MUSCULOSKELETAL DISEASES

NEEDS ASSESSMENT

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1. What are the musculoskeletal conditions in Gloucestershire and why are these important?

1.1. Gloucestershire

Gloucestershire is a diverse, mainly rural county, with two major urban centres of Gloucester and Cheltenham at its heart. The population of Gloucestershire grew by 5.7% in the 10 years up to 2011 with a third of the growth attributable to Gloucester. According to latest estimates from the Office of National Statistics (ONS) the county's current population is around 602,000 (as of 2012); and is projected to reach 644,000 by 2021, a further increase of about 7%. Almost 80% of the county comprises areas classified as a being a village, hamlet, or containing isolated dwellings; however only a fifth of the county's population reside in these areas, compared to 40% living in Gloucester and Cheltenham. The distribution of the population has implications for service design in terms of ensuring appropriate accessibility.

Gloucestershire already has a greater proportion of people aged 65 and over than England and Wales, with their rate of growth expected to double by 2021. The county also has a rising trend of older people living alone which is also likely to place extra pressure on care provision; with the number of over 65s living alone projected to rise to 41,000 by 2021.

The age structure of the population however varies within the county, with the most urban of the six districts tending to have a 'younger' profile than the others. The table below shows the population figures for each of the districts, with Cotswold District having the highest proportion of older people.

Table 1: Gloucestershire Population by Age band and District, 2011

District	Population	% age 0-17	% age 18-64	% age 65+
Cheltenham	116,080	19.5	63.2	17.3
Cotswold	83,562	18.9	57.8	23.3
Forest of Dean	82,731	19.7	58.6	21.7
Gloucester	123,439	22.4	62.3	15.3
Stroud	113, 363	20.6	59.0	20.4
Tewkesbury	82,984	20.1	58.8	21.1
Gloucestershire	602,159	20.3	60.2	19.4

Source: GCC Strategic Needs Analysis Team - Understanding Gloucestershire (2013)

Table 2 shows the registered population and age distribution by GP locality.

Table 2: Gloucestershire CCG Population by GP Localities, June 2014

Locality	0-18	%	18-64	%	65+	%	All Ages
Cheltenham	29482	19.5	93196	61.5	28799	19.0	151477
Forest	11816	18.9	36449	58.3	14218	22.7	62483
Gloucester City	36465	22.0	101692	61.4	27436	16.6	165593
North Cotswold	4930	17.3	15904	55.8	7629	26.7	28463
South Cotswold	10818	18.9	34051	59.5	12364	21.6	57233
Stroud and Berkeley Vale	23432	19.5	71011	59.2	25543	21.3	119986
Tewkesbury	8186	19.4	25109	59.4	8976	21.2	42271
Grand Total	125128	19.9	377413	60.1	124965	19.9	627506

Source: GCC Strategic Needs Analysis Team

North Cotswold GP Locality has the highest proportion of older people, whilst Cheltenham Locality has the highest absolute numbers.

Gloucestershire has a small Black and Minority Ethnic (BME) population (4.6%) compared to England (14.1%); however there are variations between districts, with Gloucester having the highest BME population (10.9%). The proportion of school age children (aged 5-17 years) in the county from BME backgrounds is 7.3%, which is considerably higher than the proportion of people from BME backgrounds as a whole. 3.1% of the county's population now belong to the 'White - Other' ethnic category, having doubled from 2001 to 2011. This has been closely linked to inflow from Eastern European countries. The proportion of school age children (5-17years) from this population group is currently 2.4%. Differences in culture, health systems, and language skills may impact on the choice of appropriate health care services by this population group.

1.1.2. Vulnerable Populations

In terms of health outcomes, certain population groups may be at increased likelihood of having poorer outcomes compared with others. Such vulnerable populations include the economically disadvantaged, racial and ethnic minorities, children in low-income families, the elderly, the homeless, those with chronic health conditions including severe mental illness. It may also include rural residents, who often encounter barriers to accessing healthcare services.

In terms of developing MKS conditions, vulnerable groups would include older people, post-menopausal women, people who are obese, are physically inactive, or are suffering from depression[1], as well as people from low income groups. For Trauma and Injuries, vulnerable groups include children, older people, and people with osteoporosis. These population groups need to be considered for targeted preventive and supportive interventions.

SUMMARY

- *Gloucestershire is a mainly rural county with population concentrated in its two urban centres. It has a higher than average population of older people and a rising trend of those living alone. Though having a lower proportion of people from BME backgrounds, people from the 'White- Other' category have doubled in number. These all have significant implications for appropriate accessibility and use of services.*
- *There are specific population groups who may be considered vulnerable and at high risk of developing MSK conditions or of suffering trauma and sustaining injuries. These groups would benefit from targeted preventive and supportive interventions.*

1.2. Musculoskeletal Conditions

Musculoskeletal conditions are disorders of the bones, joints, muscles and spine, as well as rarer autoimmune conditions such as lupus[2]. They would include conditions such as osteoarthritis and rheumatoid arthritis; back and neck pain; osteoporosis and fragility fractures; soft tissue rheumatism; musculoskeletal injuries due to sports and in the workplace; and trauma commonly

[1] Depression is an independent risk factor for developing back pain

[2] Arthritis UK 2014. Musculoskeletal health. A public health approach. http://www.bing.com/search?q=Musculoskeletal+health.+A+public+health+approach&src=IE-SearchBox&Form=IE8SRC

related to road traffic accidents. Musculoskeletal complaints are widespread and are a frequent cause of consultation with GPs. Nationally, 30% of all GP consultations (and 40% of consultations at NHS walk-in centres) are estimated to be about musculoskeletal complaints. The ageing population in Gloucestershire will further increase this **demand** on primary care especially around managing osteoarthritis and osteoporosis (the prevalence of which increase with age).

The majority of these conditions are not life threatening and do not require hospital admission. They however have a significant economic impact in terms of cost of treatment and wider indirect costs to the economy.

They cause pain, physical disability and loss of personal and economic independence and affect millions of people of all ages in all cultures and in all countries. They are the greatest cause of disability, as measured by years lived with disability (YLDs) in the UK[3] and second greatest worldwide[4]. As a group musculoskeletal disorders cause 31.3% of all years lived with disability (YLDs) (mental and behavioural disorders are second accounting for 21.1% of YLDs). The main contributors are low back pain (1,538 thousand YLDs), neck pain (429 thousand YLDs), osteoarthritis (217 thousand YLDs) and the other musculoskeletal category (399 thousand YLDs). Nationally, musculoskeletal patients are the second largest group (22%) receiving incapacity benefits[5]. In Gloucestershire as of May 2014, 11% of all incapacity benefit/severe disablement and 12% of Employment and Support Allowance (ESA) payments were for diseases of the musculoskeletal system and connective tissue[6].

Disability due to musculoskeletal disorders is increasing due to ageing of the population (the prevalence of musculoskeletal conditions generally rises with age) increased obesity and lack of physical activity. With an ageing population and a prevalence of diabetes of 6.1%[7] in people aged 17 years and over in Gloucestershire (which is set to increase), preventing and appropriately managing these conditions becomes very important. Furthermore, such disability can be effectively prevented by currently available interventions, such as accident prevention, modern treatment of arthritis and musculoskeletal injuries, and by rehabilitation.

1.2.1. Musculoskeletal Conditions and the Workplace

Some occupations can cause or worsen MSK conditions, whilst these conditions contribute significantly to absenteeism.

The Health and Safety Executive (HSE) provides latest estimates from the Labour Force Survey (LFS) which shows[8]:

- The total number of MSD cases in 2013/14 was 526 000 out of a total 1 241 000 for all work-related illnesses.
- The number of new cases of MSDs in 2013/14 was 184 000, up from 141 000 in 2011/12.

[3] Lancet 9 March 2013
4 Lancet 15 December 2012
[5] 'Who cares wins: absence and labour turnover 2005'. CBI (in association with AXA) – May 2005
[6] Nomis, December 2014, https://www.nomisweb.co.uk/
[7] QoF prevalence 2013/14. National General Practice Profiles
[8] http://www.hse.gov.uk/statistics/causdis/musculoskeletal/index.htm

- There has generally been a downward trend in the rate of total cases and new cases of work-related MSDs since 2001/02, although the latest year has a higher rate than in 2011/12.
- The total number of working days lost due to MSDs in 2013/14 was 8.3 million, an average of 15.9 days per case of MSDs. There has generally been a downward trend in the average days lost per worker due to MSDs since 2001/02.
- Activities in specialised construction, agriculture, postal and courier and health care had higher rates of total cases of MSDs compared to the average across industries.
- Building trades, nurses, personal care and skilled agriculture trades had higher rates of total cases of MSDs compared to the average across all occupations.

Occupations with a high risk of osteoarthritis include farmers and agricultural workers (hips) and professional footballers (knee).

Back pain is the number one cause of long-term absence among manual workers and a common cause of short-term absence[9].

GPs in the THOR-GP reporting scheme[10] identify heavy lifting, keyboard work and manipulating materials as the main tasks associated with the development of work-related musculoskeletal disorders seen in their clinics

1.3. Trauma and Injuries

Included under this heading are general injuries, Land Transport injuries, falls and other selected injuries and causes of trauma that are relevant to the MSK CPG. Injuries are preventable and their prevention should be of central focus. Those most at risk of an injury in the home are under 4 yrs, while older children and teenagers can be more at risk outside the home, especially on the road.

Falls are a common but often overlooked cause of injury, and sometimes death. Around one in three adults over 65 who live at home will have at least one fall a year, and about half of these will have more frequent falls. Most falls do not result in serious injury, but there is a risk of problems such as broken bones. Falls can also have an adverse psychological impact on elderly people e.g. loss of confidence and potential loss of independence.

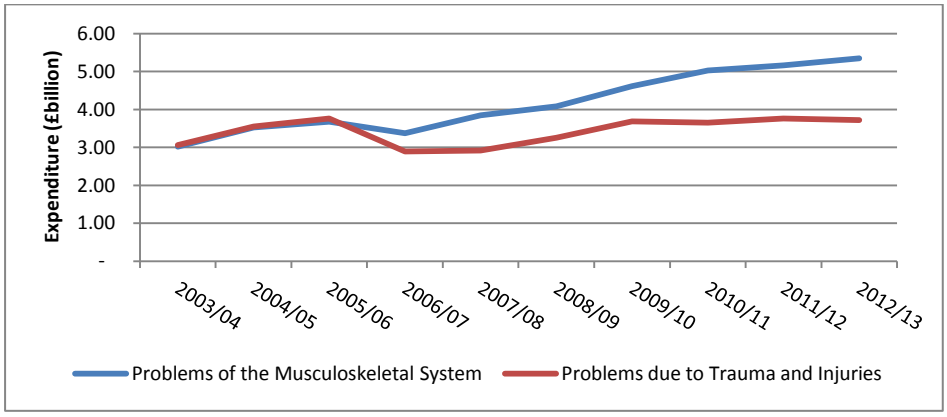
1.4. NHS Spend on Musculoskeletal Conditions and Trauma and Injuries

There has been an increase in NHS expenditure on musculoskeletal conditions at national level with this being £5.34 billion in 2012/13 (Figure 1).

[9] Department for Work and Pensions (2002). Pathways to work: helping people into employment. Department for Work and Pensions. London

[10] THOR-GP is a project which uses a research network of General Practitioners with training in Occupational Medicine to determine the incidence of occupational disease, work-related ill health and sickness absence burden in the UK and the Republic of Ireland. It is part of the THOR network and programme of research and is partly funded by the Health and Safety Executive

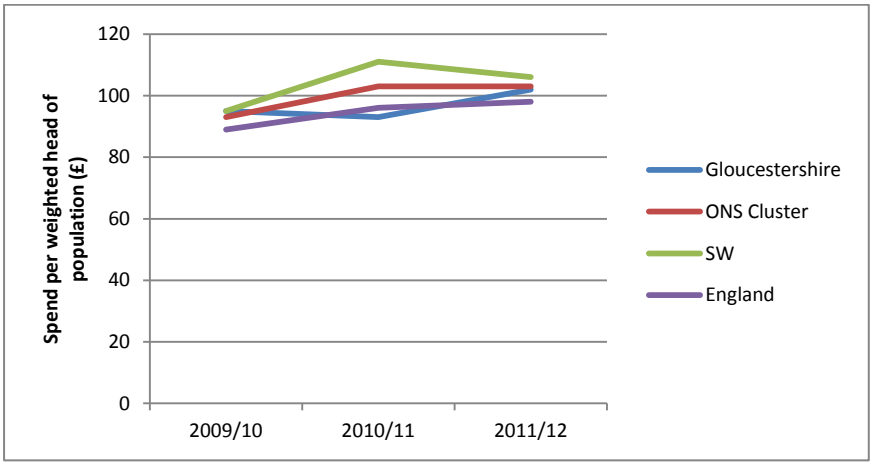
Figure 1: National Expenditure on Musculoskeletal and Trauma & Injuries Programmes at National Level, 2003/4 to 2012/13



Source: Summarised Programme Budgeting Aggregate PCT Figures for Financial Years 2003/4 to 2012/13 http://www.networks.nhs.uk/nhs-networks/health-investment-network/news/2012-13-programme-budgeting-data-is-now-available

Spend per head on MSK conditions follows the same increasing trend, including in Gloucestershire (Figure 2).

Figure 2: Musculoskeletal Spend per Weighted Population, 2009/10 – 2011/12



Source: Spend and Outcome Tool http://www.yhpho.org.uk/quad/Default.aspx

Trauma spend per weighted population reduced from 2009/10 and remained relatively stable in 2010/11 and 2011/12.

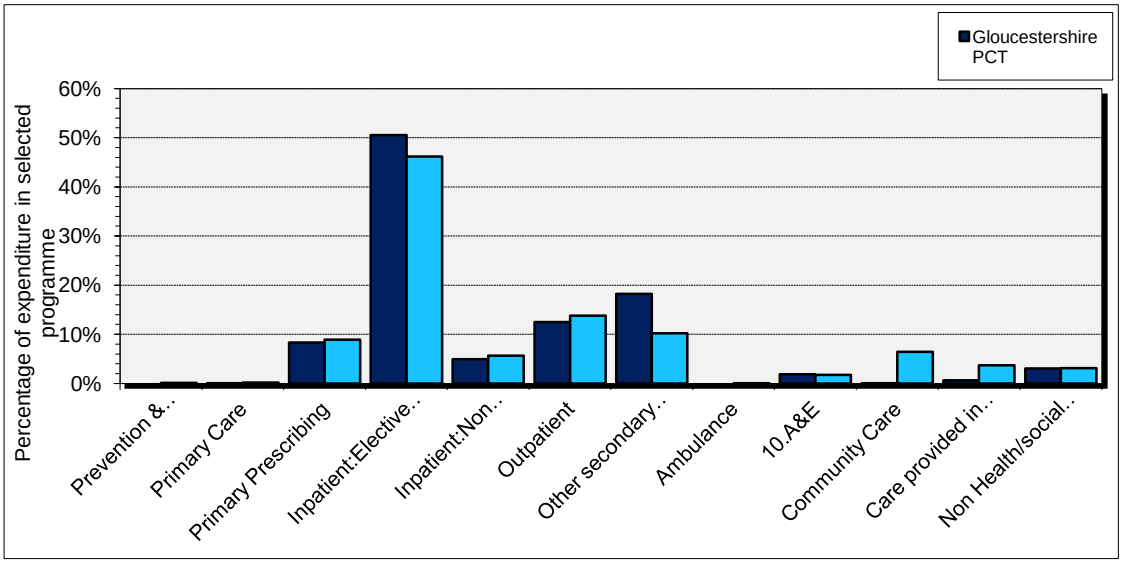
Gloucestershire PCT spent £56,003, 629 (5.7% of total expenditure) in 2012/13 on musculoskeletal conditions and £41,903,974 (4.2%) on Trauma and Injuries[11]. The Finance Team estimates the spend on MSK conditions in 2013/14 in and out of county to be ££53,013,000 (87% of this spend was in-county spend). Within the county about three-quarters of the spend of £46,083,000 was on Trauma and Orthopaedics.

