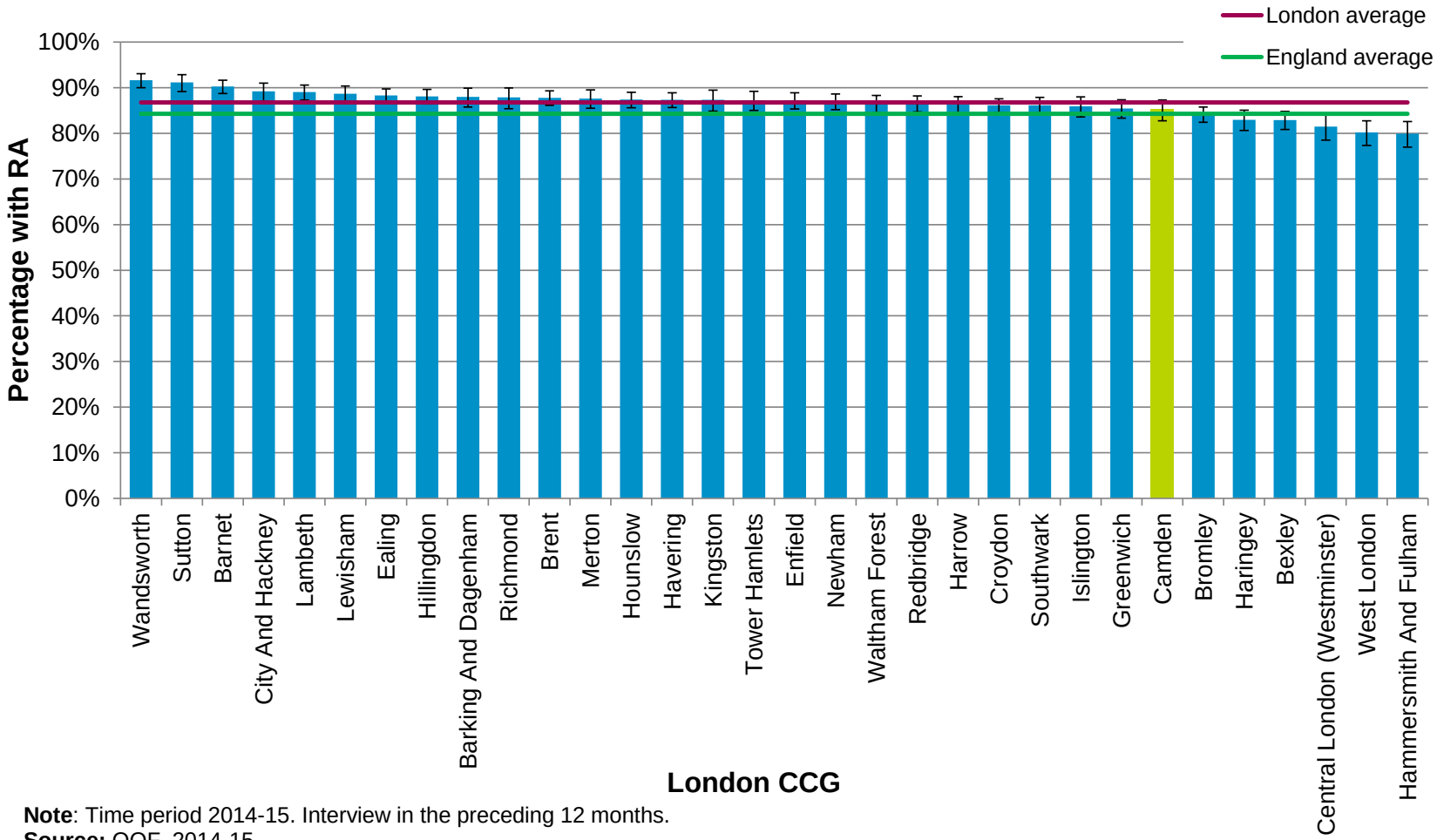
The recorded prevalence of knee osteoarthritis is 2% higher for women than men. Under diagnosis of knee osteoarthritis is similar for both women and men (difference between expected and recorded prevalence is 14% and 13%, respectively).



Note: Recorded prevalence defined as all patients with a MSK diagnosis within the primary care setting , prior to 1st September 2015
Source: Recorded prevalence-Camden's GP PH Dataset 2015 Expected prevalence- Arthritis Research UK MSK calculator

Percentage of GP registered population with rheumatoid arthritis who have had a recent face-to-face interview, by London CCG

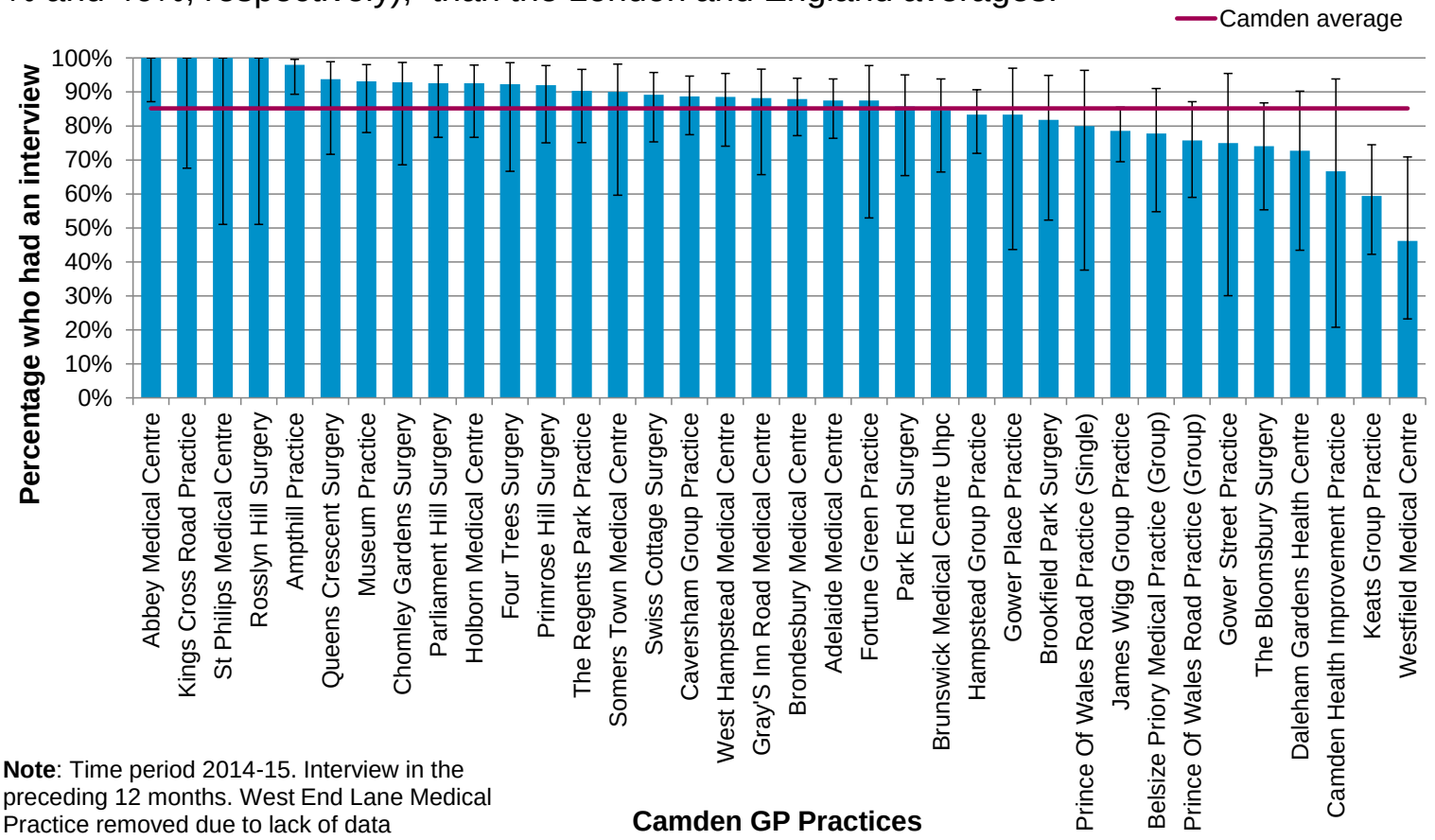
85% of Camden's GP registered population with RA have had a recent face-to-face interview; this is in line with the averages for London (87%) and England (84%).



Note: Time period 2014-15. Interview in the preceding 12 months.
Source: QOF, 2014-15

Percentage of Camden's GP registered population with rheumatoid arthritis who have had a recent face-to-face interview, by GP Practice

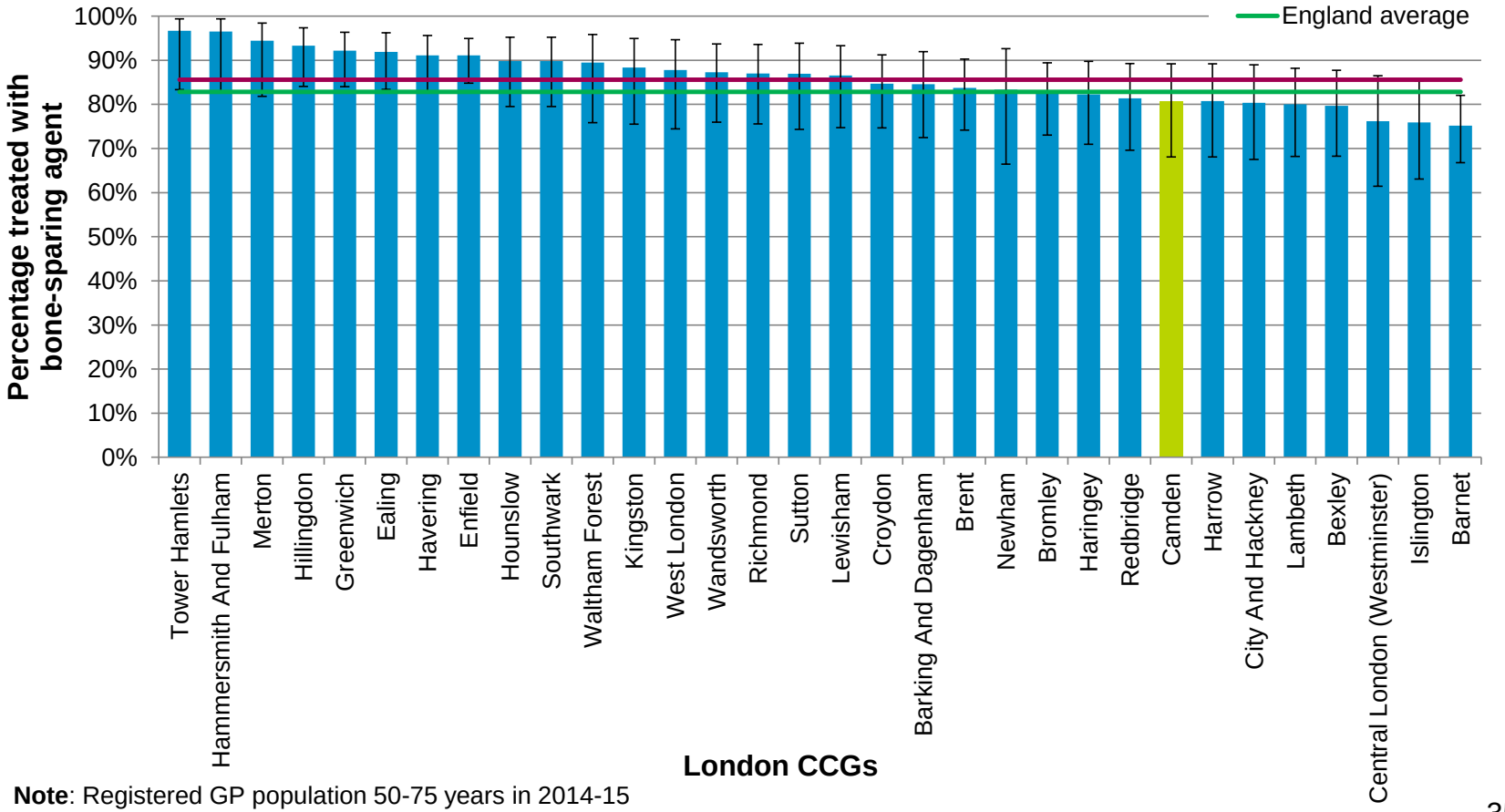
The percentage of Camden's GP registered population with RA, who have had a recent face-to-face interview, ranged from 46% to 100% across GP practices. However, for RA patients registered at the Keats Group Practice and Westfield Medical Centre, the proportion who had a recent face-to-face interview was significantly lower (59% and 46%, respectively), than the London and England averages.



Note: Time period 2014-15. Interview in the preceding 12 months. West End Lane Medical Practice removed due to lack of data
Source: QOF (indicator RA002), 2014-15

Percentage of GP registered population aged 50-75 years with a fragility fracture, who have osteoporosis and who are currently treated with an appropriate bone-sparing agent, by London CCG

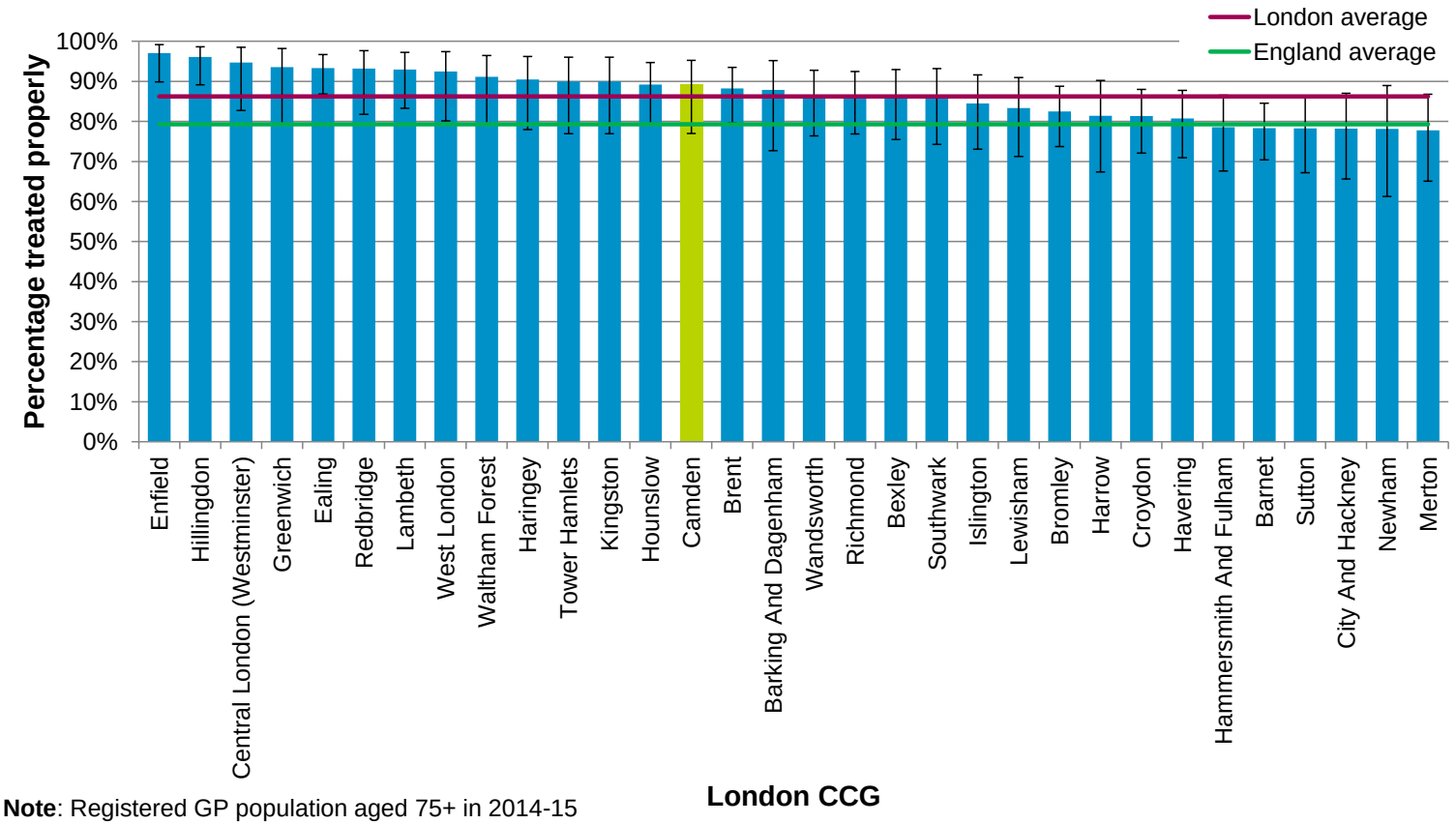
81% of the above mentioned patient population are currently treated with an appropriate bone-sparing agent; this is comparable to the London and England averages of 86% and 83%, respectively.



Note: Registered GP population 50-75 years in 2014-15
Source: QOF (indicator OST002), 2014-15

Percentage of GP registered population aged 75+ with a record of a fragility fracture and a diagnosis of osteoporosis who are currently treated with an appropriate bone-sparing agent, by London CCG

89% of the patient population outlined above are currently treated with an appropriate bone-sparing agent; this is in line with the London average of 86% but higher than the England average of 79% (although not statistically significant).



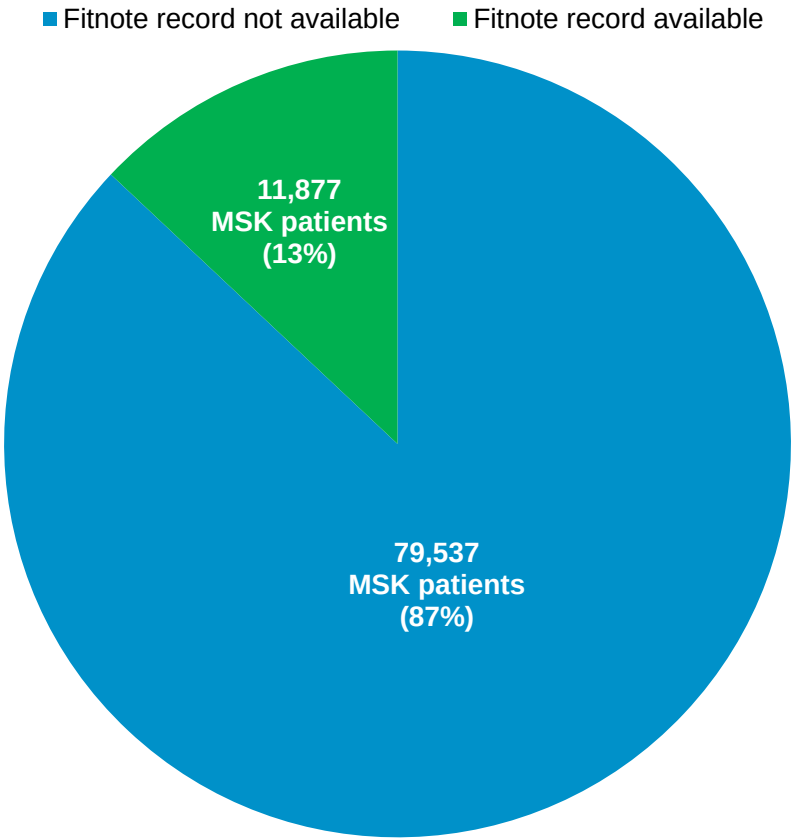
Note: Registered GP population aged 75+ in 2014-15
Source: QOF (indicator OST005), 2014-15

FIT NOTE ISSUANCE

This section covers fit note issuance between April 2014 and March 2015 for Camden's working age population, who have been diagnosed with a MSK condition.

