Living and working well JSNA 2013-14

Musculoskeletal diseases (MSK) in North Lincolnshire

Headlines

- Musculoskeletal (MSK) conditions are the largest single cause of disability in the UK, and in North Lincolnshire, accounting for around a third of the entire burden of disability, as measured by life years lived with disability, (YLDs), (Murray et al, 2013)
- People with MSK also account for the largest single group in receipt of disability living allowance, (DLA), and the second largest group of patients in receipt of incapacity benefit.
- Low back pain is the single biggest cause of MSK related disability, followed closely by osteoarthritis, OA.
- Those aged 65+ suffer a higher incidence of osteoarthritis and increased bone fragility fractures than younger age groups.
- North Lincolnshire has an older than average age profile compared with the national average and a higher prevalence of other key risk factors for MSK, including a higher prevalence of lifestyle related behaviours linked to poor bone health, a higher proportion of people employed in routine manual occupations, and a higher density of care homes for older people with dementia (a high risk group for falls and fragility fractures) per head of population.
- Population projections suggest that there will be an increasing need for MSK services, including hip and knee replacements, over the next 15 years.
- The rate of growth is likely to be higher locally, than nationally, due to the age structure of the 55+ population.
- MSK conditions are also the most common self reported causes of long term chronic ill health and disability in the population.
- It is estimated that over 19,000 adults in North Lincolnshire are disabled by a MSK condition, with MSK also accounting for 7% of all reported disability amongst children aged 10-15 years, which is equivalent to 30 secondary school aged children in North Lincolnshire.
- OA is estimated to affect 18% of women over 45 years, (7,320 in North Lincolnshire), compared with 9.6% of men, (3,630 in North Lincolnshire).
- North Lincolnshire has higher rates of non elective trauma and orthopaedic admissions per 1000 patient population, than England.
- At the same time, North Lincolnshire has lower than average elective admission rates for MSK procedures, including lower than average knee replacements. This is in spite of an older than average population, and other risk factors, and increasing levels of need.
- North Lincolnshire also has higher than average positive patient related outcomes for knee and hip replacement with higher levels of reported health gain following these procedures, than nationally.
- Treatment of trauma is the key determining factor which drives the pattern of care within the specialty with trauma reducing the capacity of the service to deliver planned activity, with hip fractures amongst older people being the most common reason for admission into orthopaedic beds.
- In addition, it estimated that a fifth of 999 calls are related to MSK injuries or conditions.
MSK conditions also place a heavy burden on primary care, and are the most common reason for repeat consultations with a GP, accounting for up to 30% of GP consultations a year, and an estimated 40% of those attending walk in centres.

Nationally, it has been estimated that up to 20% of the adult population consult their GP each year about a MSK.

Yet limited capacity and expertise within primary care limits the provision of orthopaedic care in community settings.

MSK conditions are a major area of NHS expenditure, accounting for a greater spend per head of population than endocrine problems, respiratory, neurological conditions, blood disorders, and infectious diseases combined, and is nearly equivalent to the level of expenditure seen for cancer.

In 2012/13 NHS spend on MSK in North Lincolnshire was £14,462,564, representing 5.1% of the total NHS budget locally. This compares with 5.5% nationally.

The cost to other formal and informal care services, including relative carers, is likely to be significantly higher than this.

Prevention and early intervention offer significant long term cost and quality of life gains. Key risk groups are those with low bone mass and within the elderly population those at risk of falls, including those who have sustained a previous fracture, as well as residents of care homes.

Key issues

Orthopaedic services have become a focus for the CCG in North Lincolnshire for a number of reasons due to:

- Continuing and projected growth in demand for MSK services, as a result of a growing number of older people in the population
- Variation in GP referral rates into specialist secondary care services
- Higher than average rates of follow up in specialist orthopaedic services
- Activity/capacity gap as evidenced by lengthening waiting lists
- Impact of emergency trauma on elective, (planned) orthopaedic care
- Service improvement and innovation being developed elsewhere in the country, including newer models of care and alternative referral pathways
- As a result, services are currently under review, with a view to commissioning a new model of service delivery in North Lincolnshire
What's the local picture and how do we compare?

There is little local data on the incidence and prevalence of MSK in North Lincolnshire as this is not routinely collected in primary or secondary care. The tables below represent the latest available published estimates of prevalence and incidence of MSK, applied to the local resident population for North Lincolnshire. Some of these estimates are based on self-reports, others are based on clinical diagnoses.