Programme Budgeting data for 2012/13 showed that. The care setting with the greatest spend for musculoskeletal problems was secondary care (mainly elective and day cases at 50.5%), with little or

[11] **2012/13 Programme Budgeting Benchmarking Tool, February 2014.** http://www.networks.nhs.uk/nhs-networks/health-investment-network/news/2012-13-programme-budgeting-data-is-now-available

no spend against prevention and health promotion, and 8.3% for primary care (largely prescribing). Gloucestershire seems to spend more compared with its peers on inpatient elective and day cases and on 'other secondary care', whilst it spends much less on community care (Figure 3). The Finance Team data for 2013/14 showed that 89% of the in-county spend on MSK conditions was in GHNHSFT for 60% of the services.

Figure 3: Expenditure on Musculoskeletal Conditions by Care Setting, Gloucestershire PCT and Peer Group, 2012/13

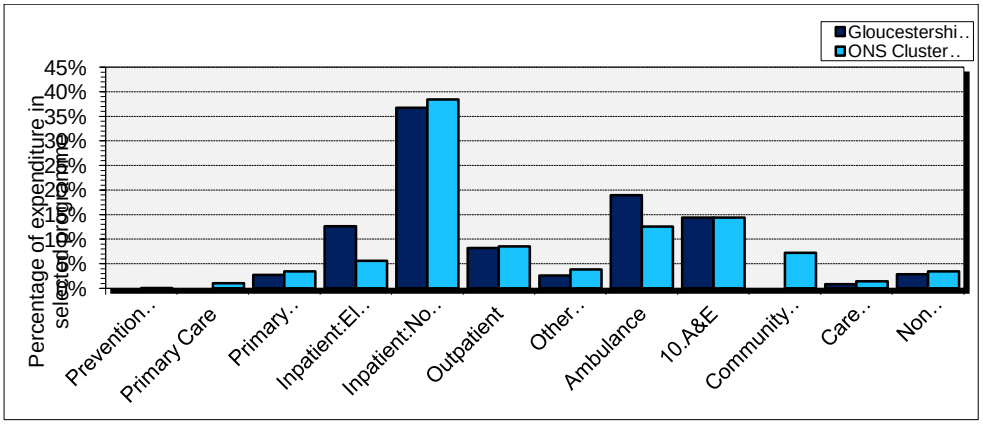


Source: 2012/13 Programme Budgeting Benchmarking Tool, February 2014. http://www.networks.nhs.uk/nhs-networks/health-investment-network/news/2012-13-programme-budgeting-data-is-now-available

Treatment with Biologics (for rheumatoid arthritis and other types of arthritis) presents additional costs, the demand for which is likely to increase. There are additional indirect costs to the wider Gloucestershire economy which include lost working days, benefit claims (12% of incapacity claims are for musculoskeletal conditions).

The relative lack of spend on prevention and health promotion is also apparent for Trauma and Injuries (Figure 4).

Figure 4: Expenditure on Trauma and Injuries by Care Setting, Gloucestershire PCT and Peer Group, 2012/13



Source: 2012/13 Programme Budgeting Benchmarking Tool, February 2014. http://www.networks.nhs.uk/nhs-networks/health-investment-network/news/2012-13-programme-budgeting-data-is-now-available

Gloucestershire appears to spend more compared with its peers on inpatient elective and day cases and ambulance, with much less spend in the community.

SUMMARY

- *MSK conditions are varied and widespread and are a frequent cause of GP consultations.*
- *Majority are not life-threatening and do not require hospital admission but cause pain, disability and loss of personal and economic independence.*
- *They are the biggest cause of 'years lived with disability' in the UK – low back pain, neck pain and osteoarthritis being major contributors to this in descending order.*
- *Some occupations can cause or worsen MSK conditions*
- *11% of Incapacity Benefit/Severe Disablement and 12% of ESA payments in Gloucestershire are attributable to diseases of the musculoskeletal system and connective tissue*
- *Though this disability is increasing, it can be effectively prevented by accident prevention, modern treatment of arthritis and musculoskeletal injuries, and by rehabilitation*
- *Injuries are preventable with young children being most at risk in the home, and older children and teenagers more at risk outside the home*
- *Falls are common in older people and can result in fractures and often have a psychological impact*
- *Spend on problems of the musculoskeletal system shows an increasing trend nationally and locally*
- *Figures for 2013/14 showed a spend of about £53 m on MSK conditions, 87% of this being spent in-county. 75% of the in-county spend was attributable to Trauma and Orthopaedics*
- *Within the county, 89% of the spend on MSK conditions was in GHNHSFT for 60% of the services, and 75% was attributable to Trauma and Orthopaedics*
- *Increasing demand for treatment with Biologics as well as wider costs to local economy represent additional costs.*
- *Gloucestershire seems to spend more compared with its peers on inpatient elective and day cases and on 'other secondary care' for musculoskeletal conditions, whilst it spends less on community care and little or no spend on prevention and health promotion*
- *For Trauma and Injuries, it seems to spend more on inpatient elective and day cases, and for ambulance compared with its peers; and little or nothing on community care as well as prevention and promotion.*

2. What is the scope of the Musculoskeletal Needs Assessment?

2.1 CCG Strategic Objectives

The CCG is hoping to improve the **experience** and **outcomes** of the Gloucestershire population though using the Clinical Programme approach, with a particular emphasis on models of **proactive care** and **case management** especially for long term conditions. Furthermore, it will be giving increasing focus on health and wellbeing with particular emphasis on prevention and self care.

Though the MSK CPG draws on the principles of Programme Budgeting and Marginal Analysis and is therefore one of the 23 programme areas defined by the Department of Health under these principles; it has however made a conscious decision to include trauma and injuries as an additional

programme area within its remit. This needs assessment therefore covers both MSK and Trauma and Injury Programme Groups.

2.2. MSK CPG Aims and Objectives

The ultimate aim of the MSK CPG is to get the best outcomes for the population (children and adults) within the resources available by:

- Reducing the disabling effects of musculoskeletal problems through an appropriately balanced programme of prevention, early detection, disease management, surgery and rehabilitation, augmented by effective interface service prior to hospital referral.

For the Trauma and Injury Programme area, the CPG's aims (which cross-refer to those of the 'Frail Elderly' Programme) are:

- To work with other agencies to create a safer environment so as to reduce the incidence of serious injury and deaths arising from accidents, especially in children and on the roads
- To reduce the incidence of falls and fractures in older people, in particular reducing further falls in those who have already suffered a fall
- To continue to improve access to rehabilitation services following serious injury and thereby improve clinical outcomes.

2.3. Needs Assessment

There are over 200 MSK conditions affecting adults and children which can be self-limiting or long-term disabling conditions. Some can result from injuries which can lead to long-term disability. Minor self-limiting episodes of pain around the joints and back are very common and can be caused by accidents, injury or osteoarthritis.

Due to the huge range of conditions classified under the MSK Programme Group, the needs assessment has used the broad classification proposed by Arthritis Research UK Epidemiology Unit based in the University of Manchester. This Unit which acts as a source of information on the burden of musculoskeletal disease to academics, the medical profession, patients and the general public, has collated required epidemiological data which are widely scattered across published studies, surveys and Government reports. They have subsequently developed a template that can be used to estimate the number of people suffering from MSK conditions in a given population. This needs assessment uses this template to estimate MSK burden (incidence and prevalence) in Gloucestershire. For trauma and injuries, the assessment considers relevant published data e.g. incidence of serious injury, deaths from accidents, incidence of fall and fractures in older people etc.

Apart from the burden of disease which it describes, the needs assessment focuses on relevant outcomes as well as patient experience in line with the CCG's strategic objectives. It also shows where possible, changes over time in relevant data, as well as how these compare with other areas. The needs assessment gives an overview of current service provision and highlights any identified gaps in provision. Major issues raised by stakeholders are considered including those that may have implications for future commissioning, while priorities for action are highlighted.

SUMMARY

- *CCG strategic objectives for CPGs emphasise improving outcomes and patient experience, focusing on prevention, proactive care and self care*
- *Needs assessment covers two (out of 23 recognised) programme areas – MSK, Trauma and Injuries*
- *CPG aims to have an appropriately balanced programme from prevention through to rehabilitation, covering the life course, working with and through partners*
- *Needs assessment makes estimates of the burden of diseases using published data, focuses on outcomes and changes over time where relevant.*

3. Outcomes

With the CPG's aim of obtaining the best outcome from the resources available to it, we start by using the Spend and Outcome Tool (SPOT)[12] to explore how Gloucestershire has performed in comparison with other areas in terms of outcomes delivered from money spent for MSK conditions as well as Trauma and Injuries. Other relevant outcomes are subsequently explored e.g. CCG, Adult Social Care and Public Health Outcomes as well as desired patient outcomes.

3.1. Spend and Outcome Tool (SPOT) 2009/10 to 2011/12

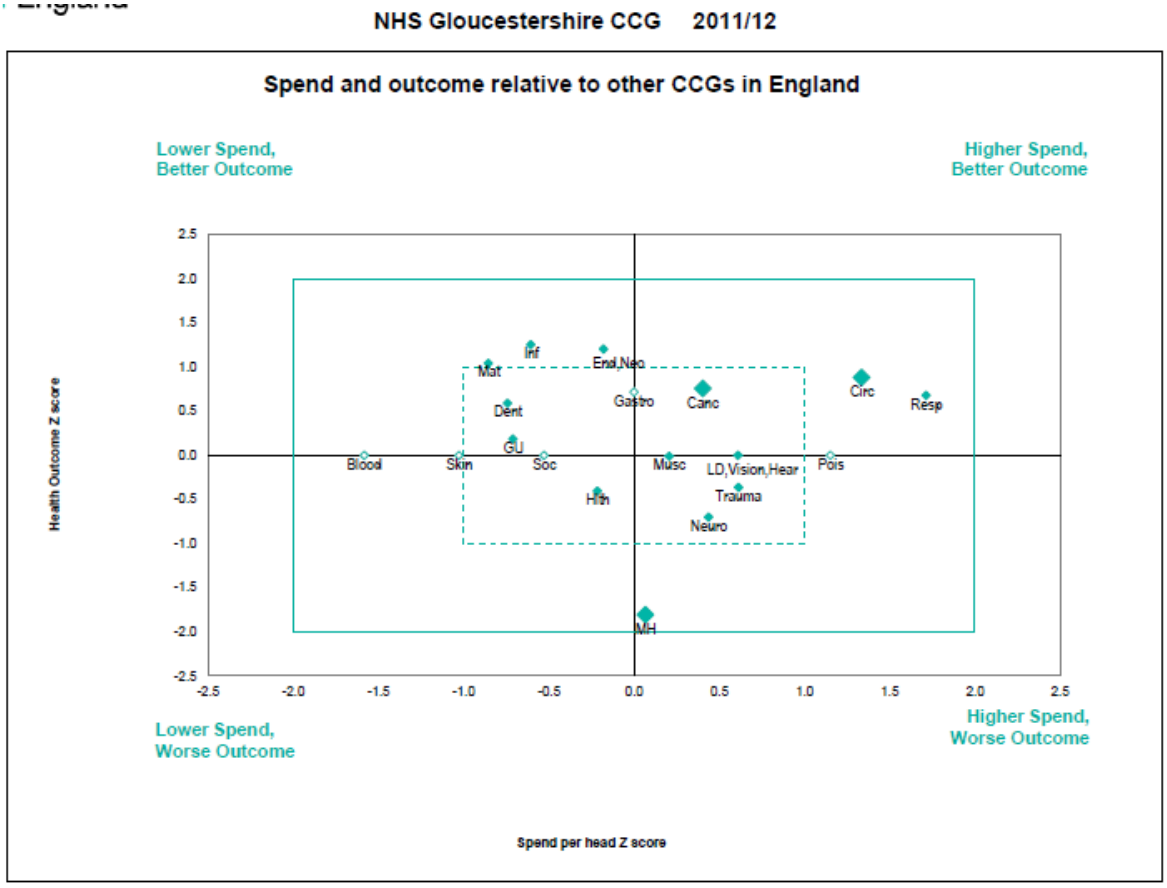
The SPOT is a tool developed by the Yorkshire and Humber Public Health Observatory (now part of Public Health England) which gives an overview of **spend** and **outcomes** across all programmes of care (based on the 23 Programme Budget categories). Data available over a three year period (2009/10 -2011/12) gives us an overview of trend around these MSK conditions and Trauma and Injury.

MSK Programme: (Outcomes used are EQ-5D[13] for Hips and Knees and Oxford Scores for Hips and Knees)
Initially in 2009/2010, Gloucestershire had higher spend than peer group and average outcome. Now higher spend is decreasing and outcome still average. Improving outcomes for current spend would be beneficial. (Note: spend/head in 2011/12 became roughly the same as cluster average).

Trauma and Injuries Programme (outcome used is mortality from accidents**)**:

Initially in 2009/10, Gloucestershire had much higher spend than its peer group and lower outcome. Spend has decreased over the years, but outcomes still below average. There is therefore a need to (improve outcomes at current spend. (Note: spend/head initially higher than cluster average, difference less though still higher by 2011/12).

[12] http://www.yhpho.org.uk/quad/Default.aspx
[13] Standardised instrument for use as a measure of heath outcome which is applicable to a wide range of health conditions and treatments. The five dimensions of this tool cover mobility, self-care, usual activities, pain/discomfort and anxiety/depression



3.2. CCG Outcomes

The success or otherwise of Gloucestershire CCG is measured by how well it performs against defined outcomes indicator set. The CCG Outcomes Indicator Set measures are developed from those NHS Outcomes Framework indicators that can be measured at CCG level together with additional indicators developed by NICE and the Health and Social Care Information Centre. They provide clear, comparative information about the **quality** of health services commissioned by CCGs and the associated **health outcomes**. They are useful in **identifying local priorities** for quality improvement and to demonstrate progress that local health systems are making on outcomes. The CCG is focused on delivering against these CCG Outcomes to help improve experience and outcomes for Gloucestershire residents.