Proportion of MSK patients (aged 17+ years), diagnosed in the GP setting, with a fit note record between 2013 and 2015

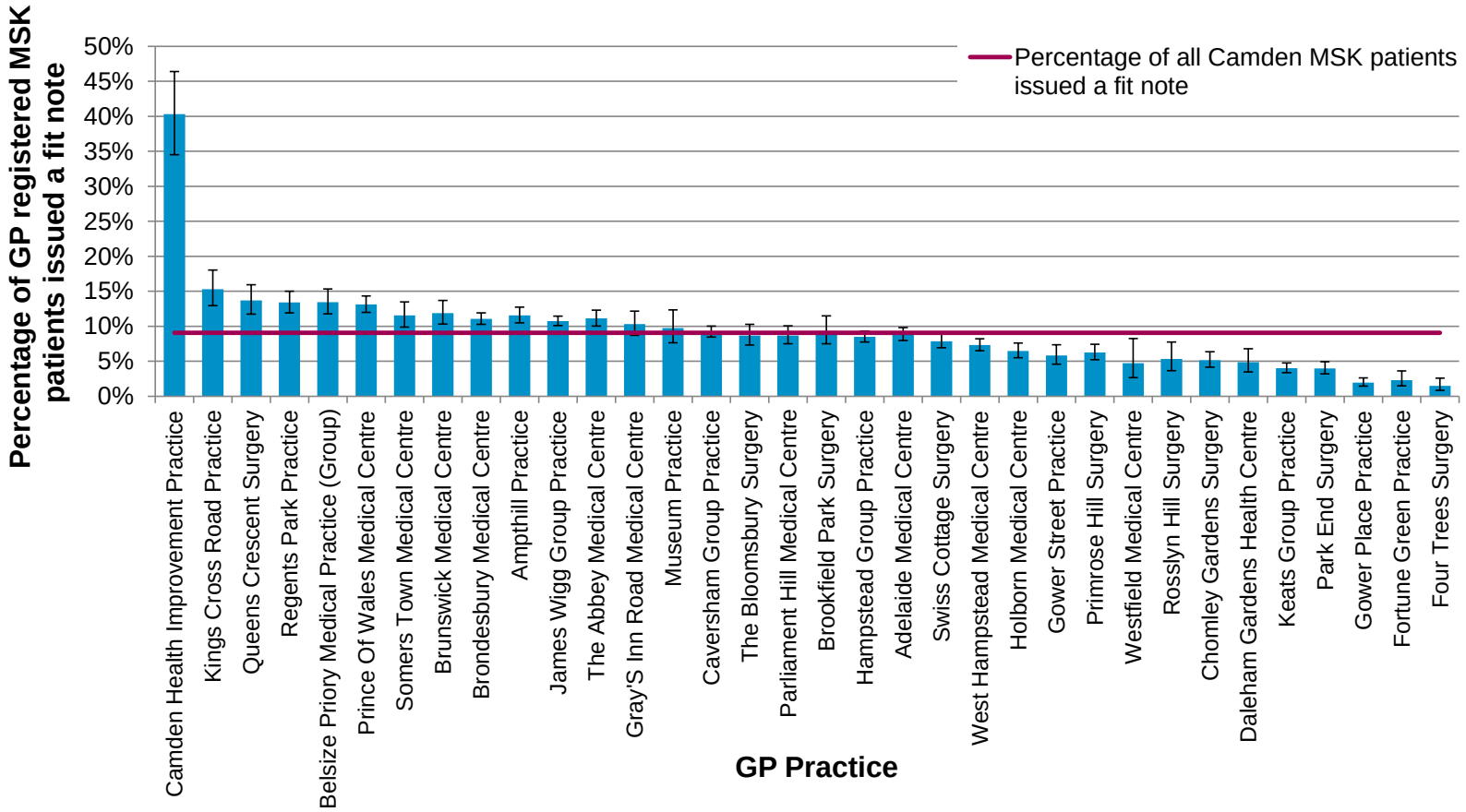
Overall, 13% of patients with a MSK diagnosis in their GP record had been issued a fit note between 2013 and 2015. Fit notes are issued to the working age population (16-64 years old). The reason for issuing a fit note is not recorded and therefore, it cannot be determined whether a fit note is specifically related to MSK.



Data source: Camden's GP PH Dataset 2015

Percentage of GP registered MSK patients, who were issued a fit note between April 2014 and March 2015, by GP practice

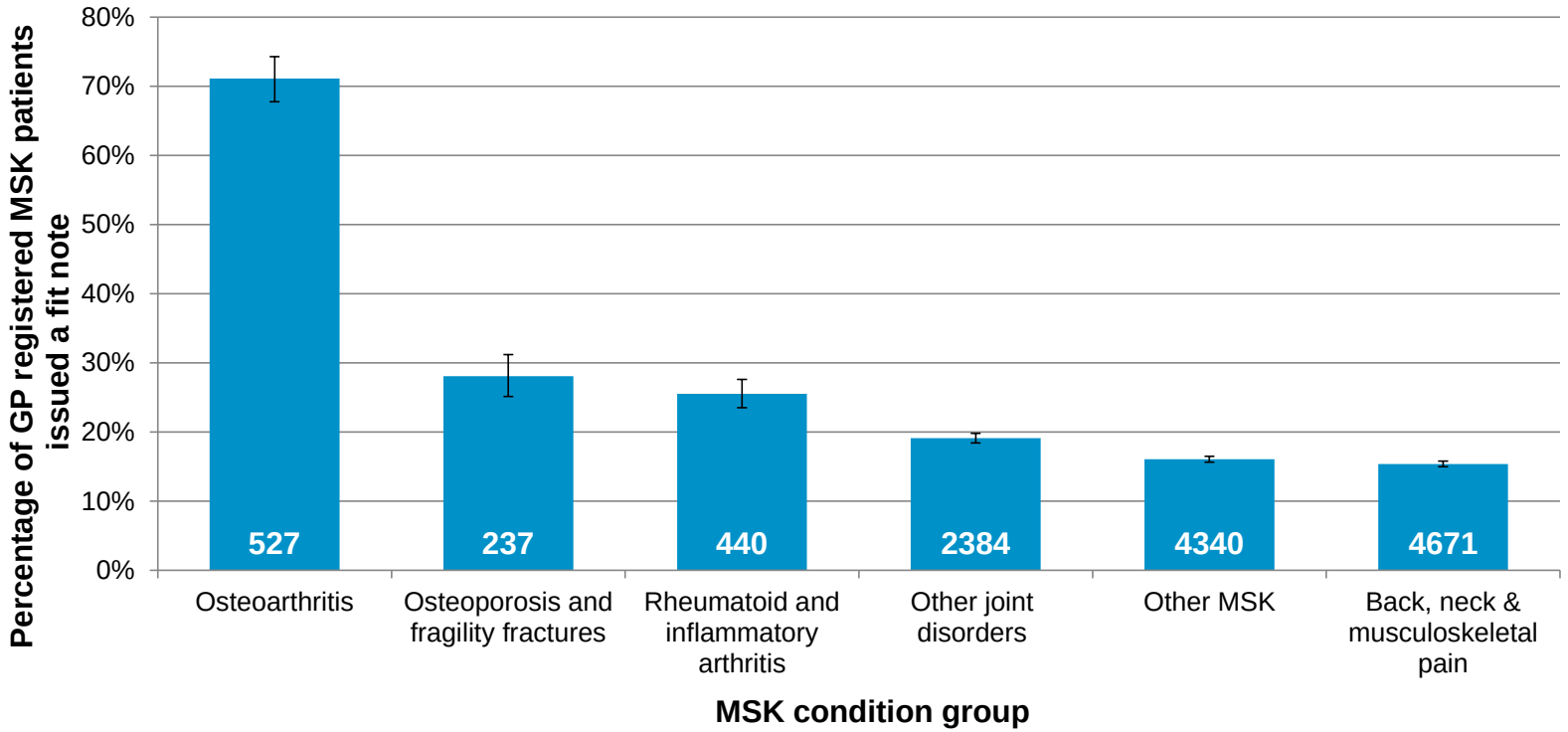
On average, 9% of Camden's GP registered MSK patients were issued a fit note during the above period; the percentage of patients issued a fit note ranged from 2% to 40% across GP practices.



Note: Denominator is the number of GP registered MSK patients, aged 17-64 years, in 2015
Source: Camden GP Linked Dataset

Percentage of GP registered MSK patients who were issued a fit note between April 2014 and March 2015, by MSK condition group

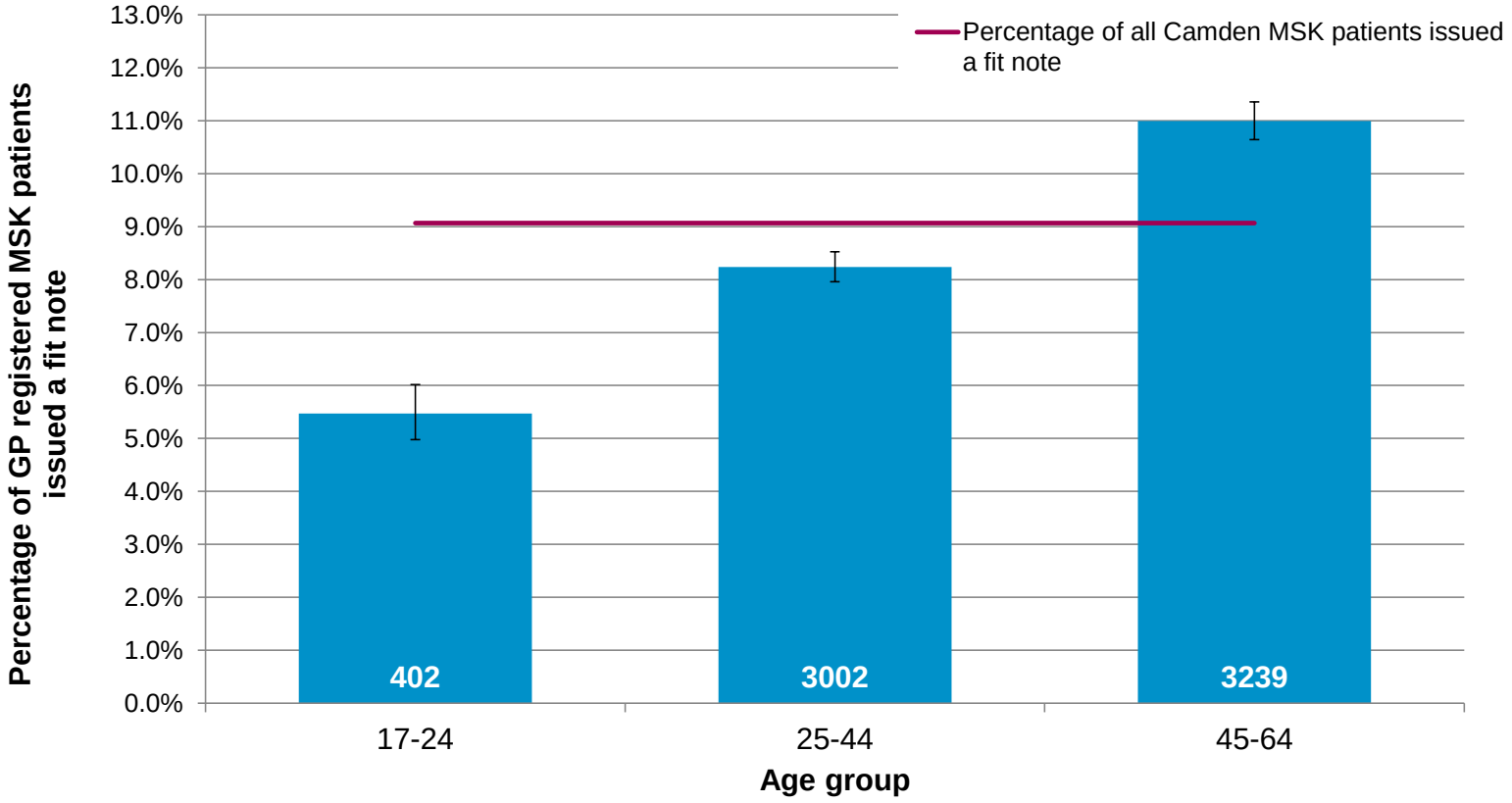
70% of MSK patients with a record of osteoarthritis were issued a fit note between April 2014 and September 2015. The greatest number of fit notes were issued for those with a record of back, neck and musculoskeletal pain.



Note: Denominator is the number of GP registered MSK patients, aged 17-64 years, in 2015. Patients can contribute to more than 1 MSK condition group. Total number of patients issued a fit note is reported in each bar
Source: Camden GP linked dataset 2015

Percentage of GP registered MSK patients who were issued a fit note between April 2014 and March 2015, by age group

A significantly greater proportion of 45-64 year old GP registered MSK patients were issued a fit note (11%) compared to younger year groups.

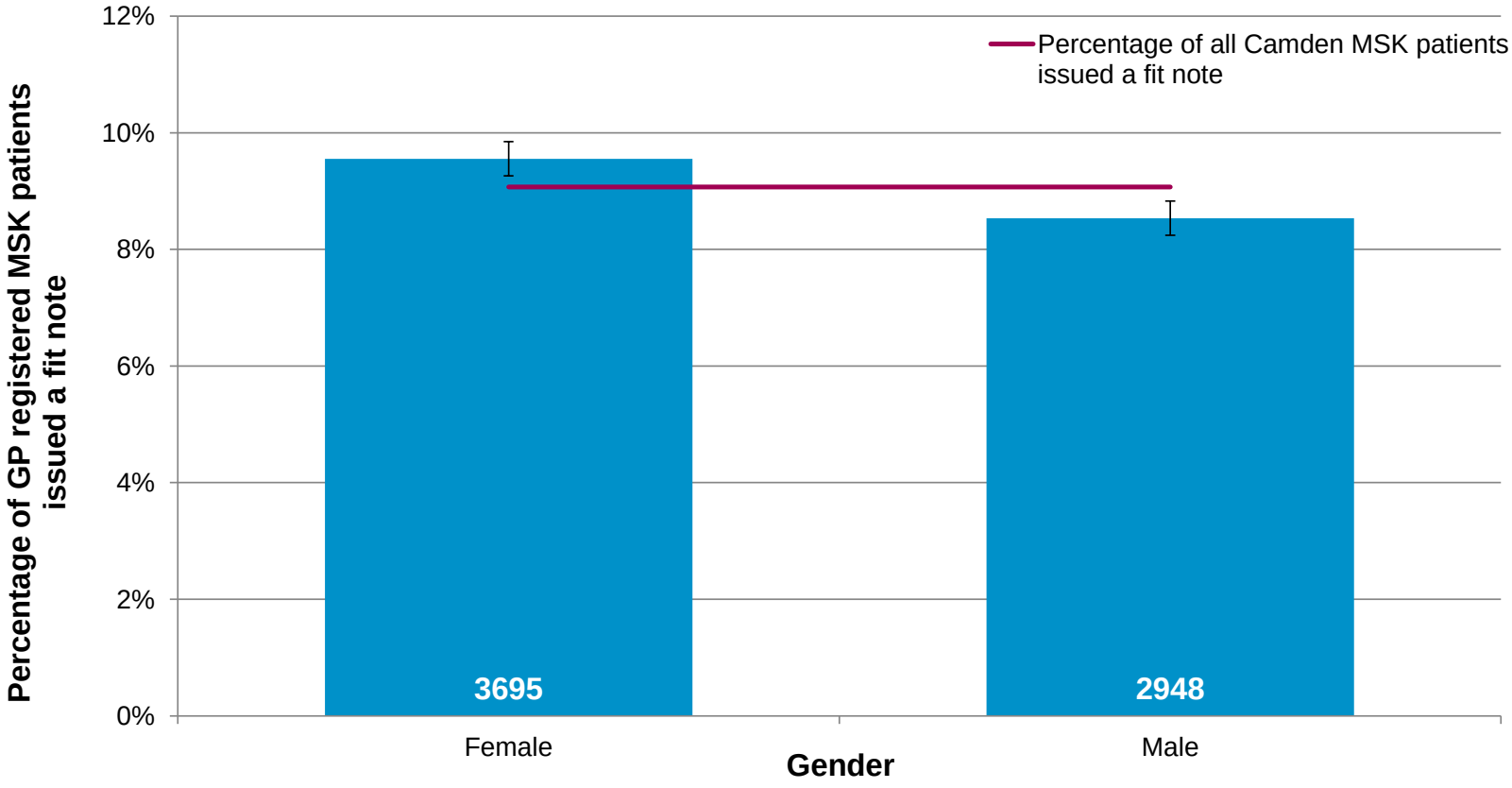


Note: Denominator is the number of GP registered MSK patients, aged 17-64 years, in 2015. Total number of patients issued a fit note is reported in each bar

Source: Camden GP Linked Dataset 2015

Percentage of GP registered MSK patients who were issued a fit note between April 2014 and March 2015, by gender

The percentage of female GP registered MSK patients issued a fit note (9.6%) was significantly greater than males (8.5%).

