Better*Knowledge***Better***Care***Better***Outcomes*
Using data to identify priorities for implementing best practice in orthopaedics

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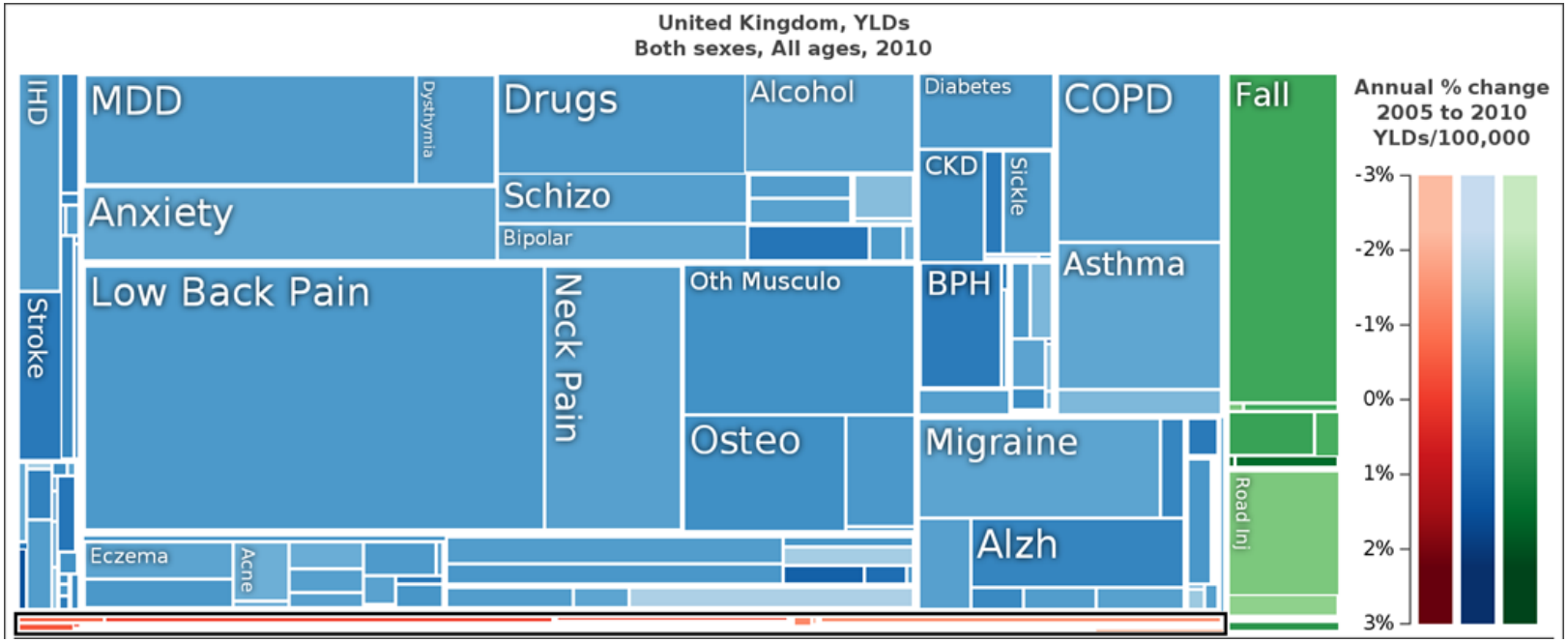
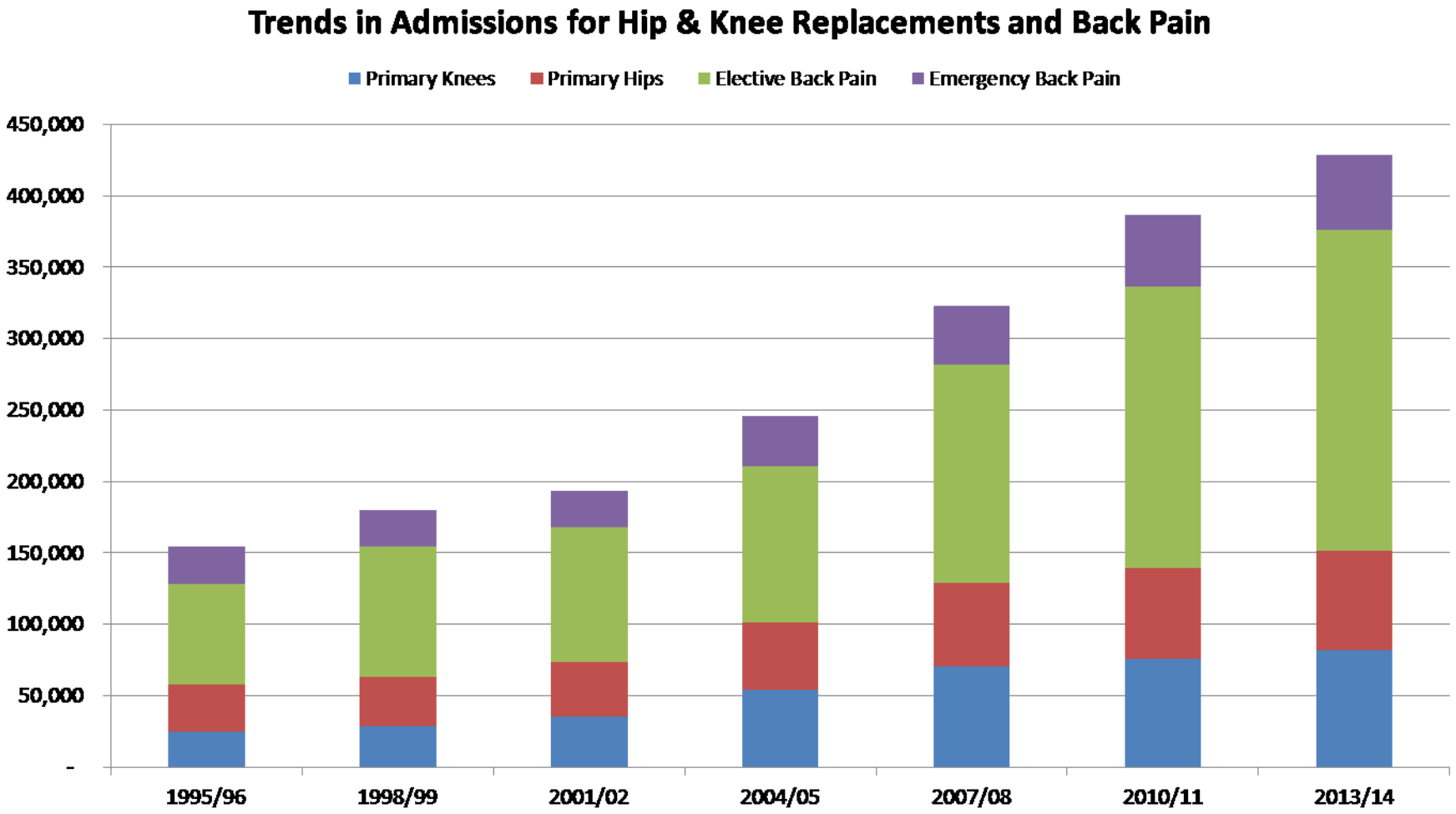
Burden of Disease

Musculoskeletal (MSK) disorders are:

- major contributor to years lived with disability (YLDs) as reported by the WHO Global Burden of Disease project
- second most common reason for work absence due to sickness
- contribute to risks of developing other Long Term Conditions including depression (chronic pain) and cardio-metabolic diseases (physical inactivity)



Secondary Care Activity



Data Sources

Hip and Knee Replacements

- Arthritis Research UK prevalence models for hip and knee osteoarthritis (OA)
- Patient Reported Outcomes Measurement Programme (PROMs)
- National Joint Registry
- Hospital Episode Statistics

Back Pain

- Arthritis Research UK prevalence models for general and severe back pain
- NEQOS profiles for secondary care activity for non-specific back pain