Table 1: Self reported MSK problems per 1,000 16+ population (2012)

<table>
<thead>
<tr>
<th></th>
<th>Prevalence</th>
<th>N Lincs estimate ( nos)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSK ( all)</td>
<td>139</td>
<td>(19,050)</td>
</tr>
<tr>
<td>Males</td>
<td>112</td>
<td>(7,520)</td>
</tr>
<tr>
<td>Females</td>
<td>164</td>
<td>(11,470)</td>
</tr>
</tbody>
</table>

Source: General Lifestyle Survey, ONS, 2011, and 2012 ONS mid year estimates

The frequency and prevalence of these disorders varies by age, with almost a third of people aged 75+ having a MSK problem which limits their daily activities. North Lincolnshire has an older than average population, which is growing at a faster rate than nationally. We would therefore expect a higher prevalence of MSK in North Lincolnshire, compared with local authorities or CCGs with younger populations, and a faster rate of growth in years to come, than nationally.

Figure 1: North Lincolnshire population 2013

Population of North Lincolnshire by age and sex, 2013

Source: ONS, 2014
Table 2: Self reported MSK problems prevalence rate per 1,000 adults, 2012 (estimated no in N Lincs)

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-44 (nos)</td>
<td>45-64 (nos)</td>
</tr>
<tr>
<td>Arthritis and rheumatism</td>
<td>9 (250)</td>
<td>58 (1360)</td>
</tr>
<tr>
<td>Back problems</td>
<td>15 (440)</td>
<td>58 (1360)</td>
</tr>
<tr>
<td>Other</td>
<td>20 (590)</td>
<td>42 (990)</td>
</tr>
<tr>
<td>Arthritis and rheumatism</td>
<td>11 (320)</td>
<td>109 (2560)</td>
</tr>
<tr>
<td>Back problems</td>
<td>26 (760)</td>
<td>51 (1190)</td>
</tr>
<tr>
<td>Other</td>
<td>22 (640)</td>
<td>44 (1030)</td>
</tr>
</tbody>
</table>

Source: General Lifestyle Survey, ONS, 2011 and 2012 ONS mid year estimates

The prevalence of self reported MSK problems varies by socio economic status, from 111 per 1,000 persons in managerial and professional groups, to 187 per 1,000 in routine and semi routine occupations. North Lincolnshire has a higher proportion of the labour force employed in lower skilled manual occupations, compared with the national average.

This suggests a higher risk of MSK in the local population.

Figure 2: % of labour force by socio economic categories, 2011

This is turn contributes to North Lincolnshire’s lower than average disability free life expectancy and a wider than average gap in health and disability within North Lincolnshire, (see further below).
Demand for MSK services

Referral activity gives an indication of demand for MSK services:

1. **GP referral rates (2013/14):**

   - **Trauma & Orthopaedics:**
     Grand Total = 3151 of which 2432 (NLaG); 476 (HEY); 187 (D&B); 56 (ULH)

   - **Rheumatology:**
     Grand Total = 783 of which 687 (NLaG); 41 (HEY); 45 (D&B); 10 (ULH)

2. **Waiting lists for elective surgery:**

   Data not available.

3. **Outpatient follow-ups for the four main acute providers:**

   - **Trauma & Orthopaedics:**
     Grand Total = 11,332 of which 9,190 (NLaG); 1,294 (HEY); 627 (D&B); 221 (ULH)

   - **Rheumatology:**
     Grand Total = 4,560 of which 3,991 (NLaG); 223 (HEY); 268 (D&B); 78 (ULH)

   *(Based on NLaG’s 12/13 breakdown of Trauma (111) and Orthopaedics (112), Orthopaedics equated to roughly 63% of the total T&O follow-up activity.)*
Activity for other providers of MSK services:

- Spire – Trauma & Orthopaedics only with total follow-up for 13/14 of 417.
- McBride – data not available
- Winterton Minor Surgery – in 13/14 there were: seven assessments (unsuitable for community based surgery) and 25 minor procedures of which seven were MSK related (‘Carpal tunnel release’ and ‘Excision of ganglion of wrist or hand’).

Admission rates into trauma and orthopaedic specialities

In 2012/13, there were 1,055 emergency hospital admissions into trauma and orthopaedics beds in North Lincolnshire, representing a standardised rate of 6.0 per 1000. This was significantly above the national rate of 5.1 per 1,000, and the Y&H rate of 5.4 per 1,000.

*Figure 4: Emergency admissions into T&O hospital beds by PCT, 2012/13 (ASR)*

In contrast, elective hospital admission rates for MSK conditions, both day cases and inpatient, were significantly below the national and regional average. In 2012/13 there were 1948 admissions into trauma and orthopaedic beds of North Lincolnshire patients for planned MSK procedures, or 10.8 per 1000 population, (standardised rate), compared with 13.9 per 1000 nationally, and 13.6 regionally.
Figure 5: Elective admission rates per 1000 N Lincs patient population, for MSK conditions into T&O beds, 2012/13 (ASR)

Source: NHS Comparators, 2013

What are our key strengths/local assets?

