Musculoskeletal conditions

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Executive summary

Introduction

Musculoskeletal (MSK) conditions are those affecting the nerves, tendons, muscles and supporting structures, for example spinal discs[1]. This encompasses over 150 diseases and syndromes[2]. Taken together, data from the Global Burden of Disease study (GBD) demonstrates that as of 2013 they are the leading cause of disability in England, accounting for 24% of all years lived with disability (YLD)[3].

According to GBD data, low back and neck pain was the leading cause of disability in England in 2013, resulting in 1.3 million YLD – nearly 18% of all YLD - compared to 445,000 YLD attributable to the next leading cause (sense organ diseases). 'Other musculoskeletal disorders' were the tenth largest contributor of YLD, responsible for 235,000 YLD, while osteoarthritis was 15th, causing 136,000 YLD. In Nottingham City, 72% of the musculoskeletal burden (in terms of YLD) is due to low back and neck pain, and 9% due to osteoarthritis. The disability due to MSK disorders is expected to rise further with increases in obesity and sedentary lifestyles, along with an ageing population[4].

This JSNA chapter focuses on these leading and most common causes of musculoskeletal morbidity and mortality: low back and neck pain and osteoarthritis. It excludes osteoporosis and fracture as this is covered in the separate JSNA chapter 'Falls and Bone Health'[5]. Rheumatoid arthritis and MSK pain or damage as a result of trauma are also excluded, since in Nottingham these follow slightly different patient pathways and these conditions are less prevalent than neck and back pain, and osteoarthritis.

The impact of MSK conditions can be underestimated since most are not immediately life threatening (although both rheumatoid arthritis[6,7] and, to a lesser extent, osteoarthritis[8] are associated with increased mortality). Instead, sufferers can live with them for years, resulting in a long-term burden via pain and impaired functioning for the individual which can also impact on social functioning and mental

health[9]. There is also a substantial economic burden due to work days lost and primary and secondary health costs[10]. Official statistics often do not capture the full impact of the illness, as only a small proportion of those with MSK conditions will present to health services and so appear in health data. For example, only around 20% of those with low back pain will present with it to their GP[11]. As a result, there is a large population of sufferers self-managing their condition at home, for whom the full impact of illness is difficult to capture.

Key points

- Musculoskeletal conditions are often chronic and are the leading cause of disability in England, although a large proportion of sufferers may not present at health services. The impact of these conditions is seen in economic data, including days off work and benefits claimed, as well as in health statistics. There is also a knock-on detrimental impact on mental health. In Nottingham City, 72% of the musculoskeletal burden (in terms of YLD) is due to low back and neck pain, and 9% due to osteoarthritis.
- Currently there are no data to suggest that levels of low back pain and osteoarthritis in Nottingham differ significantly from national figures and therefore are expected to have the greatest impact on years of life lived with a disability compared to other conditions. Nationwide, the prevalence of MSK conditions is expected to increase due to the ageing population and growing levels of obesity and inactivity. Nottingham may see a disproportionately high rise, due to high levels of child obesity and a greater proportion of deprived areas, which are predicted to have the greatest growth in obesity levels. The impact of MSK conditions on people's ability to work and function may be greater for those living in deprivation, who are more likely to be in manual occupations.
- Most MSK sufferers will present at GP as their primary point of call. Nottingham's MSK pathway directs GPs to manage patients using community services such as physiotherapy for six weeks before they are referred to more specialist services (for example, Integrated Clinical Assessment and Treatment Services). NICE guidelines advocate the promotion of self-management strategies in primary care, and to this end emphasise the importance of providing accurate up-to-date information to the patient to enable effective self-management. It is unclear whether patients across the city currently have equitable access to community services.
- Some commissioned services are beginning to report on patient outcome data such as improvements in EQ-5D scores, but currently only minimal data is available. Reporting requirements do not always specify an acceptable response rate for outcome surveys, nor exactly how thresholds are defined. It is therefore difficult to ascertain whether services are currently achieving desired clinical outcomes.
- Evidence suggests that primary assessment by a physiotherapist for MSK conditions can be successful in terms of identifying serious pathology[12], providing satisfactory treatment and reducing demand for a GP[13]. First line physiotherapy has been rolled out across 20 pilot sites between December 2014 and May 2015.
- Nottingham City CCG currently commissions an acupuncture service for a range of acute or chronic pain conditions. This is not consistent with NICE guidelines, which recommend this option only for chronic lower back pain, chronic tension-

type headaches and migraine. The use of trigger point and facet joint injections, commissioned as part of the Community Pain Service, also has limited evidence of effectiveness.

- Nottingham City CCG has commissioned and implemented Integrated Clinical Assessment and Treatment Services, including triage, interdisciplinary clinics and case conference. This has seemingly been successful in reducing referrals to secondary care (and associated costs) and facilitating timely access for patients to specialist teams.
- Data indicate that Nottingham City CCG has a significantly lower rate of hip replacements than average, and that spend on elective care is lower, although there are no data to suggest that the level of need is lower.

Recommendations for consideration by commissioners

- Prevention and effective management of MSK conditions becomes a strategic priority for Nottingham City. A focus on prevention activities for key risk factors (obesity, physical inactivity) could be expected to mitigate some of the predicted increase in MSK conditions. Recognition should be made that lower socioeconomic groups may be particularly at risk of rising prevalence rates and of facing more limitations due to their condition.
- Efforts should be made to increase awareness of preventative and self-management strategies in those suffering from or at risk of MSK disease.
- As the main bulk of activity will be seen in General Practice, it should be ensured that primary care professionals are aware of local service offerings to enable patients to access them when appropriate. Primary care professionals should also be well versed on up-to-date information and advice for self-management strategies.
- It may be that there are inconsistencies in referral practices across the city, so sources of referral to primary care community and specialist MSK services should be evaluated to ensure that patients have equal access to services relative to their needs.
- Consideration should also be given to how to best support people with ongoing MSK conditions to remain in work.
- Wherever possible, ongoing evaluation of community services should be embedded, using patient outcome data to appraise services and inform best referral practices. Commissioners and services should ensure to maintain an adequate response rate when collecting patient outcome data, and to measure whether significant clinical benefit has been achieved for patients in terms of pain levels or functioning.
- Local First-Line Physiotherapy services should be evaluated to ascertain whether they have improved outcomes and been successful in reducing demand in primary care (or whether they have resulted in an increased demand due to increased availability of services). If they are found to be successful, they should be embedded within the MSK pathway and rolled out across the city. Evaluation should be undertaken to ensure equitable access in relation to clinical need.
- The service specification for Community Acupuncture should be reviewed and re-commissioned in line with NICE guidance. The use of trigger point and facet joint injections within Pain Management services should also be reconsidered.

- The level of surgical activity (particularly hip replacements) is below that expected of a similar CCG. This should be investigated further, to ensure that surgical options are made accessible to those who would see an adequate clinical benefit. Pre- and post-surgical measures should be routinely collected and monitored to assist in assessing appropriateness of surgery.