Prevalence Data

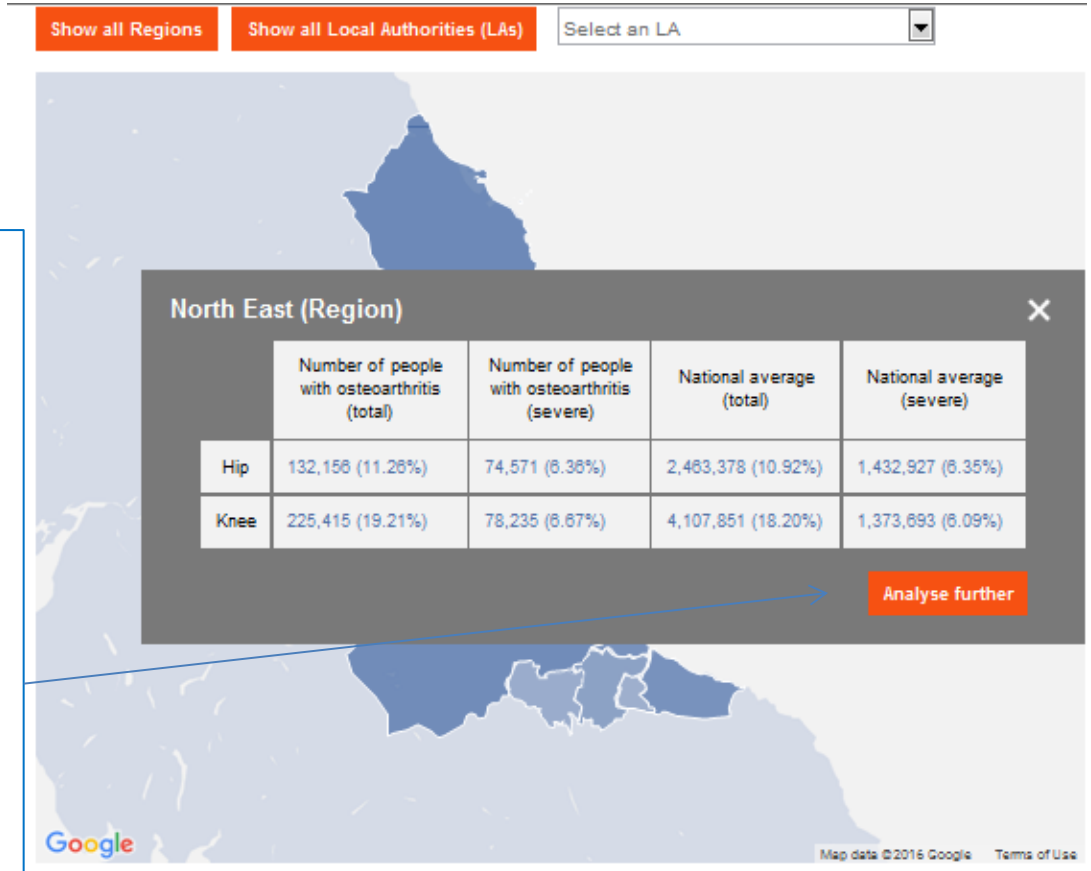
North East Quality Observatory Service

Arthritis Research UK

Analyse Further

Provides ability to compare different regions

Includes prevalence estimates by socio-demographic factors (age, gender, socioeconomic and education) and risk factors (BMI, smoking status and physical inactivity)



The total population over 45 of the North East is 1,173,282 out of which 132,156 have hip osteoarthritis. There are some significant risk factors in relation to musculoskeletal conditions, the most significant of which are obesity and physical activity. In the North East the level of obesity is 26.05% and the national average is 23.11%. 305,621 of people in the North East are sedentary. If more people in your area are less physically active and more likely to be obese, this may be a cause of higher rates of hip osteoarthritis.

https://www.arthritisresearchuk.org/arthritis-information/data-and-statistics/musculoskeletal-calculator/map.aspx

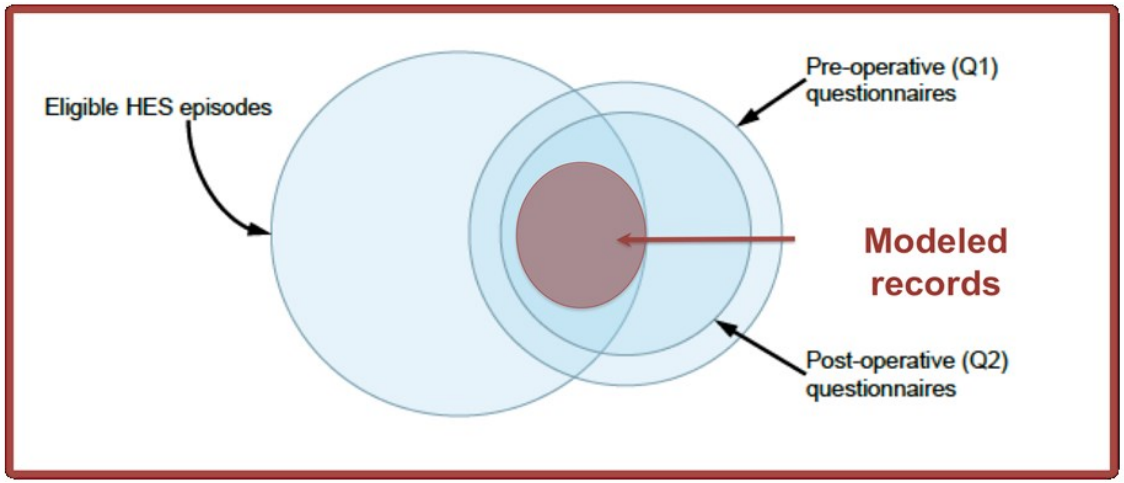
National PROMs programme

Hip and knee replacement data at baseline and 6-mths post-op

- Oxford Hip & Knee Score (OHS& OKS, range 0-48, 48 best)
- EQ-5D

Participation and modelled record rates

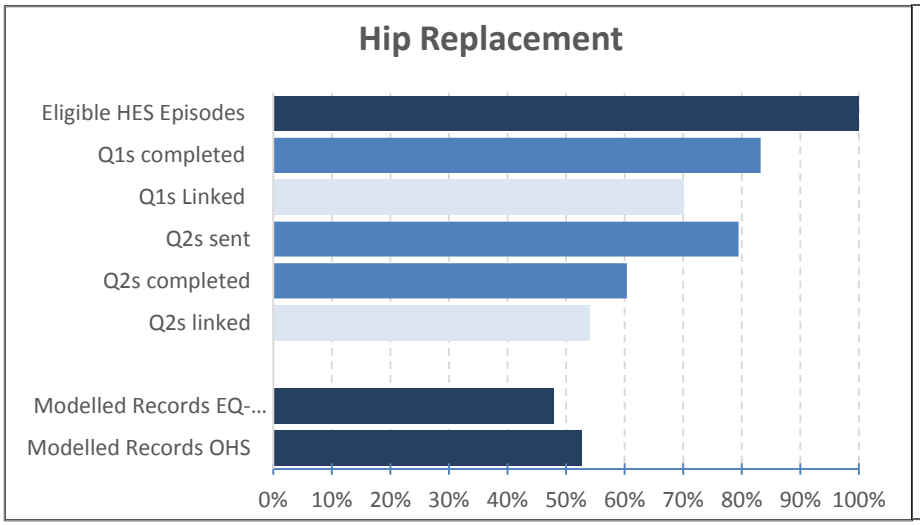
Figure shows relationship between preoperative (Q1) and post-operative (Q2) questionnaires, eligible Hospital Episode Statistics (HES) episodes and the subset that have modelled records included in the adjusted health gain models

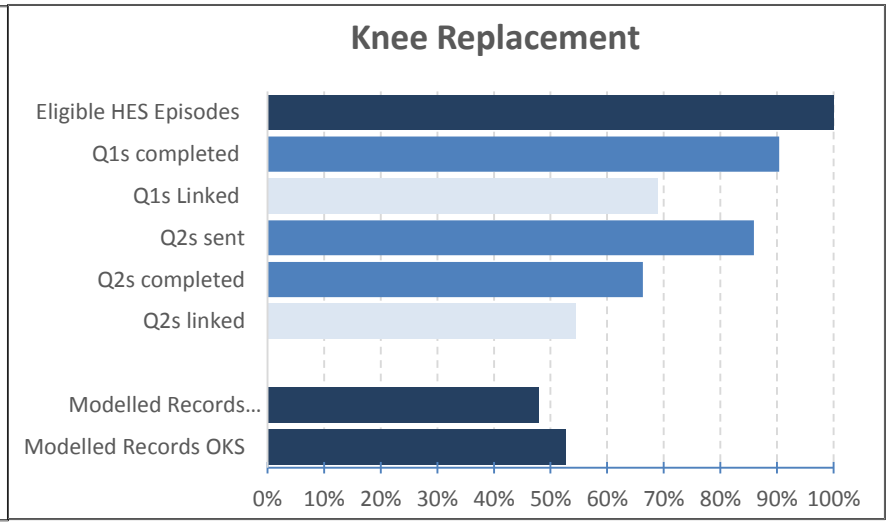


Quality of PROMs data

Best Practice Tariff Criteria

- PROMs participation (Q1 completed) for at least 50% of eligible HES activity
- Trust is not an outlier (>3SDs below national average) on case-mix adjusted health gain for OHS/OKS for primary cases only
- NJR compliance is >75% of eligible HES activity and <25% of records submitted have consent status not known





