

## Prevalence of osteoarthritis in England and local authorities: North Yorkshire

### First bulletin highlighting data from the new Musculoskeletal Calculator

#### Summary

Data on the burden of musculoskeletal conditions is lacking. To address this gap Arthritis Research UK in partnership with Imperial College London has developed and launched the Musculoskeletal (MSK) Calculator, a prevalence modelling tool for osteoarthritis of the hip and knee. We present for the first time estimates of the prevalence of osteoarthritis in England and in local areas.

#### Key messages

- Approximately 1 in 5 adults over 45 years in England have osteoarthritis of the knee and 1 in 9 adults have osteoarthritis of the hip. This varies between local authority areas in England.
- There does not appear to be a relationship between osteoarthritis prevalence and hip / knee replacement rates across local authority areas.
- Painful osteoarthritis can be prevented through tackling known risk factors such as obesity and physical inactivity.

The MSK Calculator for osteoarthritis is the first of four local datasets. The osteoarthritis estimates will be followed by figures for back pain, rheumatoid arthritis and high fragility fractures risks.

#### Osteoarthritis of the knee in England

There is variation in the prevalence of knee osteoarthritis at local authority level in England as estimated by the MSK Calculator. Approximately 1 in 5 adults (18.2%) over 45 years of age in England has osteoarthritis of the knee. The prevalence ranges from around 15% to 21% across local authorities in England.

The rate of knee replacements in local authority areas ranges from 1/1,000 to 6/1,000 people over 45 years. There does not appear to be a relationship between prevalence of osteoarthritis of the knee and knee replacement rates across local authority areas.

#### Osteoarthritis of the hip in England

There is variation in the prevalence of hip osteoarthritis at local authority level in England as estimated by the MSK Calculator. Approximately 1 in 9 adults (10.9%) over 45 years of age in England has osteoarthritis of the hip. The prevalence ranges from around 10% to 12% across local authorities in England.

The rate of hip replacements in local authority areas ranges from 1/1,000 to 4/1,000 people over 45 years. There does not appear to be a relationship between prevalence of osteoarthritis of the hip and hip replacement rates across local authority areas.

Figure 1. Prevalence of osteoarthritis of the knee at local authority level in England

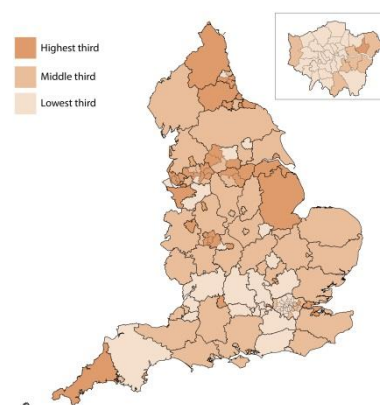
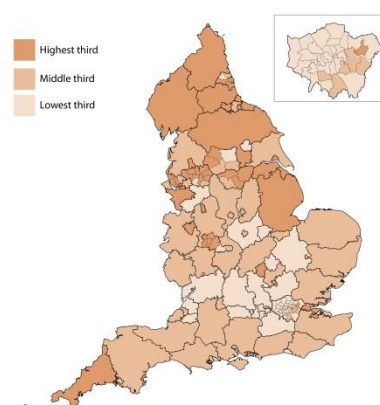


Figure 2. Prevalence of osteoarthritis of the hip at local authority level in England



## Area specific estimates for North Yorkshire

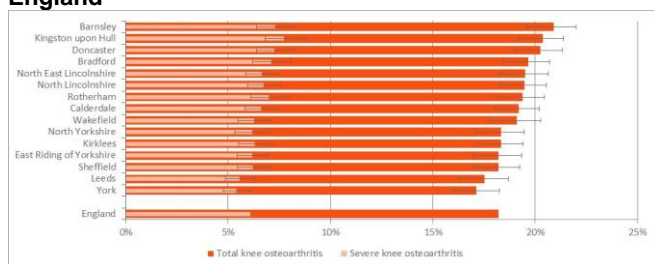
### Knee osteoarthritis

The MSK Calculator estimates that a total of 55,712 people aged 45 or over in North Yorkshire live with knee osteoarthritis. This means that of the total North Yorkshire population aged 45 years or over, 18.3% are estimated to have knee osteoarthritis (overall prevalence). This is similar to the overall England prevalence of 18.2%.

In North Yorkshire, of the total number of people with knee osteoarthritis, 23,906 are male (male prevalence 16.7%) and 31,806 are female (female prevalence 19.8%).