What do we know?

1) Who is at risk and why?

Low back pain (LBP) affects around one-third of the UK adult population each year, and around one in five of those affected will present to their GP[11]. Studies suggest that that 11% of adults have had disabling back pain in the previous three months, 23% have had LBP lasting more than three months, and 18% have had "at least moderately troublesome pain" in the previous month[14]. It is estimated that around 6% of LBP patients develop long standing or serious disabling back pain, and these cases account for more than 80% of health care resource utilisation for back pain[15]. The lifetime risk of a significant episode of neck pain is between 40 and 70 percent, with higher rates in women than men, and increasing prevalence up to around age 55[16]. Between 50 and 85% of neck pain sufferers will also face a recurrence within five years[17].

Based on data from The English Longitudinal Study of Ageing, Arthritis Research UK[18] estimate that, of adults aged over 45, 1 in 5 have osteoarthritis of the knee and 1 in 9 have osteoarthritis of the hip.

Based on data on Disability Allowance claimants for 2010/11, arthritis was the most prevalent disabling condition in the UK, cited by 17.4% of all claimants, with "disease of the muscles, bones or joints" and back pain accounting for an additional 10.7%[19]. From the most recent data from the Department of Work and Pensions (May 2015), of the 909,000 people claiming DLA for these top MSK conditions, 91% had been claiming for at least five years[20]. MSK conditions also account for around 14% of primary care consultations (as of 2006)[21]. The Health and Safety Executive[22] estimate that 9.5 million working days were lost to work-related musculoskeletal disorders alone in 2014/2015 - 40% of all days lost due to work-related ill health.

Hospital Episode Statistics[23] from the Health and Social Care Information Centre show that in the year 2014-2015 in England there were almost 1.5 million Finished Consultant Episodes (FCEs) – one episode of care within an inpatient stay under one responsible consultant - with a main procedure or intervention of the soft tissue, bones or joints. This was 13% of all FCEs in the same year. "Diseases of the musculoskeletal system and connective tissue" were also the primary diagnosis for 1.3 million Finished Admission Episodes (FAEs), or 8% of the total. Inpatient data only captures a very small proportion of the hospital activity for MSK conditions, since the majority of patients will attend only as outpatients. However, outpatient activity data is limited since it is not mandatory to record a diagnosis[10]. Inpatient data has therefore been detailed here to provide some limited insight into the extent of utilisation of hospital services.

Older age, obesity and smoking are key risk factors for the MSK conditions. Older age is the biggest risk factor for osteoarthritis, with the proportion of people seeking treatment for osteoarthritis rising from around a third of women and a quarter of men aged 45-64 to half of people aged 75 and over[24]. Ageing also increases the risk of osteoporosis and low back pain[9]. Obesity is a risk factor for low back pain and rheumatoid arthritis[9], and is the largest modifiable risk factor for osteoarthritis[25]. Studies have indicated that obese people are around eight times as likely to get knee osteoarthritis[26,27] (even controlling for age, sex,

smoking and physical activity), and those that are severely obese (BMI at least 36 kg/m^2) are almost 14 times as likely[28]. Because osteoarthritis often makes activity painful, sufferers are also more likely to become inactive, and so further increase the risk of obesity and associated disorders[29]. Smoking is a risk factor for rheumatoid arthritis and low back pain[9], neck pain[30] and osteoporosis[31]. Female gender is also a risk factor for all of the MSK conditions detailed here: prevalence of osteoarthritis is around twice as high in women as in men[9], and females are also at greater risk of neck pain[16], osteoporosis[32], rheumatoid arthritis[9] and self-reported low back pain[33].

The risk of low back and neck pain, in particular, are also influenced by psychological factors: anxiety, depression, and poor job satisfaction are associated with both[9,30]. Occupational factors, such as heavy lifting, bending, pulling and pushing (for back pain)[9] and sedentary, repetitive and/or precision work (for neck pain)[30] also play a role. Physically demanding occupations, particularly farming, have also been found to be predictive of osteoarthritis[9]. Agriculture, construction, health and social care, and transportation and storage are occupations with elevated rates of MSK disorders[9].

As well as being a risk factor for MSK conditions, poor mental health can also be a result of these conditions. Patients with chronic pain are four times more likely to suffer from major depressive disorder than those without, and a survey of osteoarthritis patients found that two thirds of them reports symptoms of depression when their pain is at its worst[34].

Inactivity is also predictive of chronic musculoskeletal complaints, even independently of excess body weight. While obesity increases the risk of osteoarthritis by overloading the joint and accelerating the breakdown of cartilage[9], inactivity leads to atrophy of muscles, tendons, ligaments, cartilage and even bones[35].

A study of almost 40,000 people in Norway found that, compared to inactive people, those who reported exercising at all were around 9% less likely to report chronic MSK complaints 11 years later; those who reported exercising more than three times per week were around 28% less likely, even controlling for BMI[36]. A study from Australia found that lower physical activity was associated with greater low back pain and disability in 72 volunteers, after adjusting for BMI[37].

In terms of socio-economic status, data for England show that levels of overweight and obesity are higher in women[38] and children[39] in deprived than in non-deprived populations, with a clear trend of increasing prevalence with increasing deprivation. This indicates that those in deprived populations may be at increased risk of obesity-related MSK disorders such as osteoarthritis and low back pain.

2) Size of the issue locally

If national prevalence figures are assumed to apply to the local population, around 85,000 adults in Nottingham City are affected by low back pain each year. Arthritis Research UK[18] have produced estimates for the prevalence of knee and hip arthritis (the most common forms of osteoarthritis), and report that the prevalence of knee osteoarthritis in those aged over 45 in Nottingham is 18.5% (male prevalence 16.9%, female prevalence 20.1%), or 6.8% for severe cases. The prevalence of hip osteoarthritis is 11.0% (male prevalence 8.1%, female prevalence 13.7%), or 3.3% for severe cases. This is in line with national figures. This equates to 18,400 people with knee osteoarthritis (6,800 severe cases) and just under 11,000 people with hip osteoarthritis in Nottingham City CCG (3,300 severe cases).