The CCG Outcome Framework Indicators (2014/15) that are relevant to this needs assessment include:

- People feeling supported to manage their condition (CCG OIS 2.2; NHS OF 2.1)
- Hip fracture incidence (CCG OIS 1.22)
- Hip fracture: formal hip fracture programme:
    - Timely surgery (CCG OIS 3.12)
    - Multifactorial risk assessment (CCG OIS 3.13)
    - Collaborative orthogeriatric care (CCG OIS 3.11)
- Proportion of patients recovering to their previous level of mobility or walking ability
    - At 30 days (CCG OIS 3.1 i; NHS OF 3.5 i)

- At 120 days (CCG OIS 3.1 ii; NHS OF 3.5 ii)

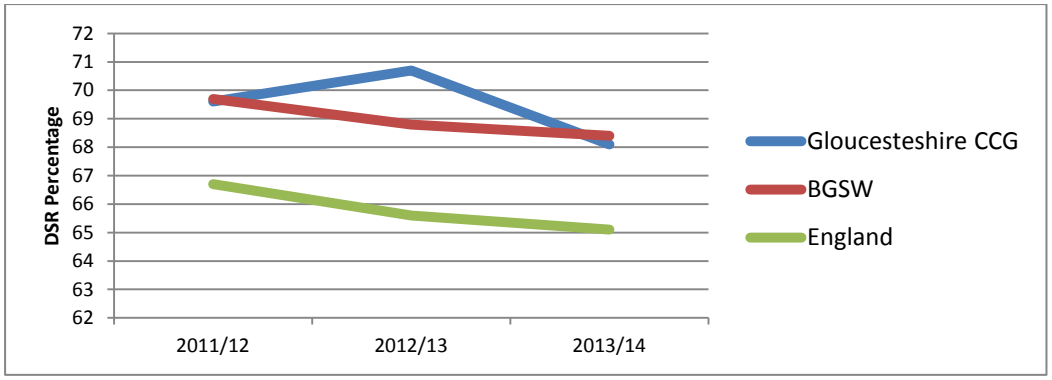
- PROMs -Increased health gain as assessed by patients for elective procedures:
  - Hip replacement (CCG OIS 3.3a; NHS OF 3.1)
  - Knee replacement (CCG OIS 3.3b; NHS OF 3.1)

3.2.1. Support to manage a long term condition

Many MSK conditions cause disability and can be considered to be a long term condition[14] (e.g. back pain, arthritis), and support to patients to self manage their conditions is central to MSK treatment and management.

The GP patient survey over the past couple of years show that the proportion of people feeling supported to manage their long term conditions has been falling at national and Area Team level. Gloucestershire has seen a recent fall as shown in
Figure 5. It is worth exploring whether appropriate help and support is consistently available across the pathway to enable patients manage their conditions as well as they can.

Figure 5: Directly standardised percentage of people who feel supported to manage their long-term condition



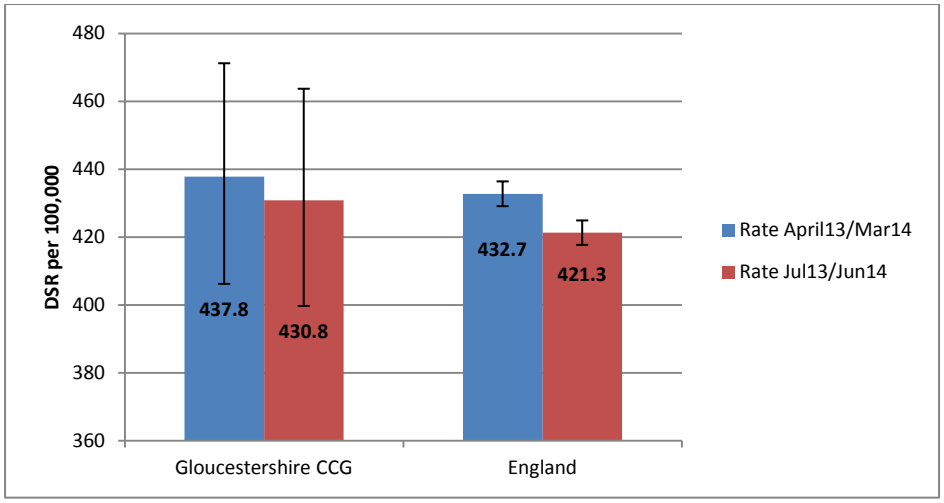
Source: HSCIC December 2014. GP Patient Survey

3.2.2. Hip Fracture Incidence

There were 713 emergency hospital admissions for hip fracture in people aged 60 years and over in Gloucestershire from April 2013 to March 2014 and from July 2013 to June 2014. Figure 6 shows that though higher, the incidence rates of hip fractures in Gloucestershire were not significantly different from England rates over the two periods. (see 3.3.4. for prior trend data)

[14] Health conditions that last a year or longer, impact on a person's life, and may require ongoing care and support

Figure 6: Hip Fracture: Incidence, April 2013 to March 2014 and July 2013 to June 2014 (Provisional)

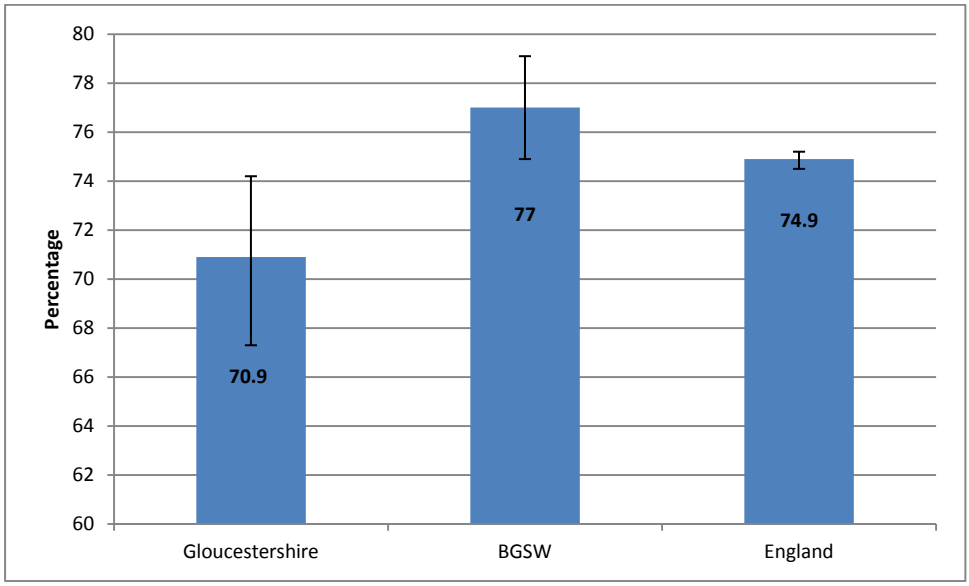


Source: Health and Social Care Information Centre, December 2014

3.2.3. Timely Surgery

The NICE clinical guideline on hip fracture (NICE clinical guideline 124) recommends that surgery is performed on the day of, or the day after, admission, as this is considered to have a high impact on outcomes that are important to patients. Of the 659 patients seen in 2013, 467 had surgery on the day of, or day after admission. Figure 7 shows that this is significantly lower than the Area Team and England rates for the same period. This is worth exploring further in the absence of trend data.

Figure 7: Timely Surgery for People Admitted for Hip Fracture in 2013.



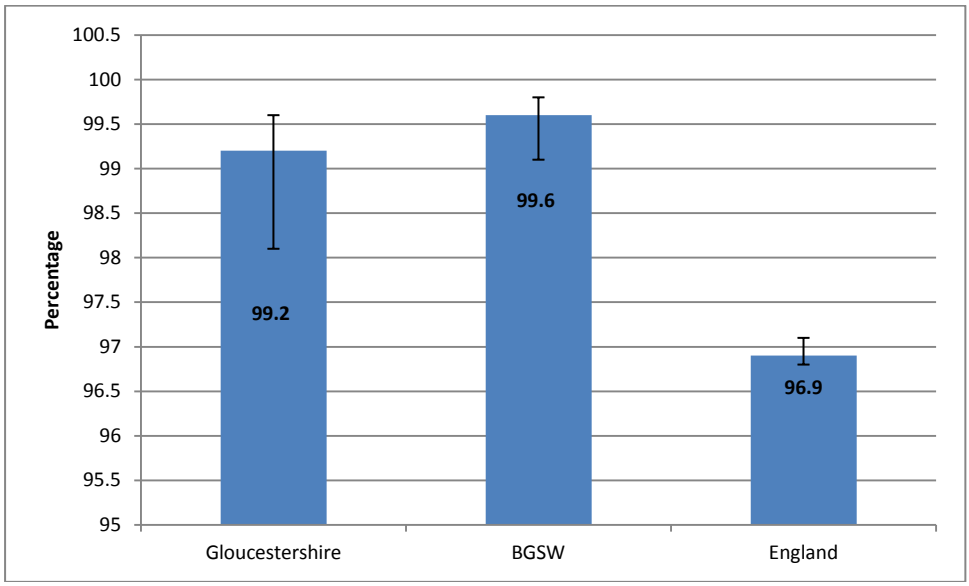
Source: HSCIC 2014, National Hip Fracture Database, 2013

3.2.4. Multifactorial Risk Assessment

NICE's Quality Standard 16 includes the quality statement that "people with hip fracture are offered a multifactorial risk assessment to identify and address future falls risk, and are offered individualised intervention if appropriate". Improvements against this indicator should lead to improved outcomes in terms of fewer hip fractures resulting in falls, and reduced mortality after

falls. Figure 8 shows how Gloucestershire performed against other areas in assessing for future risks of falls in those with hip fractures in 2013.

Figure 8: Multifactorial Risk Assessment of Future falls in those with Hip Fractures, 2013



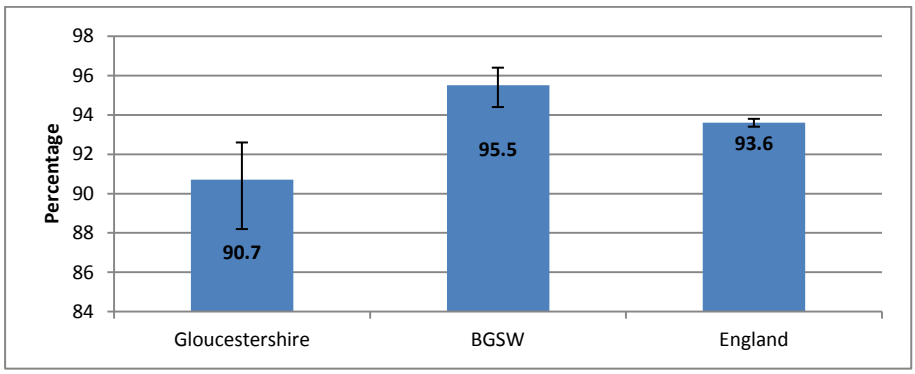
Source: HSCIC 2014, National Hip Fracture Database, 2013

Gloucestershire's performance in this are was significantly better than the England average and similar to the Area Team's.

3.2.5. Collaborative Orthogeriatric Care

Because of a high prevalence of comorbidity in people with hip fracture, a fall and fracture often signals underlying ill health. A formal hip fracture programme which includes regular assessment and continued rehabilitation from a range of healthcare professionals with different skills having a joint acute care protocol at admission enhances outcome for those who fall.

Figure 9: Collaborative Orthogeriatric care in People with Hip Fractures, 2013



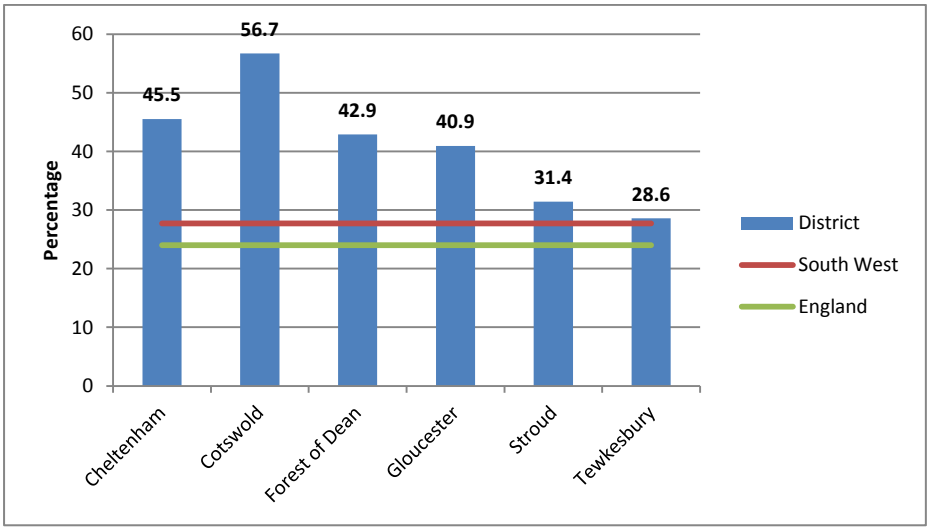
Source: HSCIC 2014, National Hip Fracture Database, 2013

Figure 9 above shows Gloucestershire's comparative performance in this area which shows that a significantly lower percentage of hip fracture patient receive such care in 2013 when compared with performance at Area team and national level. This is also an area worthy of further exploration.

3.2.6. Recovery to Previous Level of Mobility or Walking Ability

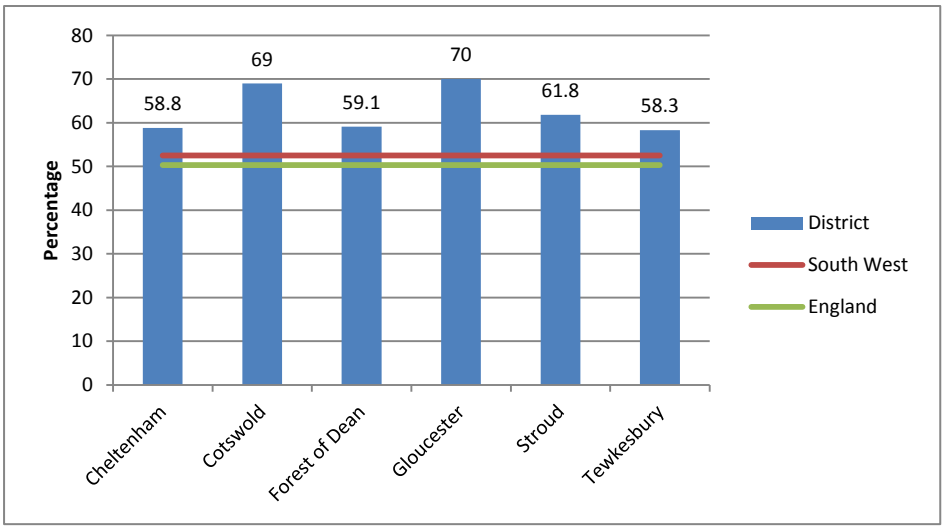
The indicator helps inform the degree of effectiveness of treatment for a hip fracture including support after discharge. Figure 10 and Figure 11 show that Gloucestershire generally performs better than the regional and national averages in terms of getting patients back to their previous level of mobility of walking ability following a hip fracture. There are however variations across the districts, especially at 30 days.

