

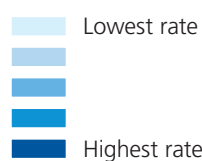
PROBLEMS OF THE MUSCULO-SKELETAL SYSTEM

Map 48: Rate of metal-on-metal hip resurfacing procedures undertaken per population by PCT

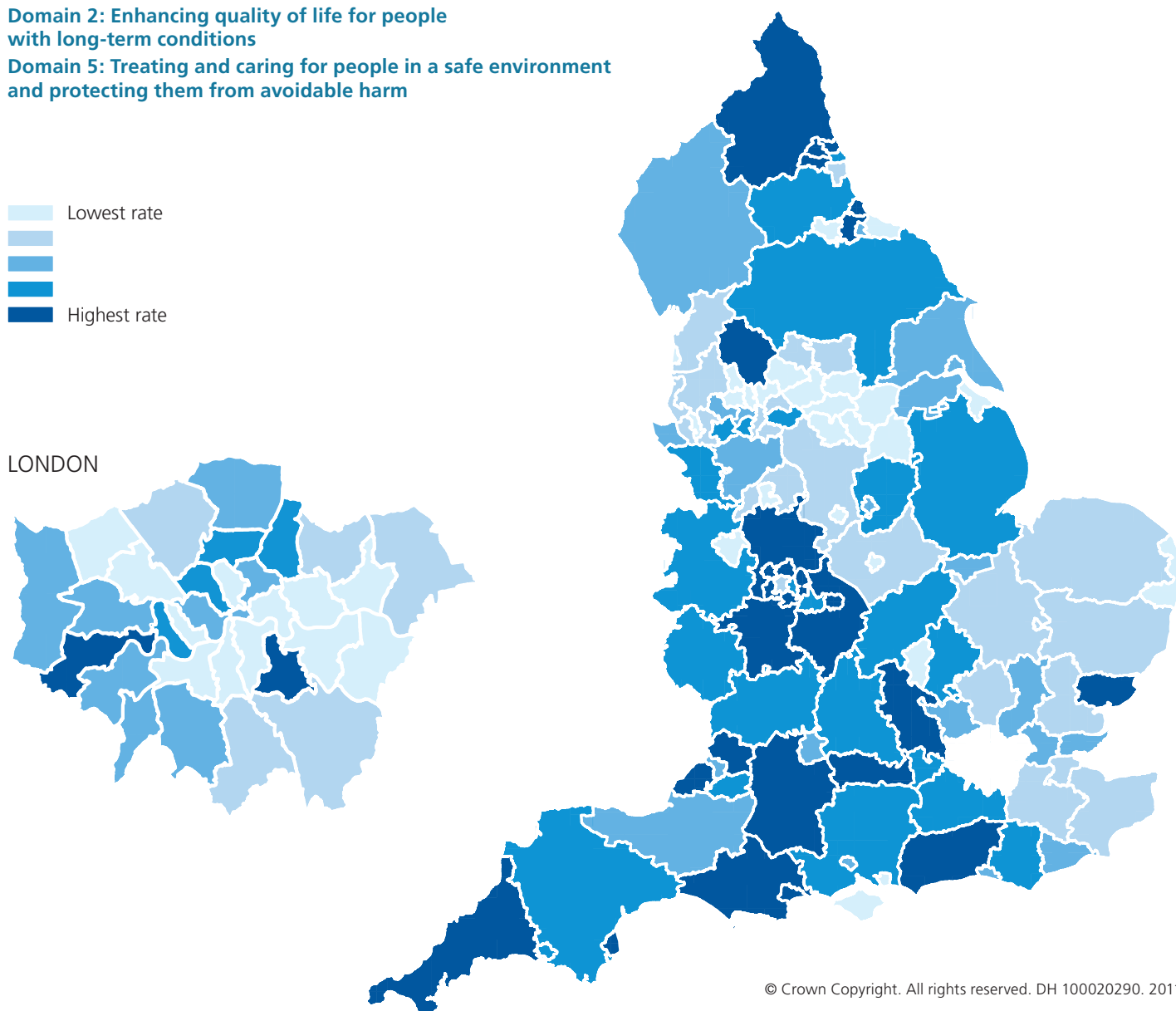
Directly standardised rate 2009/10

Domain 2: Enhancing quality of life for people with long-term conditions

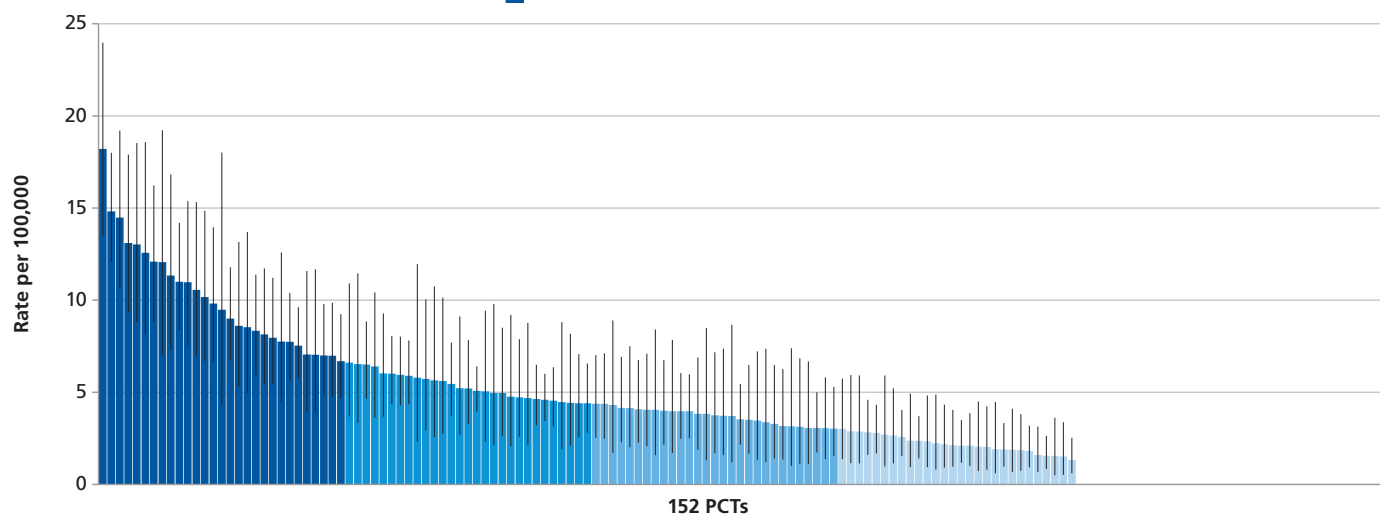
Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm



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Context

Total hip replacement is the main surgical procedure used to treat degenerative disease of the hip, where cemented or uncemented stemmed femoral prostheses are used in conjunction with a polythene acetabular cap. Although outcomes are good for total hip replacement, there can be problems following the initial procedure, including device dislocation and loosening, and relatively poor outcomes from revision surgery.

Metal-on-metal hip resurfacing was developed 20 years ago. Diseased surfaces of the head of the femur and the acetabulum are removed. A metal cap is placed over the head of the femur, and the acetabulum is lined with a metal cup, forming a pair of bearings.