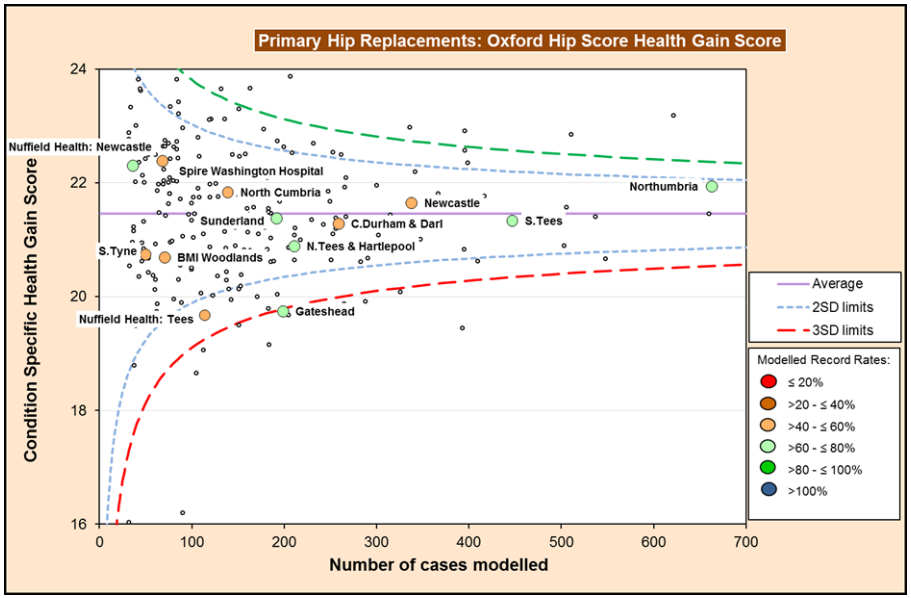
PROMs Health Gain

North East Quality Observatory Service

Hips

Baseline OHS – national average 18

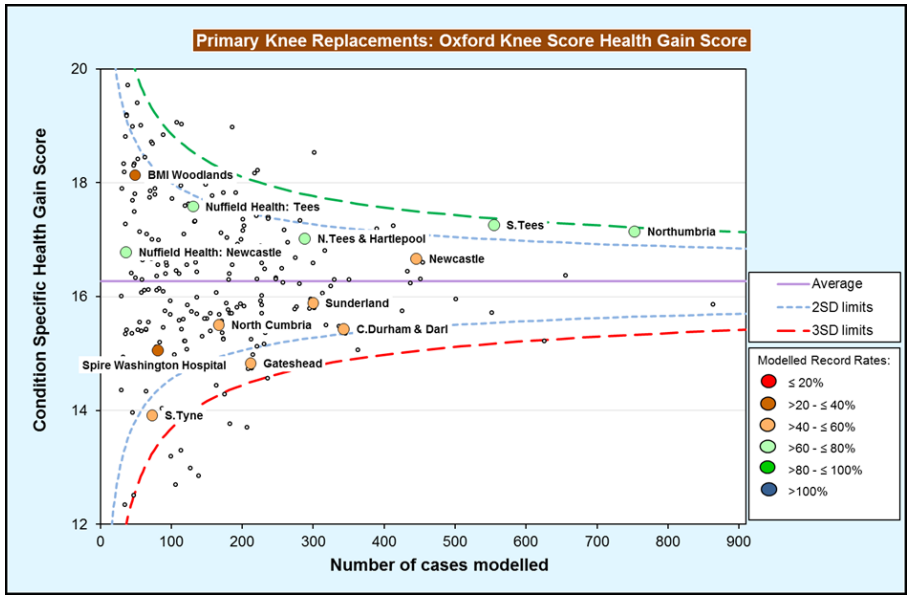
Health gain – national average 21



Knees

Baseline OKS – national average 19

Health gain – national average 16

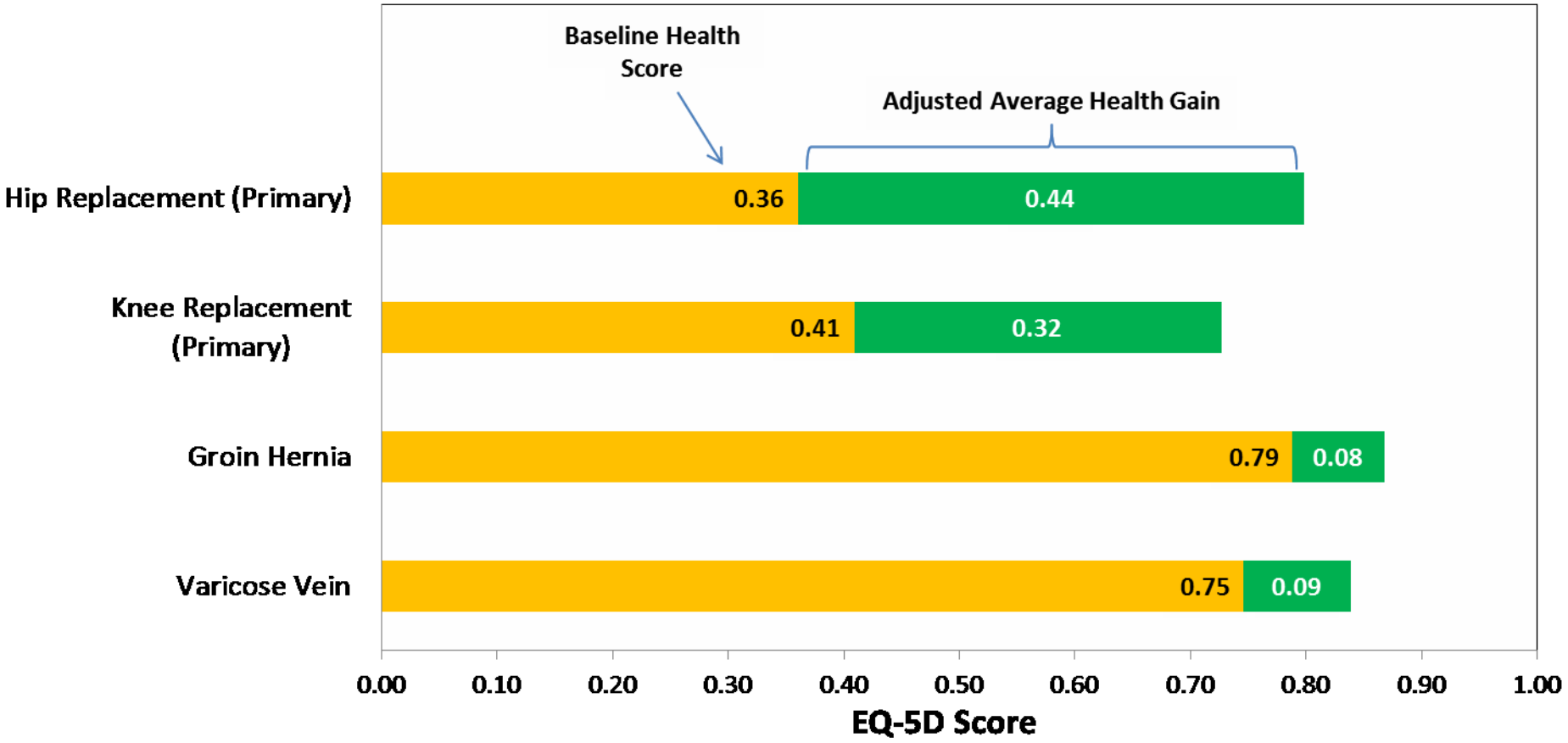


Case study: *Northumbria Healthcare had <50% participation and below average health gain and used this data to drive quality improvement. It now has >60% complete data (>80% initial participation) & significantly better OKS health gain.*

PROMs Health Gain

North East Quality Observatory Service

National PROMs Baseline and Health Gain Scores (EQ-5D) - 2013/14



Source: Health & Social Care Information Centre *http://www.hscic.gov.uk/proms*

Process measures that reflect high quality care

North East Quality Observatory Service

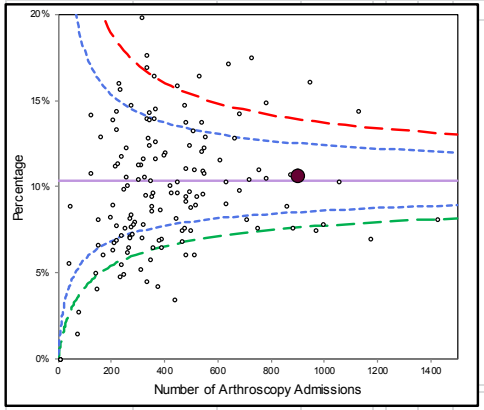
Process

Knees

2. Total Knee Replacements within 1 year of Arthroscopy

Timeframe: 1 Apr 2011 to 31 Mar 2014 (TKRs: 1 Apr 2011 to 31 Mar 2015)

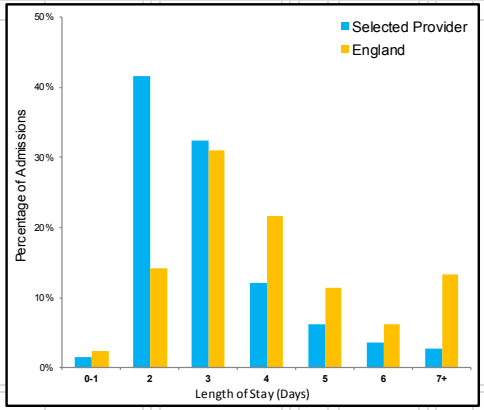
(Patients aged 60 and over) (2014/15 HES data is provisional)



4a. Length of Stay for primary Knee replacements

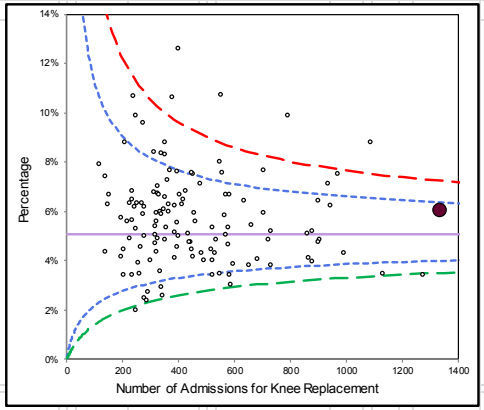
Timeframe: 1 Apr 2014 to 31 Mar 2015

(2014/15 HES data is provisional)



5a. Percentage of primary Knee replacements that have an Emergency ReAdmission within 30 days

Timeframe: 1 Apr 14 to 31 Mar 2015 (Readmissions: 1 Apr 14 to 30 Apr 2015*)