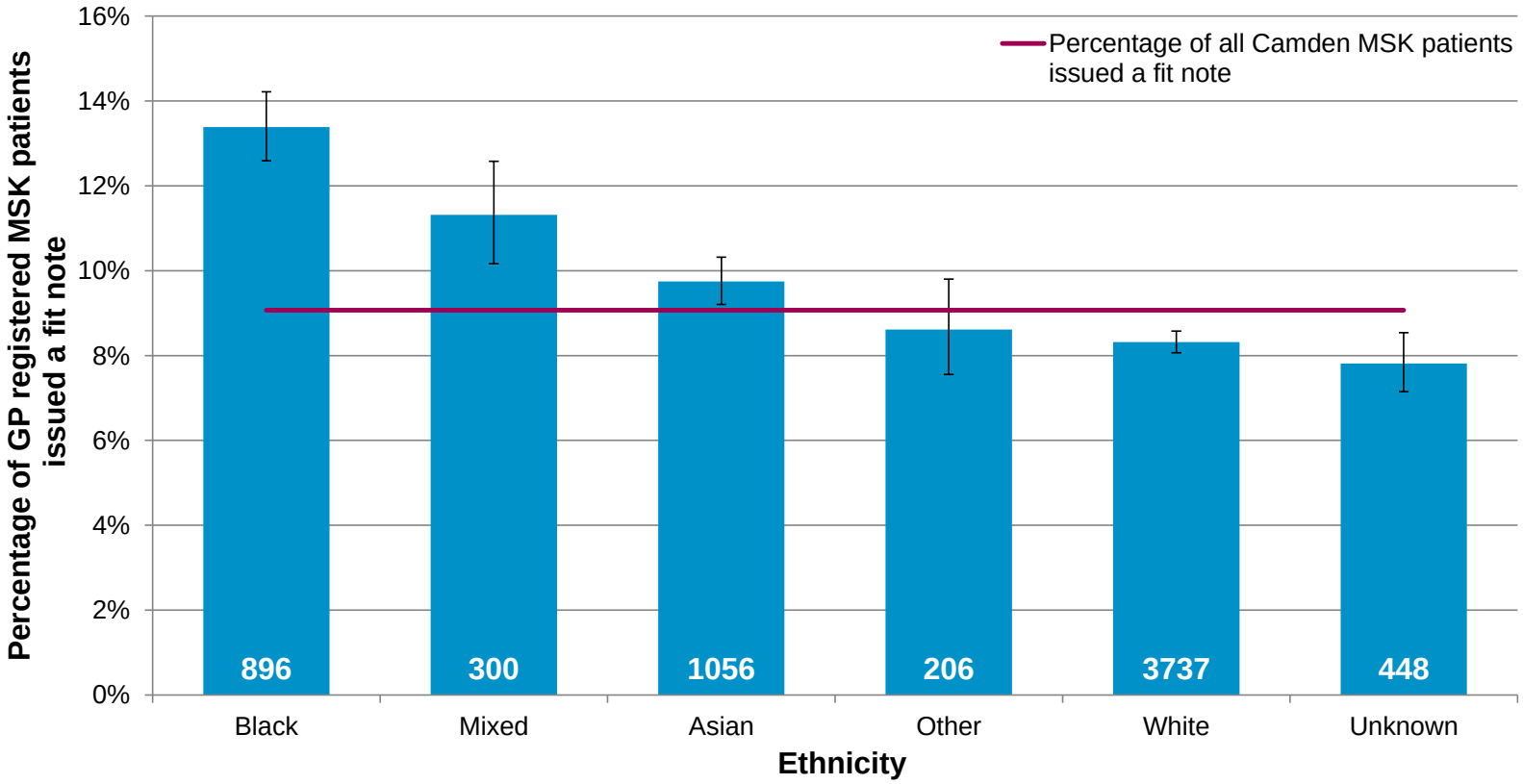


Note: Denominator is the number of GP registered MSK patients, aged 17-64 years, in 2015. Total number of patients issued a fit note is reported in each bar

Source: Camden GP Linked Dataset 2015

Percentage of GP registered MSK patients who were issued a fit note between April 2014 and March 2015, by ethnicity

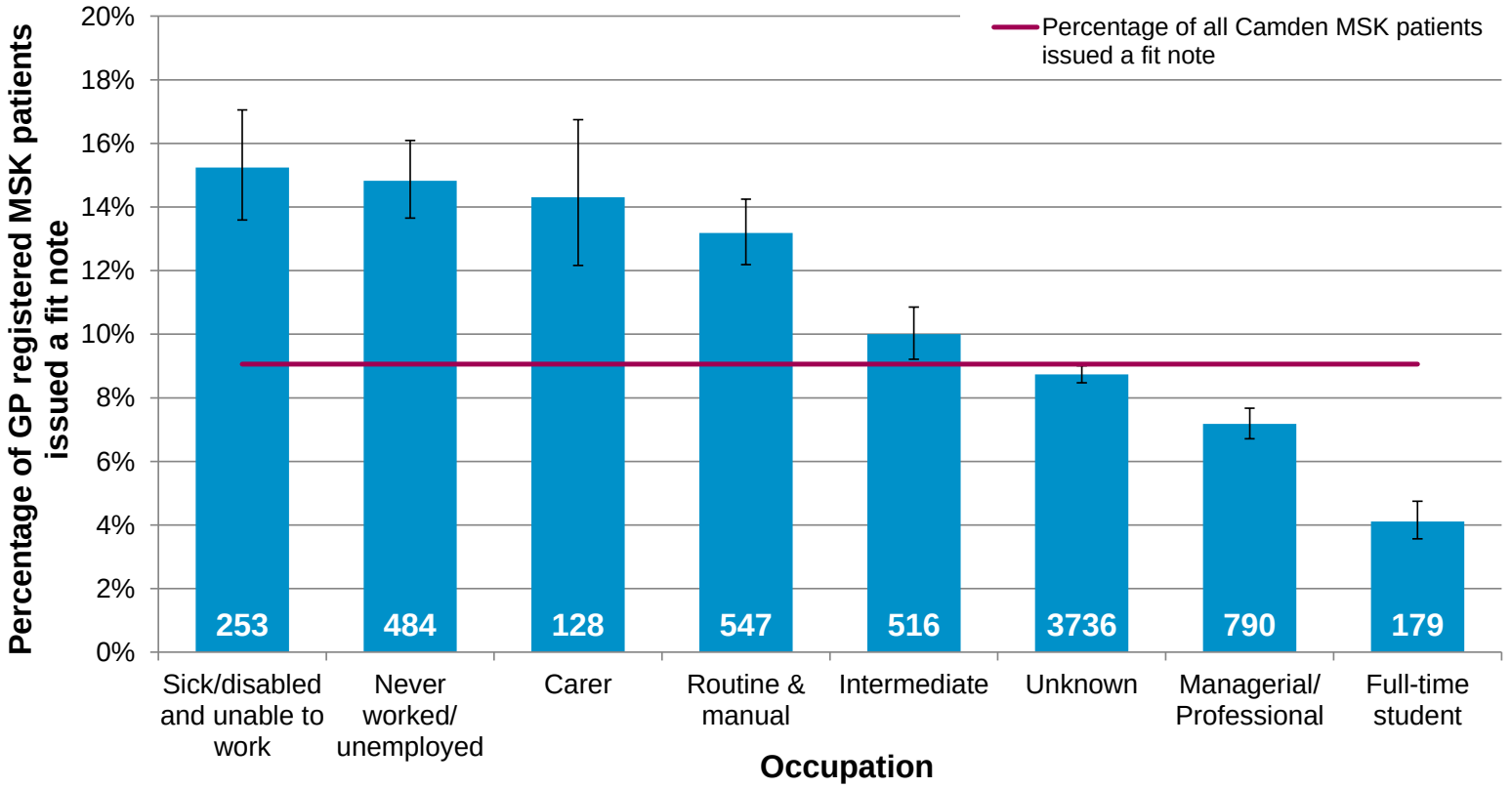
The issuance of fit notes was most prevalent among Black MSK patients and least prevalent within the White and Unknown ethnic groups.



Note: Denominator is the number of GP registered MSK patients, aged 17-64 years, in 2015. Total number of patients issued a fit note is reported in each bar
Source: Camden GP linked dataset

Percentage of GP registered MSK patients who were issued a fit note between April 2014 and March 2015, by occupation

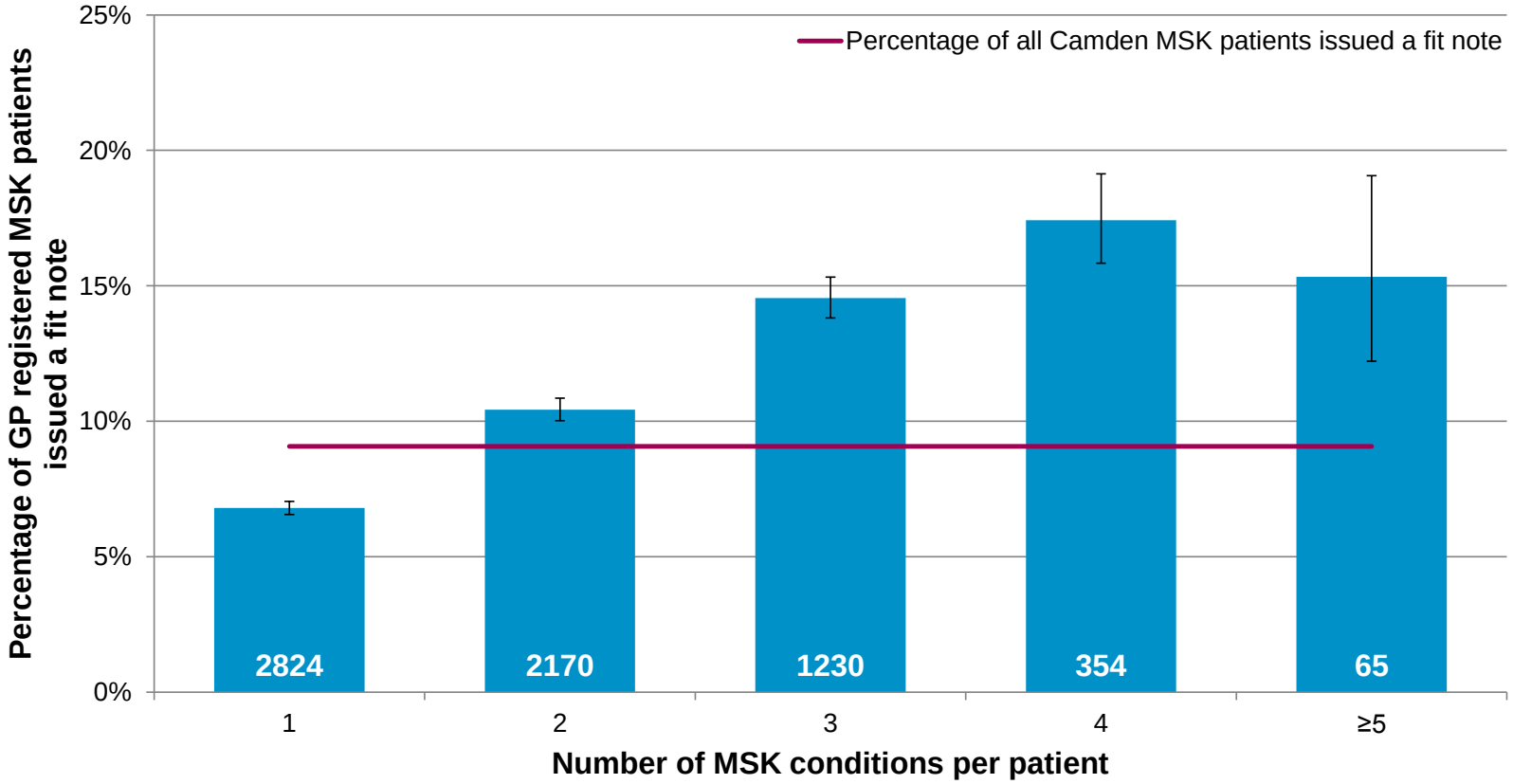
The issuance of fit notes was most prevalent among MSK patients whose occupation was classified as “sick/disabled and unable to work”, “never worked/unemployed”, “carer” and “routine and manual”.



Note: Denominator is the number of GP registered MSK patients, aged 17-64 years, in 2015. Total number of patients issued a fit note is reported in each bar
Source: Camden GP linked dataset

Percentage of GP registered MSK patients who were issued a fit note between April 2014 and March 2015, by number of MSK condition groups

A significantly higher percentage of patients with 2 or more MSK condition groups were issued fit notes compared to those with 1 MSK condition.



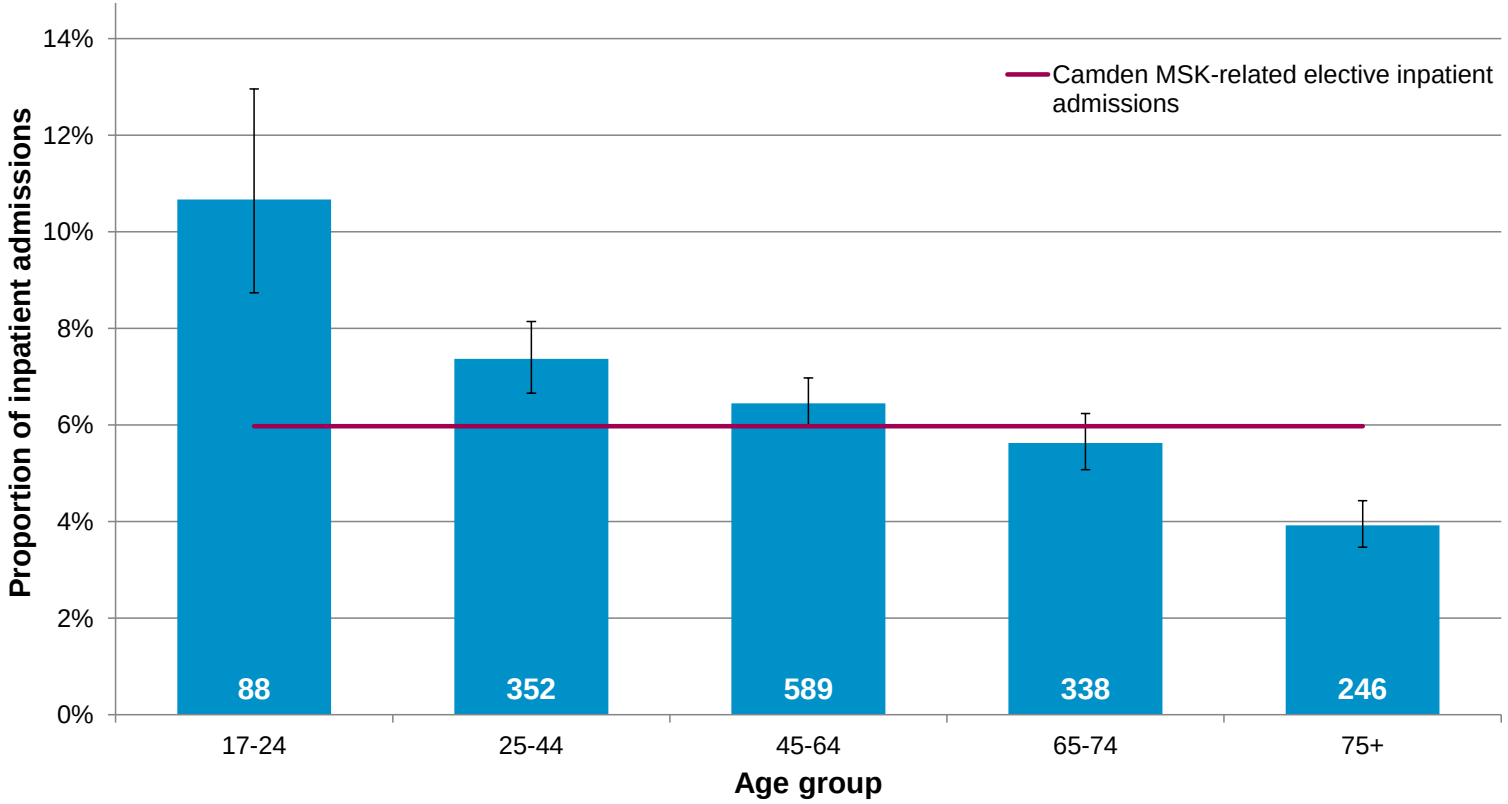
Note: Denominator is the number of GP registered MSK patients, aged 17-64 years, in 2015
Source: Camden GP Linked Dataset

ELECTIVE INPATIENT ADMISSIONS

This section covers variation in MSK-related elective inpatient admissions and elective high spend procedures by socio-demographic characteristics.

Proportion of all elective inpatient admissions that were MSK-related, by age group

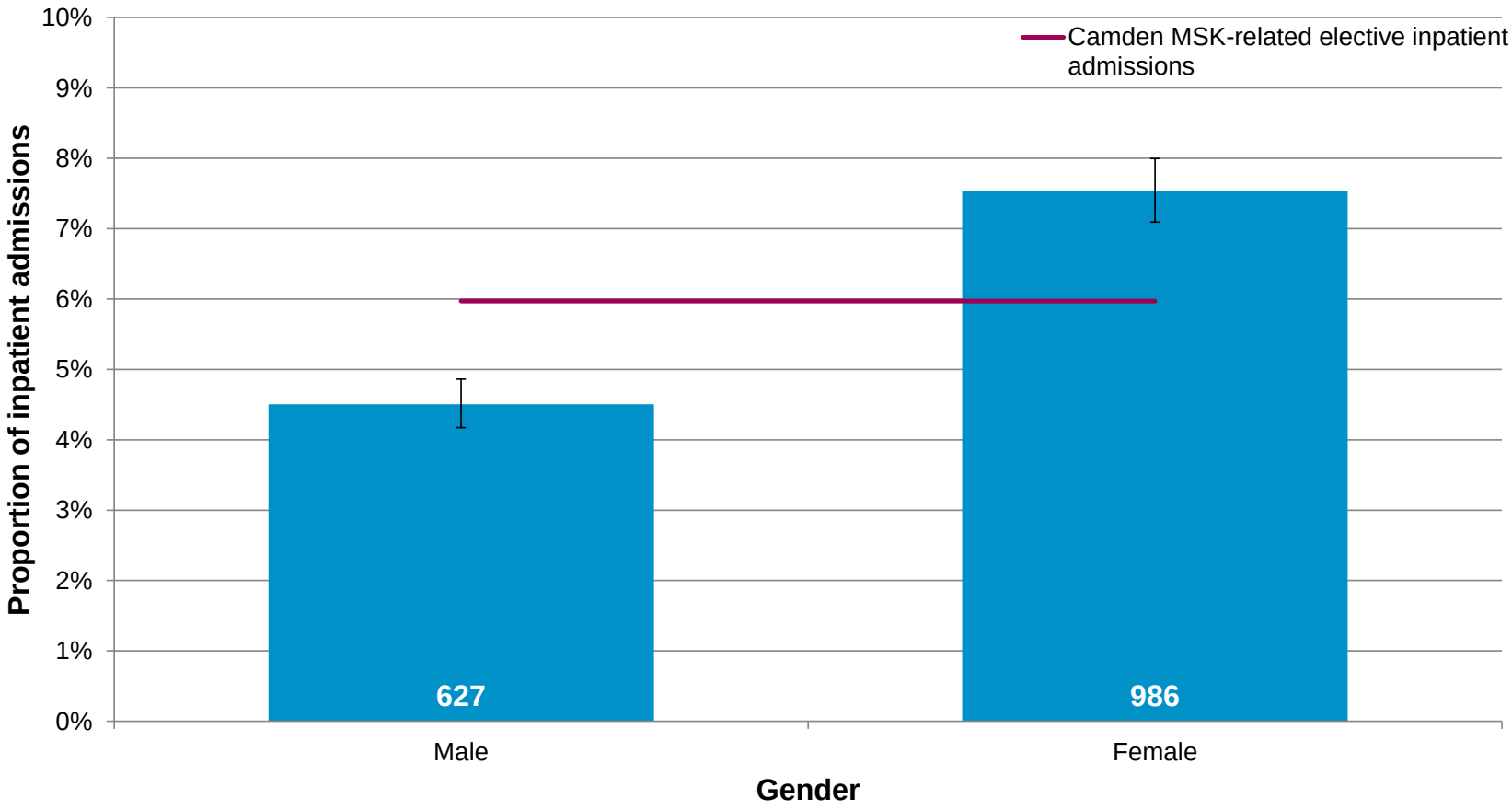
6% of all Camden elective inpatient admissions between April 2014 and March 2015 were MSK-related. The proportion of MSK-related elective inpatient admissions was highest among 17-24 year olds (11%) and lowest among 75+ year olds (4%); however, the greatest number of attendances are made by individuals in the 45-64 age group, while the 17-24 group have the lowest number of attendances.