Hip resurfacing conserves more bone when compared with total hip replacement, and the prostheses were thought to be harder wearing due to the elimination of the polythene cap. Hip resurfacing was considered by some services to be more suitable for younger patients (<65 years of age) with advanced hip disease. Moreover, if the device failed some services thought revision was easier to perform, but there is no strong evidence to support this.

The skills required to undertake this procedure mean it is usually performed in specialist centres where sufficient volumes of patients are treated.

Despite early success with metal-on-metal hip resurfacing, concern exists about:

- › long-term survivorship of the implants;
- › potential prosthetic degradation and absorption of degradation products.

In the NARA database, the Joint Registry for Denmark, Norway and Sweden, there was a threefold risk of revision for metal-on-metal hip resurfacing implants when compared with total hip arthroplasty, although the risk for men was lower than that for women.¹

In the Australian registry, there was an overall increased failure rate for metal-on-metal hip resurfacing implants when compared with total hip arthroplasty, for all people >65 years, and for women <65 years (men <65 years with primary osteoarthritis had equivalent results).²

In the 8th Annual Report from the National Joint Registry for England and Wales, women were found to be most at risk from poorly performing metal-on-metal hip replacement devices.³

Magnitude of variation

For PCTs in England, the rate of metal-on-metal hip resurfacing ranged from 1.3 to 18.2 per 100,000 population (14-fold variation).⁴ When the five PCTs with the highest rates and the five PCTs with the lowest rates are excluded, the range is 1.8–12.6 per 100,000 population, and the variation is sevenfold.

Despite the decline in the use of metal-on-metal devices from 15% of procedures in 2006 and 2007 to 5% in 2010,³ there is a large degree of variation in the rate across England.

Possible reasons for variation include differences in:

- › Local surgical expertise and training;
- › Patient preferences.

Options for action

NICE guidance (see “Resources”) states that metal-on-metal hip resurfacing should be performed only by surgeons who have received training in this technique.

Surgeons need to ensure that patients considering treatment options are made aware of the relative lack of information on the medium- to long-term safety and reliability of these prostheses when compared with total hip replacement.

Commissioners and providers need to work together to examine local pathways to ensure that activity reflects local capacity, needs and preferences.

RESOURCES

- › NICE. TA44 Hip disease – metal on metal hip resurfacing: guidance. <http://guidance.nice.org.uk/TA44/Guidance/pdf/English>

 **See what Right Care is doing about hip replacement on page 32**

1 Johanson PE, Fenstad AM, Furnes O et al (2010) Inferior outcome after hip resurfacing arthroplasty than after conventional arthroplasty. Evidence from the Nordic Arthroplasty Register Association (NARA) database, 1995 to 2007. *Acta Orthopaedica* 81: 535-541.

2 Corten K, MacDonald SJ (2010) Hip resurfacing data from national joint registries: what do they tell us? What do they not tell us? *Clin Orthop Relat Res* 468: 351-357.

3 <http://www.njrcentre.org.uk/njrcentre/AbouttheNJR/Publicationsandreports/Annualreports/tabid/86/Default.aspx>

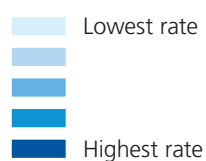
4 Data from 37 PCTs have been removed.

PROBLEMS OF THE MUSCULO-SKELETAL SYSTEM

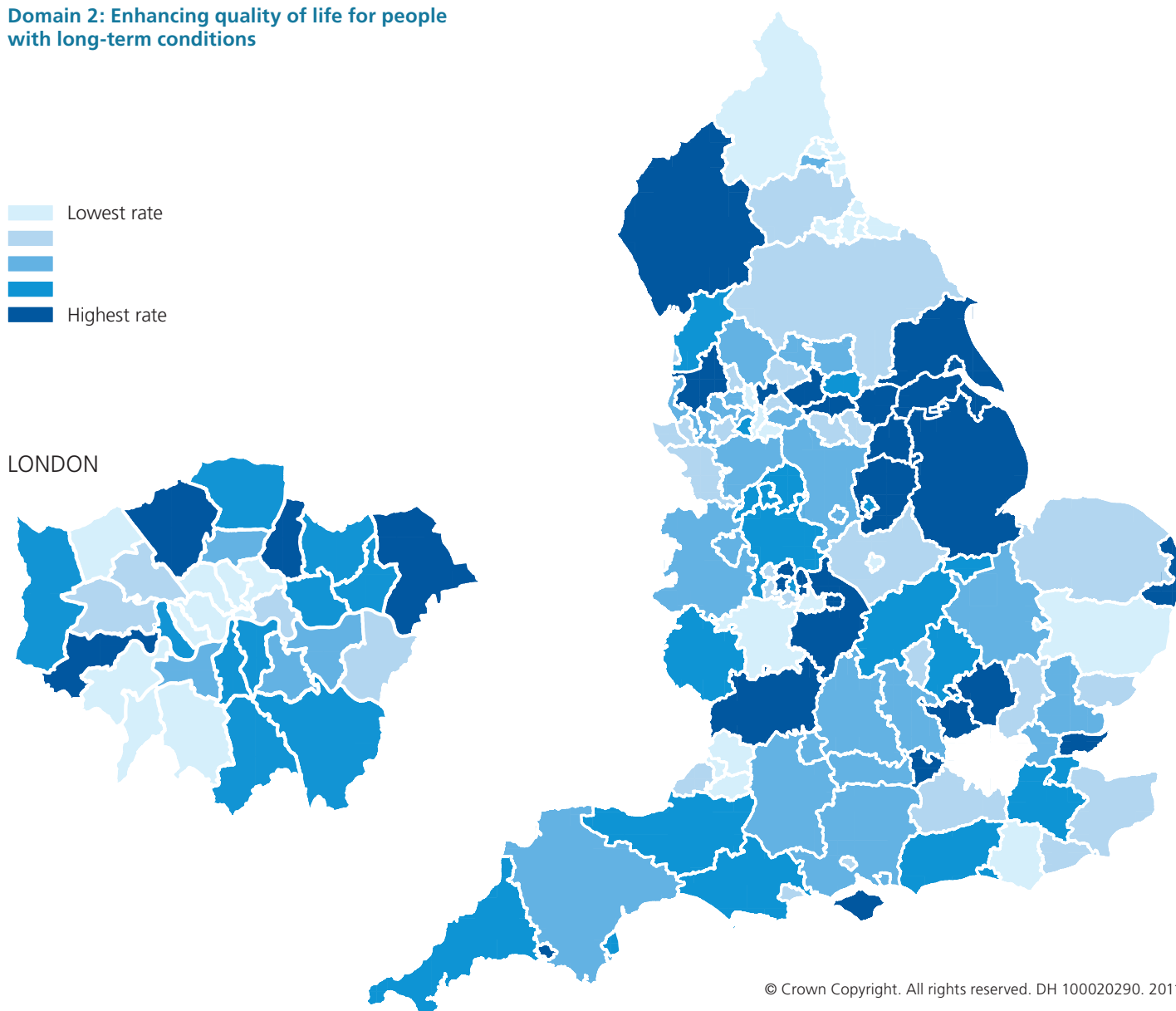
Map 49: Rate of knee washout procedures undertaken per population by PCT