Through the current MSK service provision, a patient with a non-urgent MSK problem can be treated in one of the following services:

- Primary Care (21 practices)
- Community based physiotherapy services (McBride and NLAG)
- Acute based physiotherapy services (4 Acute providers)
- Community based Minor Surgery (Winterton Practice)
- Acute based Orthopaedics and Rheumatology (4 Acute providers)

Current MSK pathways for North Lincolnshire accessible to clinicians for decision support through the Map of Medicine include:

- Management of hip osteoarthritis in primary care
- Management of knee osteoarthritis in primary care

North Lincolnshire Clinical Commissioning Group purchases acute based MSK services from four NHS providers. These are Northern Lincolnshire and Goole Hospitals NHSFT, Hull and East Yorkshire Hospitals NHS Trust, Doncaster and Bassetlaw Hospitals NHSFT, United Lincolnshire Hospitals NHS Trust. In addition additional capacity is also purchased from the independent sector (Spire). Spire’s activity is predominantly acute surgical work. This activity has increased year on year since 2008. Variable use is made of this service by practices in North Lincolnshire.

Acute based physiotherapy at North Lincolnshire and Goole Hospital receives referrals from primary care and secondary care consultants. There are two main providers of community based physiotherapy services in North Lincolnshire, McBride and Northern Lincolnshire and Goole Hospital Trust. McBride provides a physiotherapy assessment and treatment service. Community based ‘MSK type’ services such as physiotherapy and podiatry are provided by
The MSK service has strong links with the community based chronic pain service North Lincolnshire CCG currently commissions, under Any Qualified Provider.

Programme Budget data for 12/13 indicates relatively low cost/ good outcomes for the MSK measure. Performance for acute based trauma and orthopaedic activity against the 18 week referral to treatment Key Performance Indicator was consistently above target for 2013/14, with 14/15 performance indicating 96.95% for completed pathways for admitted patients and similarly 98.03% for non-admitted pathways.

What's changed since 2012?

Modelling of the future population (Incidence, prevalence and burden of disease) suggests significant increase in demand for MSK services.

This is coupled with a recognition that significant financial resource (circa £1.3 million) is invested in a current service format which could be utilised to commission a community based MSK service; this level of funding is considered to be sufficient for market testing the service specification via a procurement process.

Which groups are most at risk of MSK conditions?

Older people

Incidence of OA increases with age, although a significant number of people of working age are affected. OA affects more women than men. The NICE (2008) costing template for Osteoarthritis assumes an estimated symptomatic OA prevalence rate of 18% for women over 45 years, (estimated 7,320 in North Lincolnshire), compared with 9.6% of men, (estimated at 3,630 in North Lincolnshire). It also assumes an annual incidence of 0.75% of OA of the knee, (590 in North Lincolnshire) of which 0.67%, (395) would have a clear history of mechanical locking.

Women

The prevalence of radiographic osteoarthritis is higher in women than men, especially after the age of 50 and for hand and knee osteoarthritis. Radiographic osteoarthritis of the knee affects about 25% of adults aged 50 years and over, with painful disabling radiographic knee OA estimated at 10% of the 55+ population, (an estimated 5,360 adults in North Lincolnshire). Although there are few good studies, symptomatic radiographic hand osteoarthritis has been reported in less than 3% of the population, while rates of symptomatic radiographic hip osteoarthritis have varied from 5% to 9% of those aged 55+ years, (an estimated 2680-4,820 in North Lincolnshire).

Table 3: Estimated prevalence of knee hand and hip OA

<table>
<thead>
<tr>
<th>Radiographic osteoarthritis</th>
<th>Symptomatic osteoarthritis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee (Peat et al. 2001)</td>
<td>25%</td>
</tr>
<tr>
<td>Hip (Croft,* Lau et al. 1996)</td>
<td>11%</td>
</tr>
<tr>
<td>Hand (Wilder et al. 2006)</td>
<td>41%</td>
</tr>
</tbody>
</table>

Source: National Collaborating Centre for Chronic Conditions, RCP, 2008
People working in low skilled manual occupations

The prevalence of self reported MSK problems also varies by socio economic status, from 111 per 1,000 persons in managerial and professional groups, to 187 per 1,000 in routine and semi routine occupations.

Applied to North Lincolnshire’s work force, this suggests that almost half of all sufferers will be found amongst people who either work or have worked in routine and semi routine manual occupations.