Note: Total number of elective inpatient admissions is reported within each bar for each ethnic background
Source: Camden's GP-SUS Linked Dataset (April 2014 to March 2015)

Proportion of all elective inpatient admissions that were MSK-related, by gender

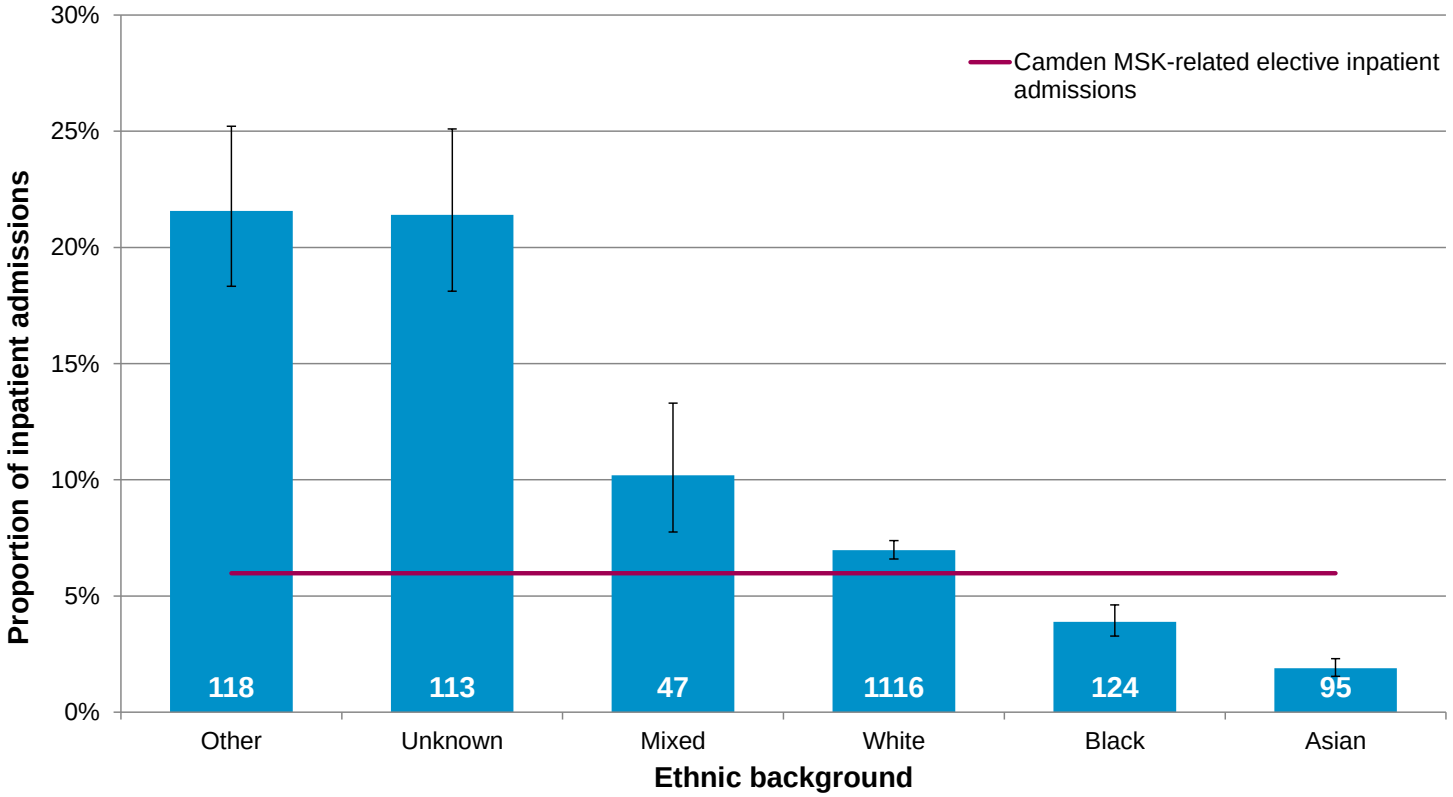
The proportion of MSK-related elective inpatient admissions is significantly higher for women (8%) than men (5%); the number of MSK-related elective inpatient admissions in females is 1.5 times that of males.



Note: Total number of elective inpatient admissions is reported within each bar
Source: Camden's GP-SUS Linked Dataset (April 2014 to March 2015)

Proportion of all elective inpatient admissions that were MSK-related, by ethnicity

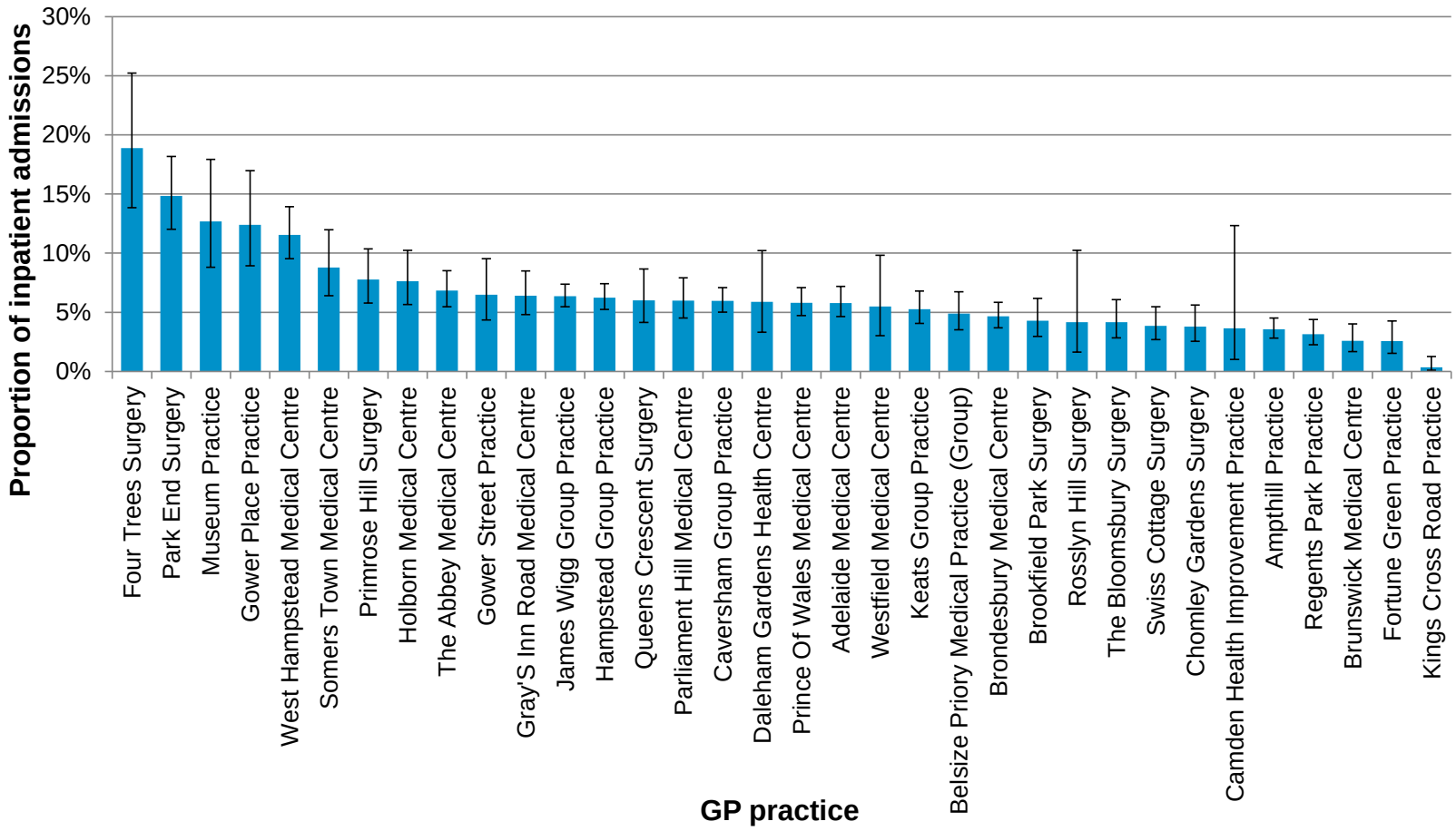
Overall, the proportion of elective inpatient attendances that are MSK-related, significantly differs across ethnic backgrounds; the highest proportions of MSK-related admissions are observed within the 'Other' and 'Unknown' ethnic background groups (22% and 21%, respectively), while the lowest proportion (2%) is observed in the Asian group. However, White people make up the majority of MSK-related elective inpatient admissions.



Note: Total number of elective inpatient admissions is reported within each bar
Source: Camden's GP-SUS Linked Dataset (April 2014 to March 2015)

Proportion of all elective inpatient admissions that were MSK-related, by GP practice

The proportion of MSK-related elective inpatient admissions ranged from 0.003% to 19% across Camden GP practices.



Source: Camden's GP-SUS Linked Dataset (April 2014 to March 2015)

Median length of inpatient stay, stratified by gender and age group

Median length of inpatient stay (excluding day case admissions) is similar across genders but appears to increase with age.

Gender	Median	Interquartile range
Female	4	1, 7
Male	3	1, 5

Age group	Median	Interquartile range
17-24	1	0.5, 1.5
25-44	1	1, 2
45-64	3	1, 5
65-74	5	2, 7
75+	5	2, 7

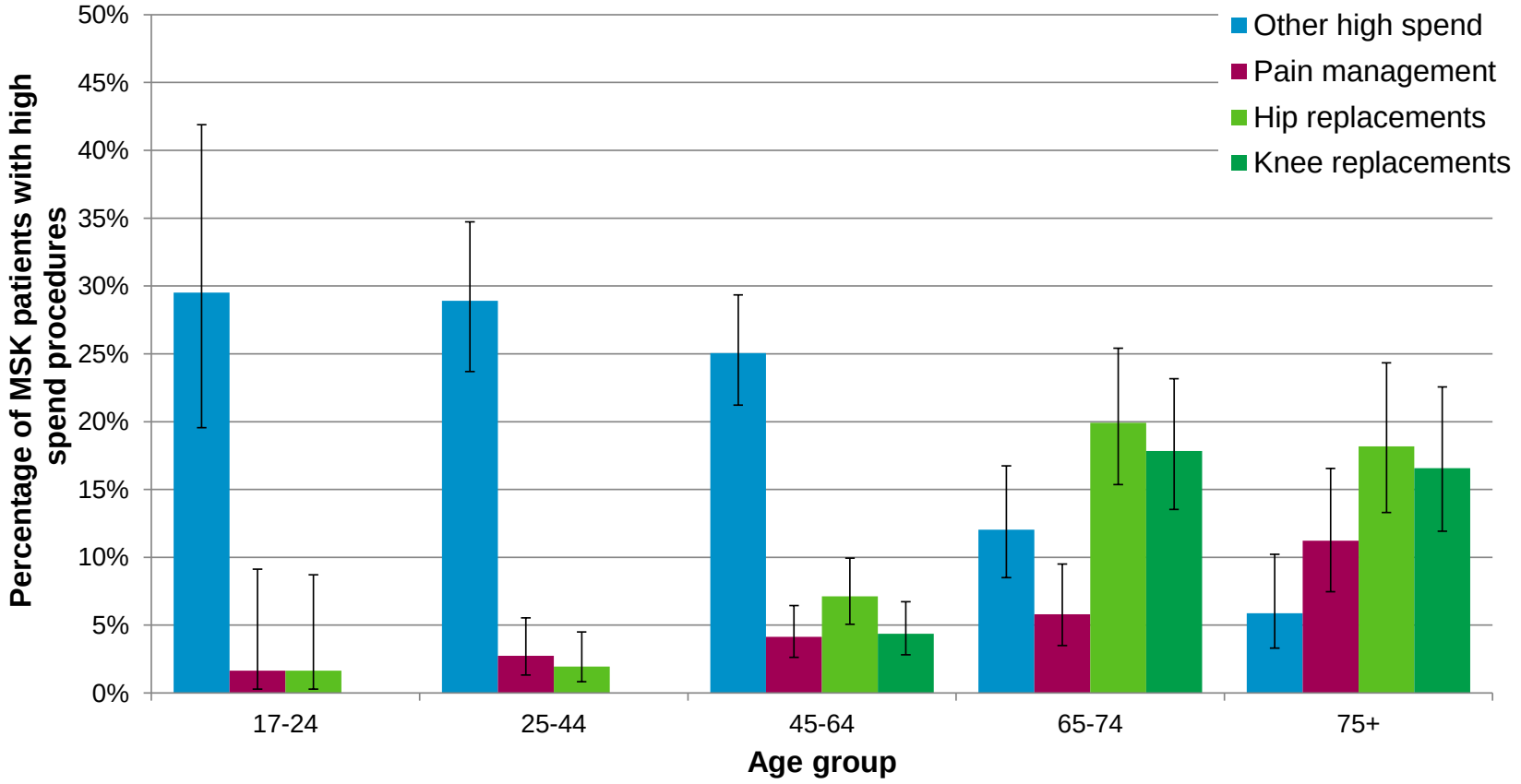
Median length of inpatient stay, stratified by MSK condition

Individuals with osteoarthritis have the greatest median length of inpatient stay, while those with other joint disorders and other MSK have the shortest median length of inpatient stay.

MSK condition	Median	Interquartile range
Back, neck and musculoskeletal pain	3	1, 7
Rheumatoid and inflammatory arthritis	3	1, 6
Osteoporosis and fragility fractures	3	1, 7.5
Osteoarthritis	4	3, 6
Other joint disorders	1	1, 2
Other MSK	1	1, 3.5
Any MSK	3	1, 6

Percentage of elective MSK inpatients with high spend procedures, by age group

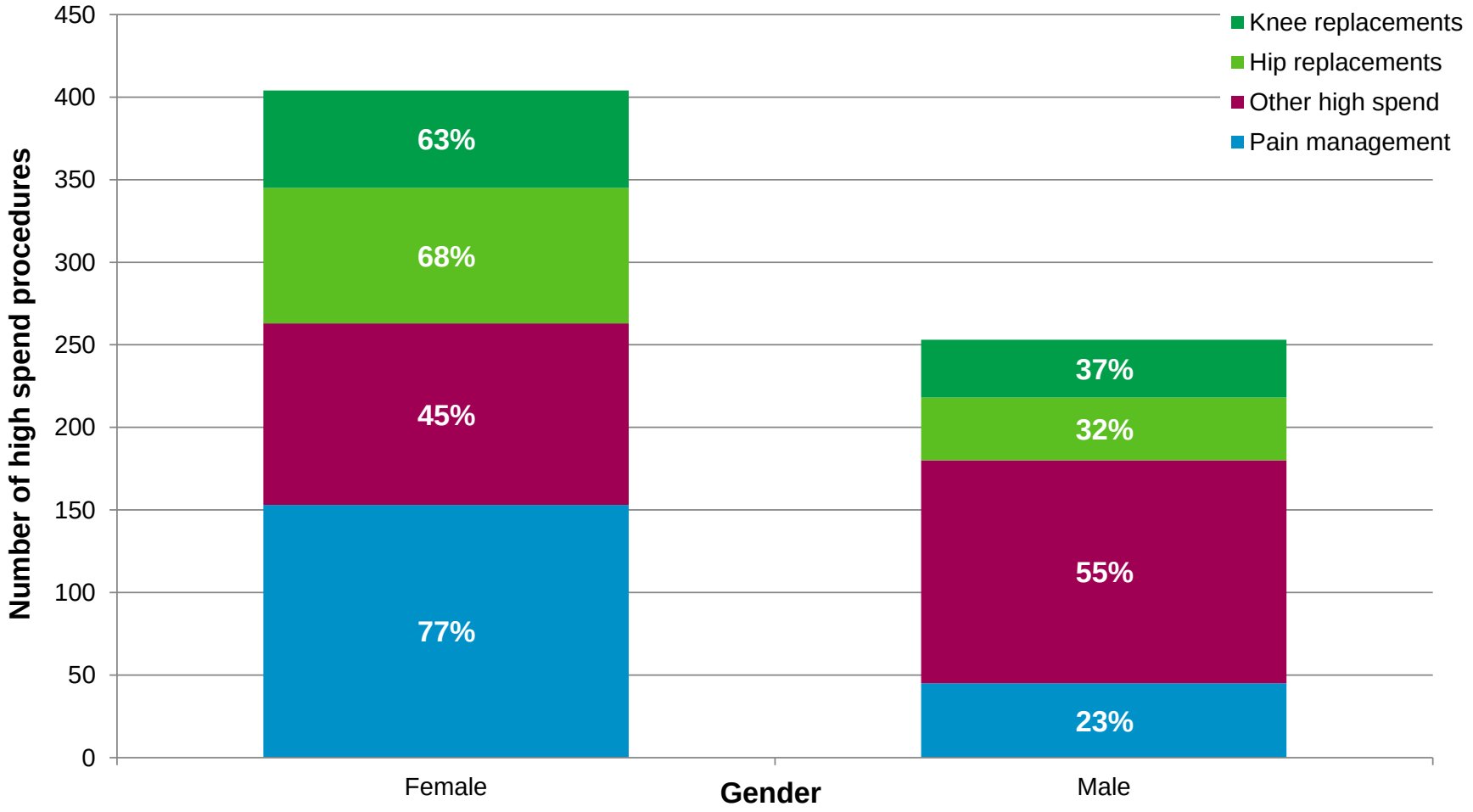
In the 17-24, 25-44 and 45-64 age groups, the proportion of inpatients undergoing 'other' high spend procedures is significantly greater than any other procedure type and significantly higher than the proportions recorded for other age groups. Knee and hip replacements are more prevalent among those aged 65+ years compared to patients <65 years.