Figure 10: Hip fracture: Proportion of patients recovering to their previous levels of mobility/walking ability at 30 days a (2013)



Source: National Hip Fracture Database, 2014

Figure 11: Hip fracture: Proportion of patients recovering to their previous levels of mobility/walking ability at 120 days (2013)



Source: National Hip Fracture Database, 2014

The National Hip Fracture Database has benchmarked CCGs across England on the above and other measures relevant to hip fractures. Table 3 shows that Gloucestershire is one of best performing 20% of CCGs in terms of getting people back to the previous levels of mobility or walking ability as well as in terms of pressure ulcer rates. It is however one of the poorest performing 20% of CCGs in

England in terms of collaborative care. Performance around prompt surgery, best practice and mortality can also be improved upon (see also Appendix 5).

Table 3: Comparative Performance of CCGs on Relevant Outcome Measures Relating to Hip Fractures

CCG code	CCG name	3.11: Collaborative care	3.12: Prompt surgery	3.13: Falls assessment	3.10i: Mobility at 30 days	3.10ii: Mobility at 120 days	Best practice	Mortality (unadjusted)	Pressure ulcer rate
11E	NHS Bath and North East Somerset CCG	99.6%	84.0%	100.0%	25.8%	53.9%	81.3%	12.6%	1.8%
11M	NHS Gloucestershire CCG	90.7%	70.9%	99.2%	38.3%	62.1%	58.9%	8.9%	2.1%
12D	NHS Swindon CCG	96.1%	83.3%	99.2%	32.8%	52.2%	71.1%	10.8%	2.1%
99N	NHS Wiltshire CCG	99.4%	79.9%	100.0%	30.2%	55.9%	80.4%	8.5%	0.6%
Q64	Bath, Gloucestershire, Swindon and Wiltshire area team	95.5%	77.0%	99.6%	32.4%	57.5%	70.4%	9.5%	1.6%
	England	93.6%	74.9%	96.9%	24.0%	50.3%	61.9%	8.0%	3.0%

For each CCG, area team, LHB or LCG, the indicators are colour coded by quintile.

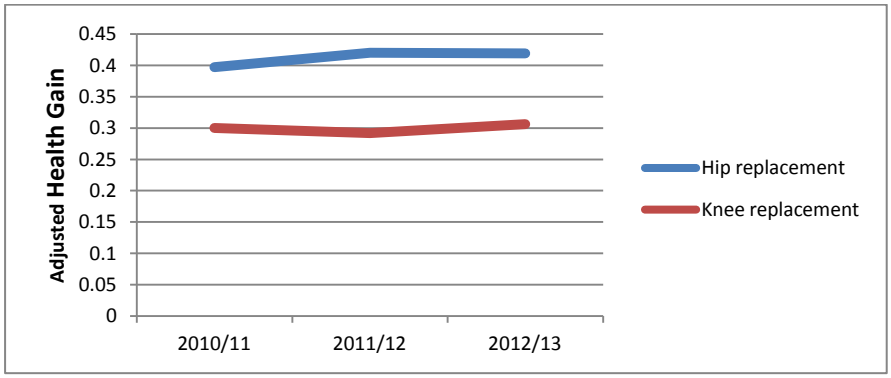
Among the best-performing 20% of CCGs in England	
Among the poorest-performing 20% of CCGs in England	

Source: National Hip Fracture Database, 2014

3.2.7. Patient Reported Outcome Measures (PROMS)

PROMs measures health gain in patients undergoing hip replacement, knee replacement, varicose vein and groin hernia surgery in England, based on responses to questionnaires before and after surgery. Adjusted average health gains have been calculated using statistical models which account for the fact that each provider organisation deals with patients with different case-mixes. This allows for fair comparisons between providers and England as a whole. The health gain following hip replacement in Gloucestershire patients seems to be on the increasing trend over the past few years while that for knee replacements has remained stable (Figure 12)

Figure 12: Patient-reported outcomes measures for hip and knee replacement in Gloucestershire, Adjusted health gain 2010/11 to 2012/13



Source: HSCIC PROMS Dataset, September 2014

In terms of how Gloucestershire performs compared with other areas, Table 4 based on provisional 2013/14 data shows that we are outliers as follows:

- Gloucestershire Royal Hospital achieves health gain following primary knee replacement that is **significantly better** than England as a whole (based on Oxford Knee Score) an improvement in performance from previous year
- Cheltenham General Hospital achieves health gain following primary hip replacement that is **significantly worse** than England as a whole (based on EQ VAS), a decline in performance from previous year
- Cheltenham General Hospital achieves health gain following primary knee replacement that is **significantly worse** than England as a whole (based on EQ VAS) a decline in performance from previous year

These results for CGH need exploring in order to have a better understanding of the situation given these are still provisional results.

Table 4: PROMs Casemix-adjusted Scores and Outliers 2013/14 provisional[15]

	EQ-5D Index		EQ VAS		Oxford Hip Score		Oxford Knee Score	
	2012/13	**2013/14**	**2012/13**	**2013/14**	**2012/13**	**2013/14**	**2012/13**	**2013/14**
Hip replacement (Primary)	GRH & CGH Not an outlier	GRH & CGH Not an outlier	GRH & CGH Not an outlier	GRH not an outlier; ***CGH Negative 95% outlier***	GRH & CGH not an outlier	GRH & CGH not an outlier	N/A	N/A
Hip replacement (Revision)	CGH not an outlier	CGH not an outlier	CGH not an outlier		CGH not an outlier	CGH not an outlier	N/A	N/A
Knee replacement (Primary)	GRH & CGH not an outlier	GRH & CGH not an outlier	GRH & CGH not an outlier	GRH not an outlier; ***CGH Negative 95% outlier***	N/A	N/A	GRH & CGH not an outlier	***GRH Positive 95% outlier***, CGH not an outlier
Knee replacement (Revision)	CGH not an outlier	***Birmingham Negative 95% outlier***; Rugby not an outlier	-	Rugby not an outlier	N/A	N/A	CGH not an outlier	***Birmingham Negative 95% outlier;*** Rugby and Bristol not an outlier; ***Oxford Positive 95% outlier***

Source: HSCIC PROMS Graphs http://systems.hscic.gov.uk/maps/proms/20140814_1314/index.html

3.3. Public Health Outcomes

Relevant Public Health outcomes include:

- Hospital admissions caused by unintentional and deliberate injuries in children (2.07i)

[15] An outlier is a hospital provider with an average health gain that is significantly better (positive outlier) or worse (negative outlier) than England as a whole. For a 95% outlier, there is a 1 in 20 chance that the result would be merely as a result of random variation in its patients, and it is 1 in 500 for 99.8% outliers.
EQ-5D Index captures in a single value a range of generic health issues in a broad but clearly-defined way.
EQ VAS is a simple and easily understood 'thermometer'-style measure based on the patient's self-scored general health on the day that they completed their questionnaire but which provides an indication of their health that is not necessarily associated with the condition for which they underwent surgery and which may be influenced by factors other than healthcare.
Oxford His Score/Oxford Knee Score combine into a single score a patient's answers to a number of health questions of particular relevance to hips or knees. http://systems.hscic.gov.uk/maps/proms/20141114_1314/index.htm

- Hospital admissions caused by unintentional and deliberate injuries in young people (2.07ii)
- Injuries due to falls in people aged 65 and over (PHOF 2.24i)
- Hip fracture in people aged 65 and over (PHOF 4.14i)
- Employment for those with a long term health condition (PHOF 1.8)

3.3.1. Hospital Admissions Caused by Unintentional and Deliberate Injuries in Children

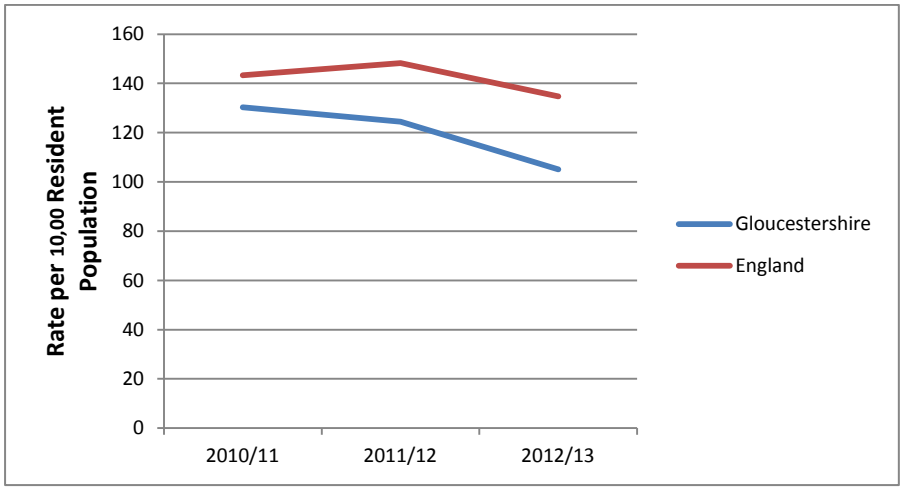
Musculoskeletal conditions are the biggest cause of disability in children. They can lead to failure to reach educational, social and physical milestones for affected children. Injuries are a leading cause of hospitalisation and represent a leading cause of premature mortality for children and young people. They are also a source of long-term health issues.

In 2003/4 children aged 0 to 14 years accounted for 8.4% of Trauma and Orthopaedics Finished Consultant Episodes. The majority of cases in this age group is related to trauma (accidents and sports) and a smaller number due to congenital, infective and other serious conditions.

Admissions are higher in the older age groups making consideration of particular needs of adolescents very important.

Figure 13 shows that Gloucestershire has a significantly better experience than the national average for children aged 0 to 4 years and the rate has been following a downward trend. The experience is similar for children aged 0 to 14 years as well.

Figure 13: Hospital Admissions Caused by Unintentional and Deliberate Injuries in Children (aged 0-4 years) per 10,000 residents

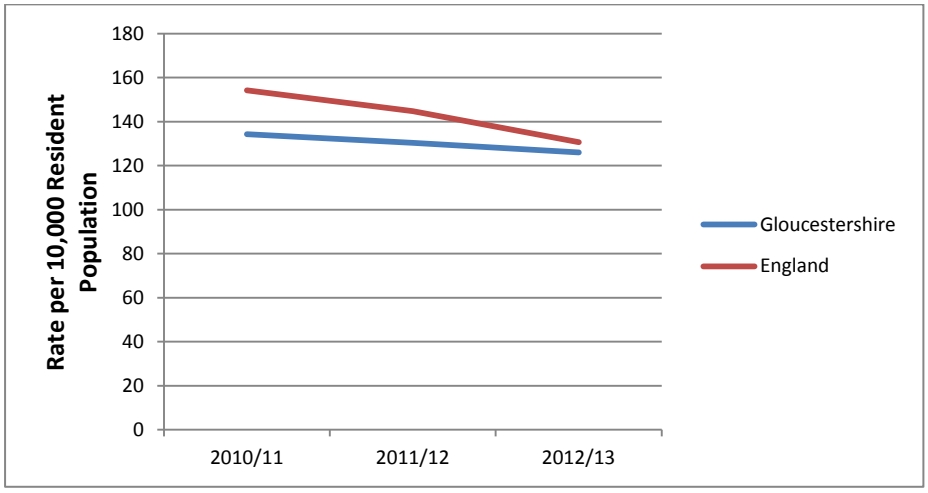


Source: Public Health outcomes Framework (PHOF) http://www.phoutcomes.info/public-health-outcomes-framework#gid/1000042/pat/6/ati/102/page/4/par/E12000009/are/E10000013

3.3.2. Hospital Admissions Caused by Unintentional and Deliberate Injuries in Young People

Gloucestershire's experience for young people (15-24 years) in 2012/13 is not significantly different from the national experience. Figure 14 shows a falling trend in rates, with Gloucestershire's rate of fall seems slower than national.

Figure 14: Hospital Admissions Caused by Unintentional and Deliberate Injuries in Young People, Rate per 10,000, 2010/11 – 2012/13

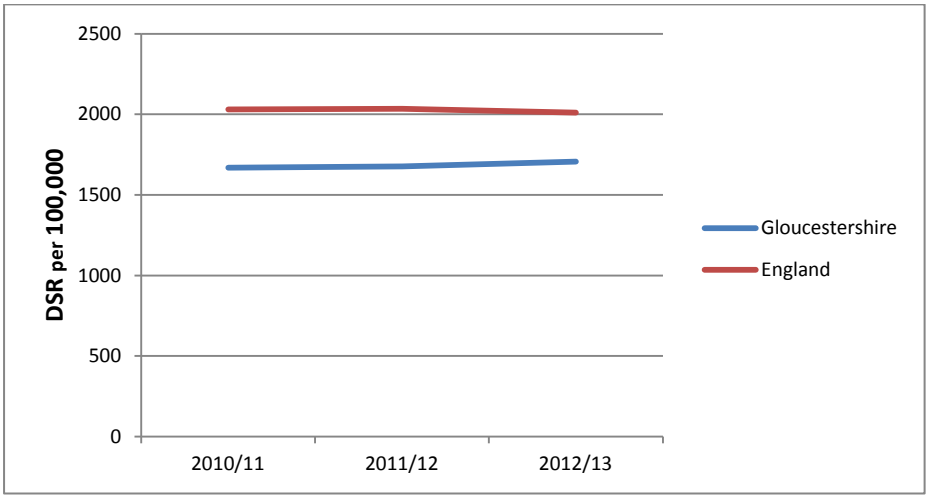


Source: Public Health outcomes Framework (PHOF) http://www.phoutcomes.info/public-health-outcomes-framework#gid/1000042/pat/6/ati/102/page/4/par/E12000009/are/E10000013

3.3.3. Injuries Due to Falls in People aged 65 Years and Over

Figure 15 shows that Gloucestershire has been performing significantly better than the national average, but the trend seems to show a slight rise in rate. Falls in people aged 80 Years and Over seems to be driving this.