Directly standardised rate 2009/10

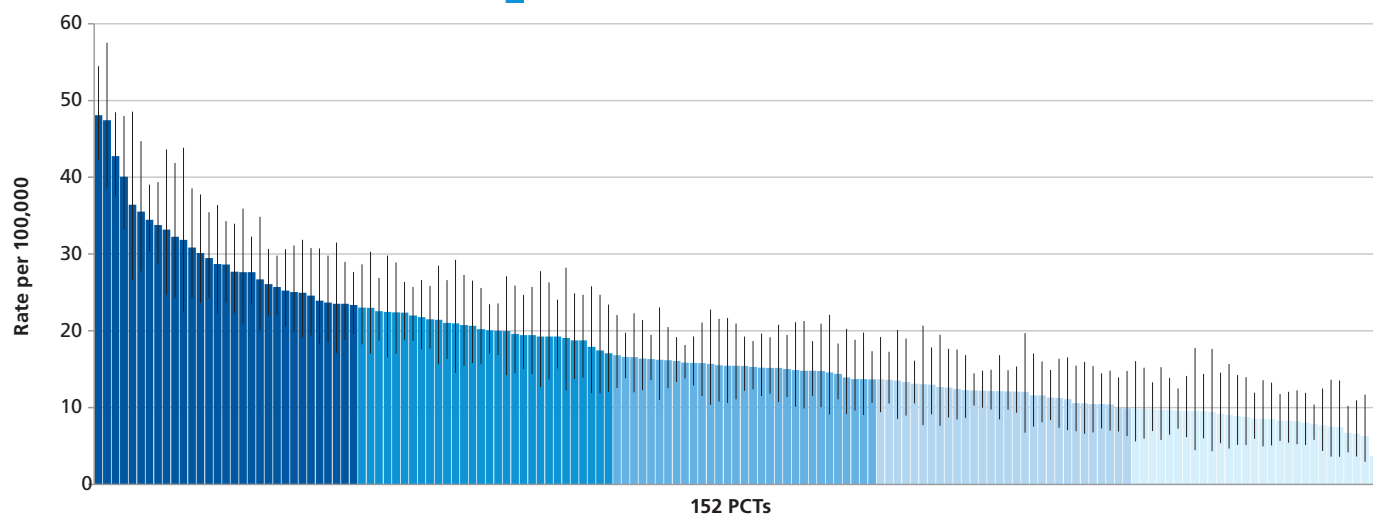
Domain 2: Enhancing quality of life for people with long-term conditions



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Context

The knee washout procedure involves flushing the knee joint with fluid introduced through small incisions in the knee. The procedure is usually undertaken with “debridement” to allow loose debris around the joint to be removed.

NICE (NICE clinical guideline on osteoarthritis, see “Resources”) has recommended that:

- Washout alone should not be used in the treatment for osteoarthritis of the knee;
- Knee washout with debridement should be undertaken only under specific circumstances:

“Referral for arthroscopic lavage and debridement should not be offered as part of treatment for osteoarthritis, unless the person has knee osteoarthritis with a clear history of mechanical locking (not gelling, ‘giving way’ or X-ray evidence of loose bodies).”

Thus, there is a subgroup of patients who could benefit from knee washout with debridement according to criteria of clinical and cost effectiveness.

Magnitude of variation

For PCTs in England, the rate of knee washout procedures undertaken per 100,000 population ranged from 3.7 to 48.1 (13-fold variation). When the five PCTs with the highest rates and the five PCTs with the lowest rates are excluded, the range is 7.5–35.5 per 100,000 population, and the variation is 4.8-fold.

Possible reasons for this variation include differences in:

- the prevalence of obesity, the principal cause of osteoarthritis;
- coding.

However, this degree of variation (almost fivefold) is probably greater than could be explained by the factors outlined above, suggesting there is some unwarranted variation in the rate of knee washout procedures, especially as the circumstances in which it should be performed are well defined and limited to relatively small numbers of patients. For example, some patients who undergo a knee washout procedure on the basis of a “positive” magnetic resonance imaging (MRI) scan do not have any foreign body when the washout is performed. Therefore, the availability and quality of MRI services may play a part in causing unwarranted variation.

Options for action

Commissioners and providers need to develop agreed local pathways for the management of knee pain, which clearly indicate the contribution of MRI assessment and knee washout procedures.

RESOURCES

- NICE guidance: Arthroscopic knee washout, with or without debridement, for the treatment of osteoarthritis (2007). <http://guidance.nice.org.uk/IPG230>
- NICE clinical guidelines: The care and management of osteoarthritis in adults (2008). <http://www.nice.org.uk/cg59>