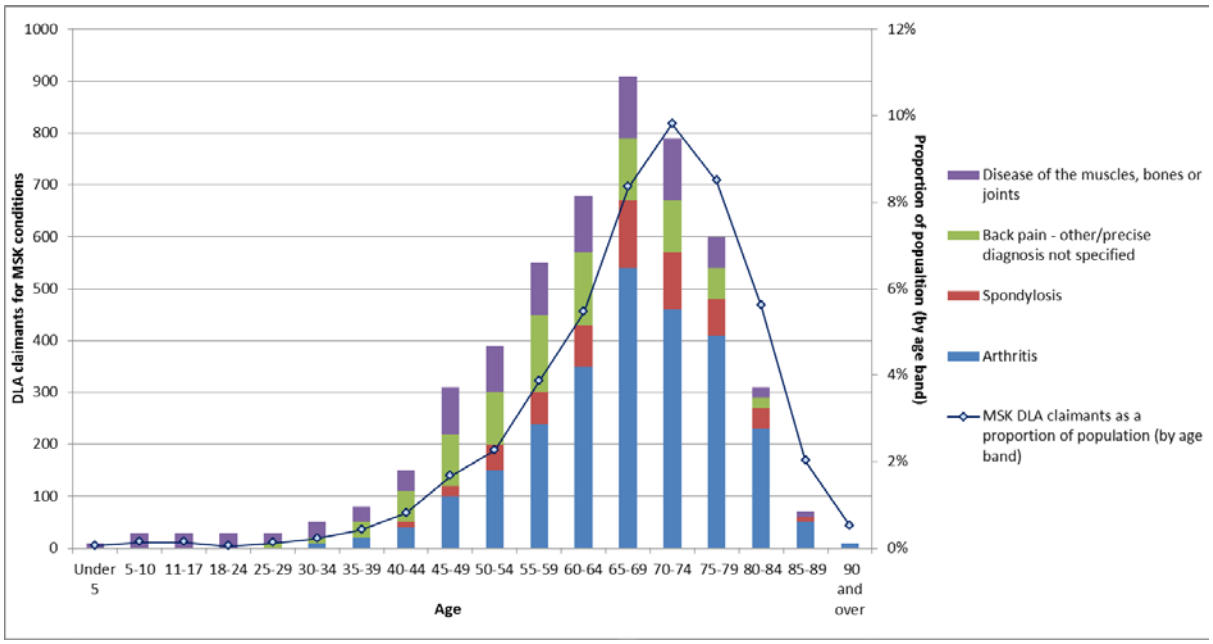
Public Health England data for 2014 states that although the proportions of adults with excess weight, or who are physically inactive, in Nottingham City, are in line with national averages, the prevalence of excess weight in children (aged 4-5 and aged 10-11) is significantly higher than average (24.2% of 4-5 year olds and 37.8% of 10-11 year olds)[40]. Nottingham also has a significantly higher smoking prevalence (24.2%) than the average for England[41]. This indicates that the population of Nottingham may be at elevated risk of MSK conditions in the future.

According to data from the Department for Work and Pensions, as of May 2015, 5,060 people in Nottingham City were claiming Disability Living Allowance (DLA) - a tax-free benefit for disabled people who need help with mobility or care costs- for MSK conditions (almost 30% of all claimants)[42]. 2,130 were claiming employment and support allowance (ESA) – a benefit for people unable to work due to illness or disability – for diseases of the musculoskeletal system and connective tissue (some people may have been claiming both benefits).

Overall, arthritis was the most common reason for claiming MSK-related DLA (51.9% of MSK DLA claimants; compared to only 17.9% claiming for back pain). This is interesting to compare to both prevalence and disability data, which indicates that many times more people are affected by low back pain than arthritis in Nottingham City[21] and 72% of the MSK disability burden (in terms of YLD) is due to back pain (compared to 14% due to arthritis). This suggests that a much higher proportion of those with arthritis are claiming DLA than those with back pain. This could be due to a number or combination of factors; many cases of back pain are likely to be transient and short-lived, while arthritis is unlikely to be so; the severity of back pain in the population may be at a much lower level and not meet the threshold for DLA, although it affects more people; it may be that people are successfully managing at home or being treated by health services; or it may be that people are not claiming for DLA, either because they are not aware that it is an option or because it is more difficult to obtain for a non-specific diagnosis.

Figure 1 below shows the age breakdown for those claiming DLA, by MSK condition – both in absolute terms and as a proportion of the corresponding age band of the Nottingham City population.

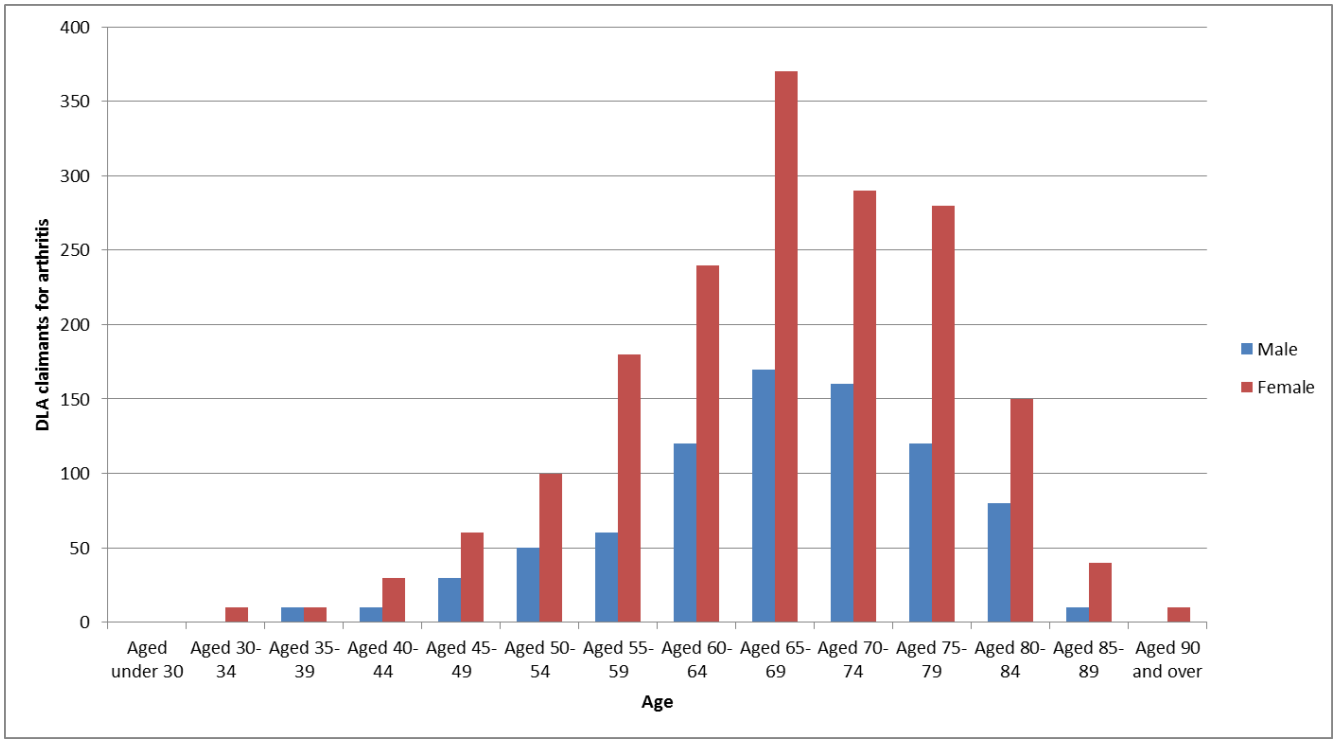
Figure 1: DLA claimants for MSK conditions, May 2015, by age band and condition



This figure shows that the greatest number of claimants came from the older age brackets (60-79 years) – within the 70-74 age bracket, almost 10% of Nottingham City's population are claiming DLA for a musculoskeletal condition. It also shows that the relative contribution of each condition differs by age. Up to age 25, other 'disease of the muscles, bones or joints' was the only MSK condition cited. From age 25 to 49, back pain accounted for one third of all MSK claimants, but this was quickly overtaken by arthritis as the most prevalent specific disabling condition (57% of all claimants aged 50 and over). It should be noted that the decrease in claimants after age 65 may be due in part to the benefits system, as no new claimants can be granted DLA after aged 65, and instead can apply for a different benefit (now Attendance Allowance[43]).