Figure 15: Injuries Due to Falls in People aged 65 Years and Over, per 100,000, 2010/11 – 2012/13



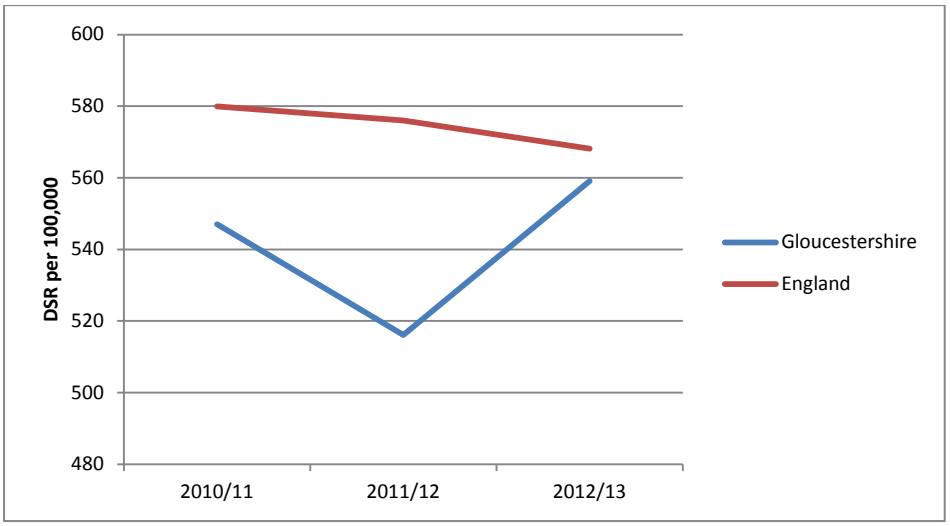
Source: Public Health outcomes Framework (PHOF) http://www.phoutcomes.info/public-health-outcomes-framework#gid/1000042/pat/6/ati/102/page/4/par/E12000009/are/E10000013

3.3.4. Hip Fractures in People aged 65 Years and Over

Hip fracture is the commonest and most life-threatening fragility fracture. Having one fragility fracture is a strong predictor of subsequent fractures, therefore people with a first fragility fracture are the most cost-effective group to treat in terms of fractures prevented

The rate of fractures nationally appears to be declining, but this is not apparent in Gloucestershire (Figure 16). Also, our 2012/13 rate is not significantly different from the national average.

Figure 16: Hip Fractures in People Aged 65 Years and Over per 100,000, 2010/11 – 2012/13[16]

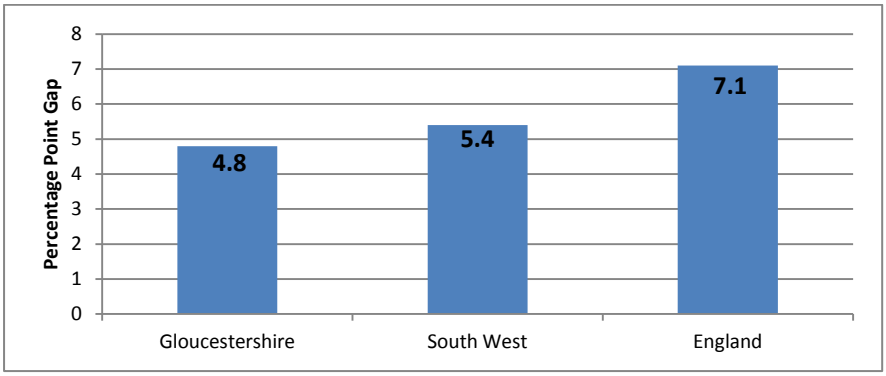


Source: Public Health outcomes Framework (PHOF) http://www.phoutcomes.info/public-health-outcomes-framework#gid/1000042/pat/6/ati/102/page/4/par/E12000009/are/E10000013

3.3.5. Employment for those with a long term health condition

This indicator provides a good indication of the impact limiting long term illness has on employment in those of working age. This outcome will be of particular relevance to Rheumatoid Arthritis. Figure 17 shows that Gloucestershire performs well with its gap in employment much less than regional and national averages

Figure 17: Percentage Point Gap in the Employment Rate Between Those with a Long-term Health Condition and the Overall Employment Rate, 2012



Source: Public Health outcomes Framework (PHOF) http://www.phoutcomes.info/public-health-outcomes-framework#gid/1000042/pat/6/ati/102/page/4/par/E12000009/are/E10000013

3.4. Adult Social Care Outcome

Relevant indicators in this outcome framework would include:

- Social care related quality of life (ASCOF 1a)

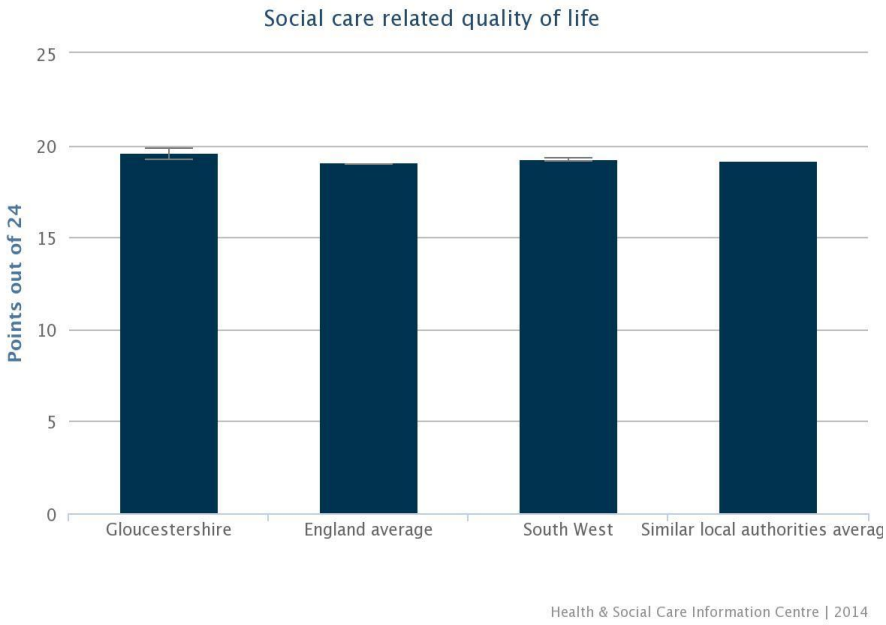
[16] Age standardised admission rate of emergency admissions for fractured neck of femur

- Proportion of people who use services who have control over their daily life (ASCOF 1b)

3.4.1. Social Care Quality of Life

This measure relates to how people who are receiving social care rate their quality of life. Figure 18 shows that people's experience in the county is significantly better than the national average.

Figure 18: Quality of Life or Gloucestershire Residents Using Social Care, 2013/14

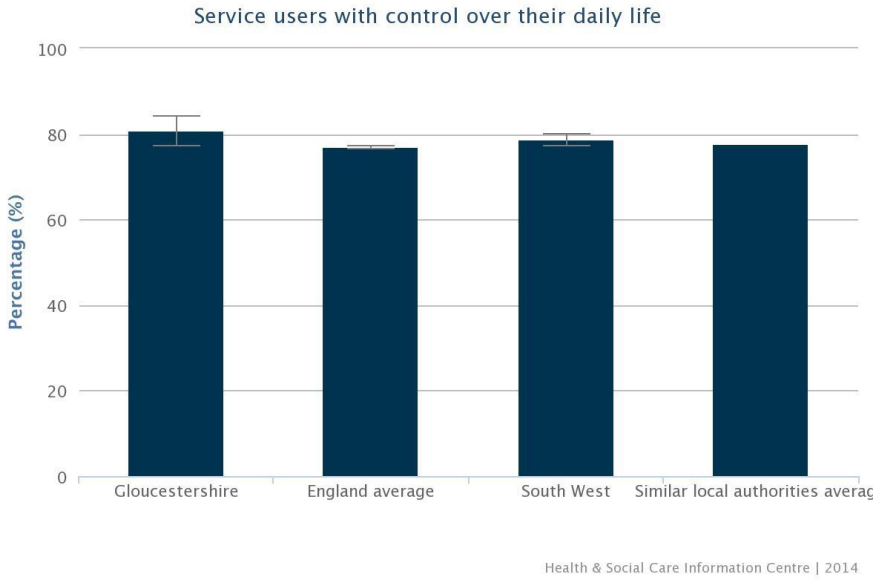


Source: Adult Social Care Outcomes Framework, http://ascof.hscic.gov.uk/

3.4.2. Proportion of People who use services who have control over their daily life.

In Gloucestershire, the proportion of people who responded that they have as much control as they want over their daily life, or an adequate level of control is similar to the national average (Figure 19)

Figure 19: Proportion of People who Use Services who have Control Over their Daily Life, 2013/14



Source: Adult Social Care Outcomes Framework, http://ascof.hscic.gov.uk/

3.5. What outcomes do patients expect?

Arthritis and Musculoskeletal Alliance[17] report from their patient survey that people want **pain control** and **speedy and clear access to services** to meet their day-to-day needs at times of difficulty. There is evidence to suggest that early intervention can improve outcomes for people with MSK conditions[18], underscoring the importance of prompt access to care for all.

Expectations of Gloucestershire patients would not be dissimilar to these. Services design and changes should therefore work to support these expectations.

SUMMARY

- *Primary aim of CPG is to get best outcomes for the resources available to it.*
- *Spend/Outcome data suggest scope for improving outcomes for current spend*
- *CCG is focused on delivering against CCG Outcome Indicators as these are within their gift to influence*
    - *Recent fall in proportion of people feeling supported to manage their long term conditions – it is worth exploring whether appropriate help and support is consistently available across the pathway to enable patients best manage their condition*
    - *Hip fracture incidence in Gloucestershire is not significantly different from national average*
    - *Proportion of people having timely surgery for hip fracture is significantly lower than Area Team and England rates and is worth exploring the reasons for this further*
    - *Gloucestershire performs significantly better than national average in terms of multifactorial risk assessment for future falls in those with hip fractures*
    - *It is worth further exploring the relatively low performance in relation to collaborative orthogeriatric care, as Gloucestershire is one of the poorest performing 20% of CCGs in this regard*
    - *Gloucestershire is one of the best performing 20% of CCGs (performing better than regional and national averages) in getting people back to their previous levels of mobility. There is however variation within the county*
    - *PROMS in the county seems to be increasing for hip replacement and stable for knee replacement. Provisional 2013/14 results for CGH show it to be a poor performing outlier for both hip and knee replacement (based on EQ VAS) with this being a decline from previous year. This may benefit from further exploration especially as GRH does significantly better in terms of knee replacement (based on Oxford Hip Score)*
- *Public Health Outcomes*
    - *Gloucestershire has a significantly better experience than the national average in terms of Hospital admissions caused by unintentional and deliberate injuries in children (0-14years) in Gloucestershire, with an attendant falling trend. The rate of*

[17] ARMA is the umbrella association body providing a collective voice for the arthritis and musculoskeletal community in the UK

[18] National Audit Office (2003). Hip replacements: an update: Report by the Comptroller and auditor general. The Stationery Office http://www.nao.org.uk/wp-content/uploads/2003/07/0203956.pdf

fall for young people (15-24 years) is however slower than national, and 2012/13 experience was similar to the national average

- *The national decline in trend in rates of hip fracture is not apparent in Gloucestershire*
- *Gloucestershire performs well in terms of employment for people with a long term health condition*

- *Adult Social Care Outcomes*
  - *Relevant social care outcomes are either significantly better than (social-care quality of life) or similar to (control over daily life) the national experience*
- *Expectations from patients are pain control and speedy and clear access to services that meet their day-to-day needs at times of difficulty.*

4. Description of the population/issues under consideration

4.1. Burden of MSK Conditions, Trauma and Injuries

Based on the template developed by the Manchester Epidemiological Unit, the **prevalence** (total numbers) of MSK conditions in Gloucestershire have been estimated. Table 5 shows the total cases in people aged 15 years and over of around 98,495. In children (0 – 14 years), we estimate a total of **35 cases of Childhood Arthritis** (more in females).

Table 5: Prevalence of MSK Conditions in Gloucestershire in 2013 based on national prevalence

CONDITION	All adults 15+*[19]
Rheumatoid arthritis	4029
Childhood arthritis	-
Ankylosing spondylitis	212
Gout	2690
SLE	181
Scleroderma	68
Polymyalgia rheumatica	1170
Osteoarthritis	13036
Back pain	27567
Osteoporosis (of hip only)	73854
Disablement (mHAQ >0.5 + pain)	81543
All conditions	98495

Details of prevalence estimates by age band and gender are available in Appendix 1 and Appendix 2

Table 6 shows the estimated number of **new cases** of various conditions that can be expected in people aged 15 years and over. In children (0 – 14 years), we estimate a total of **nine cases of Childhood Arthritis in year** (mainly in females).

[19] * - "All ages" rates apply to the adult population (i.e. 15+ years), with the exception of hip fracture (55+ years), inflammatory arthritis, AS, and back pain (16+ years)

Table 6: Incidence of MSK Conditions in Gloucestershire in 2013 based on national incidence

CONDITION	All adults 15+*
Inflammatory arthritis	267
Childhood arthritis	-
Ankylosing spondylitis	38
Gout	940
SLE	19
Scleroderma	2
Polymyalgia rheumatica	333
Osteoarthritis	5023
Back pain	21523
Hip Fracture†[20]	769

Details of new cases by age band and gender are available in Appendix 3 and Appendix 4.

Apart from epidemiological information on incidence and prevalence, the burden of MSK conditions is also reflected by their social, economic and personal impact as detailed in Section 1.2. MSK conditions are the biggest cause of disability in children. They can lead to failure to reach educational, social and physical milestones for affected children

4.2. Quality Outcomes Framework (QoF) Prevalence

The recent changes to QoF have seen the addition of a new domain for musculoskeletal indicators. Table 7 shows Gloucestershire reporting a lower prevalence of patients reporting a long-term back problem, as well as a lower percentage reporting arthritis or long-term joint problem compared to the national experience. The reverse appears to be the case for Rheumatoid Arthritis. The report also shows fewer patients aged 75 years and over with fragility fracture being treated with bone-sparing agents.

Table 7: QoF Prevalence of Musculoskeletal Indicators, 2013/14

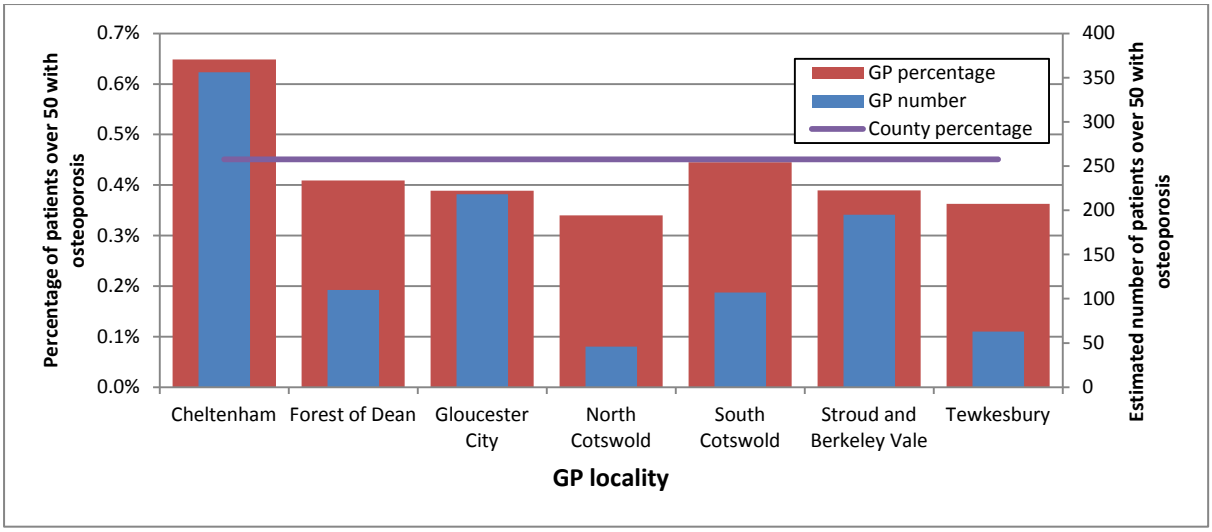
	Gloucestershire	England
Osteoporosis QoF prevalence 50+	0.4	0.4
Rheumatoid Arthritis QoF prevalence 16+	0.8	0.73
% reporting a long-term back problem	9.3	10.2
% reporting arthritis or long-term joint problem	12.5	13.2
Patients 75+ with a fragility fracture treated with bone-sparing agent	64.7	67.4

Source: National General Practice Profiles http://fingertips.phe.org.uk/profile/general-practice

The distribution of Osteoporosis across the GP Localities (Figure 20) shows that Cheltenham has the highest proportion of its patients suffering from this condition, and North Cotswold the lowest. Cheltenham Locality also has the highest number.