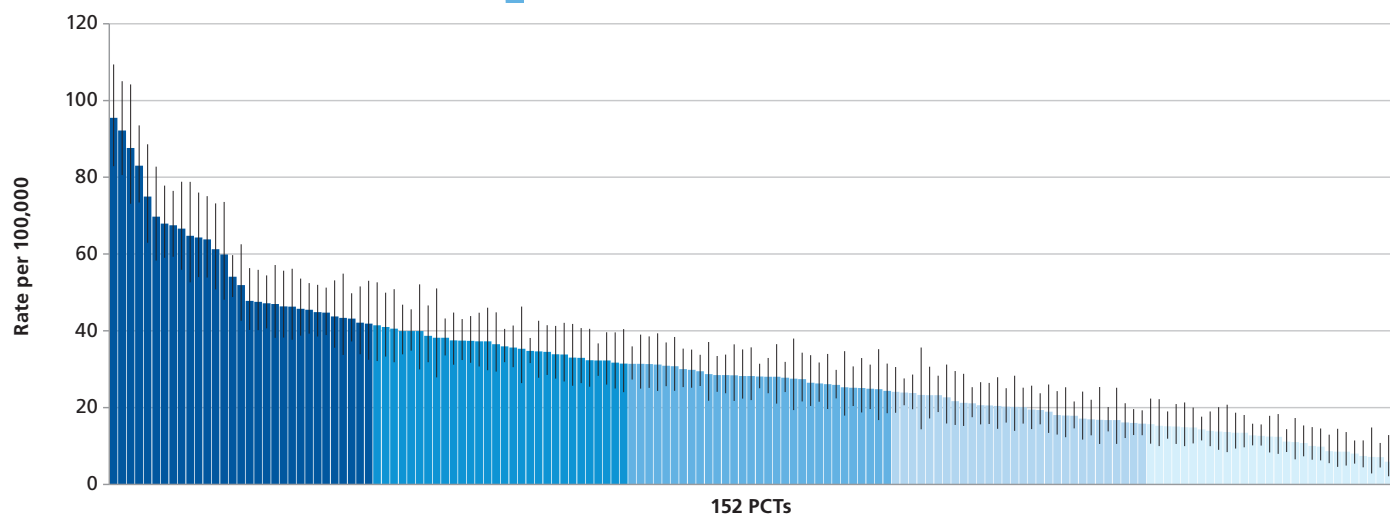
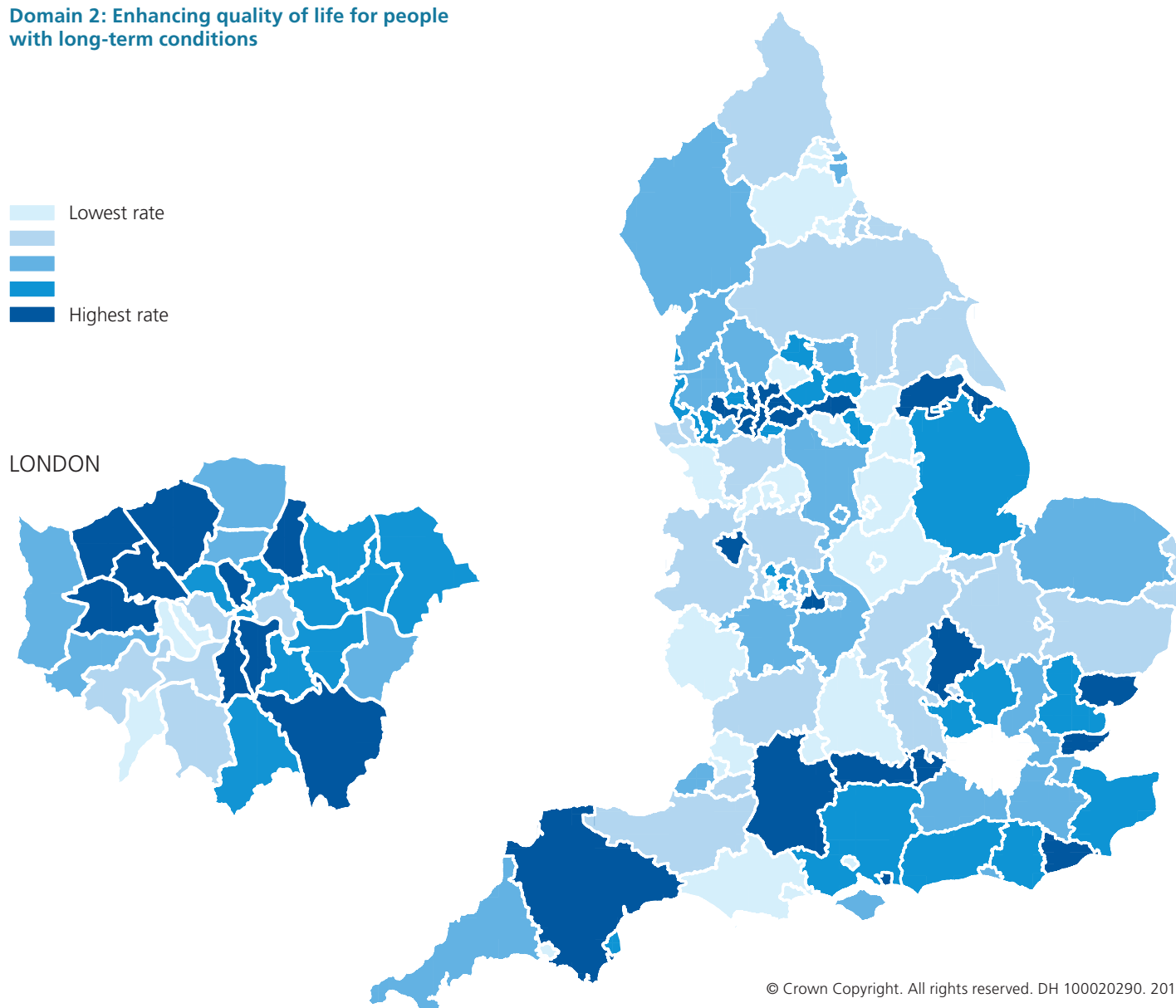
 **See what Right Care is doing on knee replacement procedures on page 32**

PROBLEMS OF THE MUSCULO-SKELETAL SYSTEM

Map 50: Rate of all diagnostic knee arthroscopy procedures undertaken per population by PCT

Directly standardised rate 2009/10

Domain 2: Enhancing quality of life for people with long-term conditions



Context

Arthroscopy is a minimally invasive surgical procedure in which an arthroscope (a type of endoscope) is used to examine the interior of a joint.

Arthroscopy has two uses:

- To diagnose joint problems – this is less common now that magnetic resonance imaging (MRI) is more widely available;
- To repair any damage to the joint.

Arthroscopy can be used to diagnose unexplained joint pain, joint stiffness, joint swelling, and limited range of movement. It can also be used to assess joint damage due to injury or to underlying conditions such as osteoarthritis.

Arthroscopy was first used on the knee joint because it is the most easily accessible joint, and 17 out of every 20 arthroscopies in the UK involve the knee joint. Some of the conditions most frequently found during arthroscopic examination of the knee are:

- inflammation of the lining of the knee (synovitis);
- tears in cartilage (meniscal tears);
- wearing or injury of the cartilage cushion (chondromalacia);
- tears of the anterior cruciate ligament with instability;
- loose pieces of bone and/or cartilage in the joint.

However, MRI or X-ray can also be used to diagnose joint problems, and both are non-invasive, although X-ray is less useful because there is poor correlation between X-ray changes and clinical disability. However, diagnostic knee arthroscopy has been suggested as being of greater value when grading the cartilage for a decision concerning the therapeutic options in patients with osteoarthritis.¹

Magnitude

For PCTs in England, the rate of all diagnostic knee arthroscopy procedures undertaken per 100,000 population ranged from 3.5 to 95.5 (27-fold variation). When the five PCTs with the highest rates and the five PCTs with the lowest rates are excluded, the range is 8.0–69.8 per 100,000 population, and the variation is almost ninefold.

Some of this variation is due to differences in coding. Therapeutic arthroscopy may be coded erroneously as diagnostic arthroscopy. Sometimes, it is lower grades of, or inexperienced, staff who code the procedure, which can result in systematic and substantial errors.

However, despite the potential for errors in coding, there would appear to be some unwarranted variation in the rate of diagnostic knee arthroscopy, especially as the procedure has limited application.

Options for action

Providers need to review coding procedures, and take steps to ensure that knee arthroscopy procedures are coded accurately, especially during coding of diagnostic and therapeutic arthroscopy procedures.

Providers could also consider benchmarking rates of diagnostic knee arthroscopy against those of other providers.

Commissioners and providers need to review all knee arthroscopy activity. If the diagnostic knee arthroscopy rate is high, it is important to identify the reasons for this.

In areas where the diagnostic knee arthroscopy rates are high but therapeutic knee arthroscopy rates are low, this could reflect coding errors.

In areas where both diagnostic and therapeutic knee arthroscopy rates are high, there is probably over-use of diagnostic knee arthroscopy, which should trigger discussion about the reasons for this and the action needed to reduce rates, including identifying an improved care pathway for patients.

If the diagnostic knee arthroscopy rate is low, the possibility of under-use needs to be considered.

Commissioners and providers need to consider diagnostic knee arthroscopy, therapeutic knee arthroscopy (Map 51) and knee washout procedures (Map 49) in the wider context of the management of knee pain, and work together to develop evidence-based pathways localised to address the particular needs of the population.