Table 4: Self reported MSK problems by socio economic group per 1,000 and estimated numbers in N Lincolnshire, (2011) aged 16+

<table>
<thead>
<tr>
<th></th>
<th>Managerial and professional</th>
<th>Intermediate</th>
<th>Small employers</th>
<th>Lower supervisory and technical</th>
<th>Semi routine and routine</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSK prevalence per 1000</td>
<td>111</td>
<td>175</td>
<td>117</td>
<td>152</td>
<td>187</td>
</tr>
<tr>
<td>Estimated no.s in N Lincs aged 16+</td>
<td>(3375)</td>
<td>(2390)</td>
<td>(1155)</td>
<td>(1938)</td>
<td>(7780)</td>
</tr>
</tbody>
</table>

Source: General Lifestyle Survey, ONS, 2011, 2011 Census

This contributes to North Lincolnshire’s lower than average disability free life expectancy, as well as significant internal inequalities in health and wellbeing.

Figure 6: Life expectancy and healthy life expectancy by ward in North Lincolnshire

Source: ONS and PHIT, 2012
Older people with osteoporosis and fragility fractures

Anyone can get osteoporosis, although the risk increases with age. Women are 4 times more likely than men to develop this condition: The prevalence of osteoporosis increases markedly after the menopause, from approximately 2% at 50 years rising to 25% at 80 years.

Nationally it is estimated that osteoporosis affects about 20% of women aged between 60 and 69 years, with increasing prevalence thereafter.

Older people with higher than average risk of osteoporosis include people who are:

- Steroid users
- Oestrogen deficient eg women with early menopause
- Physically inactive – whether as a result of disability, physical impairment or otherwise.
- Poor diet – specifically those with a low intake of vitamin D or calcium
- Heavy smokers – which can lower the level of oestrogen in women and stimulate early menopause
- Heavy drinkers – heavy drinking reduces the body’s ability to produce bone cells and is a risk for falls
- Family history of osteoporosis – people with a family member who have suffered a fragility fracture are at higher risk because of inherited genetic factors.

The lifetime risk of sustaining an osteoporotic fracture after the age of 60 is 45%.

The annual risk of hip fracture is age related and reaches 4% in women over 85 years with most resulting from a fall or stumble, (Parker and Johansen, 2006). In North Lincolnshire this equates to 110 women aged 85+ at risk of a hip fracture each year. Hip fracture nearly always requires hospitalisation, is fatal in 20% of cases, and permanently disables 50% of those affected. Only 30% patients fully recover after a hip fracture.

Nationally, the annual incidence of hip fracture rose by 2% per annum between 1999-2006. If the national annual growth of 2% a year continues one might expect a rising number of hip fractures in North Lincolnshire, with an average annual increase of 4 more hip fractures a year.

The NICE cost impact appraisal uses a prevalence estimate of 11 per cent of women aged 50+ with osteoporosis and a clinically apparent osteoporotic fracture, rising to 19% for women aged 65+.

It is estimated that 50% of older people who suffer a fracture after a fall find that they can no longer live independently. In most white populations it is anticipated that hip fractures will increase as the aged population grows.

Recent NICE guidance recommends that all people aged 65+ should be considered for a multifactorial assessment for their risk of falling during their hospital stay. They should also be offered an assessment of their community based falls risk, if appropriate.
Older people with a history of falls

Falls and fall related injuries are a common and serious problem for older people. People aged 65+ have the highest risk of falling, with a third of people aged 65+ and 50% of people aged 80+ falling at least once a year.

Risk factors include older people with:

- a history of previous falls
- a long term condition
- mental health problems such as dementia
- poor eye sight
- MSK conditions
- Parkinson’s disease, which can affect gait
- epilepsy
- heart/circulatory problems
- who use sticks
- live in an environment where they are at greater risk of falls and trips

Locally, there are an average of 330 non-elective hospital admissions a year of people aged 65+ as a result of falls, including an average of 200 which result in hip fractures. This is a similar rate to the national average.

Care home residents

People living in care homes are at 3 times the risk of hip fracture compared with the general population, with about a quarter being admitted from institutional care.

North Lincolnshire has a higher density of care homes than nationally, with a rate of 144.1 registered care home beds per 1000 75+ in the population, compared with 114.1 nationally. (National End of Life Care Profiles, 2012).

People with significant lifestyle risks

Lifestyle issues such as diet, weight management and physical activity affect bone health, and so the role of prevention is key to helping individuals improve their own bone health. For example,

- Smoking can reduce bone mass and increase fracture risk.
- Heavy alcohol use is associated with reduced bone mass and increased fracture risk.
- Physical activity is important for bone health throughout life.
- Adequate calcium and Vitamin D are important for good bone health.
- Maintaining a healthy body weight is important throughout life.

North Lincolnshire already has a higher than average prevalence of risk factors for poor bone health in the adult population, including higher rates of adult smoking, lower levels of adult physical activity, and higher than average levels of adult obesity compared with the national average.
These risk factors are unevenly distributed in the adult population with significant variation by area deprivation.