The gender differential for arthritis can be clearly seen in Figure 2 below. Within any age band, approximately half the number of males as females in Nottingham are claiming DLA for arthritis. This correlates with epidemiological data indicating women have twice the risk of arthritis compared to men.

Figure 2: DLA claimants for arthritis, May 2015, by age band and gender



3) Targets and performance

The NHS Outcomes Framework for 2015/16 specifies the following desired outcomes (relating to services for musculoskeletal conditions)[44]:

- Ensuring people feel supported to manage their condition
- Improving functional ability in people with long-term conditions
- Reducing time spent in hospital by people with long-term conditions
- Improving outcomes from planned treatments
- Improving access to primary care services
- Improving people's experience of integrated care

Right Care* recommends the following priority areas for improving quality or finance savings[45]**Error! Bookmark not defined.**:

- Spend on non-elective admissions
- Spend on primary prescribing
- Knee replacement, EQ-5D index, average health gain
- % patients aged 75+ years with fragility fracture treated with Bone Sparing Agent
- Hip replacement emergency readmissions 28 days

* Right Care started as one of the workstreams within the Department of Health's 'Quality, Innovation, Productivity and Prevention' (QIPP) programme. It is now being taken forward as an approach by NHS England and Public Health England, with the objectives of maximising the value that the patient derives from their own care and treatment, and that the whole population derives from the investment in their healthcare.

Based on Hospital Episode Statistics for 2013, the average length of hospital stay for Nottingham CCG patients undergoing total bilateral hip replacement is worse than expected for patients in England[46]. This may be anomaly due to a small sample size for these procedures, but the data should be monitored and, if necessary, investigated further.

4) Current activity, service provision and assets

In Nottingham City, broadly two categories of service are provided for patients presenting with musculoskeletal pain. Non-surgical services are based largely in the community, and provide management, advice, medication and non-invasive treatment for patients with lower-level pain and impairment. Surgical services are provided for those who meet certain criteria and whose condition cannot be managed using these non-invasive treatments, or whose condition is likely to deteriorate considerably without surgery.

Non-surgical services in Nottingham include a community pain service (from which patients can be referred for acupuncture), community MSK physiotherapy, and then more specialist Integrated Clinical Assessment and Treatment Services (ICATS). Since 2010, Nottingham City has been redesigning the MSK pathway, incorporating ICATS, with the intention of reducing the number of inappropriate referrals to secondary care and facilitating early assessment by appropriate clinicians. In ICATS a patient is assessed and treated by an integrated, multi-disciplinary team of appropriately trained specialist MSK clinicians. Patients can be referred to ICATS if primary care and community services management has failed after six weeks. These services have resulted in a 40% decrease in orthopaedic referrals to secondary care between 2009 and 2013, including a reduction in GP referrals to both secondary care spinal and hip and knee clinics**.**

Non-surgical Services

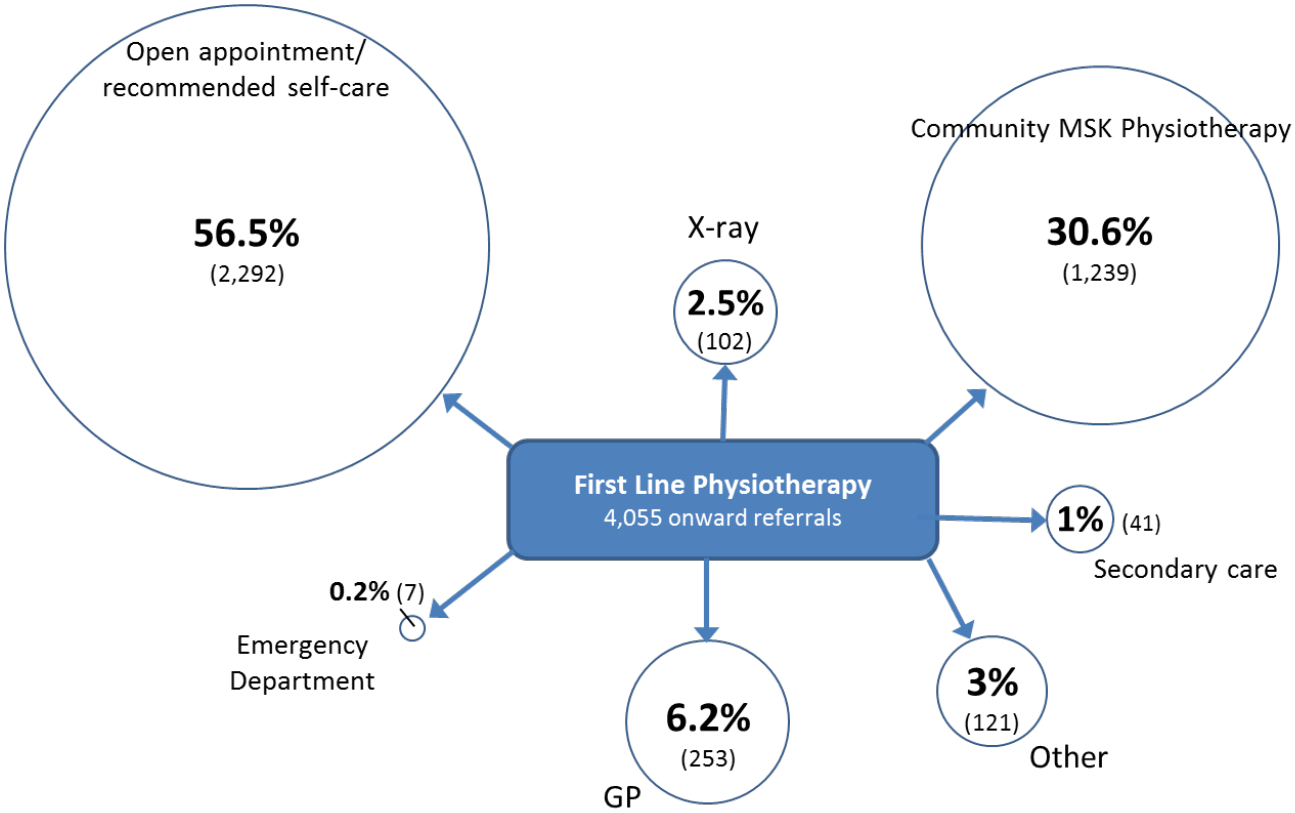
General Practice

The general practitioner is likely to be the first point of call for the vast majority of those with low back pain, neck pain or osteoarthritis who choose to present at health services at all. In Nottingham City, GPs can provide: red flag screening to identify any potentially more serious conditions, analgesics, advice on self-management, diagnostics, and, where necessary, referral to other services - community MSK physiotherapy, or to triage for more specialist services. The number of patients and presentations to primary care for MSK conditions and clinical outcomes are not included in this JSNA as these data are extremely difficult to capture.