 **See what Right Care is doing on knee replacement procedures on page 32**

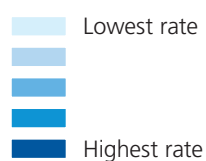
¹ von Engelhardt LV, Lahner M, Klusman A et al (2010) Arthroscopy vs. MRI for a detailed assessment of cartilage disease in osteoarthritis: diagnostic value of MRI in clinical practice. *BMC Musculoskelet Disord* 11: 75.

PROBLEMS OF THE MUSCULO-SKELETAL SYSTEM

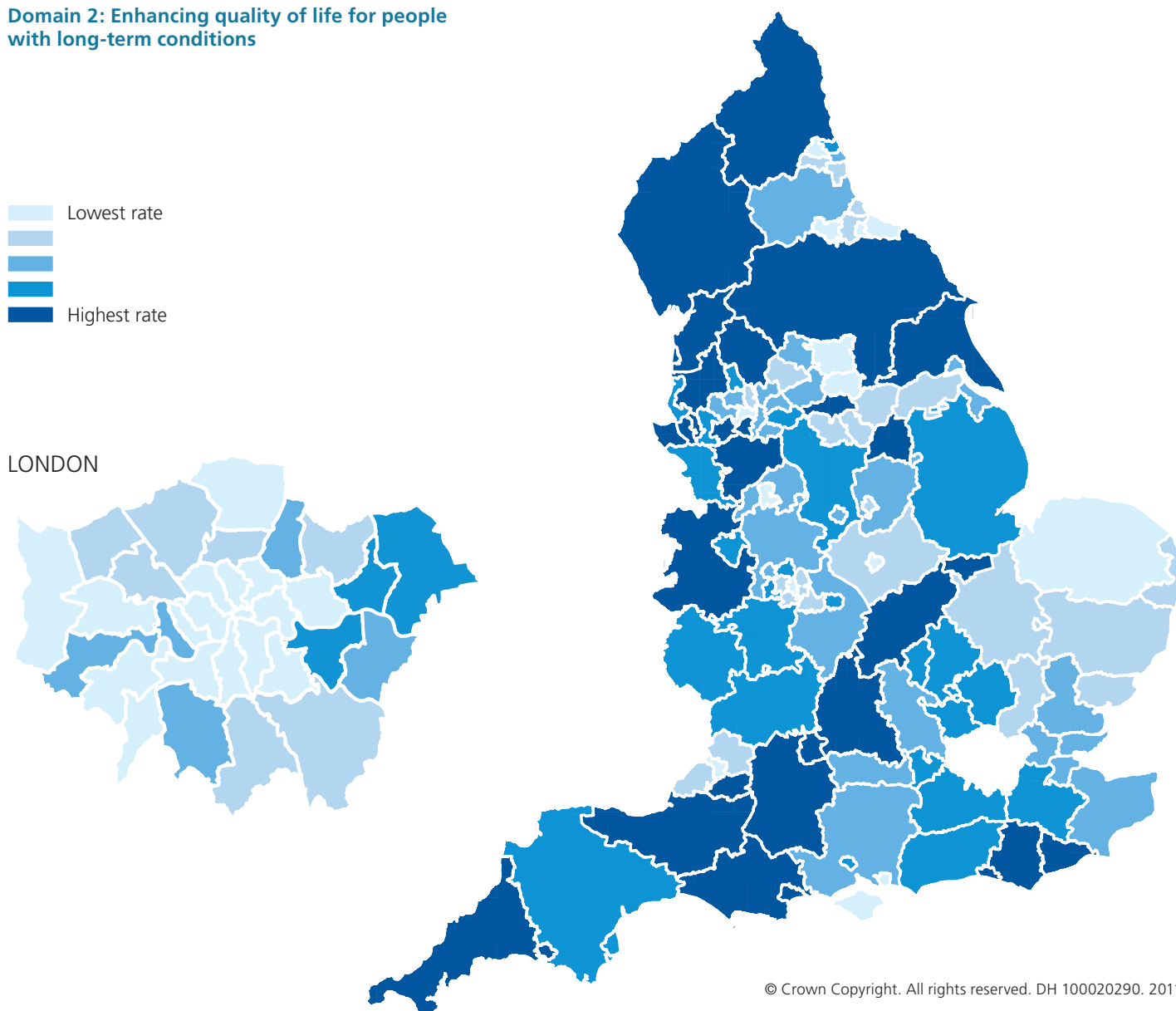
Map 51: Rate of all therapeutic knee arthroscopy procedures undertaken per population by PCT

Directly standardised rate 2009/10

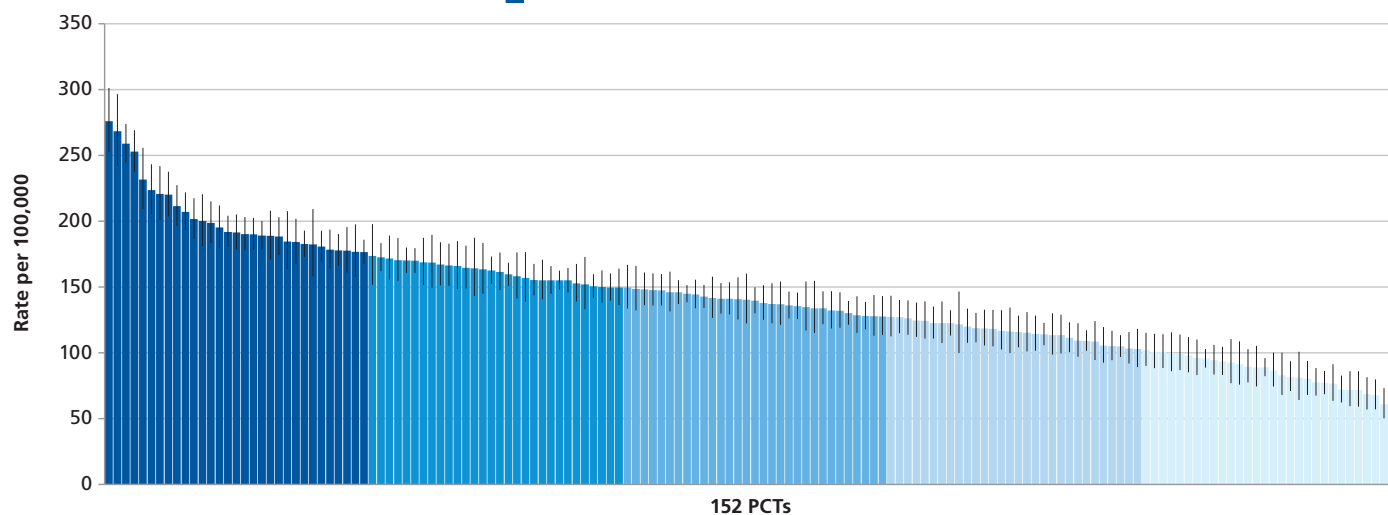
Domain 2: Enhancing quality of life for people with long-term conditions



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Context

Arthroscopy is a minimally invasive surgical procedure in which an arthroscope (a type of endoscope) is used to examine the interior of a joint. It is possible to pass surgical instruments through an arthroscope.

Arthroscopy has two uses:

- To diagnose joint problems – this is less common now that magnetic resonance imaging (MRI) is more widely available;
- To repair any damage to the joint.