Source: Ward Health Profiles, PHE, 2013
Targeting communities and GP practices in deprived areas, where risk factors are higher than average, for primary public health interventions should form part of any long term strategy to prevent and delay the onset of OA in the population.

**Childhood arthritis**

Childhood arthritis is relatively rare and there are no detailed surveys of children with this ongoing condition and so accurate data is difficult to come by. Data based on new attendances to specialist paediatric rheumatologists in the UK suggests that 10 per 100,000 children develop inflammatory arthritis each year, or 3 new cases in North Lincolnshire each year. However as such specialist clinics are relatively uncommon, these figures are likely to underestimate the total number of children affected. Data gathered in Norway suggests the total number of children affected may be much higher than this, with an annual incidence of 71 new cases of child arthritis per 100,000 each year, (ie an estimated 21 new cases a year in North Lincolnshire) with 23 new cases per 100,000 with persistent arthritis, (an estimated 7 children in North Lincolnshire).

**Where is need likely to be greatest?**

Within North Lincolnshire we would expect the need for MSK services, including interventions aimed at reducing the risk of developing and/or delaying onset of these conditions, to be greater in areas with an older than average population, a higher proportion of people who work or have worked in routine manual occupations, and in areas with a high care home density.

**Figure 9: Increase in number of people aged 65+ living in North Lincolnshire 2001-11 by LLSOA**

Source: ONS, 2001-2011
Figure 10: % of labour force employed in routine and semi routine manual occupations, by ward, 2011

Source: ONS, Census 2011

Figure 11: Density of care home beds per 100 75+ by locality

Source: ONS, 2013, CQC, 2014
Hip fractures

Hip fractures are the most common reason nationally for admission onto an orthopaedic ward, with an average of 200 admissions in North Lincolnshire for fractured neck of femur each year. Hip fractures can happen at any age but are most common amongst the elderly, the mean age being about 80 years of age. About 80% of admissions of hip fractures are women. The pattern of incidence is consistent with an increased risk of falling, loss of protective reflex mechanisms, and loss of skeletal strength from osteoporosis.

| Table 5: Non elective admissions for fractured neck of femur (no) |
|-----------------|-----------------|-----------------|-----------------|
|                 | 2009/10 | 2010/11 | 2011/12 | 2012/13 |
| Males           | 65      | 61      | 72      | 55      |
| Females         | 152     | 144     | 154     | 151     |
| Total           | 217     | 205     | 226     | 206     |

The graph below shows the distribution of admissions for fractured neck of femur by ward, compared with the national average, 2006-11. The 3 wards of Frodingham, Ashby and Burton and Winterton had rates which were significantly above the national average.

Figure 12: Unplanned admission rates for fractured neck of femur, (SAR, 2006-11)

Source: Health Profiles, PHE, 2012

Hip and knee replacements

Hip and knee replacements represent some of the most common and successful procedures in the NHS. Whilst they are relatively expensive, they are generally recognised as providing substantial health benefit.

In the five years between April 2006 – March 2011, there were 934 elective admissions for hip replacements in North Lincolnshire, (an average of 186 a year) compared with an expected number of 958, (or 190 a year, based on the national average). This gives an indirectly standardised admission ratio of 97.5, which is not significantly different to the national average, in spite of an older than average population.
The number of hip replacement procedures in the 3 years to March 2012 was as follows.

**Table 6: Admissions for hip replacements in North Lincolnshire, 2009/10-2011/12**

<table>
<thead>
<tr>
<th></th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>79</td>
<td>86</td>
<td>89</td>
<td>85</td>
</tr>
<tr>
<td>Females</td>
<td>153</td>
<td>136</td>
<td>104</td>
<td>117</td>
</tr>
<tr>
<td>Total</td>
<td>232</td>
<td>222</td>
<td>193</td>
<td>202</td>
</tr>
</tbody>
</table>

Source: NHS North Lincolnshire CCG, 2012

The graph below gives the variation of hip replacement procedure rates by ward.

**Figure 13: Admission rates per 100,000 (DSRs) for hip replacement by ward, 2012/13**

In spite of significant variation in procedure rates, there were no statistically significant differences between wards, with the exception of Ashby and Ferry wards, where rates were significantly below the North Lincolnshire average.

**Elective hospital admission rates for knee replacement**

In the five years between April 2006 – March 2011, there were 1007 elective hospital admissions for knee replacements of North Lincolnshire residents, (just over 200 a year) compared with an expected 1120. This gives a standardised admission ratio of 89.9, which is significantly below the national average and significantly below what might be expected for North Lincolnshire given the age profile of the area.
**Table 7: Admissions for knee replacements in North Lincolnshire, 2009/10-2011/12**

<table>
<thead>
<tr>
<th></th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>107</td>
<td>88</td>
<td>123</td>
<td>130</td>
</tr>
<tr>
<td>Females</td>
<td>123</td>
<td>112</td>
<td>148</td>
<td>159</td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td>200</td>
<td>271</td>
<td>289</td>
</tr>
</tbody>
</table>

Source: NHS North Lincolnshire CCG, 2012

The graph below gives the variation of knee replacement procedures rates by ward.