First-Line Physiotherapy (FLP)

Nottingham City has implemented a pilot scheme for First-Line Physiotherapy triage for patients registered with 20 GP practices across the city. Patients contacting their general practice with an MSK problem are given the option of seeing a physiotherapist (within the practice) at the next available clinic, or patients can also self-refer. Those that accept are seen for initial assessment only (with an option of 1 further session to complete the assessment). In the period January to December 2015, 4,758 patients were seen for a first assessment in FLP. Outcomes for 4,055 onward referrals are shown in Figure 3 as follows:

Figure 3: First line physiotherapy triage outcomes



The vast majority of patients have been triaged to one of three outcomes:

- Discharged with an open appointment/advice for self-care (57%)
- Referred to the MSK Physiotherapy Service for a continued course of treatment (31%)
- Advised to see their GP if serious pathology is suspected (6.2%)

Acupuncture

A community acupuncture service has been commissioned which accepts referrals for adults with the following conditions:

- Any acute or chronic pain conditions.
- Pain problems where regular analgesia has failed.
- Pain with associated symptoms such as anxiety, depression, or insomnia.
- Patients who are intolerant to or do not wish to take regular analgesia.

Referrals must come from Nottingham City GPs, and be triaged via the Community Pain Service (CPS - see below).

Over the last five years, the number of new patients seen per year has increased (from around 940 in 2010/11 to 1,270 in 2014/15). The number of follow-up appointments to any first appointment has also increased from 6.7 to 8.3, although it has remained largely consistent over the last three years. The 2015 service specification stipulates that patients' Brief Pain Inventory scores should be reviewed after six sessions, and a maximum of four

further sessions offered before the patient is assessed by the CPS. There is currently no patient outcome data available for the acupuncture service.

In addition to a lack of data to describe the clinical effectiveness of this service, the current commissioning specification is not in line with NICE guidance, which recommends that acupuncture is a treatment option only for chronic lower back pain, chronic tension-type headaches and migraine[47].

Community Pain Service (CPS)

Nottingham's Community Pain Service (CPS) is delivered across two providers – Nottingham University Hospitals and Pain Management Solutions. The remit of the service is to physically assess 100% of all Nottingham's adult pain referrals and then either refer them on to community services, or treat them within the pain service for a maximum of six months, as appropriate. Referrals can be redirected to services such as acupuncture, physiotherapy or the hip and knee pathway. Any patients treated within the pain service should have a proposed treatment plan which is copied to their GP. Treatments that the pain service can provide include: trigger point injections, massage, peripheral nerve block, medication, diagnostics, cognitive behavioural therapy, and an epidural injection and/or facet joint injection. The service sees approximately 150 patients per month, or 1,800 per year.

Initial outcomes data is only available from the part of the service provided by Pain Management Solutions, who saw 766 patients between April and December 2015. Pre- and post-treatment EQ-5D scores were available for 158 patients over this period (20%). These indicate that 85% of these patients saw an improvement, with a mean improvement of 0.23 on the EQ-5D index. Services and commissioners should aim to increase the sample size for collecting outcomes data, and ensure that it is collected across the whole of the pain service.

Whilst the majority of modalities provided by pain local services are in line with evidence for best clinical practice, trigger point and facet joint injections are not universally recommended. Systematic reviews found within a NICE Evidence Search for trigger point injections have reported that there is insufficient evidence to confirm either benefit or ineffectiveness of these injections for treating myofascial/musculoskeletal pain[48,49]. Similarly, there is no consistent evidence for the effectiveness of facet joint injections from randomised controlled trials, although some case studies provide some support; NICE recommends that further trials and evaluations are needed[11].

Community MSK Physiotherapy

The aim of the Community MSK Physiotherapy service is to provide professional care and management in the community, prevent unnecessary admission to hospital, and facilitate early discharge from hospital for adults with joint/muscle problems that are musculoskeletal in origin. The service should help to improve quality of life, increase independence and minimise exacerbations for these patients. This is achieved through the assessment (including red flag screening) of patients, giving of advice and (where appropriate) providing a short course of treatment. The service's approach focuses on self-management, advice and education for:

- Pain relief
- Improving mobility and ability to do day-to-day activities
- Healthy lifestyle advice
- Advice and support.

The service is provided largely by physiotherapists with a small amount of occupational therapy input.

The service receives approximately 16,700 referrals per year and has a first to follow-up appointment ratio of around 1:1.8. Early outcome data from 2015 indicates that, of patients completing an EQ-5D questionnaire, 70% reported an improvement in quality of life at time of discharge for the quarter Apr-June, increasing to 85% for Oct-Dec. However, it does not report the proportion of patients who complete an EQ-5D questionnaire at all, nor whether these improvements related to clinical significant differences.

Integrated Clinical Assessment and Treatment Services (ICATS)

Orthopaedic ICATS in Nottingham City consists of:

1) Orthopaedic triage service
2) The low back pain pathway, comprising:
    - Triage service
    - Integrated Clinical Assessment and Treatment Service (ICATS) clinic
    - Case conference
3) Hip and knee ICATS clinic

The service provides a comprehensive orthopaedic patient management service for Nottingham City GPs covering:

- Triage to the most appropriate secondary care or community service.
- Assessment and treatment.
- Ordering of x-rays and MRI where these haven't been ordered by the referring GP.
- Coordination of orthopaedic pathways.
- Supporting and educating GPs with the management and diagnosis of orthopaedic conditions

The Clinical Assessment Service (CAS) provides the administration for this pathway.