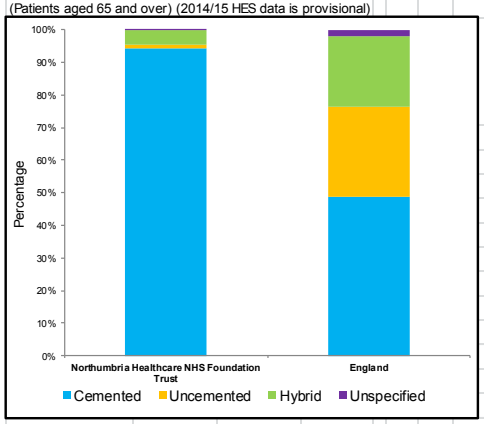


Hips

3. Fixation method for Hip Replacements (% of total)

Timeframe: 1 Apr 2014 to 31 Mar 2015

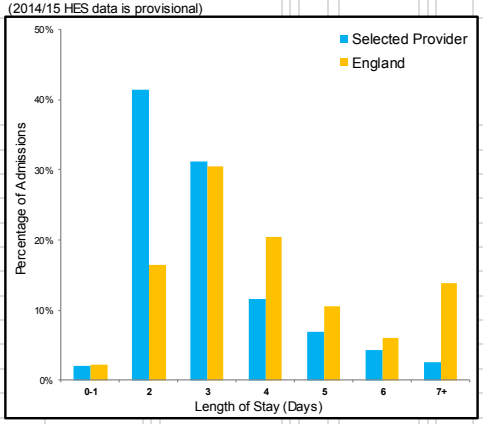
(Patients aged 65 and over) (2014/15 HES data is provisional)



4b. Length of Stay for primary Hip replacements

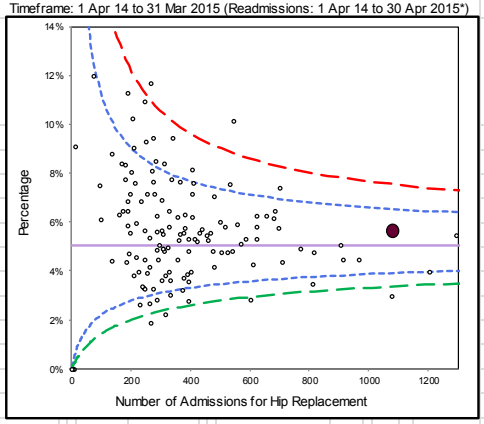
Timeframe: 1 Apr 2014 to 31 Mar 2015

(2014/15 HES data is provisional)



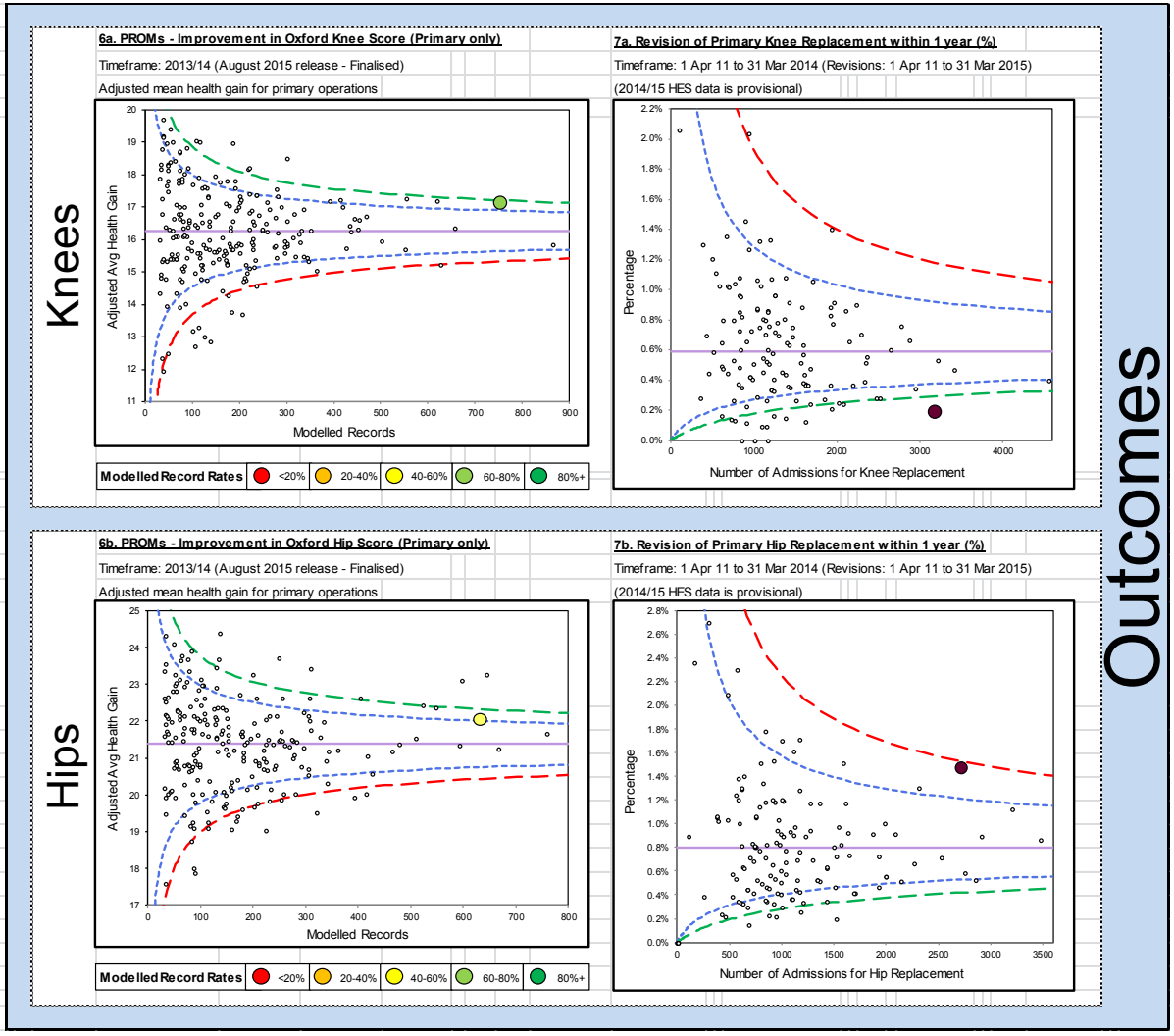
5b. Percentage of primary Hip replacements that have an Emergency ReAdmission within 30 days

Timeframe: 1 Apr 14 to 31 Mar 2015 (Readmissions: 1 Apr 14 to 30 Apr 2015*)



Viewing PROMs together with clinical outcome data

North East Quality Observatory Service



Other considerations for hip and knee replacements

Patient flows from CCGs to providers

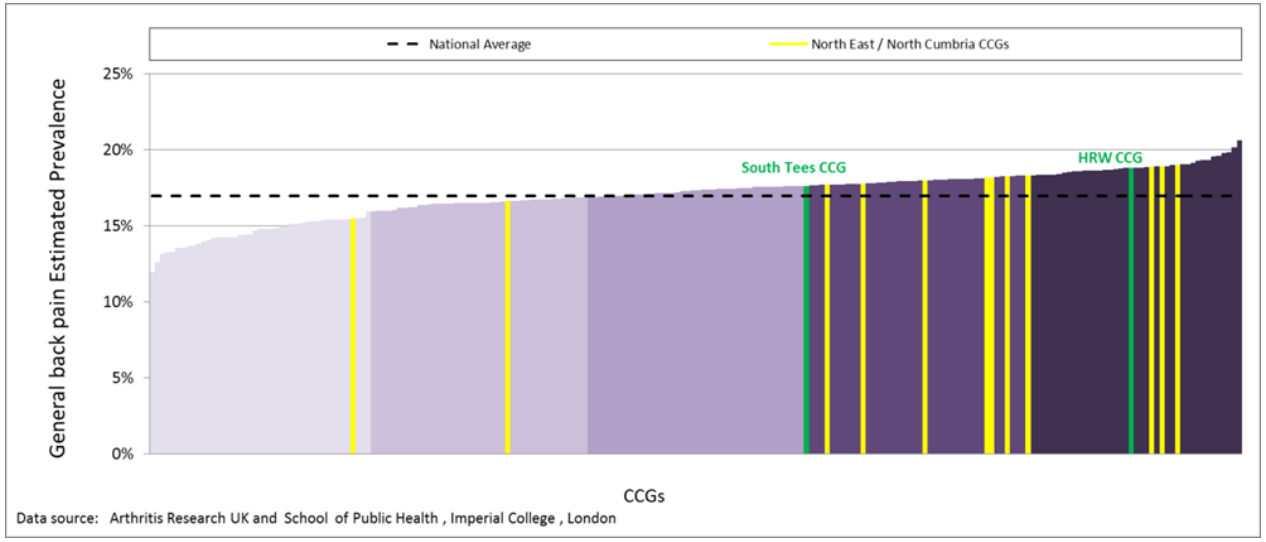
- Proportion of cases and variation in case-mix between patients going to different NHS Trusts and Independent Sector providers
- NJR and PROMs data is reported at a provider level so need to understand patient flows to interpret data