Arthroscopy can be used:

- To repair damaged cartilage, tendons and ligaments;
- To remove small pieces of bone and/or cartilage loose within the joint;
- To drain excess build-up of synovial fluid;
- To treat problems associated with arthritis;
- To replace ligaments.

Arthroscopy was first used on the knee joint because it is the most easily accessible joint, and 17 out of every 20 arthroscopies in the UK involve the knee joint. Therapeutic knee arthroscopy is used to treat:

- Torn cartilage or meniscal injury;
- Torn cruciate ligaments;
- Early-stage osteoarthritis, by repairing rough and damaged surfaces of the joint and cartilage;
- Arthritis, by removing the inflamed synovial membrane around the joint.

Therapeutic knee arthroscopy is a higher-value intervention than open knee surgery; it is associated with:

- a much lower risk of complications, including a lower risk of infection;
- reduced pain;
- shorter hospital stays;
- quicker recovery times.

Magnitude of variation

For PCTs in England, the rate of all therapeutic knee arthroscopy procedures undertaken per 100,000 population ranged from 59.3 to 276 (4.7-fold variation). When the five PCTs with the highest rates and the five PCTs with the lowest rates are excluded, the range is 71.8–223.6 per 100,000, the variation 3.1-fold.

Some of this variation is due to differences in coding. Therapeutic arthroscopy may be coded erroneously as diagnostic arthroscopy. Sometimes, it is lower grades of, or inexperienced, staff who code the procedure, which can result in systematic and substantial errors.

As with many elective procedures, it is not clear what the “right” rate is, the value of a particular rate being a function of the prevalence of the knee problems in the population, which in turn is a function of the prevalence of obesity and the level of provision of orthopaedic services not only at the present point in time but also in previous years.

Options for action

Providers need to review coding procedures, and take steps to ensure that knee arthroscopy procedures are coded accurately, especially during coding of diagnostic and therapeutic arthroscopy procedures.

Commissioners and providers need to develop agreed local pathways for the management of knee pain. As for all elective surgery procedures, surgical intervention is similar to the tip of an iceberg. Below the water level is a high prevalence of knee pain in the population but the rates of referral by GPs vary. For this reason, it is more effective to commission knee pain pathways than knee operations.

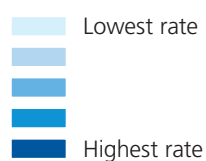
 **See what Right Care is doing on knee replacement procedures on page 32**

PROBLEMS OF THE MUSCULO-SKELETAL SYSTEM

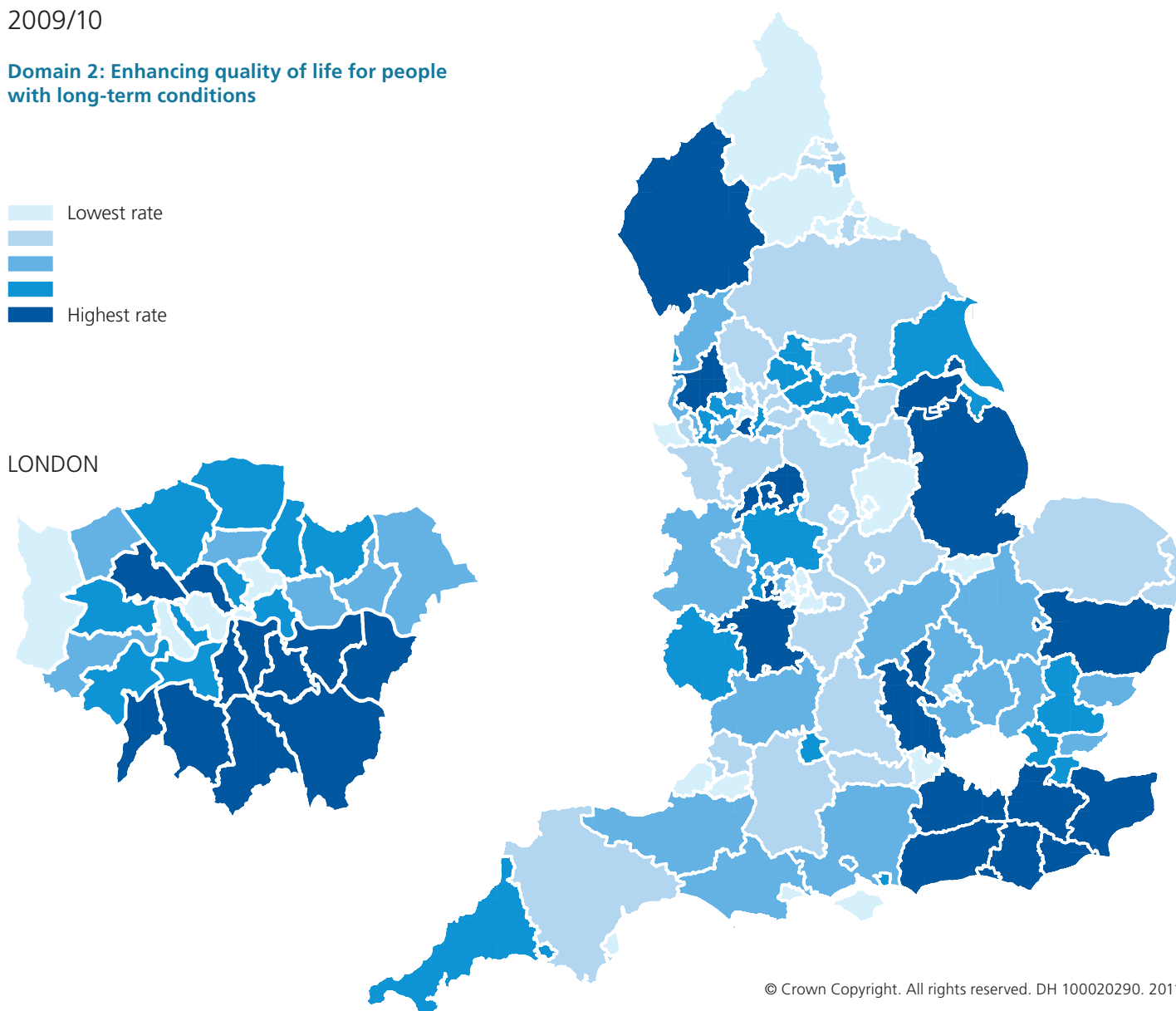
Map 52: Proportion (%) of cementless knee arthroplasty procedures per all knee arthroplasty undertaken in hospital by PCT