[20] **†** -Age bands for incident hip fracture are 55–64, 65–74, 75+. All ages is for 55+

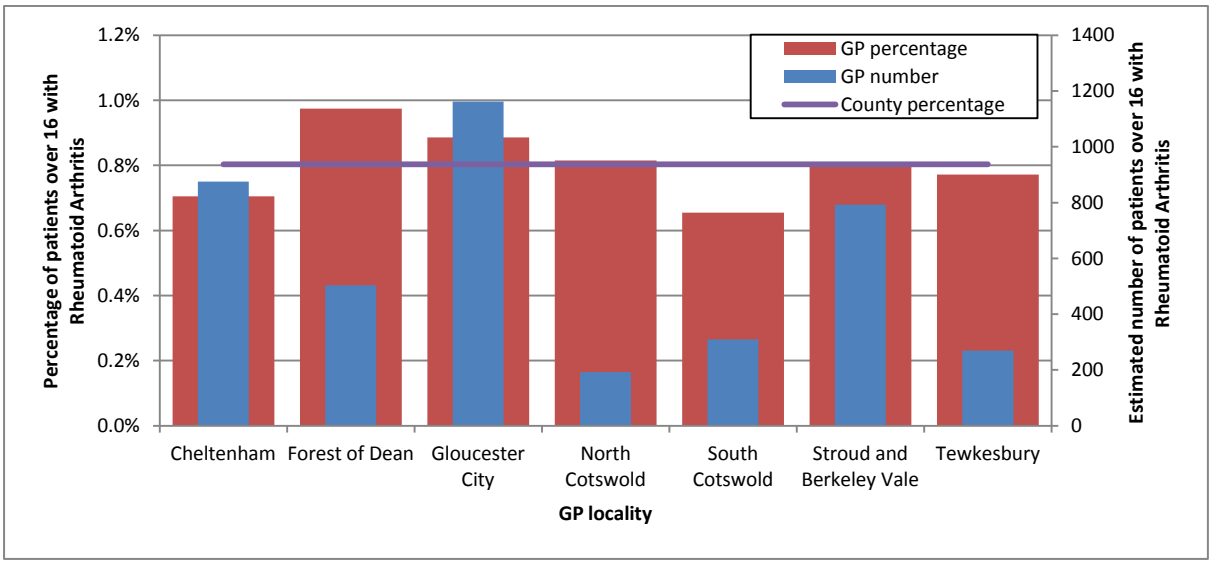
Figure 20: Osteoporosis in Gloucestershire Patients over 50 by GP Locality 2013/14



Source: PHE GP Profiles- GP Patient Survey

The greatest proportion of patients with Rheumatoid Arthritis is in Forest of Dean Locality while the highest numbers are in Gloucester City. Both Localities have higher than average proportions of patients compared to the county average (Figure 21).

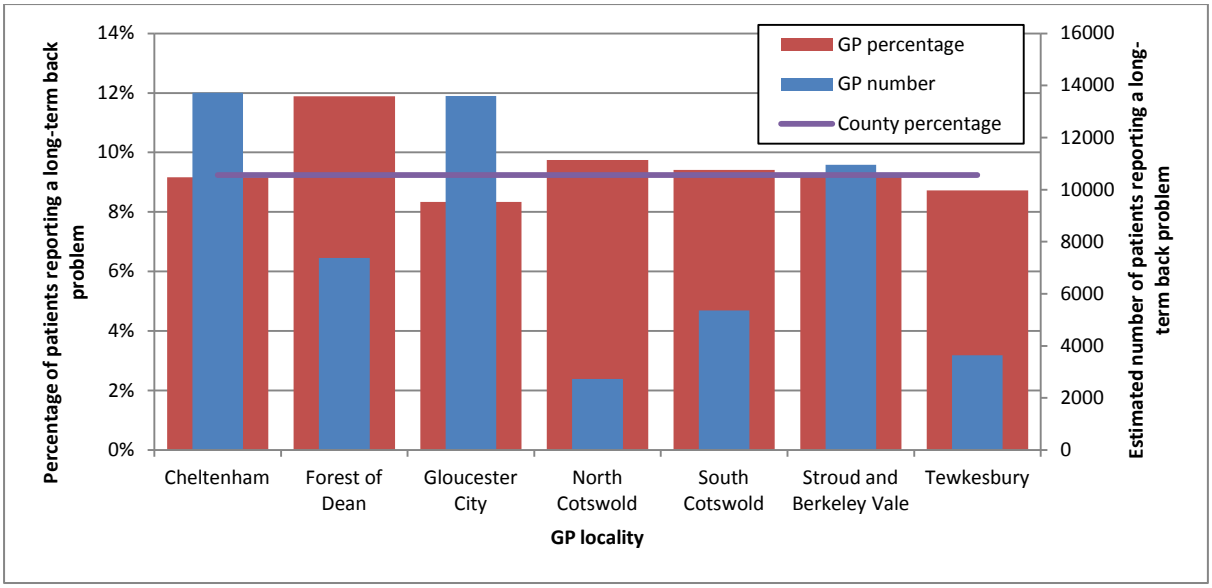
Figure 21: Rheumatoid Arthritis in Gloucestershire Patients over 16 by GP Locality 2013/14



Source: PHE GP Profiles- GP Patient Survey

In terms of back pain, Forest of Dean and North Cotswold report a higher than average proportion of their patients with this condition. Numbers are highest in Cheltenham and Gloucester City (Figure 22).

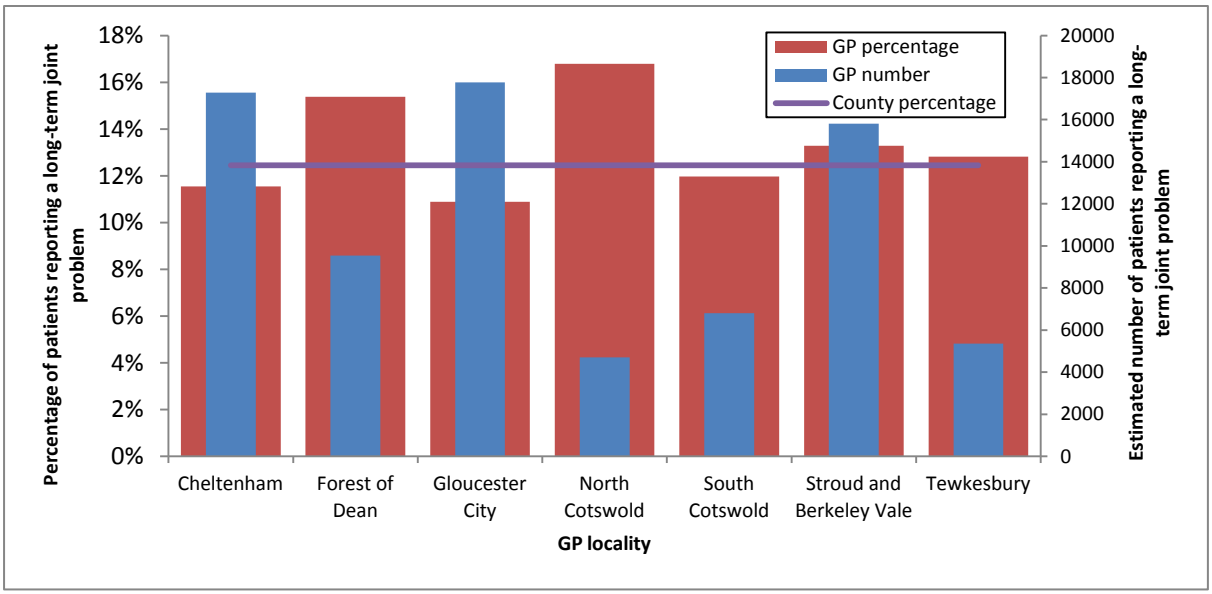
Figure 22: Gloucestershire Patients Reporting a Long-term Back Problem by GP Locality 2013/14



Source: PHE GP Profiles- GP Patient Survey

North Cotswold, Forest of Dean and Stroud and Berkeley Vale Localities report a higher proportion of their patients with a long-term joint problem compared with the county average (Figure 23). Numbers are highest in Gloucester City and Cheltenham.

Figure 23: Gloucestershire Patients Reporting a long-term joint problem by GP locality 2013/14



Source: PHE GP Profiles- GP Patient Survey

4.3. Burden of Trauma and Injuries

Traumatic injury makes up approximately 40% of the work of Trauma and Orthopaedics departments i.e. emergency admissions for traumatic injury. Older people are particularly at risk. With an ageing population, the incidence of fragility fractures is bound to rise (see 3.2.2. and 3.3.4.), just as severity of co-morbidities complicating surgical management.

Years of life lost (2010/12 pooled data) due to mortality from accidental falls (1-74 years) is higher in Gloucestershire for females than SW and national rates, but this is not statistically significant

In 2003, 291,000 people were **injured in road accidents** nationally, 11% of whom were children under the age of 16 years[21]. Children (0-14 years) accounted for 8.4% of Trauma and Orthopaedics Finished Consultant Episodes[22] nationally in 2003/4, majority of cases being related to trauma.

Mortality rates from accidents for children <15 years) in Gloucestershire (2010/12 pooled) shows a rate that appears lower than regional and national rates but which is not statistically significant. There does not appear to be any significant difference either with comparative mortality rates for young people aged 15-24 years.

SUMMARY

- *Estimates of incidence and prevalence of MSK conditions in adults by gender and age bands are available*
- *There are an estimated nine new cases of Childhood Arthritis and a prevalence of about 35 cases*
- *MSK conditions are the biggest cause of disability in children with those affected failing to reach educational, social and physical milestones*
- *Recent QoF changes include a new domain for musculoskeletal indicators*
- *Gloucestershire has a lower prevalence of patients reporting arthritis or long-term joint and long-term back pain problem compared to the national experience, while the reverse appears to be the case for Rheumatoid Arthritis*
- *Fewer patients in Gloucestershire aged 75 years and over with a fragility fracture are being treated with bone-sparing agents*
- *Cheltenham locality has the highest proportion of its patients 9and highest number) having Osteoporosis*
- *Then highest proportion of patients with Rheumatoid Arthritis is in the Forest of Dean Locality whilst the highest number is in Gloucester City*
- *Back pain – Forest of Dean Locality has the highest proportion of patients whilst highest numbers are in Cheltenham and Gloucester localities.*
- *Long-term joint problem: North Cotswold and Forest of Dean localities have high proportions of their patients suffering this, whilst highest numbers are in Gloucester and Cheltenham*
- *Traumatic injury makes up approximately 40% of the work of Trauma and Orthopaedics departments*
- *Years of lif lost due to mortality from accidental falls is higher in Gloucestershire for females than SW and national rates (though not significant)*
- *Mortality rates from accidents for children in Gloucestershire appears lower than regional and national rates (though not significant)*

[21] **Department of Health, London. Department for Transport (2004). Transport statistics bulletin: road traffic statistics:2003. Department for Transport, London**

[22] **An NHS term for a consultant episode which has ended due to discharge, transfer or death. A consultant episode is the time a patient spends in the continuous care of one consultant using hospital site or care home bed(s) of one health care provider or, in the case of shared care, in the care of two or more consultants.**

5. Service mapping

5.1. Current Services

The Finance team have detailed current service provision and their costs (see finance report). These services and their description are as follows:

- **Core Physiotherapy** (Community Hospital and Acute Hospital based) - exercise/therapy interventions for all MSK conditions (including trauma and injuries). Patients attend and receive assessment, diagnosis and intervention. They can be provided with self-management advice/education, individual exercise programmes, hands-on treatment or group session interventions.

- **Core Podiatry** (Community Hospital based)– Provides biomechanic assessment of the foot and ankle. Patients attend and receive assessment, diagnosis and intervention. Interventions mainly involve the provision of equipment.

- **MSKCAT** – This is GCS' Interface Service. A specialist Physiotherapy/Podiatry service which sees more complex MSK conditions and has access to diagnostics. Patients attend and receive assessment, diagnosis and intervention. They are an intermediate tier, with thresholds, before patients access Orthopaedics.

- **Spinal Assessment Treatment Service** - This is one of GHT's Interface Services. A specialist Physiotherapy service which sees more complex spinal conditions and has access to diagnostics. Patients attend and receive assessment, diagnosis and intervention . They are an intermediate tier, with thresholds, before patients access Orthopaedics

- **Orthopaedic Practitioner Service** - This is one of GHT's Interface Services. A specialist Physiotherapy service which sees more complex MSK (shoulder, elbow, hand wrist, hip and knee) conditions and has access to diagnostics. Patients attend and receive assessment, diagnosis and intervention. They are an intermediate tier, with thresholds, before patients access Orthopaedics.

- **Rheumatology** (Acute Hospital) – A service which treats systemic MSK (often inflammatory) conditions such as RA, Lupus, Ankylosing Spondylitis. Interventions are often a combinations of pharmaceutical & lifestyle adjustments.

- **Trauma & Orthopaedics** (Acute Hospital)– Service which predominantly treats bone and joint problems. Patients attend and receive assessment, diagnosis and intervention (mainly surgical).

- **Pain Clinics** (Acute Hospital) – Deliver pain interventions for people with acute or chronic pain conditions. Patients attend and receive assessment, diagnosis and intervention. Interventions are usually passive (i.e. injections) or involve medical management (pharmaceutical). They work closely with Pain Management services to facilitate long-term management of pain conditions.

- **Pain Management Services** (Acute Hospital) – These are MDT services aimed at helping people with chronic pain. Interventions are a combination of psychological rehabilitation (CBT etc.) and lifestyle (diet and exercise) adjustment to facilitate increased function. They work closely with the Pain Clinic services to facilitate long-term management of pain conditions.

- **Orthotics** (Acute Hospital)- Provide assessment and intervention for all body parts requiring equipment/devices to facilitate function. Intervention is always in the form of a mechanical device of some kind.