*Figure 14: Knee replacement procedures per 100,000 DSR, 2009-11 by North Lincolnshire ward*

![Graph showing knee replacement rates by ward](image)

*Source: NHS North Lincolnshire CCG*

Whilst the graph illustrates significant variation in access to knee replacements by ward, the only statistically significant differences in ward rates were between Crosby and Park ward and Ferry ward, with the former having higher than average rates and the latter having lower than average rates. The reason why rates are significantly lower in Ferry ward may require further investigation.

**Presentations in primary care**

MSK conditions place a heavy burden on primary care, and are the most common reason for repeat consultations with a GP, accounting for up to 30% of GP consultations a year, and an estimated 40% of those attending walk in centres. In addition a fifth of 999 calls are related to MSK injuries or conditions. Nationally, it has been estimated that up to 20% of the adult population consult their GP each year about a MSK.

Pain is the most frequent reason for patients to present to their GP and over half of people with OA say that pain is their worst problem, with mobility problems increasing with increasing pain. Consultations for osteoarthritis account for 15% of all musculoskeletal
North Lincolnshire Public Health Intelligence Team

consultations in those aged 45 years old and over, peaking at 25% in those aged 75 years old and over.

Of those aged over 45 years of age, an estimated 5% have an osteoarthritis-recorded primary care consultation in the course of a year, (an estimated 3920 adults a year in North Lincolnshire). This rises to 10% in those aged 75 years and over, (an estimated 1420 adults a year in North Lincolnshire) (Jordan et al. 2007). According to a RCGP survey, an estimated 2.4% of the adult population consult their GP each year with this condition, (RCGP, 2006).

Table 8: % people consulting a GP each year with OA by age (with N Lincs estimates (no.s))

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>% consulting</th>
<th>Projected 2015</th>
<th>Projected 2020</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>North Lincs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>estimate</td>
<td>2012</td>
<td>estimate</td>
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<td></td>
</tr>
<tr>
<td>45-64</td>
<td>2%</td>
<td>470</td>
<td>480</td>
<td>480</td>
</tr>
<tr>
<td>65-74</td>
<td>6%</td>
<td>510</td>
<td>560</td>
<td>600</td>
</tr>
<tr>
<td>75+</td>
<td>7%</td>
<td>410</td>
<td>460</td>
<td>550</td>
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<tr>
<td></td>
<td></td>
<td>females</td>
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<td></td>
<td></td>
<td>North Lincs</td>
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<td>estimate</td>
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<tr>
<td>45-64</td>
<td>3%</td>
<td>700</td>
<td>720</td>
<td>720</td>
</tr>
<tr>
<td>65-74</td>
<td>9%</td>
<td>790</td>
<td>865</td>
<td>920</td>
</tr>
<tr>
<td>75+</td>
<td>10%</td>
<td>840</td>
<td>880</td>
<td>995</td>
</tr>
</tbody>
</table>

Source: Royal College of GPs – Birmingham Research Unit, Annual Prevalence Report, 2006

In a major healthcare needs assessment, Dawson et al (2004) estimated that:

- The prevalence of hip disease severe enough to require surgery (which includes causes other than osteoarthritis) is estimated to be 15.2 per 1000 people aged 35-85 years (N Lincs estimate = 1470) with an annual incidence of 2.23 per 1000, (N Lincs estimate = 215. This compares with an average 186 admissions for hip replacement a year.)
- The prevalence rate for symptomatic osteoarthritis of the knee is 6.1% for people over 30 years (N Lincs estimate = 6680), and 7.5% for those over 55 years. (N Lincs estimate = 4020)

Programme budgeting MSK costs

Programme budgeting is the analysis of NHS expenditure on specific healthcare conditions. There are currently 23 programme budgeting categories, which are based on the World Health Organisation (WHO) International Classification of Disease (ICD10). It is a retrospective appraisal of resource allocation broken down into ‘programmes’-with a view to influencing and tracking future expenditure in those same programmes.

Nationally, MSK conditions are a major area of NHS expenditure, comprising a separate annual programme budget of around £5.16 billion in 2012/13. This represents a greater spend than endocrine problems, respiratory, neurological conditions, blood disorders, and infectious diseases combined, and is nearly equivalent to the level of expenditure seen for cancer. Expenditure on MSK conditions has increased rapidly in recent years, from £61.36 per head per year nationally in 2003/4 to £98.03 per head in 2011/12, and is now the fourth highest area of NHS spending, nationally and locally.