2009/10

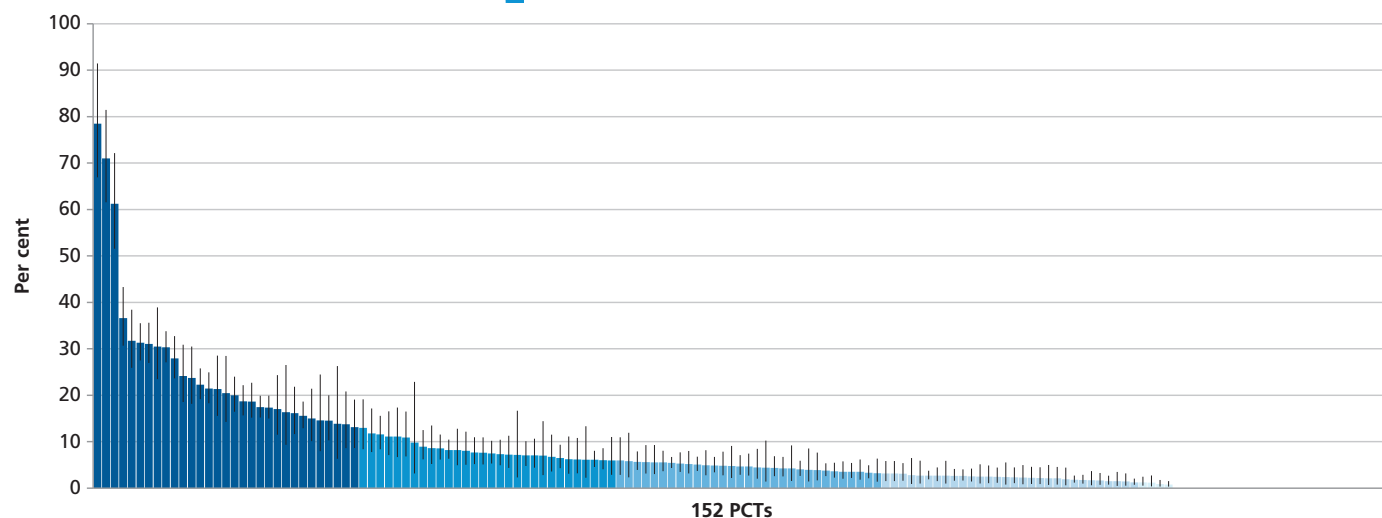
Domain 2: Enhancing quality of life for people with long-term conditions



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Context

Knee replacement surgery relieves pain and restores movement in patients suffering from knee pain. There are two types of fixation for knee replacement surgery:

- Cemented, in which a fast-curing bone cement (polymethylmethacrylate) holds the prostheses in place;
- Cementless, which depends upon bone growing into the surface of the prostheses for fixation.

At present, most of the knee replacement procedures undertaken are cemented into place, and prostheses using cemented fixation may last for more than 20 years.

Cemented fixation has been successful in all patient groups for whom total knee replacement is appropriate, including those who are young and active with degenerative disease. However, there is a tendency for cementless fixation to be used in younger, more active patients.

Data from the National Joint Registry for England and Wales show that cementless fixation is similar to cemented fixation with regard to short-term outcomes such as 3-year revision rates.¹

However, there is growing concern about the diffusion of the cementless type of fixation for total knee replacement in surgical practice on the basis of good early results alone and in the absence of evidence of good long-term outcomes. A similar diffusion was seen for cementless fixation of hip prostheses: the early results appeared to be promising, but then technical problems began to occur, and there was a higher rate of revision of hip prostheses with cementless fixation than that for hip prostheses using cemented fixation.

Magnitude of variation

For PCTs in England, the proportion of cementless knee arthroplasty procedures per all knee arthroplasty undertaken in hospital ranged from 0.8% to 78.5% (102-fold variation).² When the five PCTs with the highest percentages and the five PCTs with the lowest percentages are excluded, the range is 1.5–31.3%, and the variation is almost 22-fold.

However, for three-quarters of PCTs, the proportion of cementless knee arthroplasty procedures per all arthroplasty undertaken is ≤10%.

Some of the variation may be due to differences in:

- the prevalence of obesity among PCT populations;
- the clinical characteristics of patients requiring total knee replacement.

It is also likely that coding varies due to inconsistency in recording hybrid operations, in which the femoral component of the prosthesis is inserted without cement and the tibial and patellar components are inserted using cement.

However, it may be that there is some unwarranted variation in the proportion of cementless knee arthroplasty procedures per all knee arthroplasty undertaken as a result of differences in professional opinion and skill.

Options for action

In areas where there is a relatively high proportion of all knee arthroplasty using cementless fixation, commissioners, clinicians and GPs should ascertain the reasons for this, and review whether the balance can be justified in relation to the characteristics and need in the local population.

The relative contribution of these two technologies is not clear, and further research is needed. However, for some technologies, the technology itself is less important in determining outcome than the skill of the surgical team, which may be a function of the number of procedures performed.

Commissioners and providers need to discuss and agree what proportion of cementless knee arthroplasty procedures is right for the local population according to need, and taking into account the capacity and experience of the orthopaedic service to perform this type of joint replacement.

RESOURCES

- National Joint Registry for England and Wales.
<http://www.njrcentre.org.uk/njrcentre/Default.aspx>

 **See what Right Care is doing on knee replacement procedures on page 32**

¹ Sibanda N, Copley LP, Lewsey J et al on behalf of the Steering Committee of the National Joint Registry (NJR) for England and Wales (2008) Revision Rates after Primary Hip and Knee Replacement in England between 2003 and 2006. *PLoS Med* 5(9): e179.