Note: Percentage of knee replacements was <1% for elective MSK inpatients aged 17-24 yrs and 25-44 yrs (not included in chart)
Source: Camden's GP-SUS Linked Dataset (April 2014 to March 2015)

Frequency of high spend procedures among elective MSK inpatients, by gender

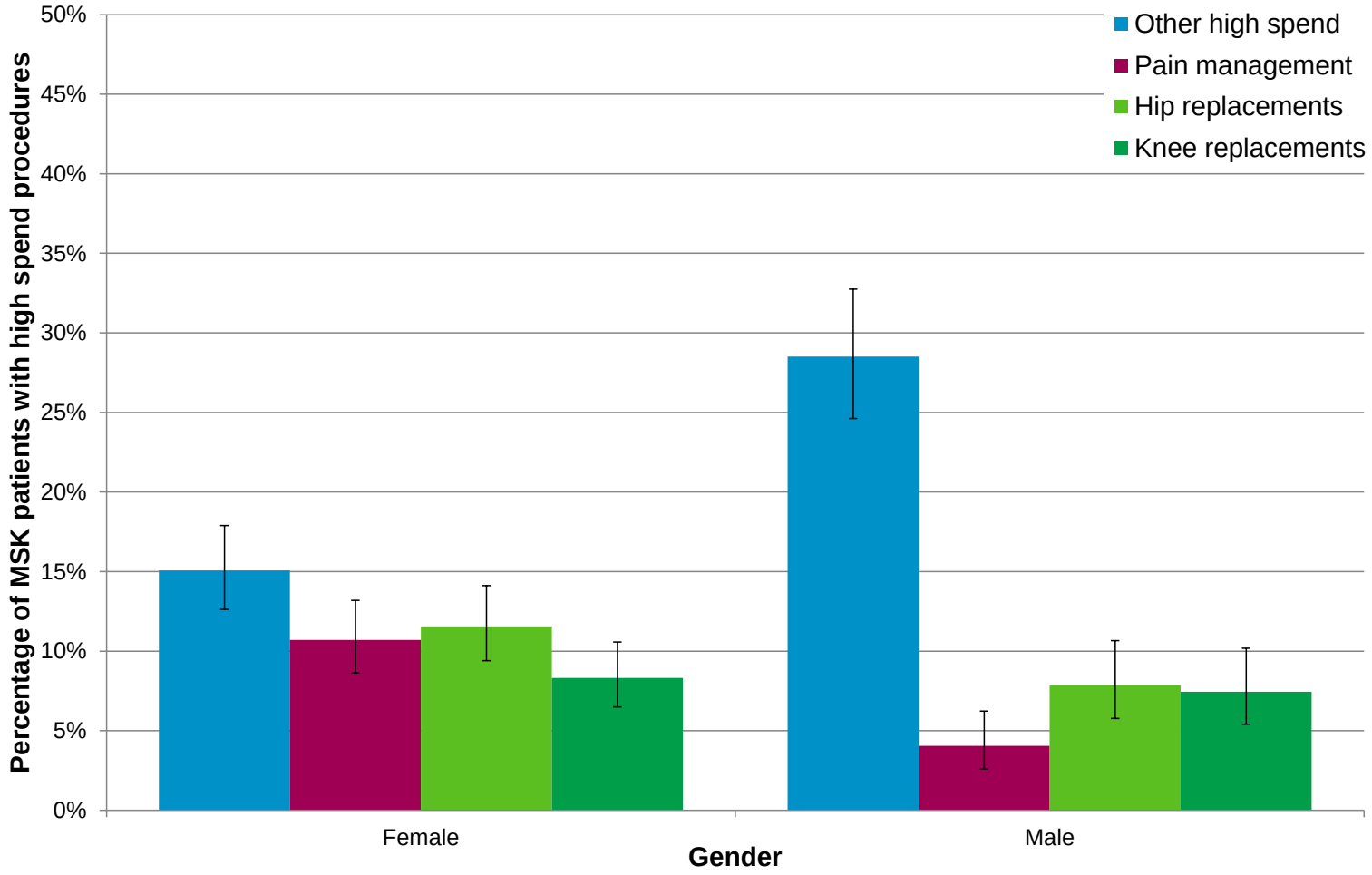
The majority of pain management procedures, hip replacements and knee replacements were performed on women.



Note: Percentage of high spend procedure accounted for by each gender group is reported within bars, for each procedure
Source: Camden's GP-SUS Linked Dataset (April 2014 to March 2015)

Frequency of elective MSK inpatients with high spend procedures, by gender

Frequency of other high spend and pain management procedures differs significantly between genders, among elective MSK inpatients.



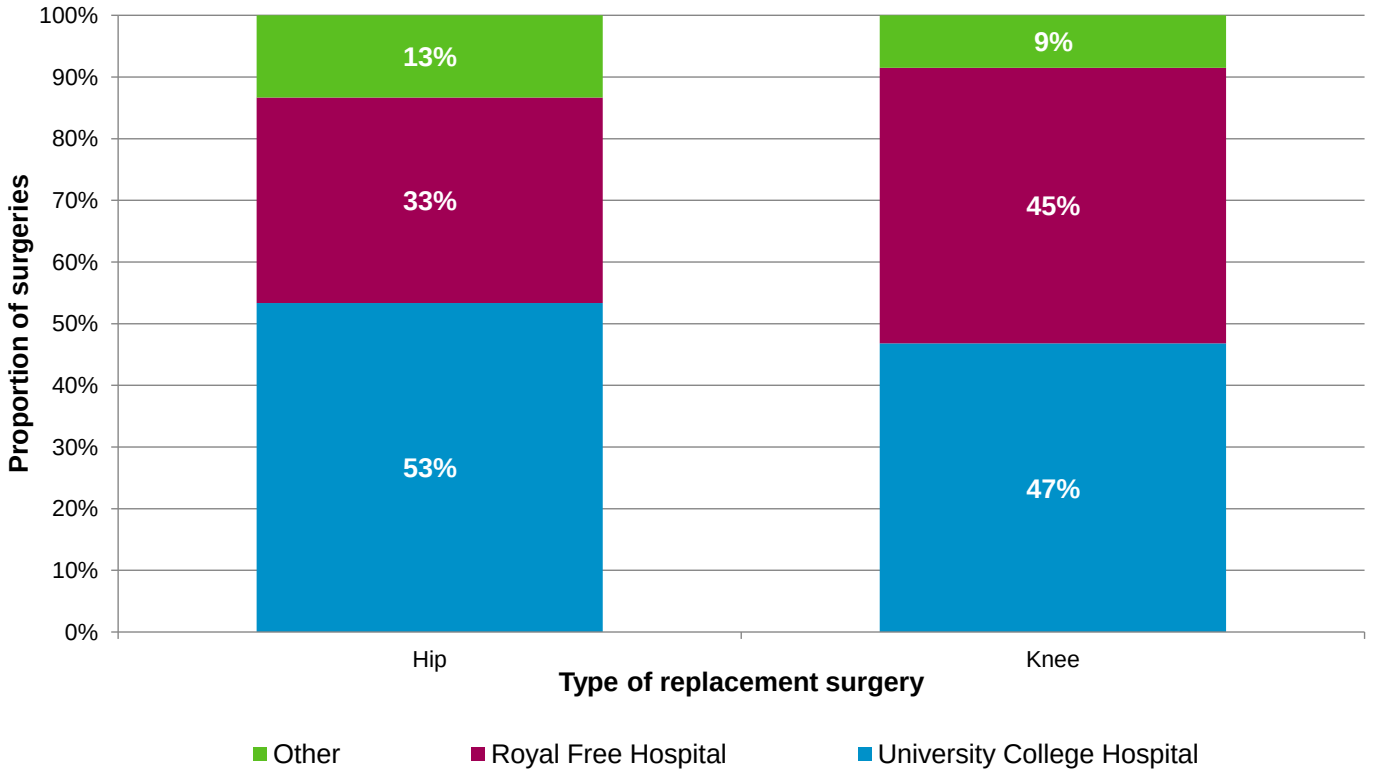
Source: Camden's GP-SUS Linked Dataset (April 2014 to March 2015)

HIP AND KNEE REPLACEMENTS

This section covers frequency of hip and knee replacements and patient-reported outcomes following surgery.

Proportion of hip and knee replacement surgeries in Camden's GP registered population by provider, 2014-2015

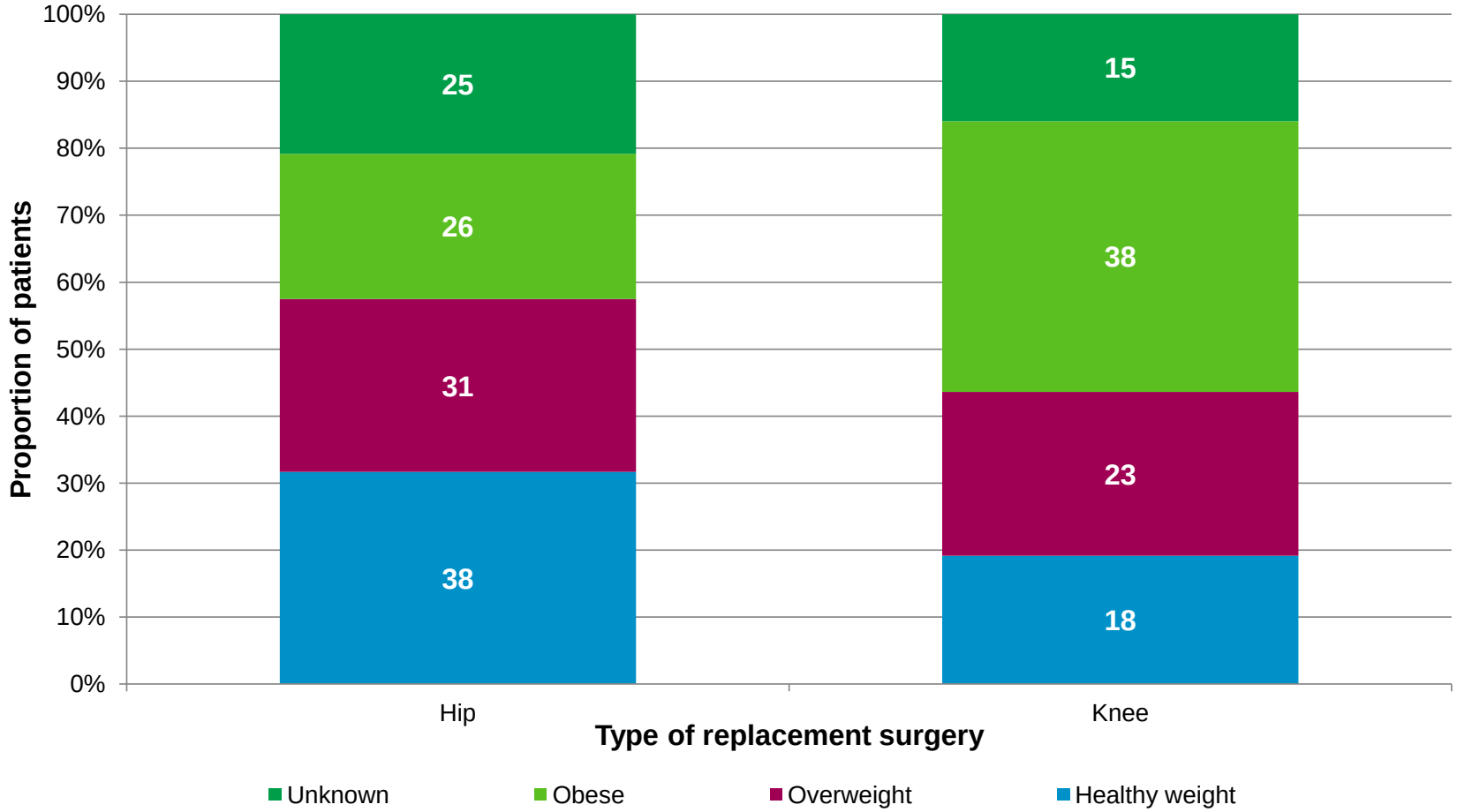
University College Hospital (UCH) and the Royal Free Hospital accounted for the highest proportions of hip and knee replacements. Out of 120 hip replacements performed in 2014-15, 37 were conducted by Dr Garlick at the Royal Free Hospital and 44 were conducted by Dr Haddad at UCH. Out of the 94 knee replacements performed, 29 were conducted by Dr Galea at the Royal Free Hospital, while Dr Haddad and Dr Oussedik conducted 20 and 16 of the surgeries at UCH, respectively.



Source: Camden's GP-SUS Linked Dataset (April 2014 to March 2015)

Weight group of patients who have undergone hip or knee replacement surgery, Camden, 2014-15

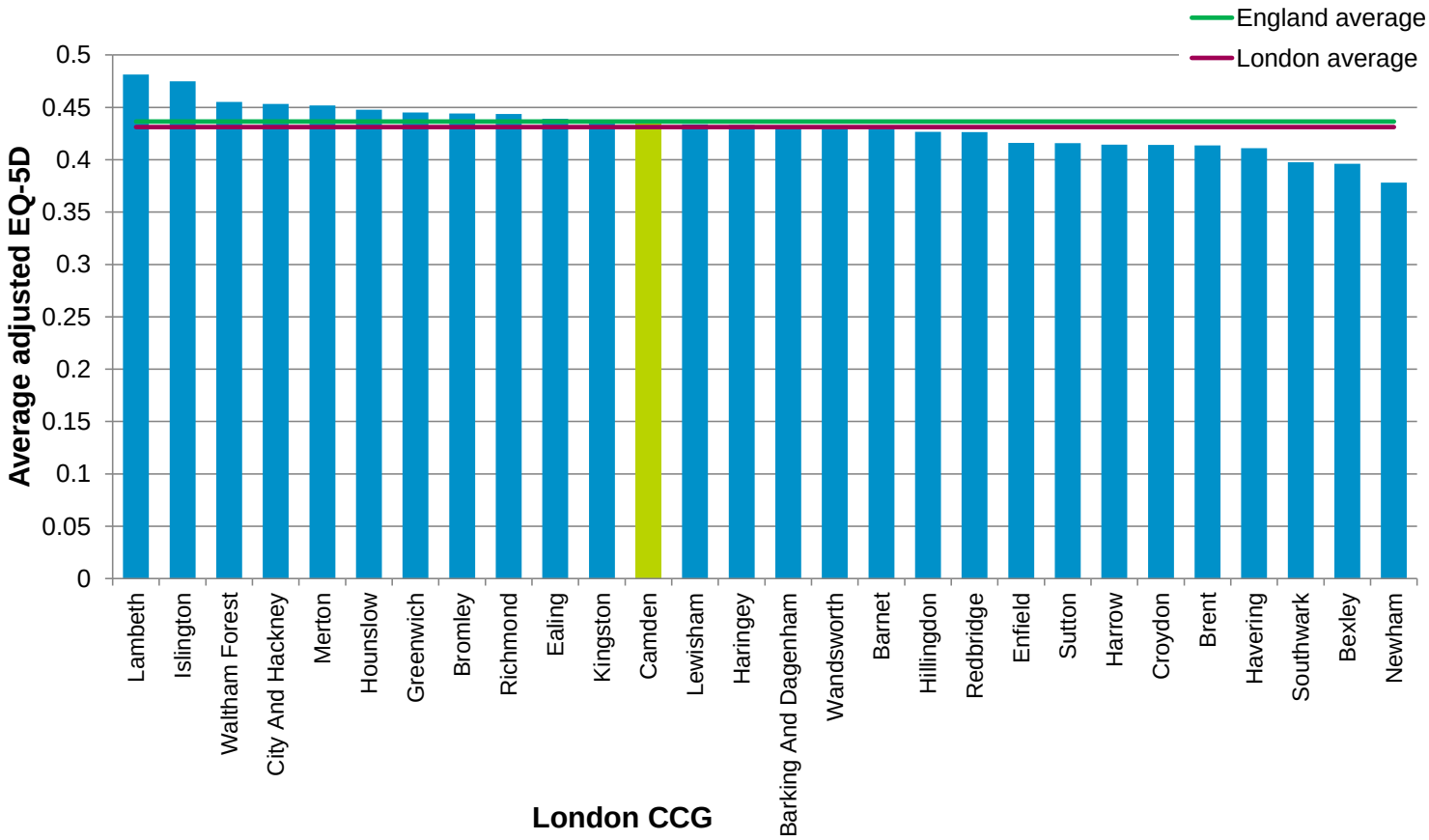
22% of patients who had a hip replacement and 40% of patients who had a knee replacement were classified as being obese (based on most recent obesity recording prior to surgery).