In 2012/13 the estimated spend on MSK in North Lincolnshire was £14,462,534, representing 5.1% of the total NHS budget locally. This compares with 5.5% nationally.
Table 9: MSK spend (excluding trauma) per annum by NHS North Lincolnshire

<table>
<thead>
<tr>
<th>Year</th>
<th>MSK spend on NLincs population (£million)</th>
<th>% total expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007/8</td>
<td>£10.54m</td>
<td>4.39%</td>
</tr>
<tr>
<td>2008/9</td>
<td>£10.51m</td>
<td>4.53%</td>
</tr>
<tr>
<td>2009/10</td>
<td>£15.52m</td>
<td>6.00%</td>
</tr>
<tr>
<td>2010/11</td>
<td>£14.96m</td>
<td>5.61%</td>
</tr>
<tr>
<td>2011/12</td>
<td>£14.27m</td>
<td>5.17%</td>
</tr>
<tr>
<td>2012/13</td>
<td>£14.46m</td>
<td>5.17%</td>
</tr>
</tbody>
</table>

Source: NHS HSCIC, 2013

The largest proportion of MSK expenditure locally is spent in secondary care, amounting to £11.1 million in 2011/12, of which £4.4 million (78% of total MSK expenditure) is spent on elective inpatient care and £2.3 million (16.4% of total MSK spend) is spent on outpatient care. MSK is the second highest area of secondary care spend in North Lincolnshire after cancer.

Figure 15: MSK spend estimated across care settings compared with similar PCTs, 2012/13

Source: Programme Budgeting data, 2012/13 NHS ISCC, 2014

Nevertheless, North Lincolnshire spends less per head of population on MSK than nationally, or compared with CCGs with a similar population profile. In 2012/13, the local spend per head on MSK was £87, compared with a cluster average of £101 and a national average of £98 per head.
Patients with MSK also account for the largest group of patients in receipt of incapacity benefit and the largest group in receipt of disability living allowance (DLA).

Source: Programme Budgeting data, 2011/12, NHS ISCC, 2014
User voice

Currently all NHS patients who have hip or knee replacements, varicose vein, hernia or groin surgery are invited to fill in a patient reported outcome measure (PROMS) questionnaire. PROMs measure a patient’s health status or health-related quality of life at a single point in time. This health status information is collected before and after a procedure and provides an indication of the outcomes or quality of care delivered to NHS patients.

The NHS Outcomes framework, which is measured at CCG level, contains two indicators which relate specifically to the effectiveness of care for people with MSK, including patient related outcomes measures, (PROMS) EQ-5D for hip and knee replacement; and the proportion of people recovering to previous levels of mobility following fragility fractures. (this latter indicator is still under development) (NHS Outcomes Framework, Technical Appendix, 2013/14).

According to the latest published PROMs data for North Lincolnshire, self reported health gains for primary hip and knee replacement are higher in North Lincolnshire relative to other CCGs nationally, and for knee replacement are significantly higher, (Public Health England, 2013/14).

Compared with other CCG areas, North Lincolnshire has relatively good outcomes for lower costs.

What are our future needs?

The population of North Lincolnshire is projected to increase by more than 5% between now and 2020, but with wide variation by age group. For example, the 65+ age group is projected to increase by 23% during this period. Population projections for North Lincolnshire suggest that 42% of the population will be aged over 50 by 2020 and the number of obese individuals aged 65+ is set to increase from an estimated 8297 to 9859 by 2020, an increase of 19%.

**Figure 19: Population projections in North Lincolnshire, 2012 – 2021**

Source: ONS population projections, 2012
Currently life expectancy at birth for males in North Lincolnshire is 79.3 years, an improvement of 5.7 years since 1991, and for females the figure is 82.7 years, an improvement of 4 years since 1991. By 2030, life expectancy for males at birth is predicted to rise to 82.7 years and 86.5 years for females.

Yet disability free life expectancy has not kept pace with improvements in life expectancy, meaning that many of the additional years in later life are currently spent in poor health and disability, including MSK and other age related long term conditions. Currently life expectancy at 65 years for males in North Lincolnshire is 19.9 years, compared with a disability free life expectancy at 65 of 10 years. For women life expectancy at 65 is 17.4 years, compared with 8.7 years disability free.

Most MSK conditions are more common amongst the older population and therefore the demand for orthopaedic services will probably rise, although the precise impact on demand for MSK services is difficult to predict.

However, in the short term it is likely that increasing life expectancy, obesity and lack of weight bearing exercise (which in themselves will increase with increasing longevity) will result in increasing numbers of people living with MSK conditions.