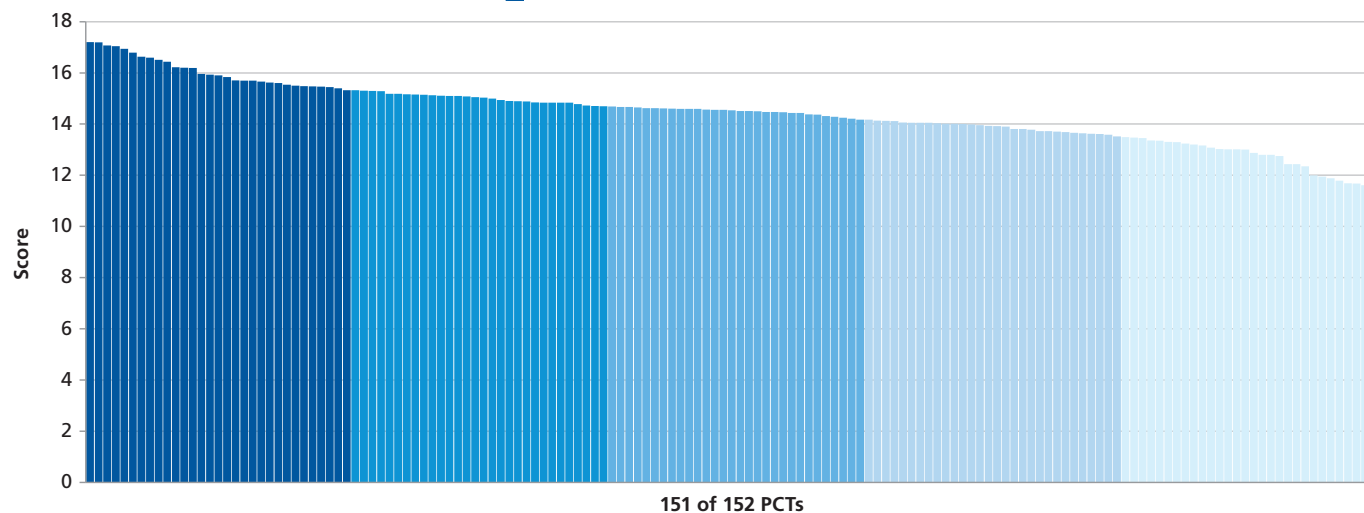
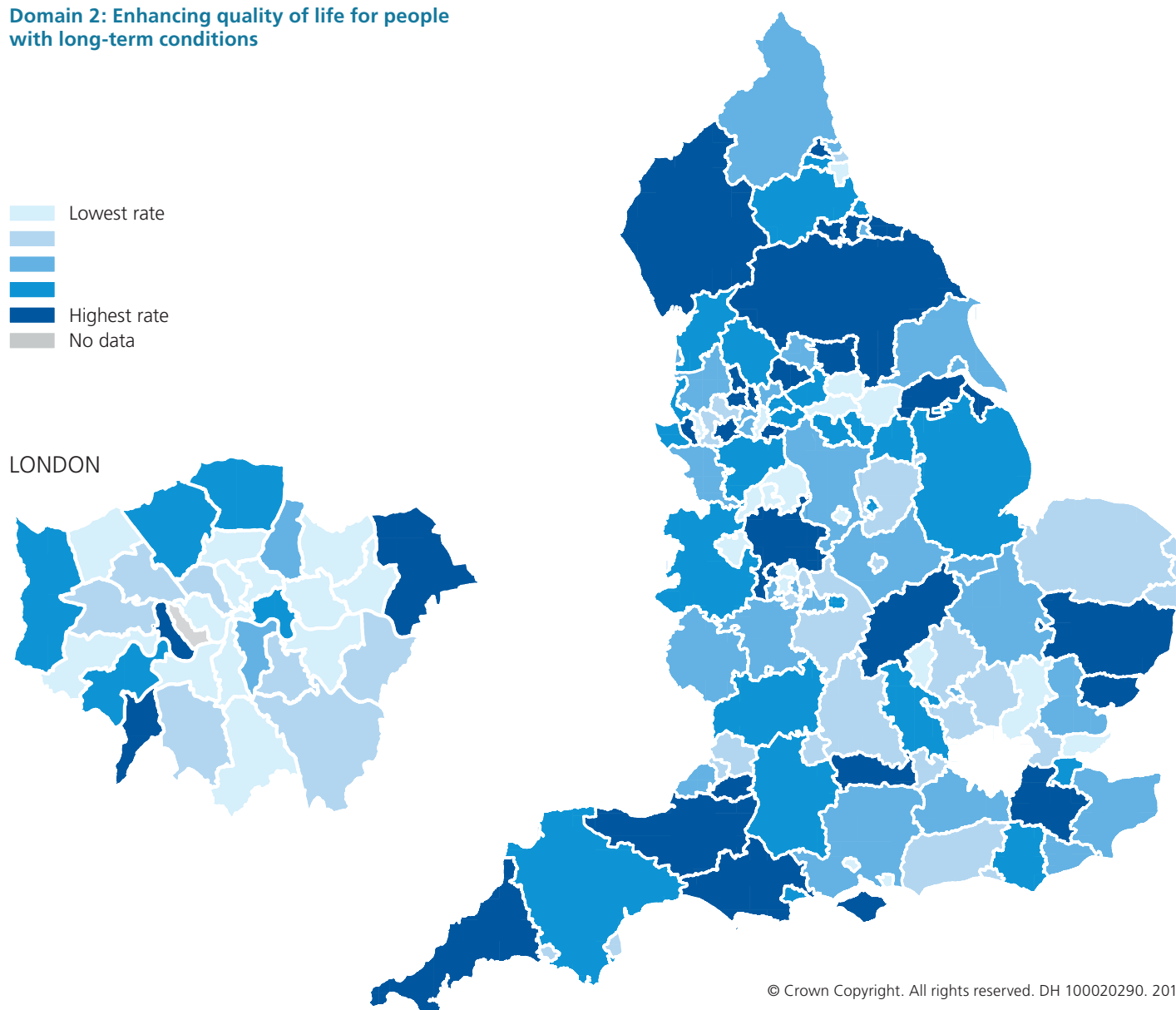
² Data from 26 PCTs have been removed.

PROBLEMS OF THE MUSCULO-SKELETAL SYSTEM

Map 53: Average patient reported health gain (Oxford Knee Score; OKS) from knee replacement procedures by PCT

2010/11

Domain 2: Enhancing quality of life for people with long-term conditions



Context

The healthcare revolution of the last 50 years is epitomised by knee and hip replacement, the latter being voted the operation of the 20th century. Hip replacement is a perfect example of NHS innovation, it having been developed by an NHS surgeon, John Charnley, and not by a corporation. Joint replacements have transformed the lives of millions of people.¹ However, these interventions also epitomise the challenge faced by the NHS: need will increase as the population ages, and with the increasing prevalence of obesity.

That these interventions are effective is without dispute, but in future both commissioners and patients will want to know the following about the service that delivers care:

- The proportion of implants that need to be replaced within three years;
- The infection rate.

Commissioners and patients will also want to know that the introduction of any new implant is done as part of an ethically approved research study so that uncertainty about its safety can be resolved. This has not happened in the past, for example, with some metal-on-metal hip resurfacing implants (see Map 48).

Local information about revision rates and infection rates is not available to commissioners or patients at present. All that we have, which is more than that available in many countries, are the patient reported outcome measures (PROMs).

PROMs measure the outcomes of treatment from a patient's perspective, using the results of pre- and post-operative surveys to calculate health gain. PROMs are available for four surgical treatments: hip replacements, knee replacements, hernia and varicose veins. From 1 April 2009, all providers of NHS-funded care are required to collect PROMs for these procedures.

The Oxford Knee Score (OKS) is a short, practical self-completed questionnaire which measures need before and outcome after knee replacement surgery.²

Magnitude of variation

For PCTs in England, the average patient-reported health gain (OKS) from knee replacement procedures ranged from 11.0 to 17.2 (1.6-fold). When the five PCTs with the highest average patient-reported health gain and the five PCTs with the lowest average patient-reported health gain are excluded, the range is 11.9–16.8, and the variation is 1.4-fold.

Possible reasons for variation include:


- The age structure of the population;
- The case-mix of the patients treated – in some services, the people being operated upon could be in poorer health;
- The quality of the service offered, including the quality of information given to patients, which influences their expectations, and their level of post-operative satisfaction.

Options for action

Patients and commissioners need more information about joint replacement, and a better understanding of the information.

Even when the quality of knee or hip replacement is excellent, there will still be a proportion of patients for whom the outcome will not be good and it is essential, in an era in which litigation will probably increase, for every patient to have a full understanding of the risks as well as the benefits of an intervention. For this reason, shared decision-making and patient decision aids are vital.

In this indicator, the information available on patients' perceptions of the outcomes of knee replacement is presented, but the information about outcomes could be improved, and research is required to understand both need and outcome for all elective operations.

 **See what Right Care is doing on hip and knee replacement, and on shared decision-making on page 32 and page 22, respectively**

¹ Anderson J, Neery F, Pickstone JV (2007) *Surgeons, Manufacturers and Patients. A Transatlantic History of Total Hip Replacement*. Palgrave MacMillan.

² <http://web.jbjs.org.uk/cgi/reprint/80-B/1/63.pdf>