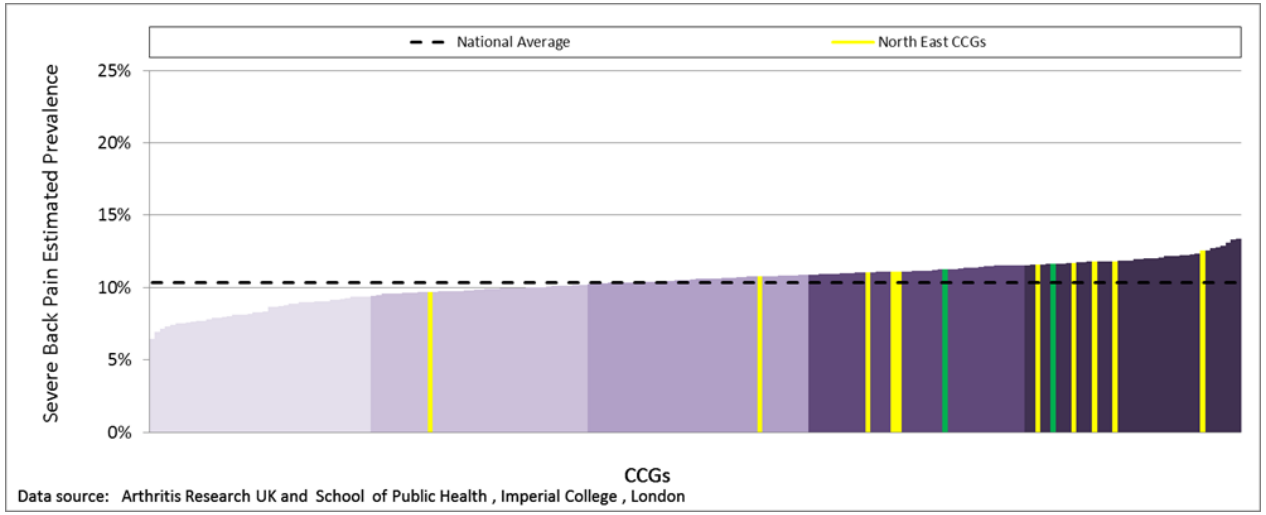
Independent Sector providers

- Variation in the facilities available at the Independent Sector providers
  - Many do not have High Dependency Units (HDUs) so are less likely to take cases that are high anaesthetic risk
  - Often do not undertake revision cases or complex primary cases
- May provide more intensive physiotherapy across the pathway of care as caseload is less complex and more predictable
- Difference in case-mix makes it difficult to compare outcomes

Back pain prevalence estimates

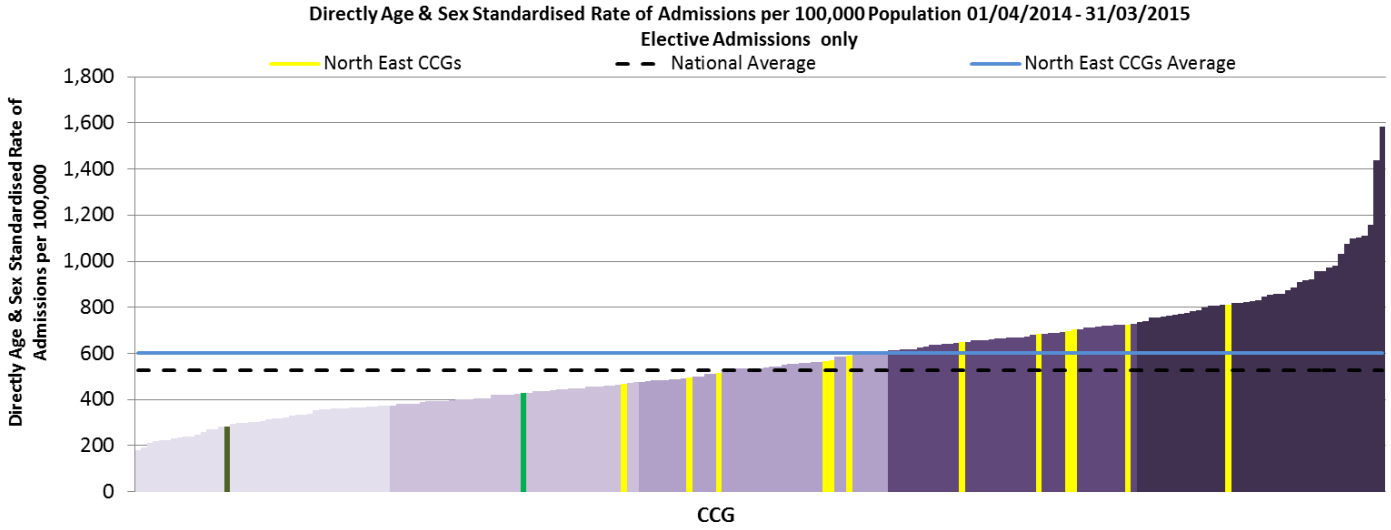
North East Quality Observatory Service





Secondary care activity

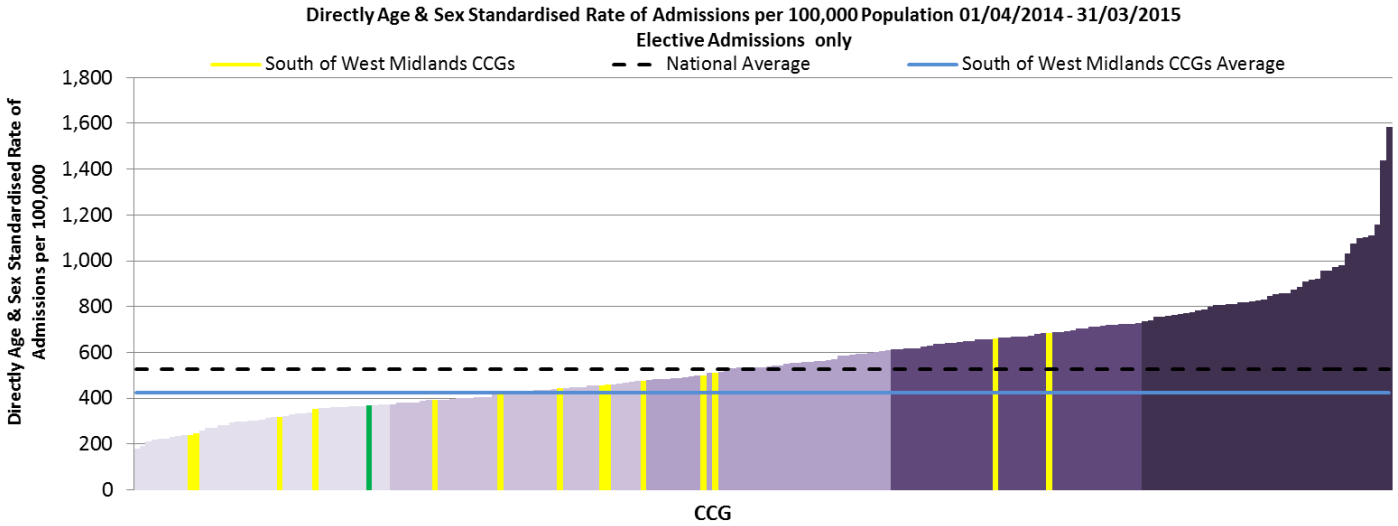
North East Quality Observatory Service



Highlighted CCGs:

NHS SOUTH TEES CCG

NHS HAMBLETON, RICHMONDSHIRE AND WHITBY CCG



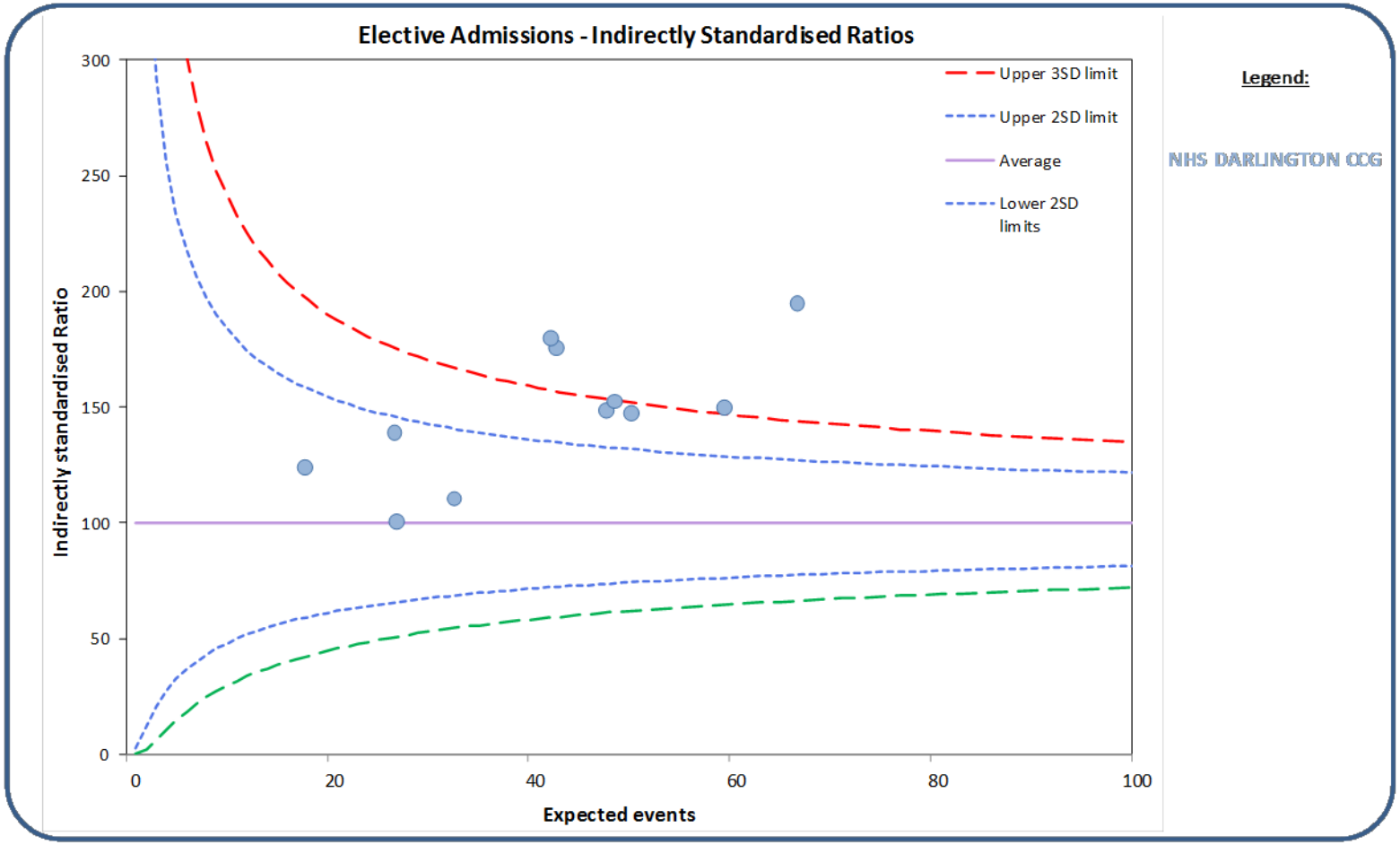
Highlighted CCGs:

Birmingham Crosscity

Variation by GP practice in elective admission rates

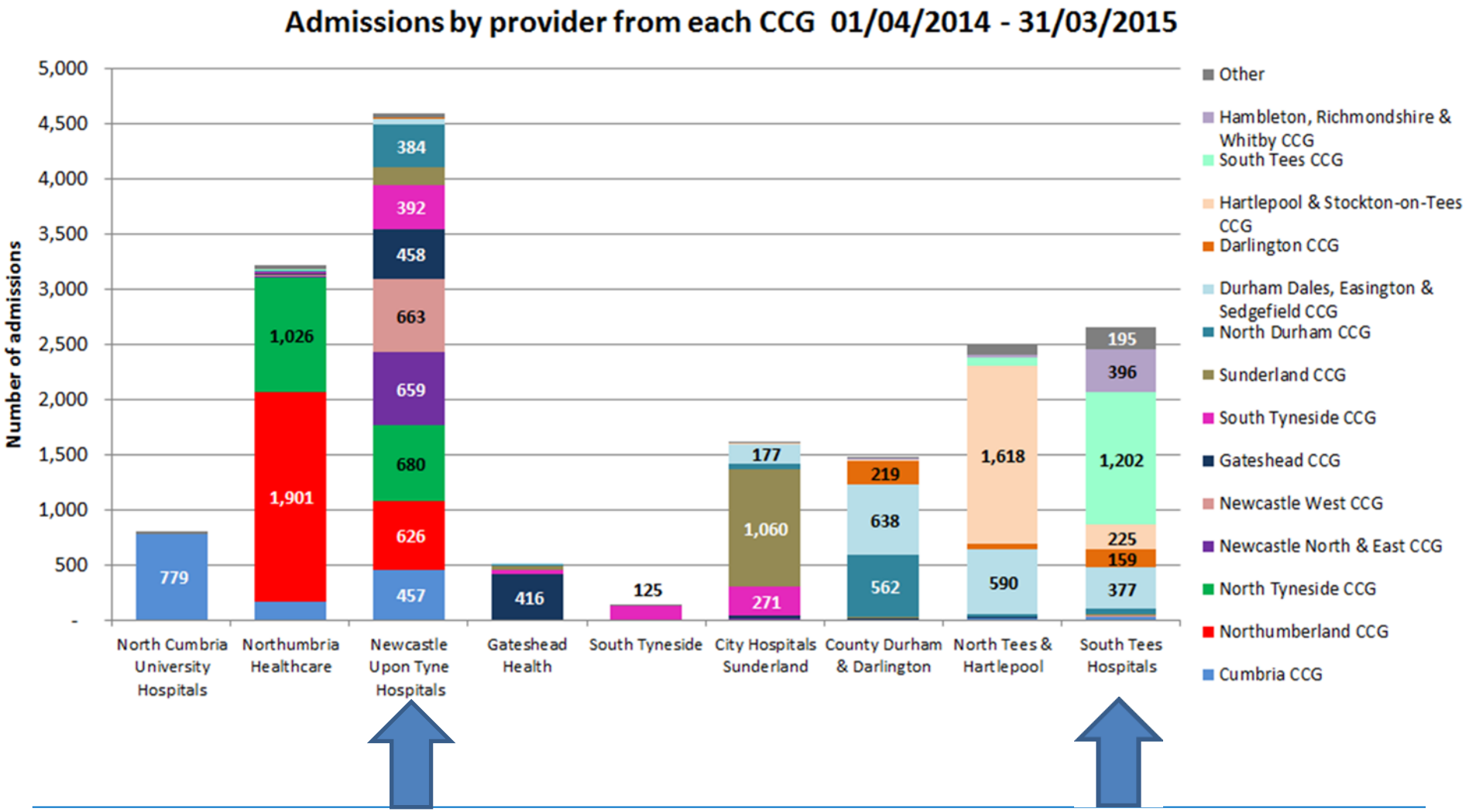
North East Quality Observatory Service

a. Hospital admissions for back pain (Elective admissions), Indirectly Standardised Ratio
Darlington