Note: Data labels refer to number of patients
Source: Camden GP-linked dataset (2015)

Adjusted average EQ-5D health gains following primary hip replacement, by London CCG

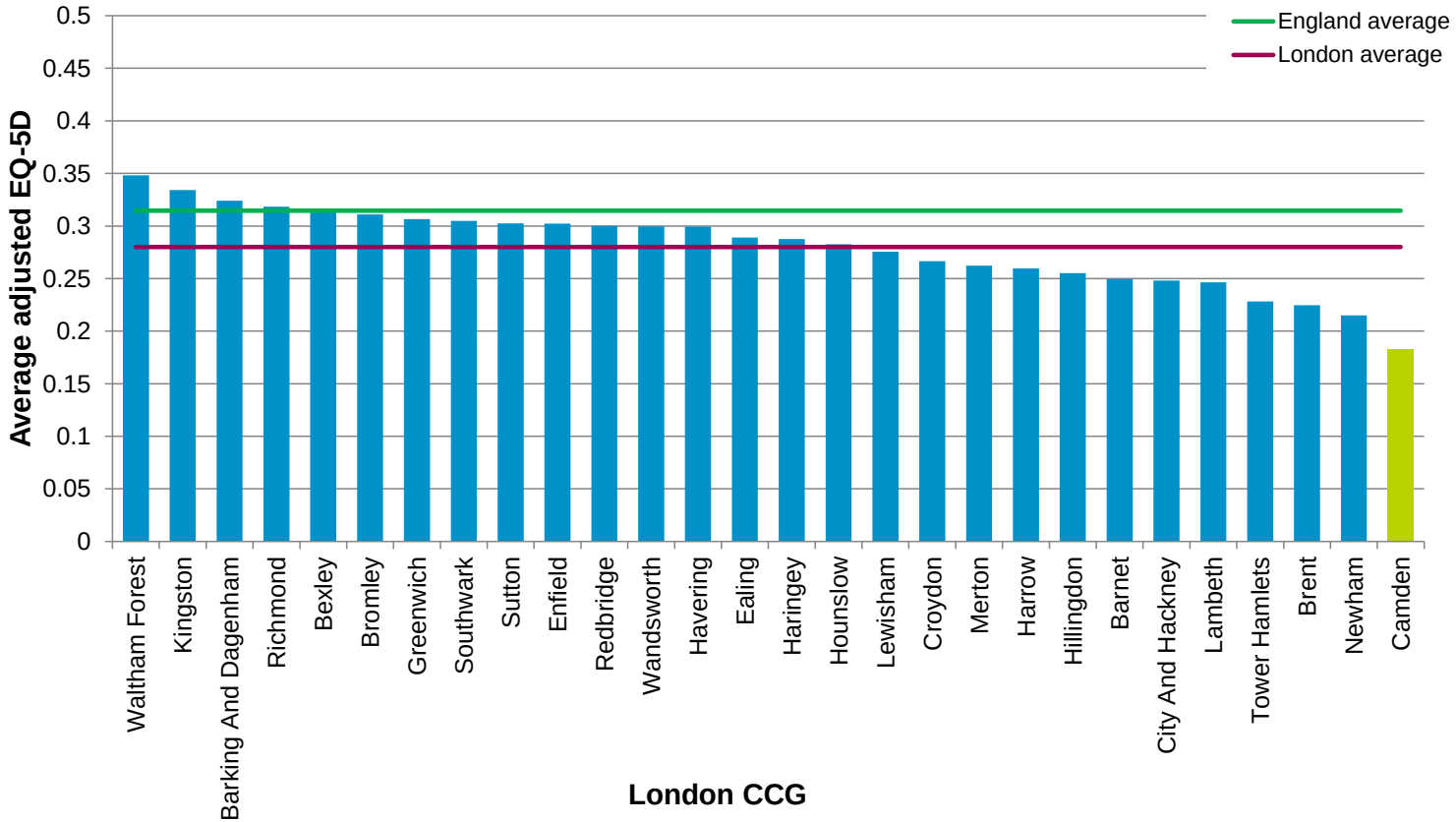
For Camden registered GP patients who had a primary hip replacement between 2014 and 2015, the average adjusted EQ-5D health gain was 0.43; this is in line with the London and England averages of 0.43 and 0.44, respectively.



Note: Time period 2014-15
Source: NHS, 2016

Adjusted average EQ-5D health gains following primary knee replacement, by London CCG

For Camden registered GP patients who had a primary knee replacement between 2014 and 2015, the average adjusted EQ-5D health gain was 0.18; this was the lowest observed out of all London CCGs and lower than the London (0.28) and England (0.31) averages.



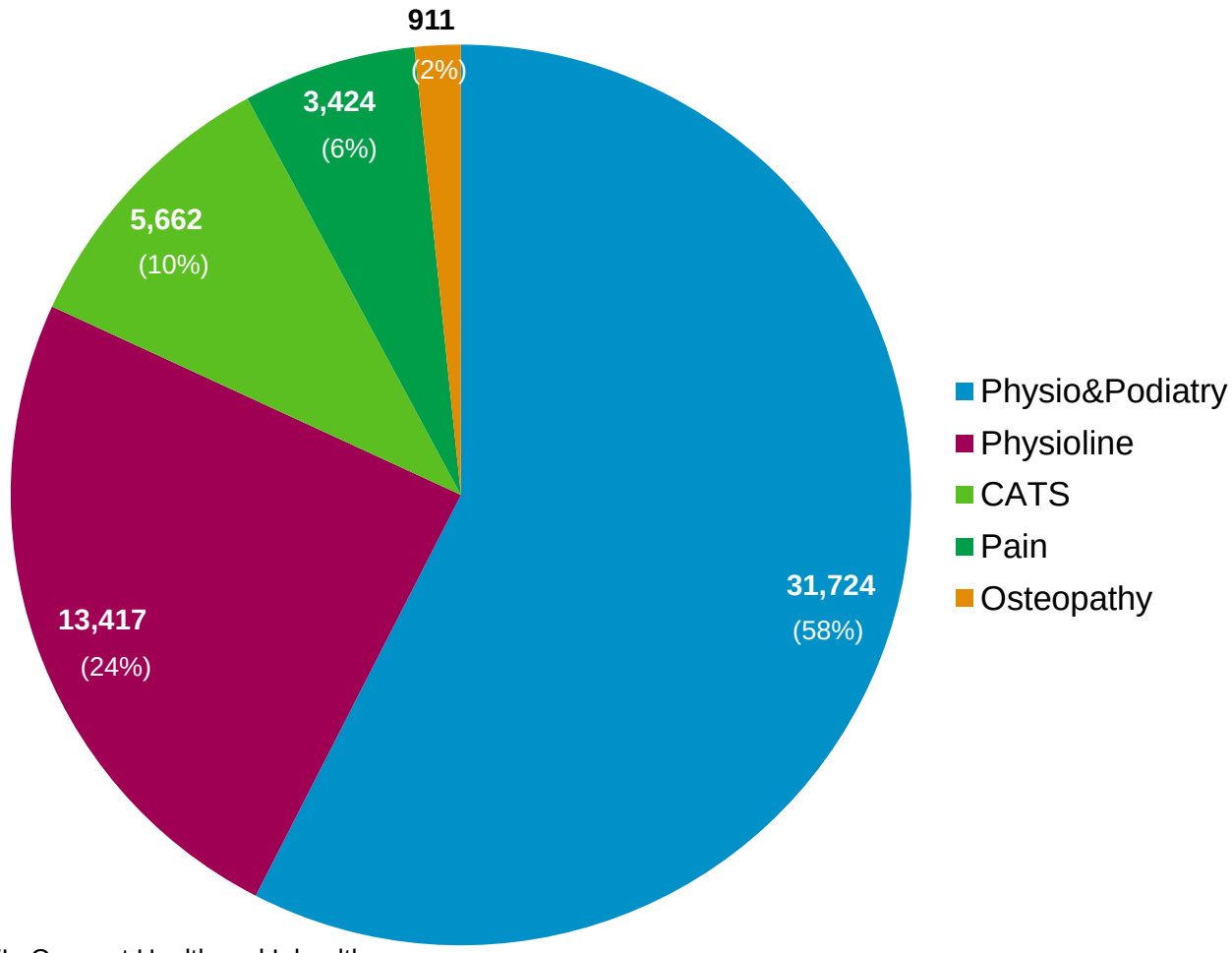
Note: Time period 2014-15; Islington, Hammersmith and Fulham, West London and Central London removed due to no data
Source: NHS, 2016

COMMUNITY CARE

This section covers frequency of physio and podiatry, physioline, CATS, CPAM and osteopathy appointments as well as patient-reported outcomes following receipt of these MSK community services.

Proportion of appointments attended by people aged 15+ years with MSK in Camden, 2015-16

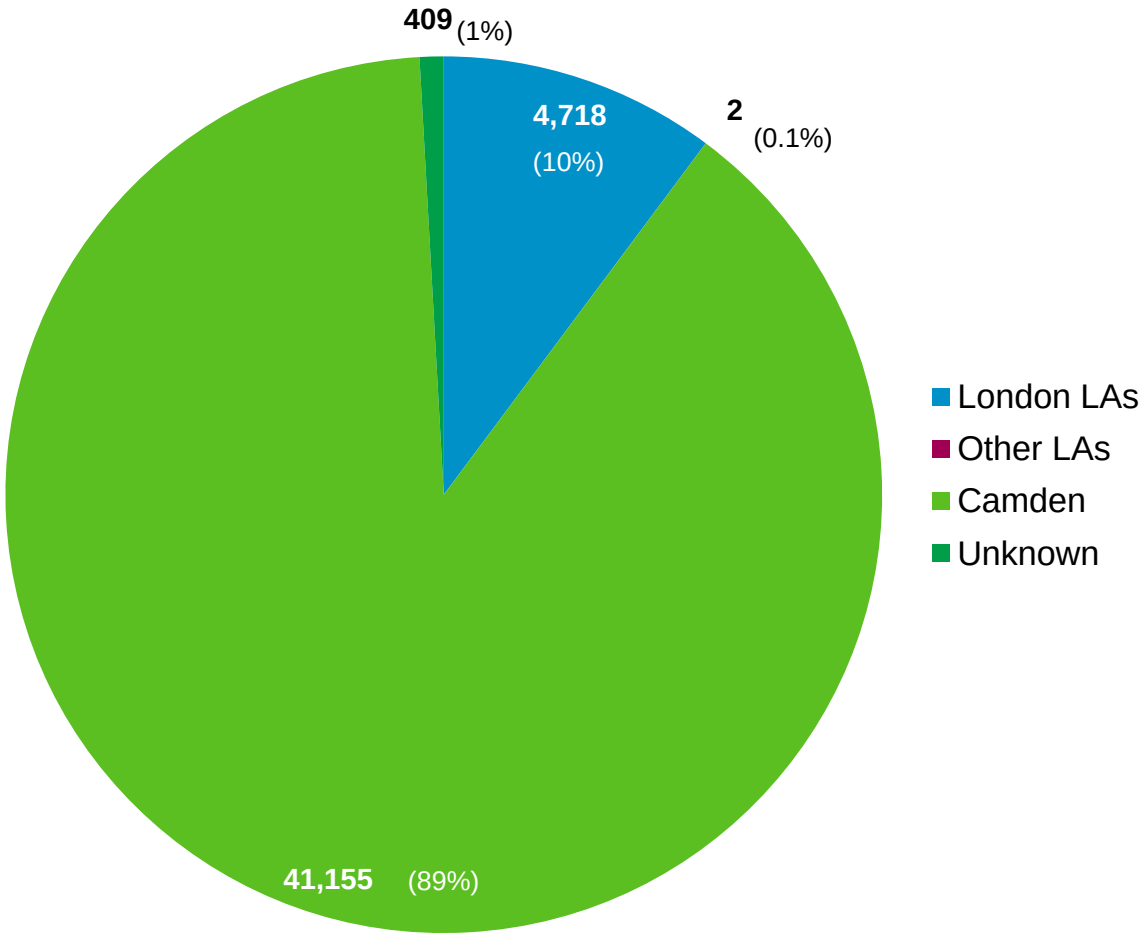
58% of MSK community appointments were for physiotherapy or podiatry and just under a quarter of appointments (24%) were for the physioline service.



Source: BCOM, CNWL, Connect Health and Inhealth

Proportion of service appointments in Camden by Local Authority of residence, 2015-16

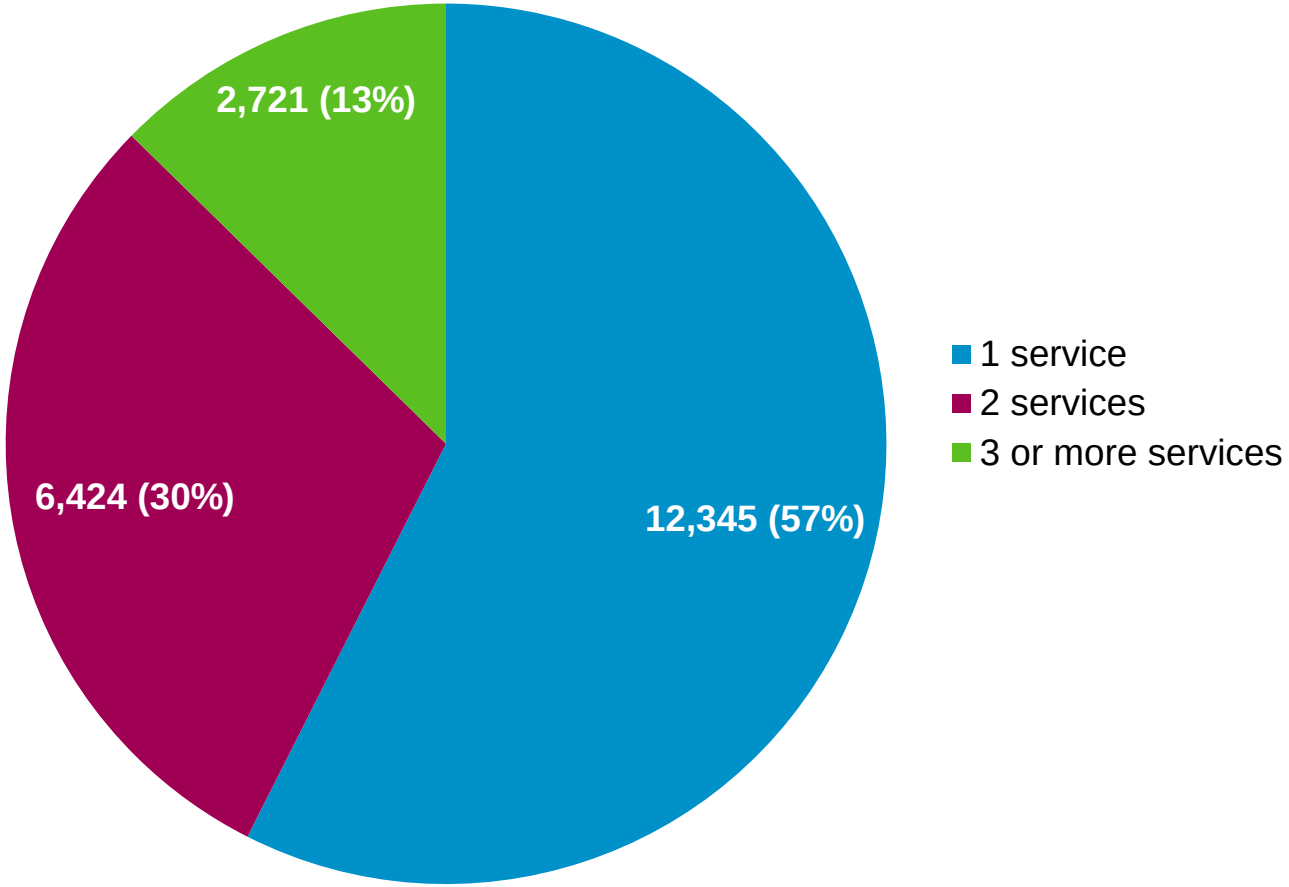
89% of all MSK community appointments were attended by Camden residents and 10% were attended by residents of other London local authorities.



Source: BCOM, CNWL, Connect Health and Inhealth

Number of different community services accessed by patients aged 15+ years in Camden between 2015-16

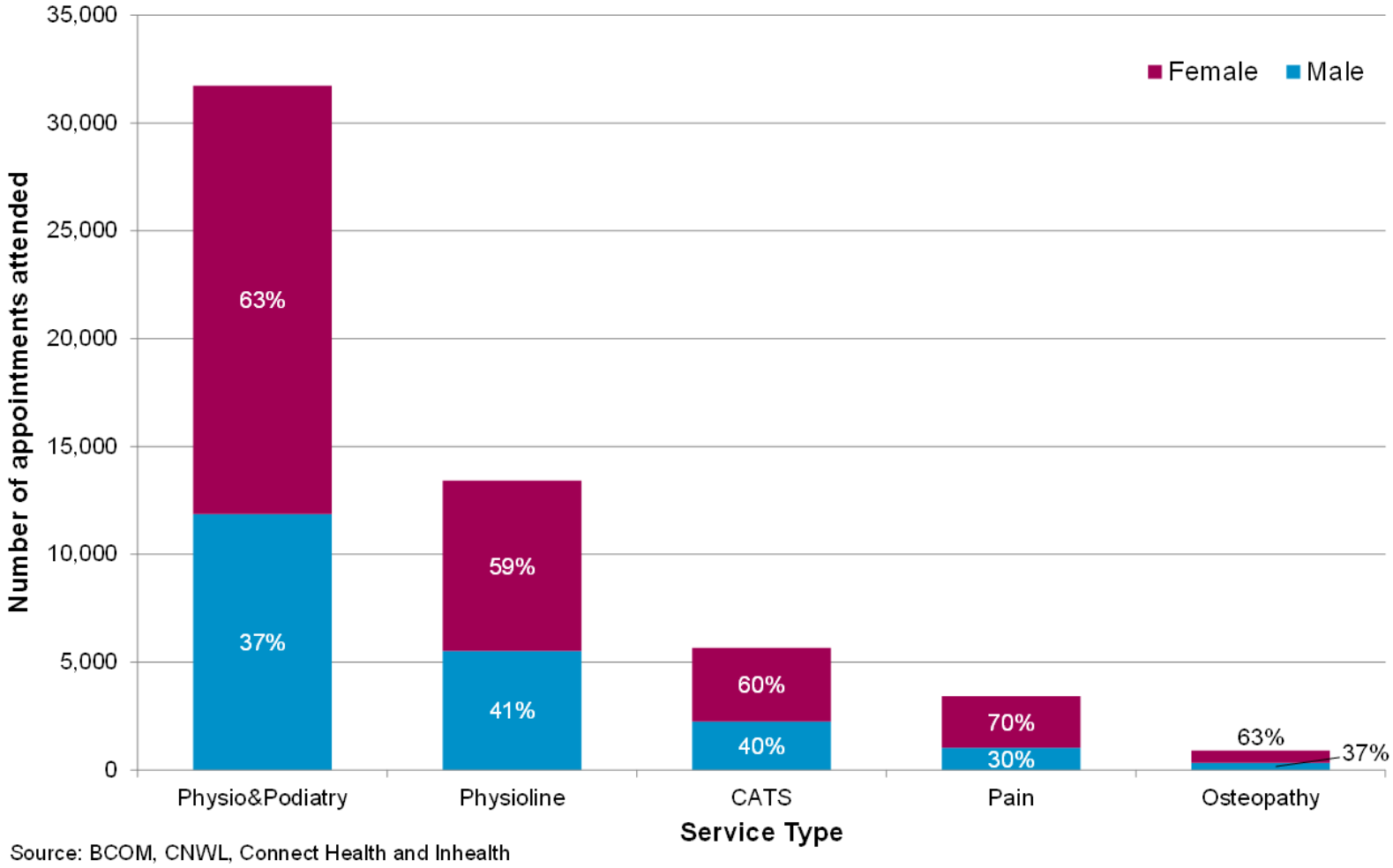
43% of patients accessed two or more different MSK community services between 2015 and 2016.