It is estimated that there are 18,800 people in North Yorkshire with severe knee osteoarthritis, which is 6.2% of the population aged 45 years or over.

**Figure 3. Osteoarthritis of the knee prevalence for local authorities in Yorkshire and the Humber, compared to England**



In 2011-12 there were 1,070 knee replacements (4 per 1000 people over 45 years) for people living in North Yorkshire at a cost of £6,558,082.

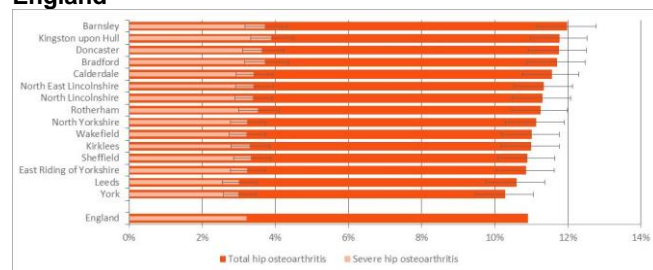
### Hip osteoarthritis

The MSK Calculator estimates that a total of 33,798 people aged 45 or over in North Yorkshire live with hip osteoarthritis. This means that of the total North Yorkshire population aged 45 years or over, 11.1% are estimated to have hip osteoarthritis (overall prevalence). This is similar to the overall England prevalence of 10.9%.

In North Yorkshire, of the total number of people with hip osteoarthritis, 11,689 are male (male prevalence 8.2%) and 22,110 are female (female prevalence 13.8%).

It is estimated that there are 9,825 people in North Yorkshire with severe hip osteoarthritis, which is 3.2% of the population aged 45 years or over.

**Figure 4. Osteoarthritis of the hip prevalence for local authorities in Yorkshire and the Humber, compared to England**



In 2011-12 there were 1,151 hip replacements (4 per 1000 people over 45 years) for people living in North Yorkshire at a cost of £6,590,918.

**The Musculoskeletal Calculator is available at**  
[www.arthritisresearchuk.org/mskcalculator](http://www.arthritisresearchuk.org/mskcalculator)

### Risk factors for osteoarthritis in North Yorkshire

In the MSK Calculator, risk of osteoarthritis is related to age, gender, socioeconomic status, body mass index, physical activity level and smoking status. North Yorkshire is among the least deprived local authority areas in England (deprivation decile 9). It has a significantly higher proportion of adults who are overweight or obese compared to the England average. The smoking prevalence in North Yorkshire is similar to the England average and the proportion of adults who are physically active is significantly higher than the England average. All local authority areas could benefit from further improvements to their risk factor profiles regardless of their position relative to the England average.

**Figure 5. Indicators showing how North Yorkshire compares to England for risk factors relevant to osteoarthritis**

Compared with benchmark: ● Better ● Similar ● Worse ○ Not compared

Worst/Lowest      25th Percentile      Benchmark Value      75th Percentile      Best/Highest

Indicator	Period	N Yorkshire		Region		England		England	
		Count	Value	Value	Value	Worst	Range	Best	
Excess Weight in Adults	2012	1,046	67.9%	65.4%	63.8%	74.4%		45.9%	
Percentage of physically active and inactive adults - active adults	2013	1,965	59.3%	54.7%	55.6%	43.4%		66.3%	
Percentage of active and inactive adults - inactive adults	2013	1,121	26.7%	29.0%	28.9%	39.2%		16.3%	
Smoking Prevalence	2012	-	18.9%	22.7%	19.5%	29.8%		12.1%	
Smoking prevalence - routine & manual	2012	-	32.9%	33.2%	29.7%	44.3%		14.2%	

Source: © Crown copyright 2014 Public Health Outcomes Framework accessed via <http://www.phoutcomes.info/> 28<sup>th</sup> September 2014.

## General information on osteoarthritis

Osteoarthritis is the most common musculoskeletal condition in older people and poses a large burden to the health and social care system. Osteoarthritis can develop in any joint in the body, but when it affects the knee or hip mobility can be affected leading to disability.

Over 6.5 million people have sought treatment from their GP for osteoarthritis of the hip and knee<sup>i</sup>. Almost all (98%) of initial knee replacements are due to osteoarthritis<sup>ii</sup>.

There are a number of risk factors for the development of osteoarthritis including increasing age, female sex, genetic factors and previous joint injury. The largest modifiable risk factor is obesity. Given the projected increases in obesity, and the growth and ageing of the population the proportion of people affected by osteoarthritis is expected to rise<sup>i</sup>.