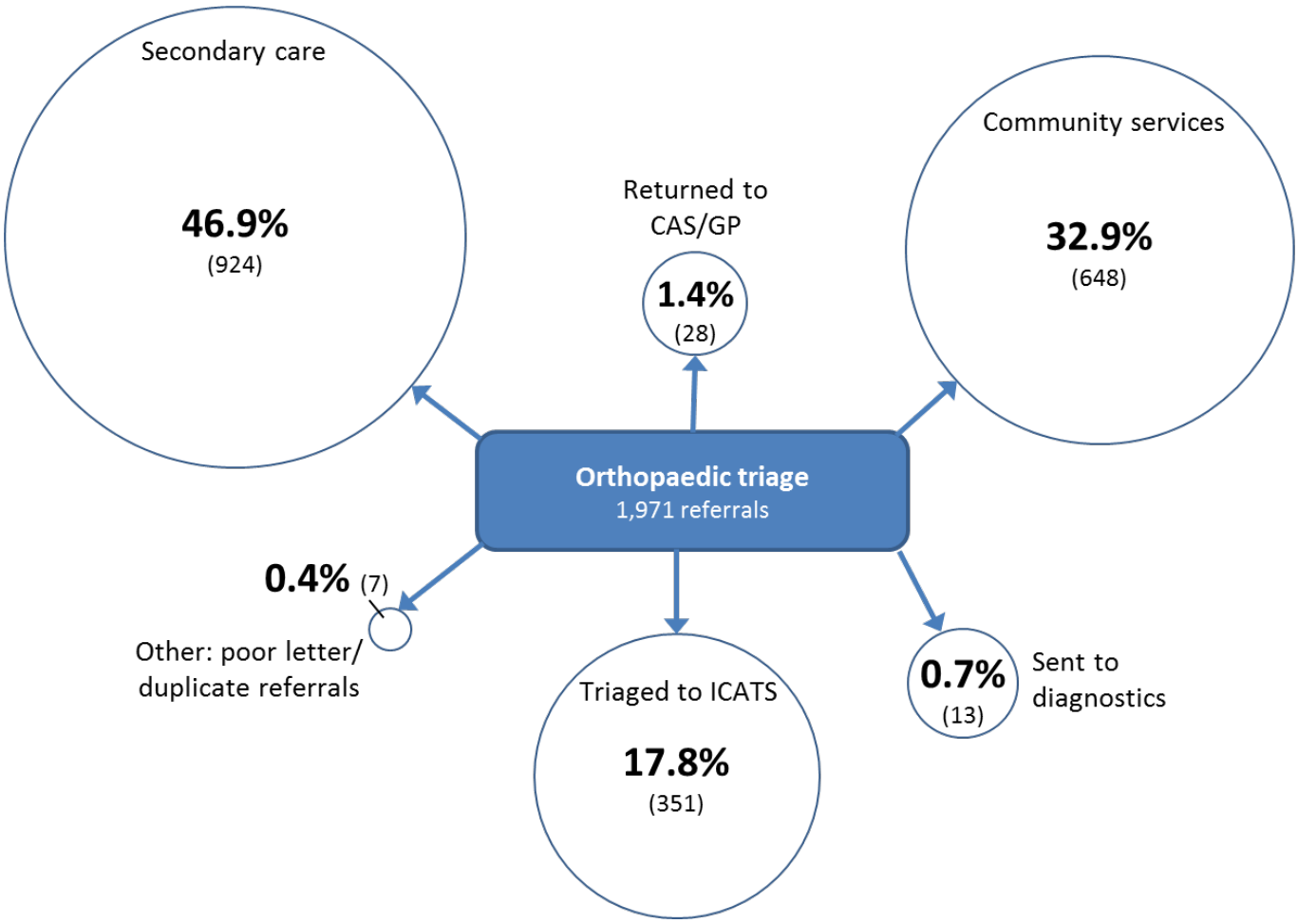
One of the quality requirements for both the low back pain and hip and knee ICATS is that patient outcomes should be measured and reported. The service specification states that quality of life (e.g. as measured by the EQ-5D) and clinical outcomes (e.g. as measured by the Oxford hip/knee score) should be measured at initial assessment and six months after discharge, and an improvement of 70% achieved. However, it does not specify the level of improvement that must be achieved. At the time of writing this JSNA, no outcome data is available to quantify the clinical effectiveness of these services.

Triage services (orthopaedic and low back pain)

The orthopaedic and low back pain triage services provide paper-based triaging of Nottingham City GP referral letters, performed by specialists with experience in MSK conditions (and orthopaedic spinal conditions, for LBP triage) assessment and management. Low back pain triage was introduced in May 2010, and orthopaedic triage in July 2011.

Figure 4 below shows the triage outcomes for nearly 2,000 patients referred to orthopaedic triage between July and December 2015.

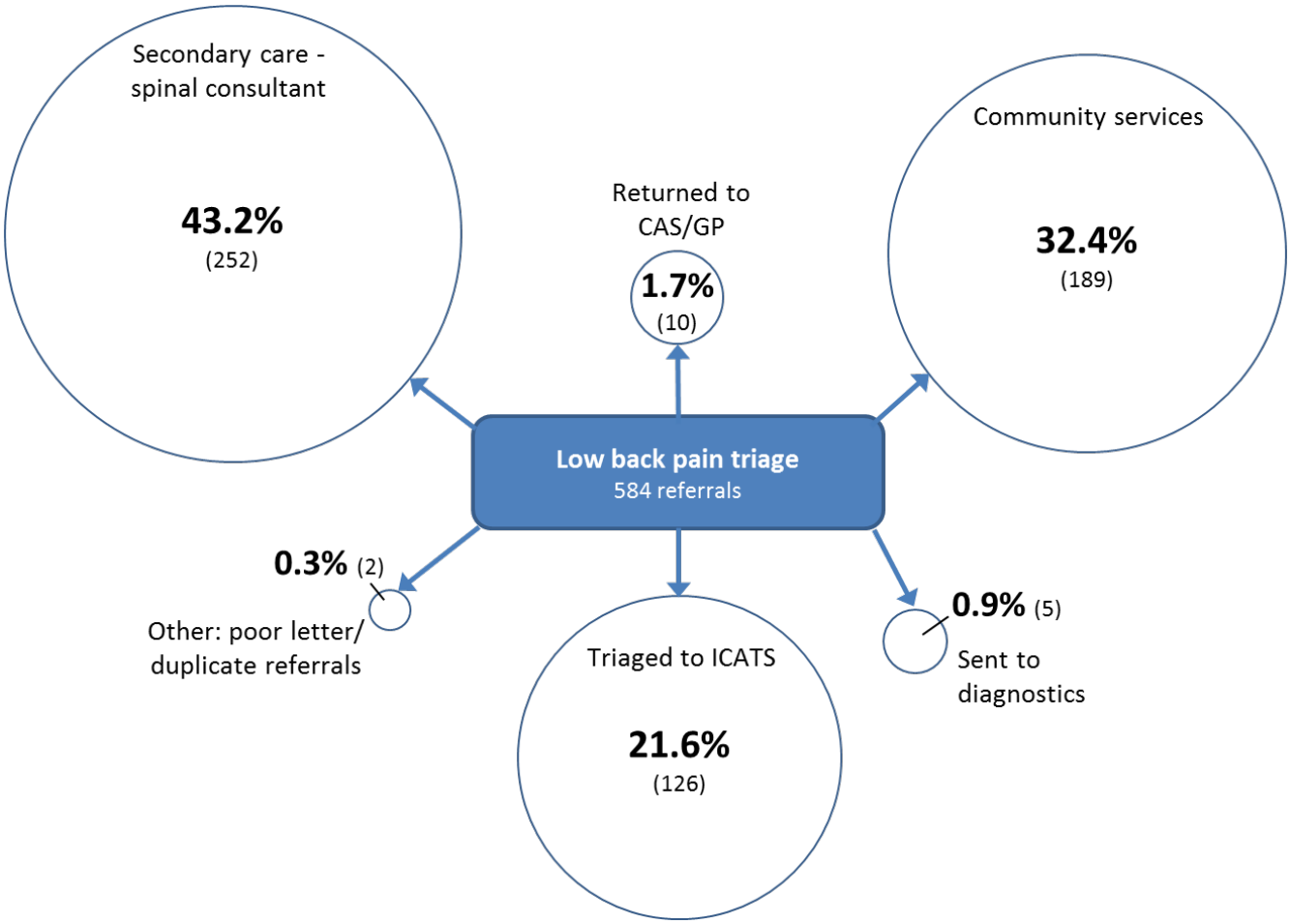
Figure 4: Orthopaedic triage outcomes, July to December 2015