Source: MSK community data, 2015/16

Frequency of service appointments attended between 2015-16, by gender

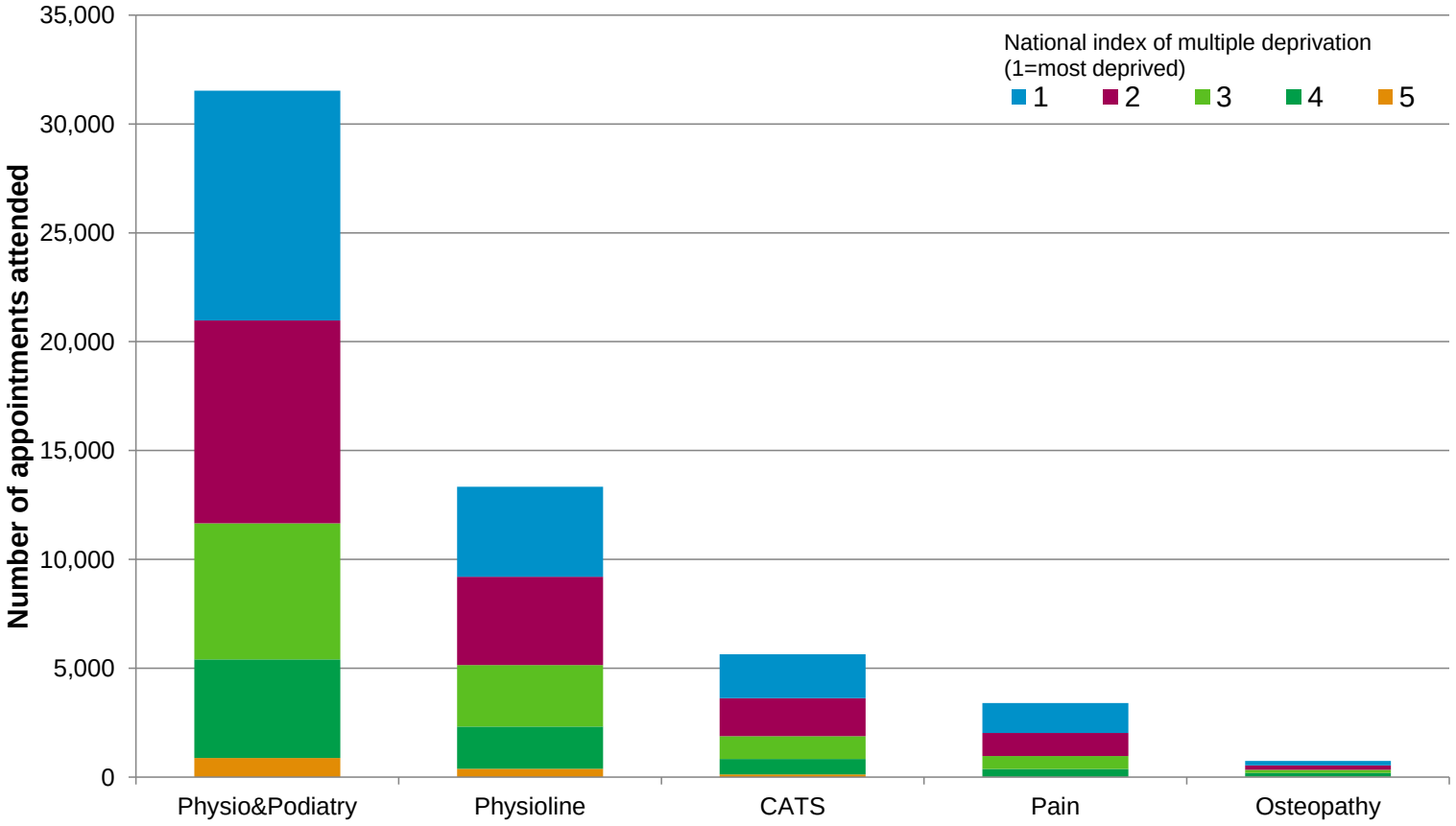
Women accounted for 62% (approximately 32,000) of all appointments, with physiotherapy and podiatry being the most common appointment among both men (11,900) and women (19,900). Across all service types, women had more appointments than men.



Source: BCOM, CNWL, Connect Health and Inhealth

Frequency of service appointments attended type and deprivation index in Camden, 2015-16

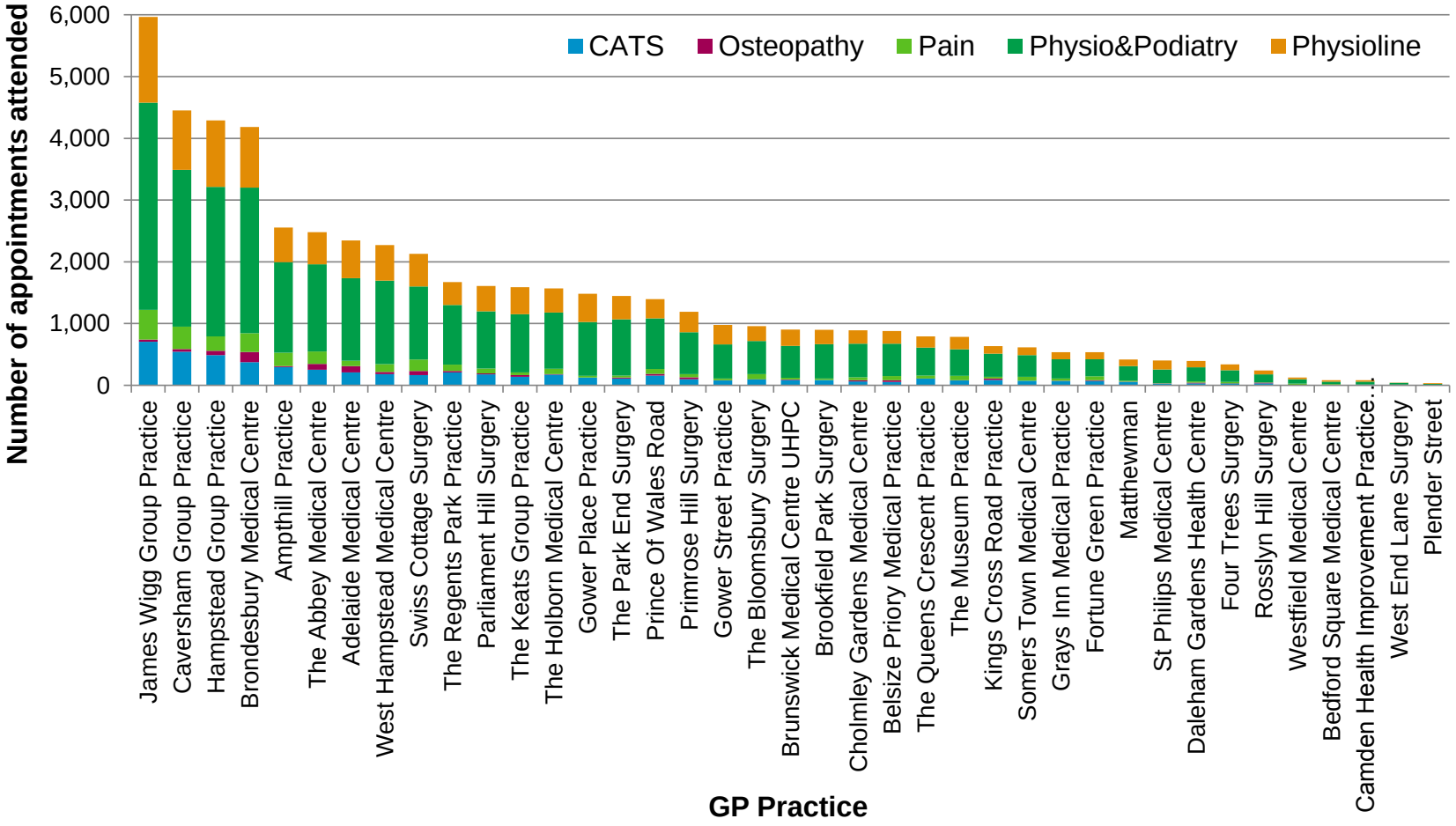
Over 35,000 appointments were attended by people living in the most deprived quintiles (quintiles 1 and 2). All service types showed a reduction in the number of appointments with increasing deprivation quintile (i.e. greater deprivation associated with more appointments for all services).



Note: 468 appointments could not be mapped to IMD score
Source: BCOM, CNWL, Connect Health and Inhealth

Frequency of service appointments attended between 2015-16, by GP Practice

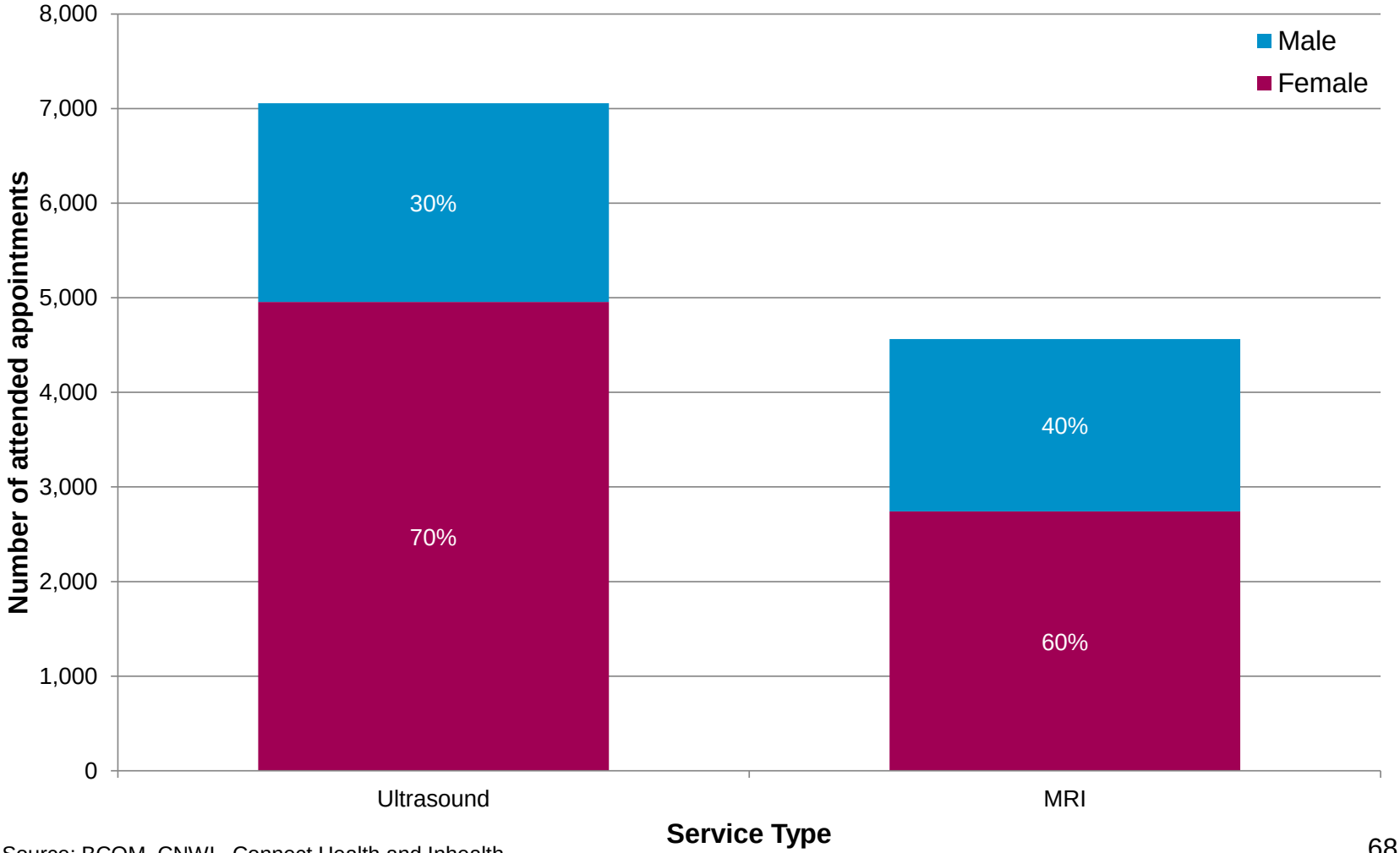
The number of appointments by GP practice varied considerably from 35 to 6,000 appointments. Four GP practices accounted for over a third (35%) of appointments.



Note: 955 appointments couldn't be mapped to GP practice. Additionally 24 GP practics could not be mapped due to small numbers
Source: BCOM, CNWL, Connect Health and Inhealth

Frequency of scan service appointments attended between 2015-16, by gender

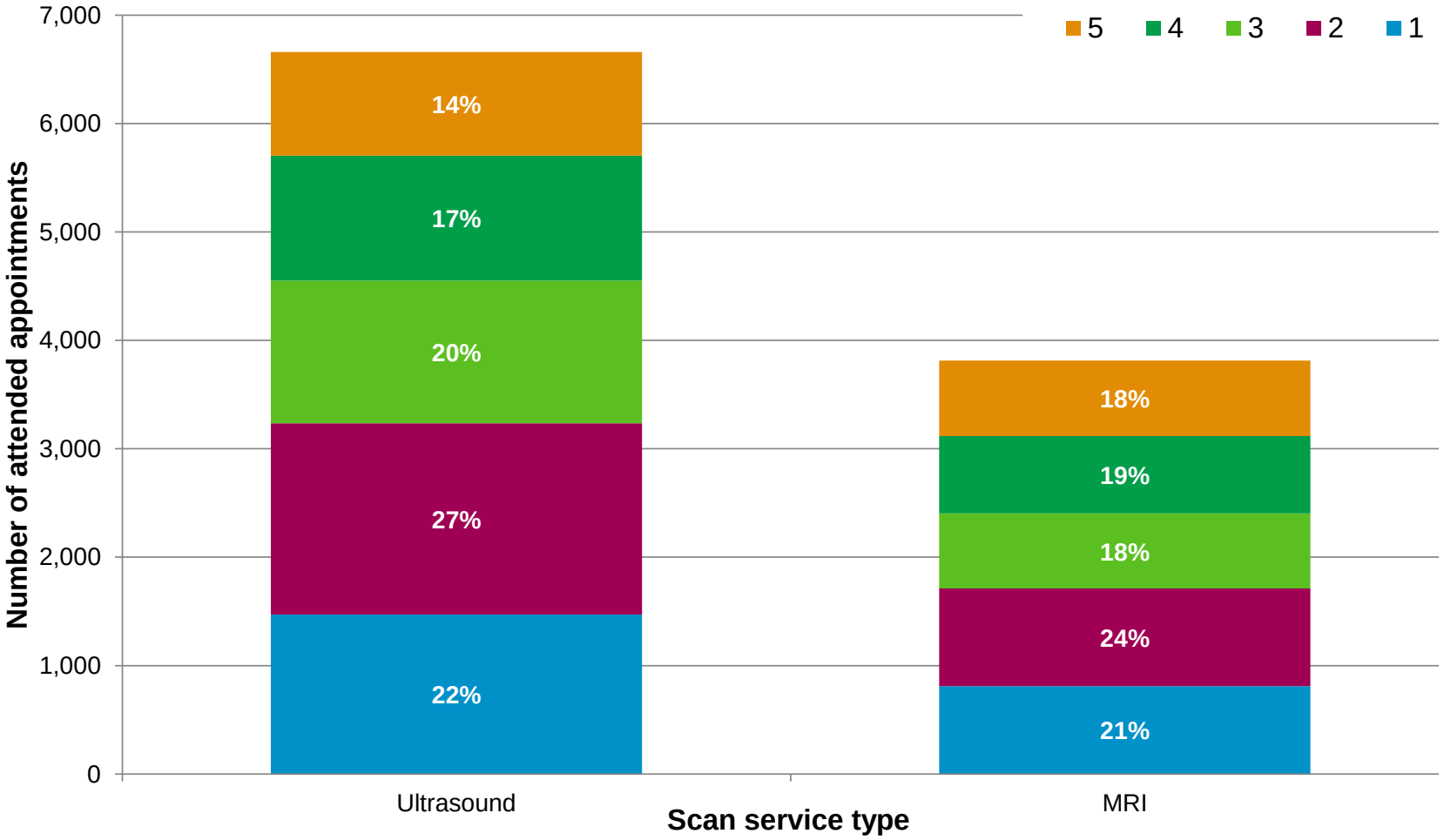
Twice as many women than men had MRI and ultrasound appointments (approximately 7,700 compared to 4,000); women accounted for 70% of ultrasound and 60% of MRI appointments.