Patient flows by Trust

North East Quality Observatory Service



Patient flows by CCG

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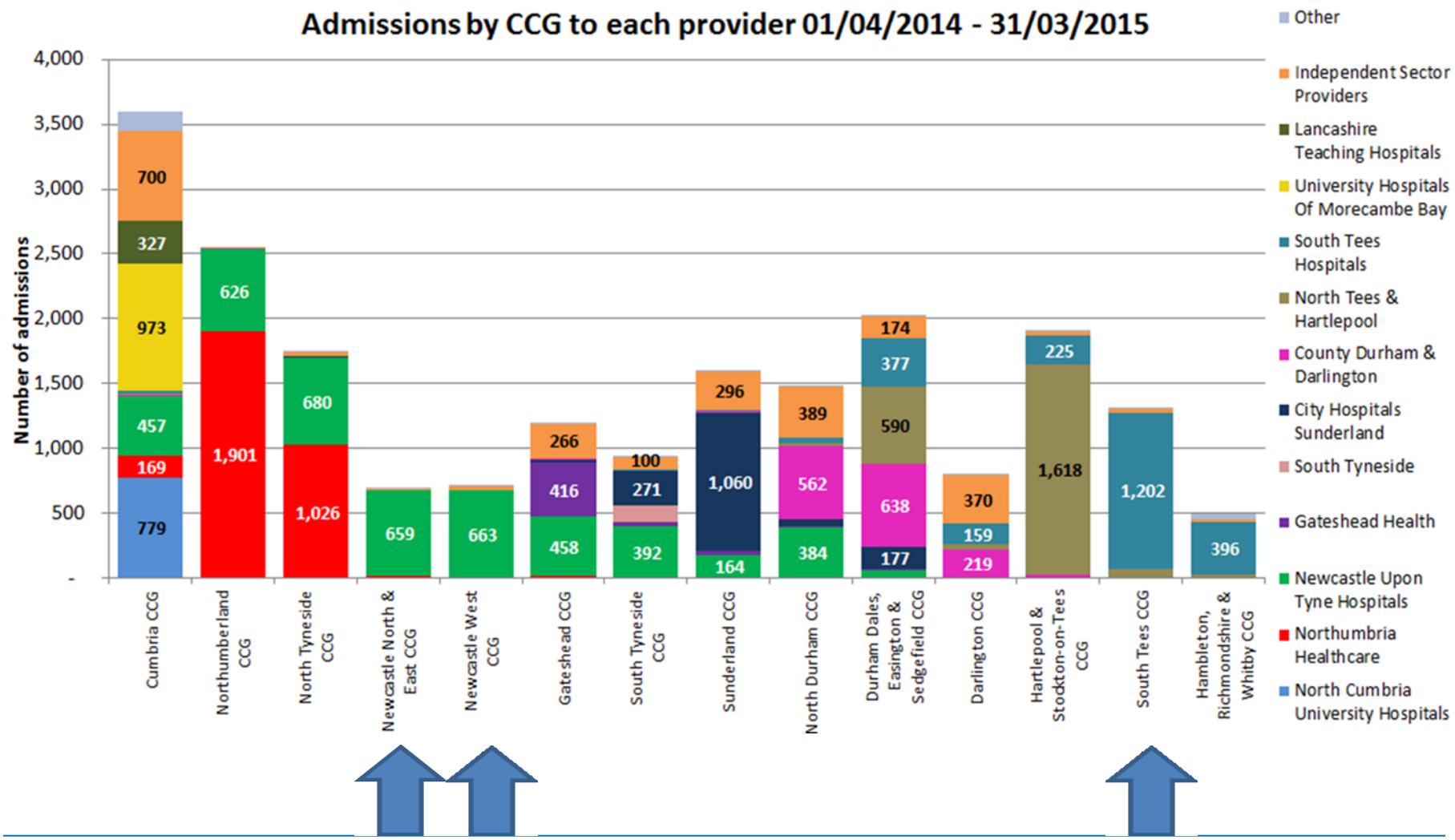
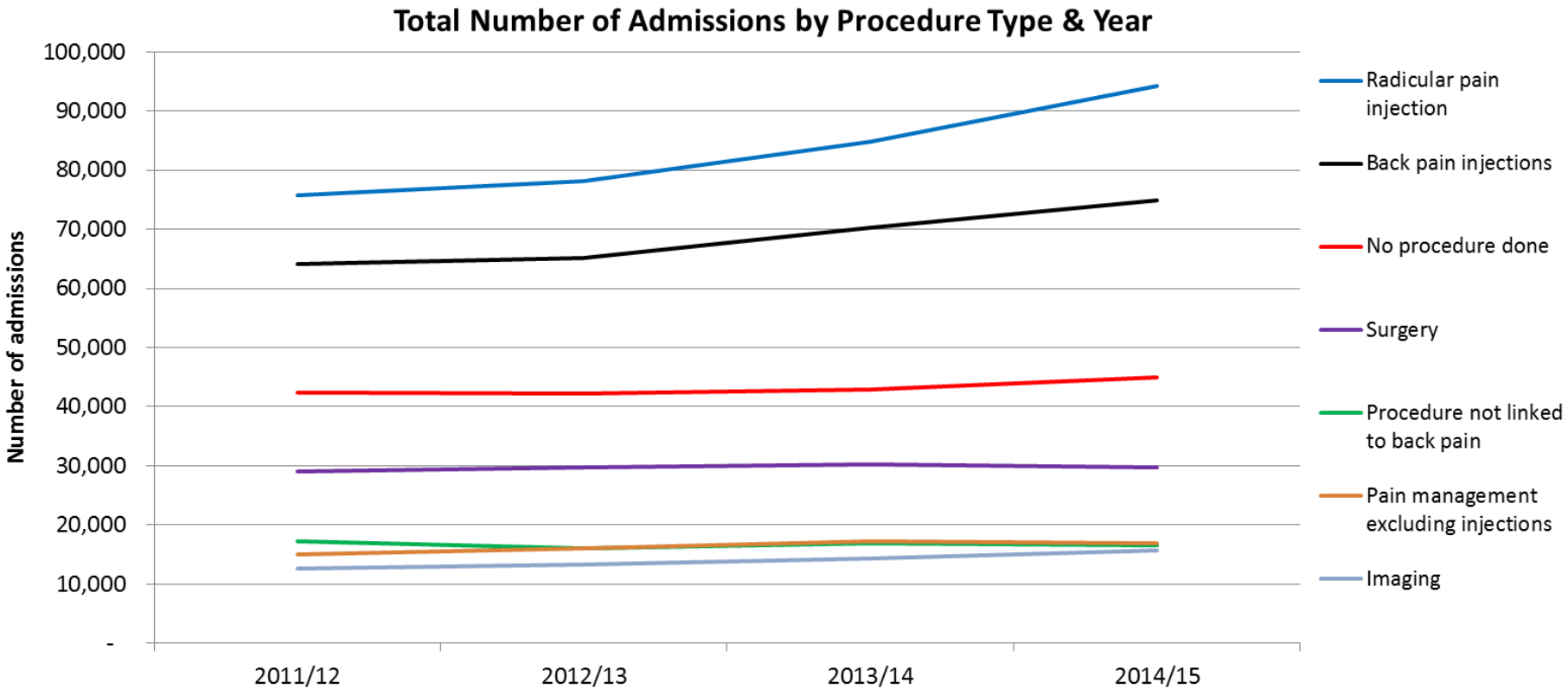
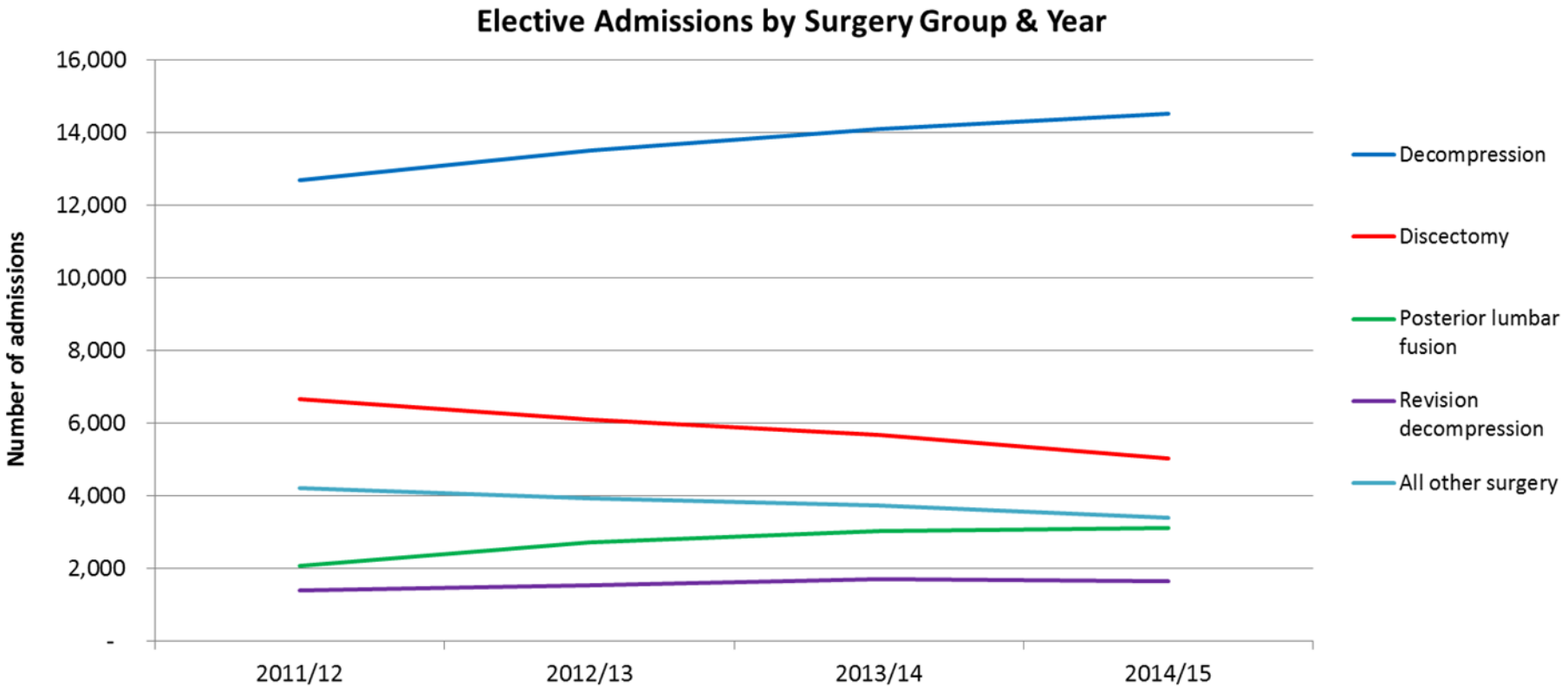