Almost half of referrals were forwarded to secondary care (46.9%), almost a third to community services (32.9%) and just over a sixth triaged to ICATS (17.8%).

Figure 5 below shows outcomes from the Low Back Pain triage service over the same time period. There were 584 referrals to triage, of which 43.2% were referred to secondary care – a slightly lower proportion than from orthopaedic triage. Roughly the same proportion were forwarded to community services (32.4%) and a slightly higher proportion triaged to ICATS (21.6%).

Figure 5: Low back pain triage outcomes, July to December 2015



Low back pain ICATS

Low back pain ICATS was introduced in October 2011 and provides a multidisciplinary clinic to physically assess and treat patients who;

- Have failed to respond to initial primary care interventions.
- Are receiving treatment with a number of care providers.
- Have failed to respond to secondary care interventions.
- Are felt to have complex bio-psychosocial requirements.
- Need a surgical evaluation.
- Need a consistent management plan.

Treatments offered include:

- Education and self-management advice.
- Medication and prescription recommendations
- Pre-operative explanation to enable direct listing for interventionist procedures.

- Exercise prescription integrated with locally available exercise services
- Further diagnostics: if required, order and review of x-rays and MRIs.

All LBP ICATS referrals must come via the LBP triage (or be re-routed from case conference). Between July and December 2015, the LBP ICATS saw 163 patients. Of these, 27% were discharged back to their GP, 19% referred for surgery, 17% sent to community pain or physiotherapy services and 3% sent to case conference. The remainder were either sent for diagnostics, listed for injection or booked for ICATS follow-up.

Low back pain case conference

Low back pain case conference was introduced in May 2010. Its remit is to discuss complex cases that may require further medical or surgical management. It is attended by a spinal consultant or senior fellow, a senior MSK physiotherapist and a pain specialist. LBP case conference has assessed an average of 11 patients per month since July 2015.

Hip and knee ICATS

This service was introduced in April 2012 as a multidisciplinary clinic with an aim to assess and treat a number of patients that:

- Have a clear indication for surgical review.
- Have complex clinical indications which could justify referral to more than one primary/secondary care provider.
- Have a history of previous intervention with one, or more, provider.
- Require a consistent message with regards to the evidence based management of hip and knee conditions.
- Have complex medical co-morbidities.

It accepts referrals only from the orthopaedic triage service, and offers the following treatments:

- Exercise prescription.
- Lifestyle advice including signposting as appropriate e.g. weight management.
- Injections to the hip or knee joints or surrounding soft tissues.
- Self-care advice.
- Ordering of diagnostics and review of results.
- Pre-operative explanation to enable direct listing for interventionist procedures.

Between July and December 2015, 426 patients were seen in the Hip and Knee ICATS clinic. Of the 424 for whom there are referral or outcome data, 44% were sent for surgery, 19% to community pain or physiotherapy services and 14% discharged to their GP or the clinical assessment service.

Surgical Services

In Nottingham CCG, hip and knee replacements are undertaken by four providers: Nottingham University Hospitals NHS Trust, Circle, Barlborough Treatment Centre and

Ramsay Health Care UK. In the time period April 2013 to March 2015, 679 elective knee replacements (a pooled directly standardised rate (DSR) for age and sex of 3.18 per 1,000 people over the two years) and 308 elective hip replacements (DSR of 1.38 per 1,000) were undertaken, as well as 176 spinal surgeries (DSR of 0.69 per 1,000). Approximately 61% of knee replacements and 58% of hip replacement were for women; this is slightly different to what we would expect if Arthritis Research UK prevalence estimates for Nottingham are accurate (56% and 64% respectively).

Despite having levels of knee and hip osteoarthritis in line with the national average, Updated Right Care guidance for 2016[45] reports that Nottingham City CCG have a significantly lower rate of hip replacements than the average of 10 similar CCGs (and programme budgeting data indicates that rates are below the national average[50]). The amount of elective spend, non-elective spend and primary care prescribing spend on musculoskeletal conditions is lower in Nottingham CCG (£61,288 in September 2015; this has remained broadly consistent over time[51]). The gain in EQ5D score for knee replacements is significantly lower (0.25) than the average for the 10 similar CCGs, while the gain for hip replacements is slightly higher (0.42). The rate of emergency admission within 28 days of a hip replacement, though, is also higher than average (though non-significantly).

5) Evidence of what works

As certain behavioural factors predispose residents to musculoskeletal conditions (among other things), strategies to reduce these factors can be expected to have a positive impact on the rates of musculoskeletal disorder. Although adult obesity rates in Nottingham are in line with England's average, the increasing prevalence nationally and high prevalence in children, in addition to the strength of association with MSK disorders, indicates that this should be a priority area for preventative measures. Strategies for decreasing population levels of obesity, inactivity and smoking are detailed in other relevant chapters of Nottingham City's Joint Strategic Needs Assessment[52,53,54].

A key focus of the guidance from the National Institute of Health and Care Excellence (NICE) for osteoarthritis and low back pain is on helping people self-manage their condition, including providing appropriate information and education on management strategies. Any treatment and care should take into account the individual's needs and preferences. A holistic approach is recommended, incorporating manual therapy (up to nine sessions for low back pain) and exercise for muscle strengthening and mobility.

The guidelines recommend that surgery is considered only in certain cases. Osteoarthritis patients must first have been offered at least the core non-surgical treatments, and low back pain sufferers should only be considered for surgery if other non-invasive measures have failed.

NICE guidelines for the early management of low back pain in adults are published here[11]: http://www.nice.org.uk/guidance/cg88.

And for the care and management of osteoarthritis is published here[55]: http://www.nice.org.uk/guidance/cg177.

There is no explicit evidence-based guidance for the management of neck pain, but a NICE clinical knowledge summary for management of non-specific neck pain is provided here[56]: http://cks.nice.org.uk/neck-pain-non-specific#!scenario.