Source: BCOM, CNWL, Connect Health and Inhealth

Frequency of scan service appointments attended between 2015-16, by IMD

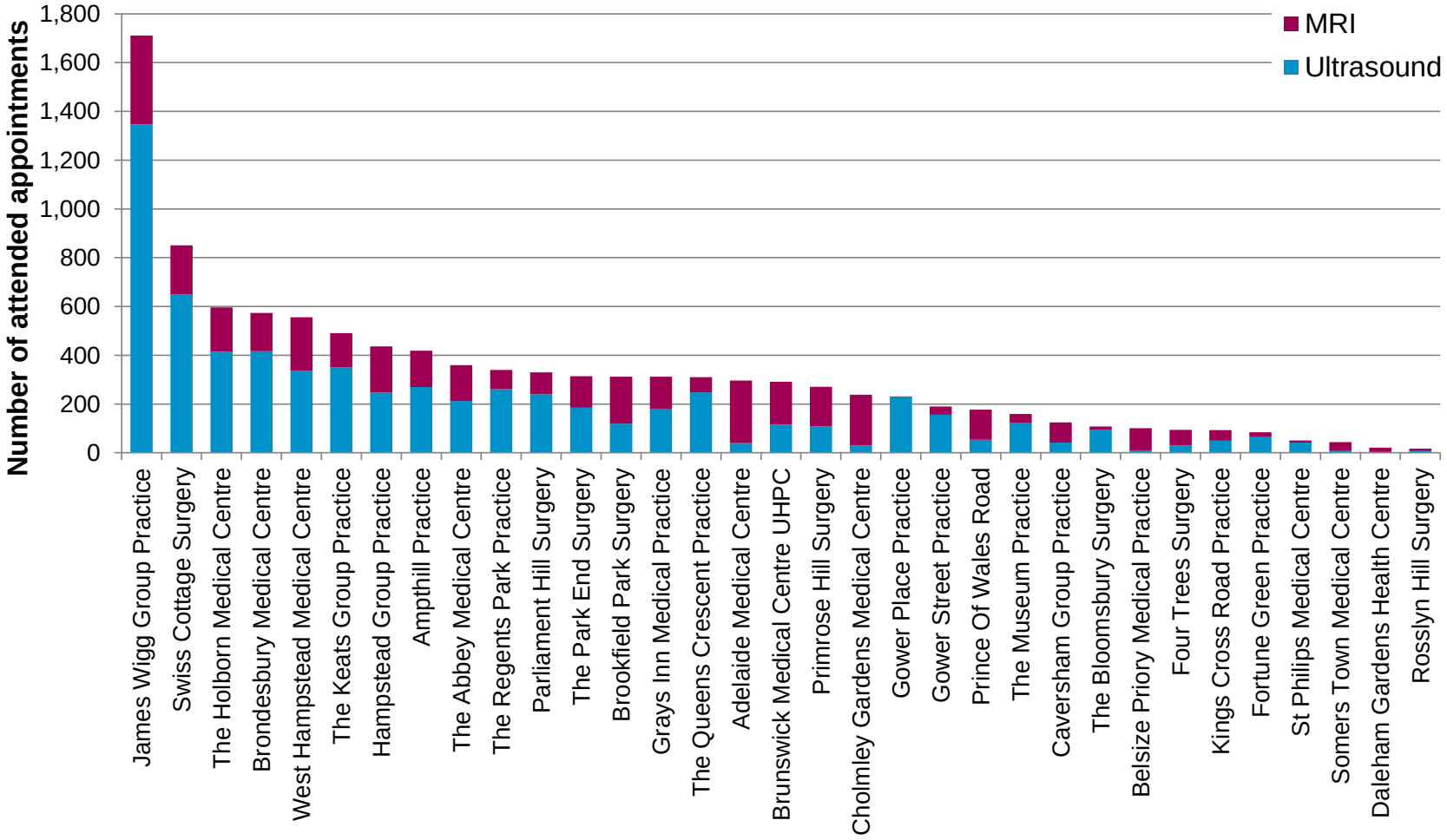
Almost half (49%) of ultrasound appointments and 45% of MRI appointments were attended by individuals within the two most deprived quintiles (quintiles 1 and 2).



Note: Approximately 35 appointments could not be mapped to local IMD
Source: Connect health, Inhealth and CWNL

Frequency of scan service appointments attended between 2015-16, by GP Practice

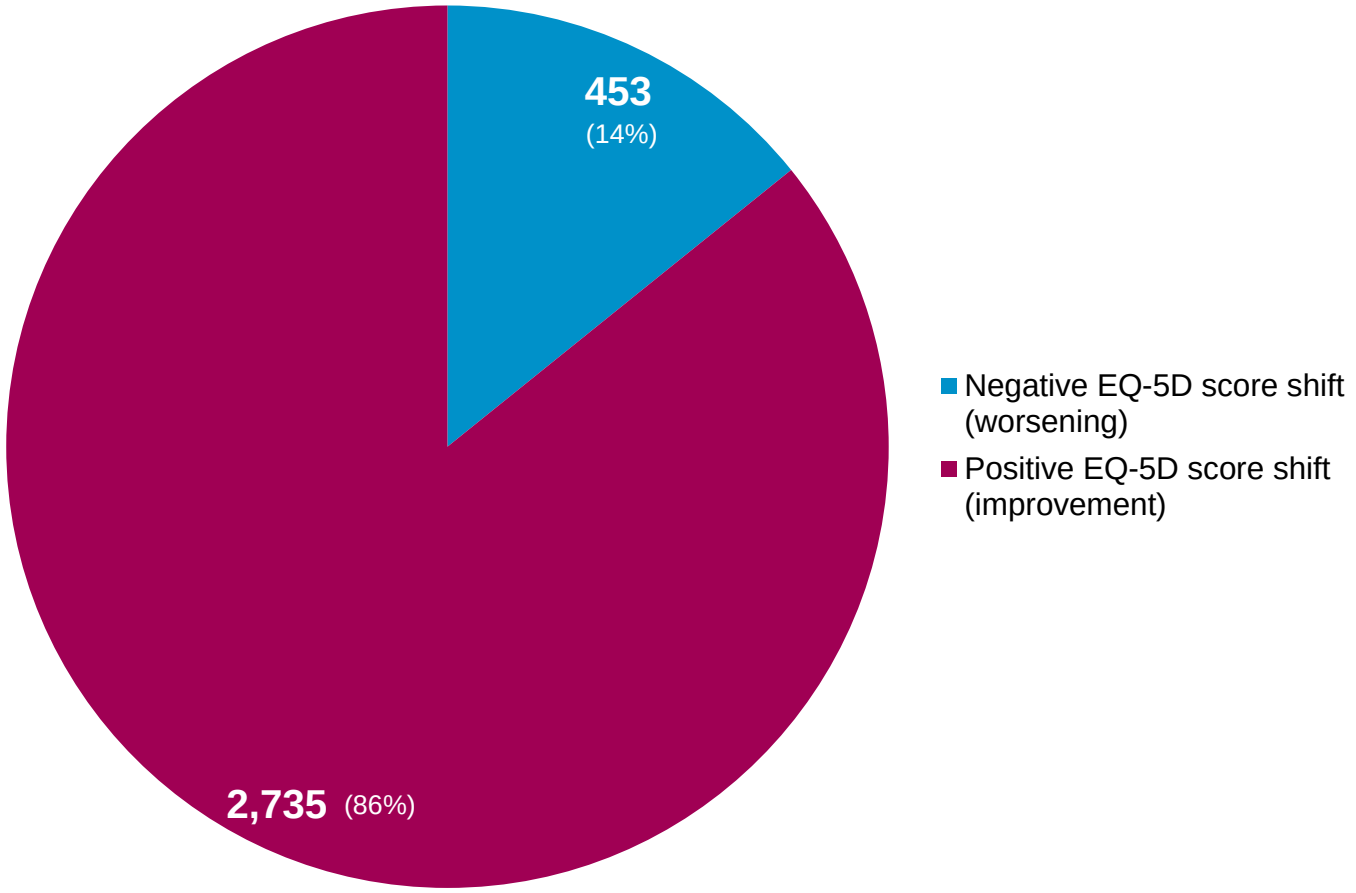
The number of scan service appointments by GP surgery ranged from approximately 15 to 1,700. The top five GP surgeries accounted for 41% of all appointments.



Source: Connect health, Inhealth and CWNL
Note: GP practices with small numner of appointments not shown

EQ-5D score shift before and after service appointments (where available), 2015-16

EQ-5D scores were available for 3,188 (4.8%) of all MSK community appointments. 86% reported an improvement in condition, while 14% reported that they felt worse following their appointment.



Source: BCOM, CNWL, Connect Health and Inhealth

APPENDIX

Data Sources

Aggregate-level analyses were performed using data from the following sources:

- Quality and Outcomes Framework (QOF): http://digital.nhs.uk/catalogue/PUB18887
- PHE, Public Health Profiles: http://fingertips.phe.org.uk/
- NHS Digital: http://digital.nhs.uk/searchcatalogue

Patient-level analyses were performed on the following datasets:

- MSK Community Providers: Connect Health, CNWL MSK, BCOM osteopathy and InHealth MSK
- Camden's GP-SUS Linked Dataset:
  - Pseudonymised data on Camden GP registered data has been linked with hospital admissions data.
  - Available data includes information on demographics, diagnoses, assessments, medications, secondary care admissions, attendances, inpatients and outpatients.
- FitNote:
  - Introduced in April 2010; health professionals can confirm whether patient is not fit for work or may be fit for some work.
  - They can additionally indicate that their patient may, with their employer's agreement, benefit from a phased return to work, altered hours, amended duties and workplace adaptations.

MSK Cohort Identification:

ICD-10 Diagnostic Codes

Condition group	Programme budget code (PBC)	ICD-10 diagnosis codes
Back, neck and musculoskeletal pain	15X *(Problems of the musculoskeletal system)*	Any primary diagnosis code that begins with: M40-M43, M46-M51, M53-M54, M86-M96 and mapped to PBC 15x
Rheumatoid and inflammatory arthritis		Any primary diagnosis code that begins with: M00-M03, M05-M14, M45 and mapped to PBC 15x
Osteoporosis and fragility fractures		Any primary diagnosis code that begins with: M80-M85 and mapped to PBC 15X
Osteoarthritis		Any primary diagnosis code that begins with: M15-M19 and mapped to PBC 15X
Other joint disorders (not including RA, inflammatory arthritis or osteoarthritis)		Any primary diagnosis code that begins with: M20-M25 and mapped to PBC 15X
Other MSK		Any primary diagnosis code that begins with: M30-M36, M60-M63, M65-M68, M70-M73, M75-M77, M79, M99 and mapped to PBC 15X

ICD-10 Codes for Hip and Knee Osteoarthritis

Characteristic	ICD-10 codes
Hip osteoarthritis (total)	Any primary diagnosis code that begins with M16.
Knee osteoarthritis (total)	Any primary diagnosis code that begins with M17.

MSK Procedures OPCS and PBC Codes:

Surgery

High spend procedures mapped to Programme Budget Code: 15X

OPCS Procedure Codes for Surgery-All: A578-579, V251-256, V258-259, V261-266, V268-269, V281-282, V288-289, V331-339, V341-349, V351-352, V358-359, V363, V368-369, V382-386, V388-389, V393-399, V401, V404, V408-409, V493, V521-522, V528-529, V548-549, V563-564, V568-569, V573-574, V603, V608-609, V613, V618-619, V671-672, V678-679, V681-682, V688-689

MSK Procedures OPCS and PBC Codes:

Primary Hip and Knee Replacements

High spend procedures mapped to Programme Budget Code: 15X

OPCS Procedure Codes for Primary Hip Replacements-All:
Cemented: W371, W378, W379
Uncemented: W381, W388, W389
Unspecified: W391, W398, W399
Hybrid: W931, W938, W939, W941, W948, W949, W951, W958, W959

OPCS Procedure Codes for Primary Knee Replacements-All:
Cemented: W401, W408, W409
Uncemented: W411, W418, W419
Unspecified: W421, W428, W429

MSK Procedures OPCS and PBC Codes:

Imaging

High spend procedures mapped to Programme Budget Code: 15X

OPCS Procedure Code	Full procedure description	Procedure group
U054	Computed tomography of spine	CT
U055	Magnetic resonance imaging of spine	MRI
U211	Magnetic resonance imaging NEC	MRI
U212	Computed tomography NEC	CT
V523	Discography of intervertebral disc	Discography

MSK Procedures OPCS and PBC Codes:

Pain management- part 1

High spend procedures mapped to Programme Budget Code: 15X

OPCS Procedure Code	Full procedure description	Procedure group
A483	Insertion of neurostimulator adjacent to spinal cord	Neurostimulators
A484	Attention to neurostimulator adjacent to spinal cord NEC	Neurostimulators
A485	Reprogramming of neurostimulator adjacent to spinal cord	Neurostimulators
A486	Removal of neurostimulator adjacent to spinal cord	Neurostimulators
A487	Insertion of neurostimulator electrodes into the spinal cord	Neurostimulators
A543	Implantation of intrathecal drug delivery device adjacent to spinal cord	Drug delivery device
A544	Attention to intrathecal drug delivery device adjacent to spinal cord	Drug delivery device
A545	Removal of intrathecal drug delivery device adjacent to spinal cord	Drug delivery device
A572	Rhizotomy of spinal nerve root	Spinal nerve root destruction
A573	Radiofrequency controlled thermal destruction of spinal nerve root	Spinal nerve root destruction
A574	Injection of destructive substance into spinal nerve root	Spinal nerve root destruction
A575	Destruction of spinal nerve root NEC	Spinal nerve root destruction
A705	Electroacupuncture	Acupuncture

MSK Procedures OPCS and PBC Codes:

Pain management- part 2

High spend procedures mapped to Programme Budget Code: 15X

OPCS Procedure Code	Full procedure description	Procedure group
A706	Acupuncture NEC	Acupuncture
A707	Application of transcutaneous electrical nerve stimulator	TENS
V485	Radiofrequency controlled thermal denervation of spinal facet joint of lumbar vertebra	Denervation
V486	Denervation of spinal facet joint of lumbar vertebra NEC	Denervation
V487	Radiofrequency controlled thermal denervation of spinal facet joint of vertebra NEC	Denervation
V488	Other specified denervation of spinal facet joint of vertebra	Denervation
V489	Unspecified denervation of spinal facet joint of vertebra	Denervation

MSK Procedures OPCS and PBC Codes:

Pain management- part 3

High spend procedures mapped to Programme Budget Code: 15X

OPCS Procedure Code	Full procedure description	Procedure group
V623	Primary percutaneous intradiscal radiofrequency thermocoagulation to lumbar intervertebral disc	Radiofrequency thermocoagulation to disc
V628	Other specified percutaneous intradiscal radiofrequency thermocoagulation to lumbar intervertebral disc	Radiofrequency thermocoagulation to disc
V629	Unspecified primary percutaneous intradiscal radiofrequency thermocoagulation to lumbar intervertebral disc	Radiofrequency thermocoagulation to disc
V633	Revisional percutaneous intradiscal radiofrequency thermocoagulation to lumbar intervertebral disc	Radiofrequency thermocoagulation to disc
V638	Other specified revisional percutaneous intradiscal radiofrequency thermocoagulation to lumbar intervertebral disc	Radiofrequency thermocoagulation to disc
V639	Unspecified revisional percutaneous intradiscal radiofrequency thermocoagulation to lumbar intervertebral disc	Radiofrequency thermocoagulation to disc
X292	Continuous intravenous infusion of therapeutic substance NEC	Drug delivery device

MSK Procedures OPCS and PBC Codes:

Other high spend MSK

High spend procedures mapped to Programme Budget Code: 15X

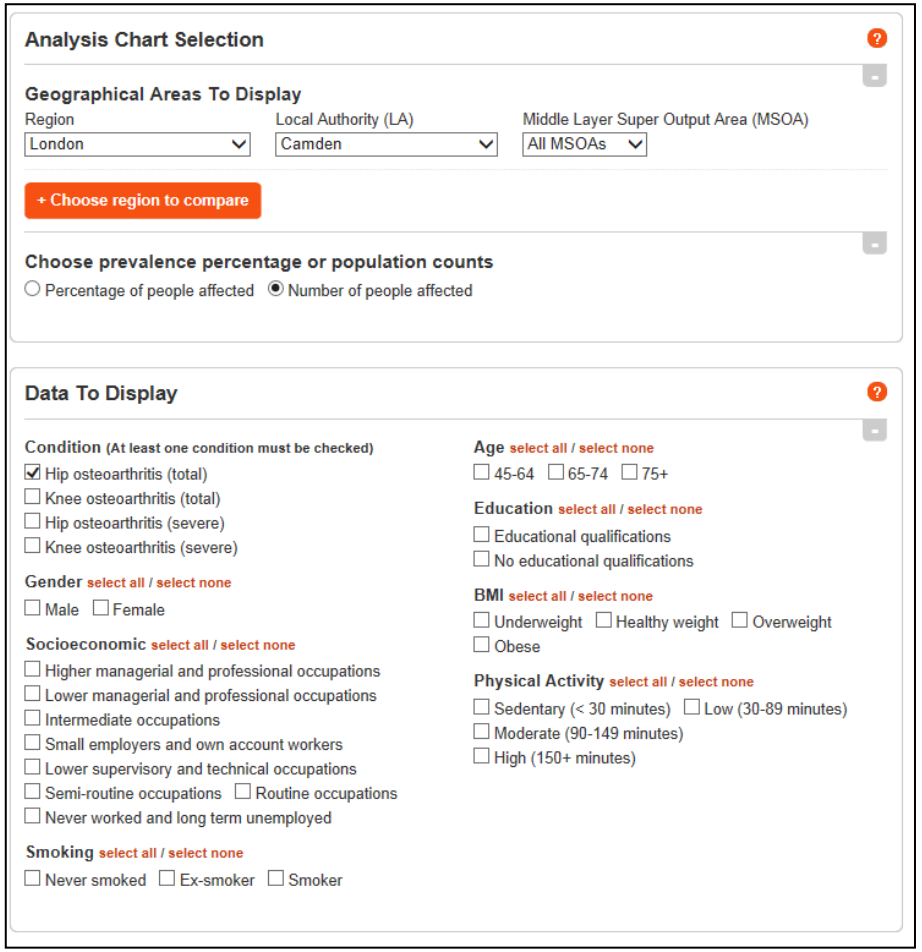
OPCS Procedure Code	Full procedure description
W822	Endoscopic resection of semilunar cartilage NEC
V411	Posterior attachment of correctional instrument to spine
T791	Plastic repair of rotator cuff of shoulder NEC
W283	Removal of internal fixation from bone NEC
W742	Reconstruction of intra-articular ligament NEC
T525	Digital fasclectomy
T521	Palmar fasclectomy
W901	Aspiration of joint
V294	Primary anterior excision of cervical intervertebral disc and interbody fusion of joint of cervical spine
T723	Release of constriction of sheath of tendon
W621	Primary arthrodesis and internal fixation of joint NEC
U051	Computed tomography of head
W802	Open debridement of joint NEC

MSK Prevalence Models

- Expected prevalence models are available for **hip and knee osteoarthritis** from Arthritis Research UK (https://www.arthritisresearchuk.org/arthritis-information/data-and-statistics/musculoskeletal-calculator/analysis.aspx?ConditionType=1&ChartType=2&Region-0=E09000007).

- Therefore, to account for under diagnosis and better understand the true needs of Camden's MSK population, the observed prevalence for hip and knee osteoarthritis (in the Camden GP-Linked database) have been compared with the expected prevalence from Arthritis Research UK. Analyses are stratified by age bands and sex (using the same strata as the MSK calculator).

- *N.B. Prevalence models for disabling back pain, rheumatoid arthritis and fragility facture risk are currently being developed by Imperial College, London.*



About Public Health Intelligence

Public health intelligence is a specialist area of public health. Trained analysts use a variety of statistical and epidemiological methods to collate, analyse and interpret data to provide an evidence-base and inform decision-making at all levels. Camden and Islington's Public Health Intelligence team undertake epidemiological analysis on a wide range of data sources.

FURTHER INFORMATION & FEEDBACK

This profile has been created by Camden and Islington's Public Health Intelligence team. For further information please contact Samantha Warnakula.

Email: publichealth.intelligence@islington.gov.uk, **Tel:** 020 7527 1242

We would also very much welcome your comments on these profiles and how they could better suit your individual or practice requirements, so please contact us with your ideas.