National projections for the UK suggest that North Lincolnshire’s population will rise by more than 5% between now and 2020, the largest growth being amongst people aged 55+.

Assuming the same prevalence and incidence rates of some MSK conditions as currently, population growth alone will result in an increasing number of people living with life limiting MSK, including OA in North Lincolnshire.
Table 10: Projected increase in self reported MSK problems (based on population projections)

<table>
<thead>
<tr>
<th>All MSK problems</th>
<th>2012</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons ( no)</td>
<td>19,050</td>
<td>19,390</td>
<td>19,950</td>
</tr>
</tbody>
</table>

Source: General Lifestyle Survey, ONS, 2011 and 2012 ONS mid year estimates

Table 11: Projected growth in OA of hip and knee in North Lincolnshire, 2012-20

<table>
<thead>
<tr>
<th>Estimated no.s of people with hip disease severe enough to require surgery</th>
<th>2012</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifetime incidence (35-85 years)</td>
<td>1470</td>
<td>1500</td>
<td>1560</td>
</tr>
<tr>
<td>Annual incidence (35-85 years)</td>
<td>215</td>
<td>220</td>
<td>230</td>
</tr>
<tr>
<td>Number of admissions for hip replacements</td>
<td>202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevalence rate for people with symptomatic arthritis of the knee aged 55+</td>
<td>4020</td>
<td>4230</td>
<td>4680</td>
</tr>
<tr>
<td>Annual incidence of knee osteoarthritis</td>
<td>590</td>
<td>615</td>
<td>650</td>
</tr>
<tr>
<td>Annual incidence of people with OA of the knee with clear evidence of history of locking</td>
<td>395</td>
<td>550</td>
<td>580</td>
</tr>
<tr>
<td>Number of admissions for knee replacements</td>
<td>289</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: National Collaborating Centre for Chronic Conditions, RCP, 2008, ONS 2011 based population projections

What works to reduce risk?
While the risk of developing osteoarthritis increases with age, it does not occur as a direct consequence of normal ageing, so prevention and early intervention strategies are possible. The role of regular moderate to low intensity exercise and weight management are key to preventing or delaying the onset of OA in the middle aged and older population. Other interventions targeted at those at risk of falls, such as those who have sustained a previous fracture, as well as residents of care homes, include:

- Fracture prevention programmes
- Calcium and Vitamin D supplementation
- Lifestyle interventions to improve bone density and health and wellbeing

What are the key issues for commissioners
Orthopaedic services have become a focus for the CCG in North Lincolnshire for a number of reasons due to:

- Continuing and projected growth in demand for MSK services, as a result of a growing number of older people in the population
- Variation in GP referral rates into specialist secondary care services
- Higher than average rates of follow up in specialist orthopaedic services
- Activity/capacity gap as evidenced by lengthening waiting lists
- Impact of emergency trauma on elective, (planned) orthopaedic care
Service improvement and innovation being developed elsewhere in the country, including newer models of care and alternative referral pathways.

The existing community based service (provided by McBride) was originally commissioned as a community based triage orthopaedic service. The CCG’s Council of Members has agreed to the development of a service specification for a model of MSK service, currently being delivered successfully in Oldham, which contains the following features:

- Provision of an entire non-admitted MSK pathway for the patient
- An integrated assessment and treatment service
- A comprehensive community based rheumatology service including the infusion of biological treatments

The outcomes of the proposed service are:

- Improved clinical outcomes for patients
- Improved waiting times for MSK patients (across the whole MSK pathway)
- Consistent achievement of the 18 week target (from referral to treatment)
- Transfer of clinical activity from the acute to the community setting
- Real time management of demand in acute settings linked to improved conversion rates (referrals to surgical intervention)

As a result, services have been reviewed in 2013/14, with a view to developing a new model of service delivery in North Lincolnshire during 2014/15, including the development of a community based model and specification, with implementation of the new service in 2015/16. This will involve the design of new ‘end to end’ clinical pathways which secure the tight coupling of MSK services (primary community and acute) to deliver optimal service outcomes for patients.

What are we doing in 2014/15?

The commissioning intention of North Lincolnshire Clinical Commissioning Group is to improve access to MSK treatment and care by providing clinical leadership, clinical assessment and treatment within a patient centered service in a community based setting. To achieve this, the CCG have decided to commission a Community based MSK service through a procurement process to be completed during 2014/15.

A business case has been approved and a service specification is in development – both of which reflect the population needs and local service formats of North Lincolnshire. It is planned that completion of the service specification and associated procurement process will result in the mobilisation and launch of a new community based MSK service early in 2015/16.

Data sources

- NHS Comparators
- ONS 2011 Census, 2013 mid year estimates
- North Lincolnshire CCG, 2014
- Programme Budgeting data 2012/13
References

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