6) What is on the horizon?

Ageing population

Projections from the Office for National Statistics[57] based on 2012 data predict that the number of people aged 45 and over in Nottingham will increase by 20% between 2015 and 2035, from 101 thousand to 121 thousand. If the overall prevalence of osteoarthritis in this age group remains constant, there will be 22,300 knee osteoarthritis cases and 13,300 hip osteoarthritis cases by 2035; an extra 3,700 and 2,200 cases respectively from 2015 figures. The number of older people (aged 65 and over) will increase by an even greater proportion (32%), from 37 thousand to 49 thousand. Due to the increasing prevalence of osteoarthritis with age, this is likely to further inflate the number of osteoarthritis cases.

The ageing population is likely to result in patients having more complex comorbidities. Currently, according to Nottingham City's musculoskeletal pathway, complex osteoarthritis patients are seen in secondary care. Primary care may need to become better equipped to identify and manage osteoarthritis or low back/neck pain in patients with increasingly complex comorbidities.

Increasing obesity

2011/12 estimates of obesity levels gauge the level of obesity in Nottingham City to be between 22.7 and 27%[52]. National projections predict that levels of obesity could be over 50% by 2050[58]. Modelling by Arthritis Research UK estimates that obesity will be responsible for an additional 29% of knee osteoarthritis cases nationally by 2035, over and above the cases attributable to the ageing population. If these figures are attributable to Nottingham City, this would result in a total of 28,800 knee osteoarthritis cases by 2035. Rising obesity is also likely to adversely affect rates of hip osteoarthritis and low back pain.

Nottingham City as a region may be particularly vulnerable to obesity-related musculoskeletal disorders, due to the high level of deprivation; modelling predicts that inequalities in obesity (for women) will increase, so that by 2050 only 15% of women from the most affluent social class will be obese, compared with 62% of women from the most deprived social class[58].

7) Local Views

In looking at services and in particular any inequity in access to services, the views of referrers, patients and, where possible, MSK sufferers who do not present at health services, should be taken into account. No such data were available at the time of compiling this JSNA.

What does this tell us?

8) Key points

- Musculoskeletal conditions are often chronic and are the leading cause of disability in England, although a large proportion of sufferers may not present at health services. The impact of these conditions is seen in economic data, including days off work and benefits claimed, as well as in health statistics. There is also a knock-on detrimental impact on mental health. In Nottingham City, 72% of the musculoskeletal burden (in terms of YLD) is due to low back and neck pain, and 9% due to osteoarthritis.
- Currently there are no data to suggest that levels of low back pain and osteoarthritis in Nottingham differ significantly from national figures and therefore are expected to have the greatest impact on years of life lived with a disability compared to other conditions. Nationwide, the prevalence of MSK conditions is expected to increase due to the ageing population and growing levels of obesity and inactivity. Nottingham may see a disproportionately high rise, due to high levels of child obesity and a greater proportion of deprived areas, which are predicted to have the greatest growth in obesity levels. The impact of MSK conditions on people's ability to work and function may be greater for those living in deprivation, who are more likely to be in manual occupations.
- Most MSK sufferers will present at GP as their primary point of call. Nottingham's MSK pathway directs GPs to manage patients using community services such as physiotherapy for six weeks before they are referred to more specialist services (for example, Integrated Clinical Assessment and Treatment Services). NICE guidelines advocate the promotion of self-management strategies in primary care, and to this end emphasise the importance of providing accurate up-to-date information to the patient to enable effective self-management. It is unclear whether patients across the city currently have equitable access to community services.
- Some commissioned services are beginning to report on patient outcome data such as improvements in EQ-5D scores, but currently only minimal data is available. Reporting requirements do not always specify an acceptable response rate for outcome surveys, nor exactly how thresholds are defined. It is therefore difficult to ascertain whether services are currently achieving desired clinical outcomes.
- Evidence suggests that primary assessment by a physiotherapist for MSK conditions can be successful in terms of identifying serious pathology[59], providing satisfactory treatment and reducing demand for a GP[60]. First line physiotherapy has been rolled out across 20 pilot sites between December 2014 and May 2015.
- Nottingham City CCG currently commissions an acupuncture service for a range of acute or chronic pain conditions. This is not consistent with NICE guidelines, which recommend this option only for chronic lower back pain, chronic tension-type headaches and migraine. The use of trigger point and facet joint injections, commissioned as part of the Community Pain Service, also has limited evidence of effectiveness.
- Nottingham City CCG has commissioned and implemented Integrated Clinical Assessment and Treatment Services, including triage, interdisciplinary clinics and case conference. This has seemingly been successful in reducing referrals to secondary care (and associated costs) and facilitating timely access for patients to specialist teams.
- Data indicate that Nottingham City CCG has a significantly lower rate of hip replacements than average, and that spend on elective care is lower, although there are no data to suggest that the level of need is lower.

What should we do next?

9) Recommendations for consideration by commissioners

- Prevention and effective management of MSK conditions becomes a strategic priority for Nottingham City. A focus on prevention activities for key risk factors (obesity, physical inactivity) could be expected to mitigate some of the predicted increase in MSK conditions. Recognition should be made that lower socioeconomic groups may be particularly at risk of rising prevalence rates and of facing more limitations due to their condition.
- Efforts should be made to increase awareness of preventative and self-management strategies in those suffering from or at risk of MSK disease.
- As the main bulk of activity will be seen in General Practice, it should be ensured that primary care professionals are aware of local service offerings to enable patients to access them when appropriate. Primary care professionals should also be well versed on up-to-date information and advice for self-management strategies.
- It may be that there are inconsistencies in referral practices across the city, so sources of referral to primary care community and specialist MSK services should be evaluated to ensure that patients have equal access to services relative to their needs.
- Consideration should also be given to how to best support people with ongoing MSK conditions to remain in work.
- Wherever possible, ongoing evaluation of community services should be embedded, using patient outcome data to appraise services and inform best referral practices. Commissioners and services should ensure to maintain an adequate response rate when collecting patient outcome data, and to measure whether significant benefit has been achieved for patients in terms of pain levels or functioning.
- Local First-line Physiotherapy services should be evaluated to ascertain whether they have improved outcomes and been successful in reducing demand in primary care (or whether they have resulted in an increased demand due to increased availability of services). If they are found to be successful, they should be embedded within the MSK pathway and rolled out across the city. Evaluation should be undertaken to ensure equitable access in relation to clinical need.
- The service specification for Community Acupuncture should be reviewed and re-commissioned in line with NICE guidance. The use of trigger point and facet joint injections within Pain Management services should also be reconsidered.
- The level of surgical activity (particularly hip replacements) is below that expected of a similar CCG. This should be investigated further, to ensure that surgical options are made accessible to those who would see an adequate clinical benefit. Pre- and post-surgical measures should be routinely collected and monitored to assist in assessing appropriateness of surgery.

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