Current **rehabilitation** services for Trauma and Orthopaedics are many and varied given the very wide range of diagnoses within this area. They include (but are not limited to) the following:

- Acute inpatient rehabilitation at GHT NHS FT; General/ Old Age Medicine Beds (150 beds of which a proportion are for elderly trauma and orthopaedic rehabilitation); Fragility fracture care and rehabilitation beds (28 beds); Trauma and elective orthopaedic beds (108 beds). Inpatient trauma and orthopaedic rehabilitation is supported through trust-wide therapy services, acute and chronic pain services and the orthopaedic practitioner service.
- Acute outpatient rehabilitation and day surgery; Provided through Trauma and Orthopaedics and Physiotherapy outpatients
- Community rehabilitation through Gloucestershire Care Services; Community integrated teams, community hospitals (variation exists in acute rehabilitation and patient acceptance at community hospitals e.g. Tewkesbury accept amputee patients but this is not consistent for all hospitals), falls service, bone health, integrated equipment services.
- Out of area specialist care and reablement may also contribute but were not within the scope of the recent rehabilitation review

Alternatively, service provision can be reviewed along the care pathway i.e. from prevention/self care, through primary and hospital care, to rehabilitation. The MSK Framework[23] provides a useful description from **care outside hospital**, through **care at the interface**, to **hospital care**.

Care Outside Hospital

- Supporting wellbeing and self-care – Expert Patient Programme, Lifestyle choices (physical activity, healthy eating/obesity, smoking cessation), accident and injury prevention, occupational health (including support to find and maintain work), access to information and advice (including role of pharmacists), patient self-help groups.
- Primary care (including community pharmacies)
- Self referrals e.g. physiotherapy

Care at the interphase

Such services should be able to:

- Provide expert multidisciplinary opinion as an alternative to direct referral to outpatient consultant clinics
- Effectively screen and refer appropriately (for diagnostic investigations and management)
- Refer back to GP

[23] Department of Health (2006). The Musculoskeletal Services Framework. A joint responsibility: doing it differently.

- Conduct clinical assessments, organise diagnostic investigations, provide advice and treatment, inform and educate patients
- Agree and test integrated pathways built on evidence-based guidelines with locally agreed protocols and quality measures
- Facilitate referral to other primary or secondary care services as necessary, with agreed referrals processes understood by all
- Support robust systems for monitoring and clinical audit

Hospital Care

- Rheumatology – inflammatory disease, bone diseases, soft tissue or regional pain disorders, osteoarthritis, back pain
- Pain Management (most services for this is based in primary care and interphase service)
- *Rheumatology and pain services for children*[24]
- Orthopaedic surgery
- Supportive, palliative and end-of-life care

Rehabilitation

- Primary care setting
- Community/home setting
- Social services
- Equipment and adaptation – community equipment and telecare
- Remaining at/returning to work

5.2. Hip and Knee Replacements

5.2.1. Primary Hip Replacement

Table 8 shows that the number of admissions in Gloucestershire for primary hip replacements in 2011/12 was almost 30% higher than expected (assuming we had experienced the same admission rates as England). The admission for Stroud District was 45% higher than expected, while admission for Cheltenham was lower than expected.

Table 8: Primary Hip Replacement 2011/12, Indirectly Standardised Rates

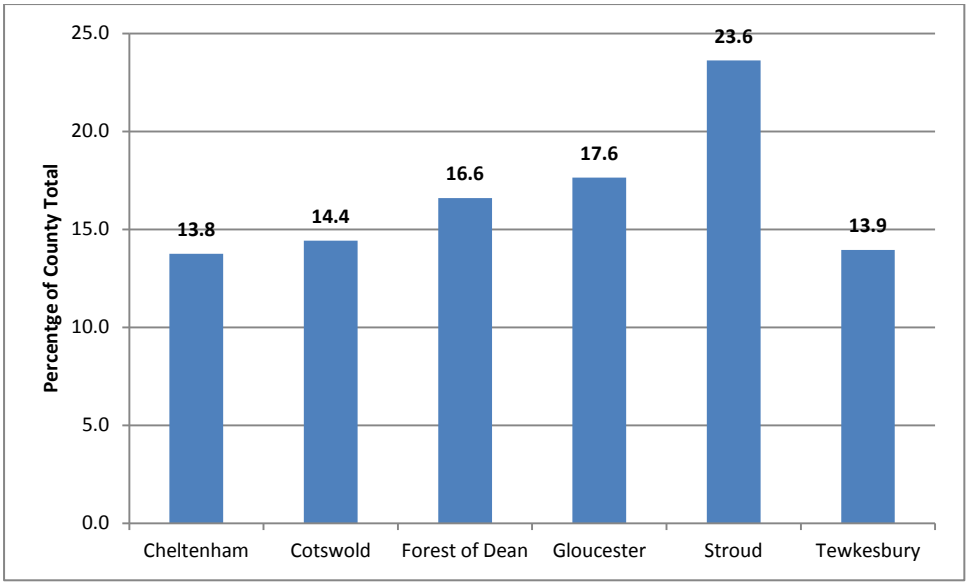
	Districts	Gloucestershire	England
Cheltenham	98.67	122.78	100
Cotswold	109.21	122.78	100
Forest of Dean	133.25	122.78	100
Gloucester	129.58	122.78	100
Stroud	145.37	122.78	100
Tewkesbury	116.55	122.78	100

Source: NHS Health and Social Care Information Centre, March 2014

Stroud had almost a quarter (23.6%) of all admissions for hip replacement in the county in 2011/12 (Figure 24).

[24] MDTs need to have expertise in assessing the needs of children with MSK conditions as well as those of adults

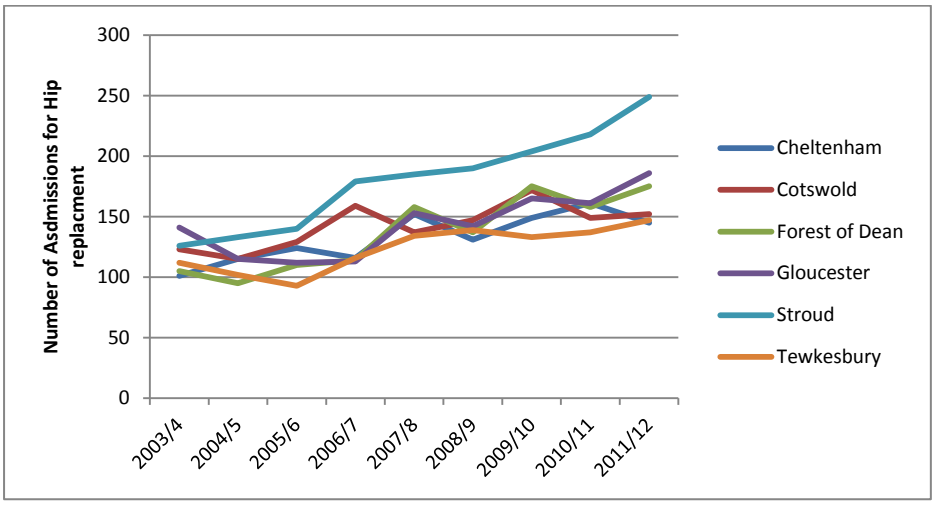
Figure 24: Admissions for Primary Hip Replacement by District, 2011/12



Source: NHS Health and Social Care Information Centre, March 2014

Admissions from Stroud District has always been higher with an increasing trend evident from 2003/4, and at a higher rate than other districts (Figure 25).

Figure 25: Number of Admissions for Hip Replacement by District, 2003/04 to 2011/12



5.2.2. Primary Knee Replacement

Table 9 shows that Table 8 shows that the number of admissions in Gloucestershire for knee replacements in 2011/12 is almost 5% lower than expected (if we had the same admission rates as England). All other districts except Gloucester (about 15% higher) and Stroud (about 10% higher) have a lower than expected rate.

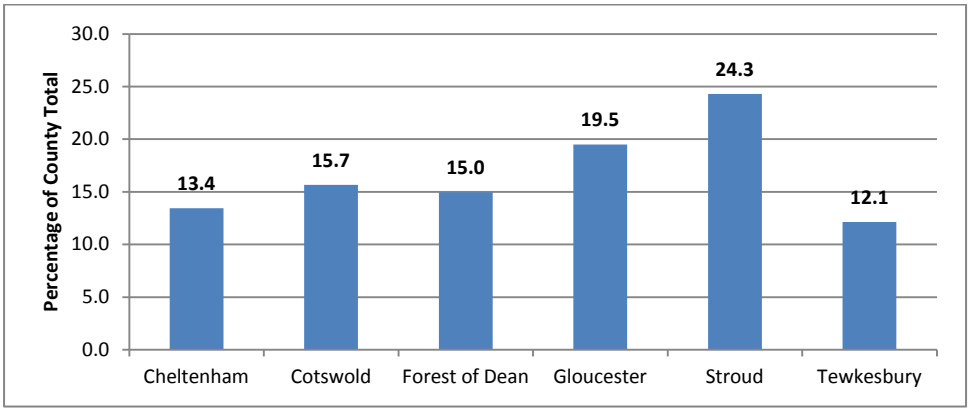
Table 9: Knee Replacement 2011/12, Indirectly Standardised Rates

	Districts	Gloucestershire	England
Cheltenham	74.55	94.05	100
Cotswold	90.33	94.05	100
Forest of Dean	91.24	94.05	100
Gloucester	110.70	94.05	100
Stroud	114.17	94.05	100
Tewkesbury	77.49	94.05	100

Source: NHS Health and Social Care Information Centre, March 2014

Stroud had almost a quarter (24.3%) of all admissions for knee replacement in the county in 2011/12 (Figure 26)

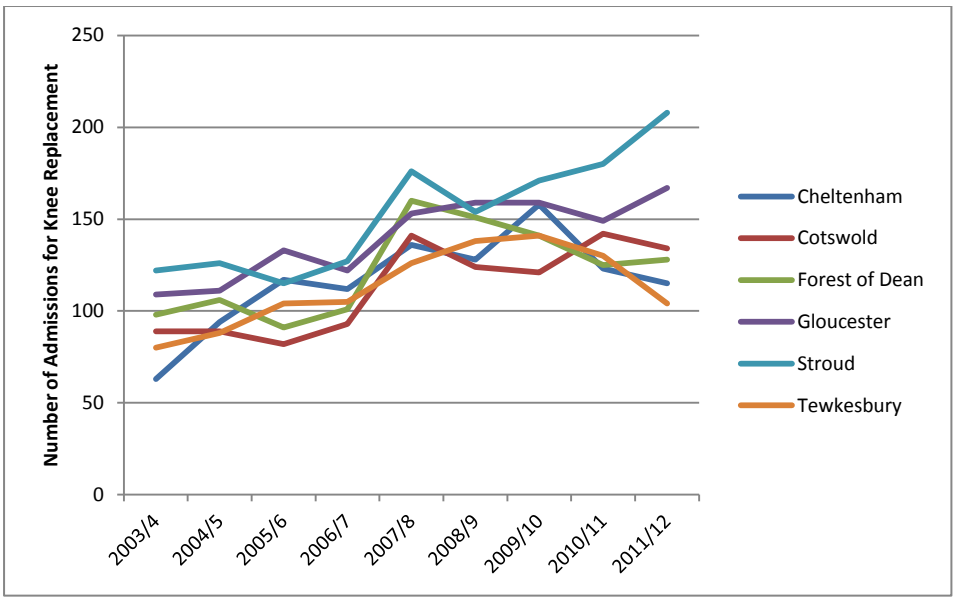
Figure 26: Admissions for Primary Knee Replacement by District, 2011/12



Source: NHS Health and Social Care Information Centre, March 2014

Figure 27 shows trend data on admissions from 2003/4 to 2011/12. Admissions from Stroud District has seen a more recent increase and at a higher rate.

Figure 27: Number of Admissions for Knee Replacement by District, 2003/04 to 2011/12



SUMMARY

- *Service provision addressing MSK needs in Gloucestershire include Core Physiotherapy, Core Podiatry, MSKCAT (interphase), Spinal Assessment Treatment Service, Orthopaedic practitioner Service, Rheumatology, Trauma & orthopaedics, Pain Clinics, Pain Management Service and Orthortics.*
- *Current rehabilitation services for Trauma & orthopaedics are many and varied, ranging from inpatient, outpatient and community rehabilitation services right through to out of area specialist care and reablement,*
- *Service provision can also be reviewed along the care pathway – care outside hospital, care at the interphase, hospital care, and rehabilitation.*
- *Primary hip replacements were higher than expected in 2011/1, with this being particularly so for Stroud District*
- *Primary knee replacements were lower than expected across the districts except for Gloucester and Stroud, with trend data showing a more recent increase in both districts*

6. Stakeholder views

The CCG has undertaken an exercise on patients' and clinicians' views of current service provision (see report). For patients using the service, the expectations from them are in line with national findings (section 3.5) i.e. largely around pain control and speedy access to services.

7. Evidence of effectiveness and priorities for action

A separate evidence review has been done by the CCG (see report).

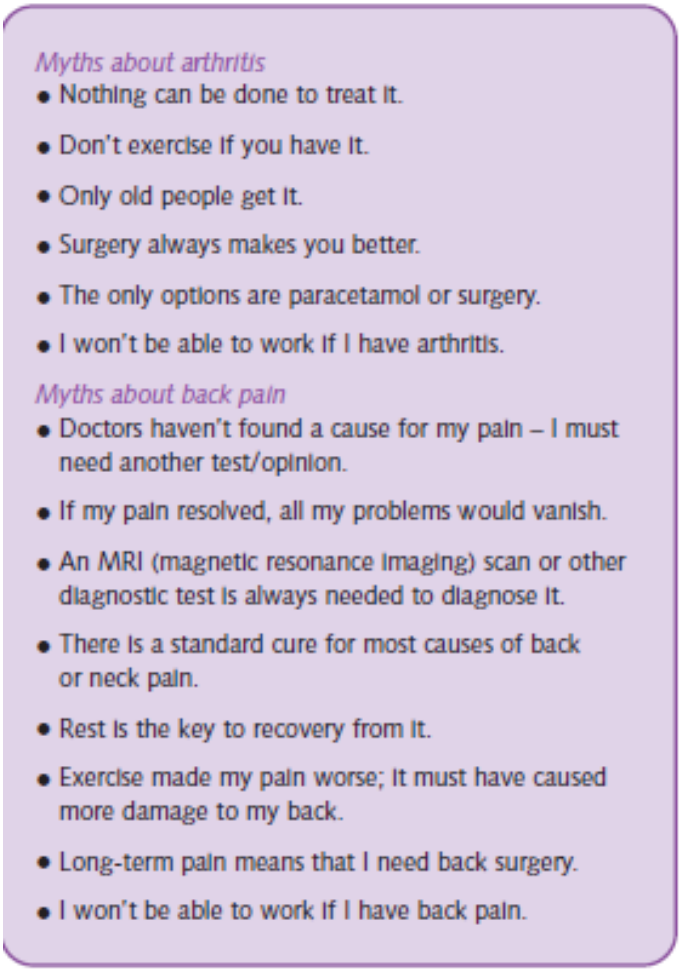
7.1. MSK Burden

The growing MSK burden can be controlled if we aim for:

- Improved musculoskeletal health for all
- Fewer people developing MSK conditions
- People with such conditions being able to take steps to reduce the impact of these on them
- People with MSK conditions being able to restore their health where possible

In addition to the above, priority and resources given to ensure access to accident prevention (given that Injuries are a major and largely preventable cause of MSK problems both in the short and long term), appropriate treatment/management of arthritis and musculoskeletal injuries, as well as rehabilitation would also be beneficial.