## Taking local action on osteoarthritis

**Arthritis Research UK's** 'Musculoskeletal health: a public health approach'

<http://www.arthritisresearchuk.org/policy-and-public-affairs/reports-and-resources/reports.aspx>

An ageing population, alongside rising levels of obesity and physical inactivity, is expected to increase the numbers of people living with painful musculoskeletal conditions. Like other long-term conditions, obesity and physical inactivity are major avoidable risk factors for developing musculoskeletal conditions. This report makes four recommendations for a public health approach to musculoskeletal conditions:

- When assessing local and national population health, musculoskeletal health must be included in the assessment.
- When designing, implementing and evaluating programmes targeting lifestyle factors such as obesity and physical inactivity, impact on musculoskeletal health should be explicitly included.
- When developing health promotion messages, the benefits of physical activity to people with musculoskeletal conditions should be emphasised.
- All this public health activity must be underpinned by high quality data about musculoskeletal health.

**National Institute for Health and Care Excellence (NICE)**

NICE make recommendations about the diagnosis, treatment and care of people with osteoarthritis. These recommendations include holistic assessment of people with osteoarthritis and core treatments which include activity and exercise, and weight loss if the person is overweight or obese.

- Clinical Guideline 177 'Osteoarthritis: Care and management in adults' (February 2014)  
<http://publications.nice.org.uk/osteoarthritis-cg177>
- NICE Pathway 'Osteoarthritis' (February 2014)  
<http://pathways.nice.org.uk/pathways/osteoarthritis>

**The Cochrane Library**

[www.thecochranelibrary.com](http://www.thecochranelibrary.com)

The Cochrane Collaboration publish high quality systematic reviews to inform healthcare decision making covering a range of topics. Recent reviews relating to osteoarthritis include:

- Exercise for osteoarthritis of the hip (April 2014)
- Self-management education programmes for osteoarthritis (January 2014)

## **Musculoskeletal Calculator prevalence estimates**

Arthritis Research UK has worked with Imperial College London to develop the MSK Calculator. Risk factors for osteoarthritis were identified through a comprehensive literature review. Questions in the English Longitudinal Study of Aging (ELSA) survey giving information related to these risk factors were then extracted and analysed. The MSK Calculator incorporates these factors to estimate the total number of people with hip osteoarthritis and knee osteoarthritis in each local area in England while specifically estimating the number of individuals with severe osteoarthritis.

Information presented in this briefing is at local authority level. The MSK Calculator generates estimates of the number of cases of osteoarthritis by local authorities, clinical commissioning groups and GP practices. An estimate of the number and cost of NHS hip and knee replacements

undertaken in an area is also available from the MSK Calculator, derived from hospital episode statistics. The purpose of the MSK Calculator is to provide estimates of the burden of osteoarthritis to inform joint strategic needs assessments, service planning and prioritisation in local areas.

As with all statistical models, the osteoarthritis estimates produced by the Musculoskeletal Calculator should be treated with caution.

## **Future Musculoskeletal Calculator bulletins**

The MSK Calculator bulletin on osteoarthritis is the first of a series of bulletins to be launched. Further iterations of the MSK Calculator will produce prevalence estimates to include rheumatoid arthritis, disabling back pain and high risk fragility risk, to be published by Arthritis Research UK over the coming months.

## **About Arthritis Research UK**

Arthritis Research UK is the charity dedicated to stopping the devastating impact that arthritis has on people's lives. Everything that we do is focused on taking the pain away and keeping people active. Our remit covers all conditions which affect the joints, bones and muscles including osteoarthritis, rheumatoid arthritis, back pain and osteoporosis. We fund research into the cause, treatment and cure of arthritis, provide information on how to maintain healthy joints and bones and to live well with arthritis. We also champion the cause, influence policy change and work in partnership with others to achieve our aims. We depend on public support and the generosity of our donors to keep doing this vital work.

## **About Public Health England**

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through advocacy, partnerships, world-class science, knowledge and intelligence, and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

## **Nature of partnership work**

Arthritis Research UK has worked with Imperial College London to develop the Musculoskeletal Calculator. Public Health England has worked with Arthritis Research UK to develop this bulletin.

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**For further information please contact [data@arthritisresearchuk.org](mailto:data@arthritisresearchuk.org)**

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## **References**

<sup>i</sup> Arthritis Research UK, Osteoarthritis in General Practice. Available via <http://www.arthritisresearchuk.org/>

<sup>ii</sup> National Joint Registry, 10th Annual Report 2013. Available via <http://www.njrcentre.org.uk/>