The demand and especially the resultant functional impairment from these conditions are not invariably gloomy, particularly if some of the prevalent myths about the more common conditions (arthritis and back pain) are broken within the patient population itself as well as amongst professionals. Consistent messages across the whole pathway relating to such myths are essential.



Source: Department of Health (2006): The Musculoskeletal Services framework. A joint responsibility: doing things differently

7.2. Lifestyle Issues and Prevention

Lifestyle factors can contribute significantly to the prevalence of MSK conditions underscoring the importance of preventive measures at both an individual and organisational/service level. Obese people are more than twice as likely to develop osteoarthritis of knee compared with people of normal weight[25] (some estimates put this at between four and six times greater). Evidence suggests that two in three obese adults will develop osteoarthritis, and that obesity in early adult life predicts osteoarthritis many years later. The risk increases with level of **obesity**. More than two out of three knee replacements and one in four hip replacements in middle-aged women in the UK are

[25] Blagojevic M et al (2010). Risk factors associated with osteoarthritis of the knee in older adults: a systematic review and meta-analysis. Osteoarthritis Cartilage 18(1): 24-33

attributable to obesity[26]. Obesity also increases the risk of other MSK conditions including gout (twice as likely and at a younger age)[27], back pain (risk increases with rising body BMI).

Weight loss at every stage of life reduces the risk of developing osteoarthritis. For people with osteoarthritis, losing weight improves symptom and may slow progression. A combination of dietary restriction and exercise is the best strategy to improve osteoarthritis symptoms. Weight loss of 5kg over a decade in an average height woman (equivalent to a decrease of 2 BMI units) halves the risk of knee osteoarthritis.[28]

Healthy **physical activity** improves musculoskeletal health with activities such as swimming, walking, cycling and running found to be beneficial in reducing overall risk of musculoskeletal pain[29] and disability. High levels of walking are associated with a reduced need for hip replacement surgery[30]. For people who have already developed a painful musculoskeletal condition, engaging in appropriate physical activity reduces pain intensity, improves quality of life and prevents further disability[31]. Specific types of strengthening and stretching exercises are beneficial for particular conditions e.g. exercises to strengthen quadriceps muscles may be particularly helpful for people with osteoarthritic knee pain[32]

Minimal investigation, increased physical activity and weight management are the best approach for most conditions of musculoskeletal pain. A cost effective way of changing behaviour in the short to the medium term includes opportunistic brief advice or brief interventions to promote the uptake of physical activity.

There is compelling evidence of the link between **alcohol** and trauma

Smoking is an established risk factor for rheumatoid arthritis[33],[34] – smokers are more likely to develop this condition, and those who do develop the condition tend to have a more aggressive form and respond less well to treatments to prevent permanent joint damage, pain and disability[35,36].

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[26] Liu B et al (2007). Relationship of height, weight and body mass index to the risk of hip and knee replacements in middle-age women. Rheumatology (Oxford) 46(5): 861-867

[27] DeMarco MA et al. (2011). Obesity and younger age at gout onset in a community-based cohort. Arthritis Care Res (Hoboken) 63(8):1108-1114 DeMarco MA et al. (2011). Obesity and younger age at gout onset in a community-based cohort. Arthritis care Res (Hoboken) 63(8):1108-1114 http://onlinelibrary.wiley.com/doi/10.1002/acr.20479/pdf

[28] Wluka AE et al. (2013). Tackling obesity in knee osteoarthritis. Nat Rev Rheumatol 9(4):225 - 235

[29]

[30] Ageberg et al. (2012). Effect of leisure time physical activity on sever knee or hip osteoarthritis leading to total joint replacement: a population-based prospective cohort study. BMC Musculoskelet Disord May 17; 13:73. Doi: 10.1186/1471-2474-13-73 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3462680/pdf/1471-2474-13-73.pdf

[31] Deyo RA et al. (1986). How many days of bed rest for acute low back pain? A randomised clinical trial. N Engl J Med 315(17):1064-1070

[32] Roddy E et al. (2005). Aerobic walking or strengthening exercise for osteoarthritis of the knee? A systematic review. Ann Rheum Dis 64(4): 544-548 http://ard.bmj.com/content/64/4/544.full.pdf+html

[33] Stolt P et al. (2003). Quantification of the influence of cigarette smoking on rheumatoid arthritis: results from a population based case-control study, using incident cases. Annals of the Rheumatic Diseases 62(9): 835-841 http://ard.bmj.com/content/62/9/835.full.pdf+html

[34] Costenbader KH et al. (2006). Smoking intensity, duration and cessation and the risk of rheumatoid arthritis in women. American Journal of Medicine 119(6):503-511

[35] Rojas-Serrano J et al. (2011). Current smoking status is associated to a non-ACR 50 response in early rheumatoid arthritis. A cohort study. Cli. Rheumatol 30(12):1589-1593

[36] Saevarsdottir S et al. (2011). Patients with early rheumatoid arthritis who smoke are less likely to respond to treatment with methotrexate and tumour necrosis factor inhibitors: observations from the Epidemiological Investigation of

Preventive interventions that focus on reducing the risk of accidents in children and the risk of falls (and fractures) in older people need to be part of the integrated pathway.

7.3. Management

Many patients with MSK problems do not need to be treated in hospital and should be able to receive faster and more appropriate care in the community, given patients' expectation around pain control and speedy and clear access when in difficulty. There is strong evidence that the provision of patient education and evidence-based information, and the adoption by the patient of such advice, can help to reduce pain and improve coping skills in patients and also potentially reduce costs. Such information can also promote exercise, avoidance of obesity, good nutrition and prevention of injury.

The use of biologic agents for inflammatory arthritis and bisphosphonates for osteoporosis have led to reductions in the need for inpatient care over the years for these groups of patients. Shared care has the potential to help in continuing the reduction in the need for such inpatient episodes.

Meticulous proactive management of conditions such as rheumatoid arthritis which optimises treatment and controls co-morbidity can improve long-term prognosis and prevent additional future health problems

The management of MSK conditions should be multidisciplinary, based on integrated, **shared care** i.e. **integrated care pathways**. It is important to recognise that shared care (amongst other things) is based on understanding the needs of the patient population as well as avoidance of unnecessary visits and admissions; while integrated pathways for this patient group should emphasise:

- Prevention and self-care, with the patient an active participant
- Seamless coordinated services from provision and access to health maintaining/restoring information, to contacts with primary care, onward referral to specialist (interface and hospital) care, right through to rehabilitation and support to return to work.

The CPG may wish to satisfy itself that all the above is currently the case in Gloucestershire

7.3.1. Inequalities

Some rheumatic diseases vary in prevalence with ethnicity – rheumatoid arthritis is less common in the Asian population, while SLE is more prevalent in the Asian and Afro-Caribbean population

People in the lowest income quintile are more likely to report chronic pain and their pain is also likely to be more severe. Disadvantaged groups have a higher incidence of some MSK conditions e.g. osteoarthritis, but evidence suggests that surgical intervention rates is lower in these groups[37,38,39.].

Rheumatoid Arthritis and the Swedish Rheumatology Register cohorts. Arthritis Rheum 63(1):26-36 http://onlinelibrary.wiley.com/doi/10.1002/art.27758/pdf

[37] Dixon T; Shaw M; Ebrahim S; and Dieppe p. (2004). Trends in hip and knee joint replacement: socioeconomic inequalities and projections of need. Annals of the Rheumatic Diseases, 63: 825-830 http://ard.bmj.com/content/63/7/825.full.pdf+html

[38] Yong PFK; Milner PC; Payne JN; Lewis PA; and Jennison C (2004). Inequalities in access to knee joint replacements for people in need. Annals of the Rheumatic Diseases 63: 1483-1487 http://ard.bmj.com/content/63/11/1483.full.pdf+html

There is evidence of inequity in access to total hip and total knee replacement surgery by age, sex, deprivation, rurality, and ethnicity. Adjustment for hospital and distance did not attenuate these effects[40]. BME residents and those in deprived areas may have differing healthcare needs and require different support from the health service. The CPG may wish to explore this issue further in order to reassure itself of equitable service provision.

SUMMARY

- *The growing burden of MSK conditions can be controlled if we aim for improved musculoskeletal health for all with fewer people developing MSK conditions; and for people with the conditions to have the ability to take steps to reduce the impact, as well as restoring their health where possible*
- *Accident prevention needs to be given priority and resources, as well as appropriate treatment/management of arthritis and musculoskeletal injuries*
- *Prevalent myths need breaking both within the patient population as well as amongst health professionals*
- *Lifestyle factors contribute to the prevalence of MSK conditions and these need to be addressed across the population and within care pathways e.g. obesity/weight loss for osteoarthritis, physical activity and pain control, smoking and rheumatoid arthritis, alcohol and trauma*
- *Cost-effective way of changing behaviour in the short to medium term includes brief interventions to promote uptake of physical activity*
- *Integrated pathway needs to include reducing risk of accidents in children and falls in older people*
- *There is strong evidence that provision of patient education and evidence-based information and their adoption can reduce pain, improve coping skills and reduce costs*
- *Shared care has the potential to further reduce the need for inpatient care for inflammatory arthritis and osteoporosis*
- *Achieving meticulous, proactive and optimal management is essential for rheumatoid arthritis*
- *Cognisance needs to be taken of the higher prevalence of chronic pain in low income groups, the lower surgical intervention rates in disadvantaged groups despite a higher incidence of some MSK conditions when looking at equity of service provision.*
- *There is evidence of inequity in access to total hip and total knee replacement surgery by age, sex, deprivation, rurality, and ethnicity*

[39] Milner PC; Payne JN; Stanfield RC; Lewis PA, Jennison C and Saul C (2004). Inequalities in accessing hip joint replacement for people in need. European Journal of Public Health, 14: 58-62.
[40] Judge A; Welton NJ; Sandhu J; Ben-Shlomo Y (2010) Equity in access to total joint replacement of the hip and knee in England: cross sectional study. BMJ 2010;341:c4092. http://www.bmj.com/content/bmj/341/bmj.c4092.full.pdf

8. Appendices

Appendix 1: Gloucestershire prevalence- estimated number of male cases in 2013 based on national prevalence

CONDITION	0-14	15-24	25-44	45-64	65-74	75+	All adults 15+*
Rheumatoid arthritis	(CA)	4	15	503	356	498	1101
Childhood arthritis	15	4	6	4	1	1	-
Ankylosing spondylitis	0	11	51	104	6	6	175
Gout	0	7	292	1075	649	583	2184
SLE	0	2	4	6	2	2	15
Scleroderma	-	0	1	7	1	0	10
Polymyalgia rheumatica	0	0	0	43	165	304	350
Osteoarthritis	0	4	124	2097	1803	1984	4577
Back pain	180	789	3441	5408	1665	1230	12031
Osteoporosis (of hip only)	-	-	-	3025	1616	3575	14507
Disablement (mHAQ >0.5 + pain)	-	622	5786	14495	3746	4222	34593
All conditions	1958	2858	9351	17247	7991	6825	40881

Appendix 2: Gloucestershire prevalence- estimated number of female cases in 2013 based on national prevalence

CONDITION	0-14	15-24	25-44	45-64	65-74	75+	All adults 15+*
Rheumatoid arthritis	(CA)	22	118	1491	785	894	2928
Childhood arthritis	20	5	8	6	2	1	-
Ankylosing spondylitis	0	0	15	18	3	0	37
Gout	0	0	22	143	152	307	506
SLE	1	10	51	79	24	4	166
Scleroderma	0	0	7	31	9	5	58
Polymyalgia rheumatica	0	0	7	143	313	578	820
Osteoarthritis	0	7	198	3366	3035	3844	8459
Back pain	251	1145	4166	6572	2216	2043	15536
Osteoporosis (of hip only)	-	-	-	6840	8201	16106	59347
Disablement (mHAQ >0.5 + pain)	-	839	6716	12840	6177	10030	46950
All conditions	1840	3521	11624	24037	11159	11802	57614

Appendix 3: Gloucestershire incidence- estimated number of male cases in 2013 based on national incidence

CONDITION	0-14	15-24	25-44	45-64	65-74	75+	All adults 15+*
Inflammatory arthritis	(CA)	5	18	39	15	15	80
Childhood arthritis	2	–	–	–	–	–	–
Ankylosing spondylitis	1	6	17	7	1	1	30
Gout	0	0	124	348	216	176	755
SLE	0	0	1	1	0	0	3
Scleroderma	-	-	-	-	-	-	0
Polymyalgia rheumatica	0	0	3	15	37	69	93
Osteoarthritis	0	4	75	885	684	661	1866
Back pain	149	676	2688	3943	1229	965	9205
Hip Fracture†	-	-	-	16	44	112	162

Appendix 4: Gloucestershire incidence- estimated number of female cases in 2013 based on national incidence

CONDITION	0-14	15-24	25-44	45-64	65-74	75+	All adults 15+*
Inflammatory arthritis	(CA)	11	39	83	33	16	187
Childhood arthritis	7	-	-	-	-	-	-
Ankylosing spondylitis	0	1	4	3	0	0	8
Gout	0	0	13	52	58	90	185
SLE	1	1	4	7	2	1	16
Scleroderma	0	-	-	-	-	-	2
Polymyalgia rheumatica	0	0	4	67	86	132	240
Osteoarthritis	-	2	90	1395	1087	1166	3157
Back pain	227	1006	3387	5054	1684	1540	12318
Hip Fracture†	-	-	-	19	82	513	607

Appendix 5: Comparative Performance of CCGs on Relevant Outcome Measures Relating to Hip Fractures

CCG code	CCG name	3.11: Collaborative care	3.12: Prompt surgery	3.13: Falls assessment	3.10i: Mobility at 30 days	3.10ii: Mobility at 120 days	Best practice	Mortality (unadjusted)	Pressure ulcer rate
11E	NHS Bath and North East Somerset CCG	99.6%	84.0%	100.0%	25.8%	53.9%	81.3%	12.6%	1.8%
11M	NHS Gloucestershire CCG	90.7%	70.9%	99.2%	38.3%	62.1%	58.9%	8.9%	2.1%
12D	NHS Swindon CCG	96.1%	83.3%	99.2%	32.8%	52.2%	71.1%	10.8%	2.1%
99N	NHS Wiltshire CCG	99.4%	79.9%	100.0%	30.2%	55.9%	80.4%	8.5%	0.6%
Q64	Bath, Gloucestershire, Swindon and Wiltshire area team	95.5%	77.0%	99.6%	32.4%	57.5%	70.4%	9.5%	1.6%
	England	93.6%	74.9%	96.9%	24.0%	50.3%	61.9%	8.0%	3.0%

For each CCG, area team, LHB or LCG, the indicators are colour coded by quintile.

Among the best-performing 20% of CCGs in England	
Among the poorest-performing 20% of CCGs in England	