Planned care procedure trends

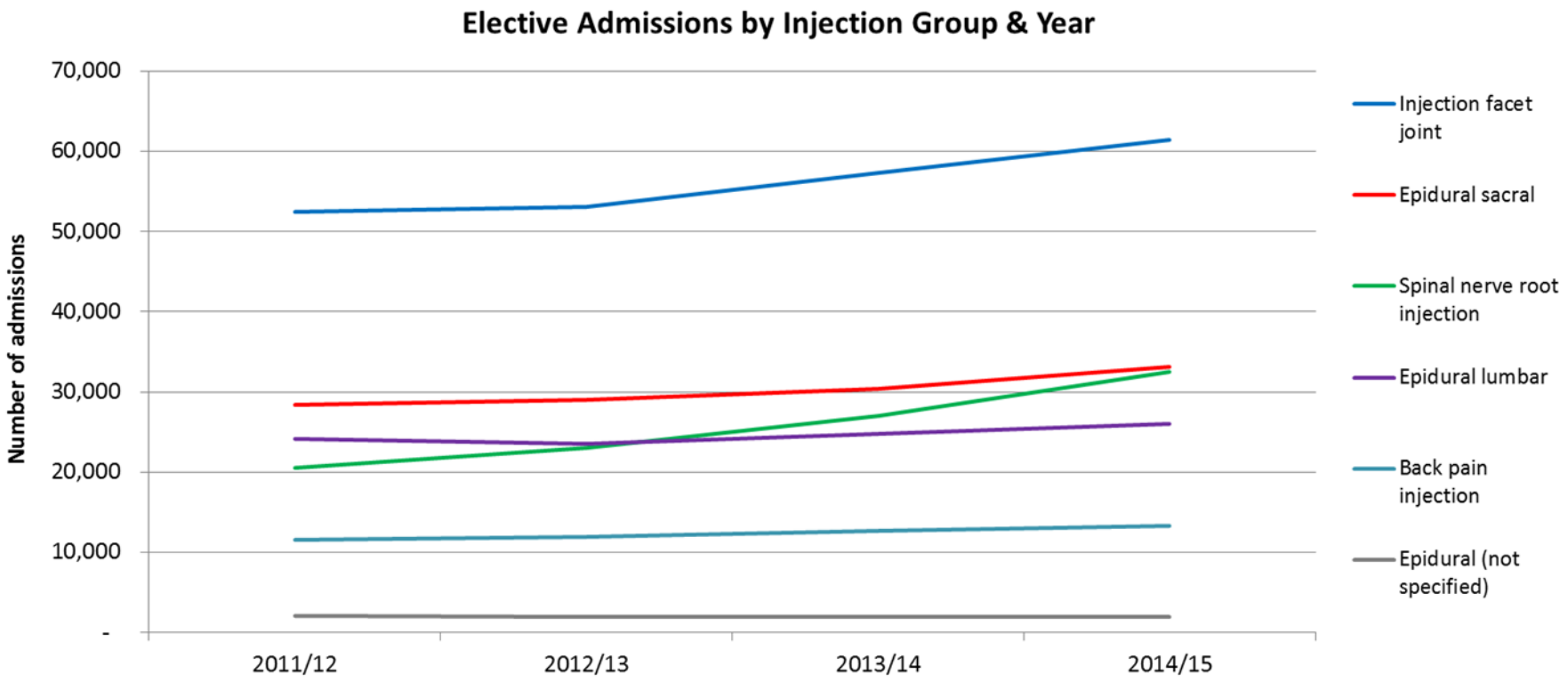
North East Quality Observatory Service



Surgery trends



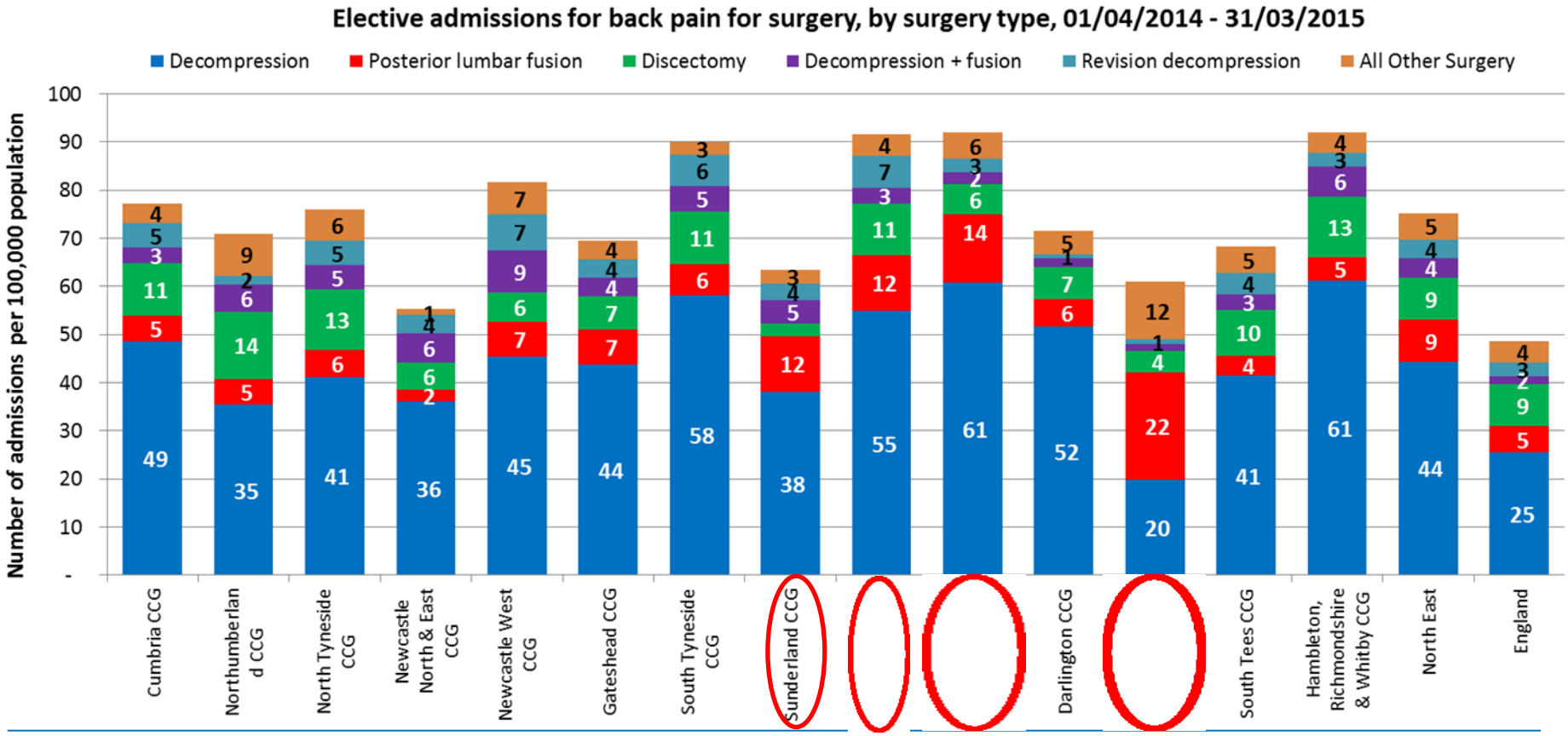
Injection trends



Rates of elective admissions for types of surgery by CCG

North East Quality Observatory Service

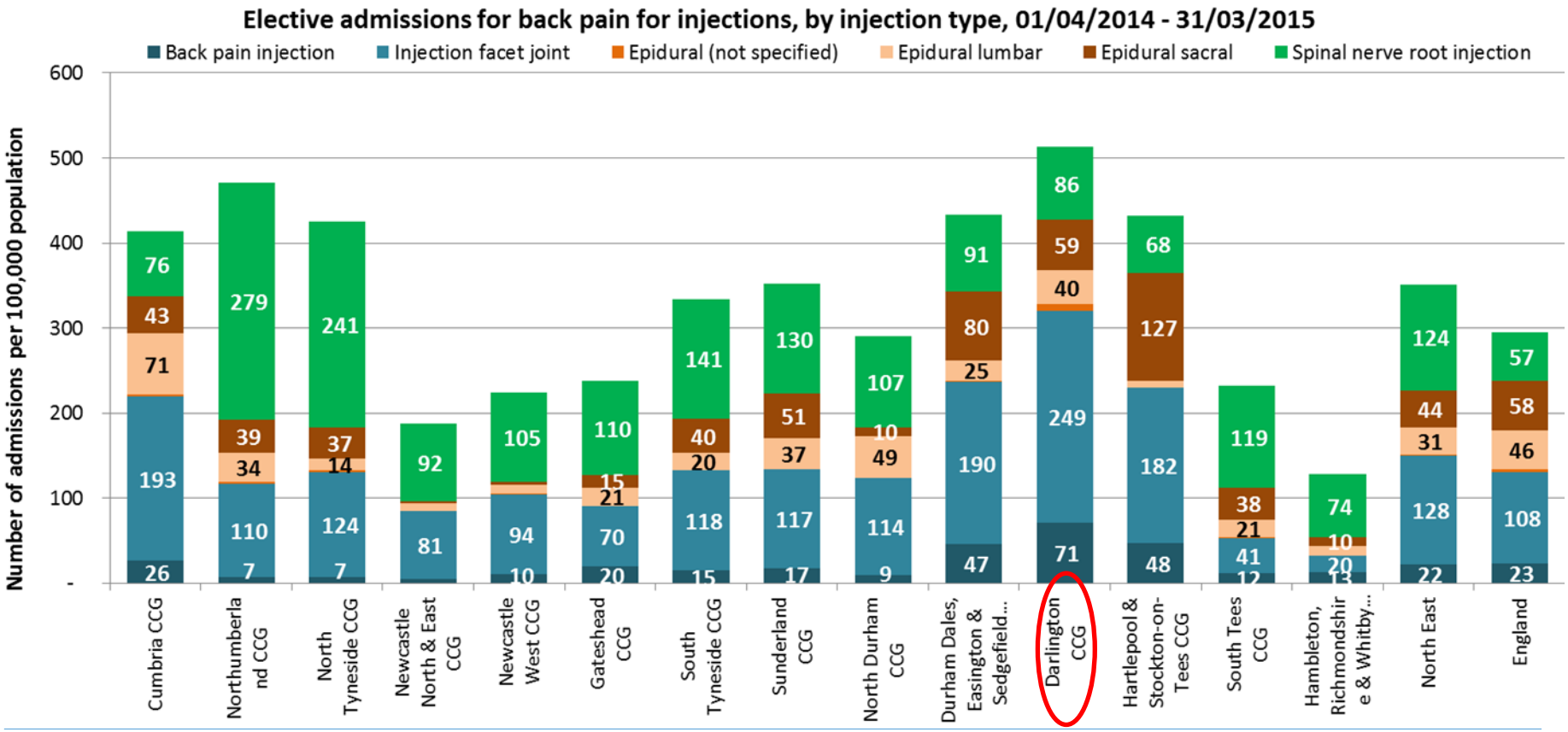
- Wide variation in rates of surgery across North East and North Cumbria CCGs – all higher than national average.
- North East and North Cumbria region has almost twice the rate of fusions driven by high activity in 4 CCGs, most notably Hartlepool and Stockton-on-Tees



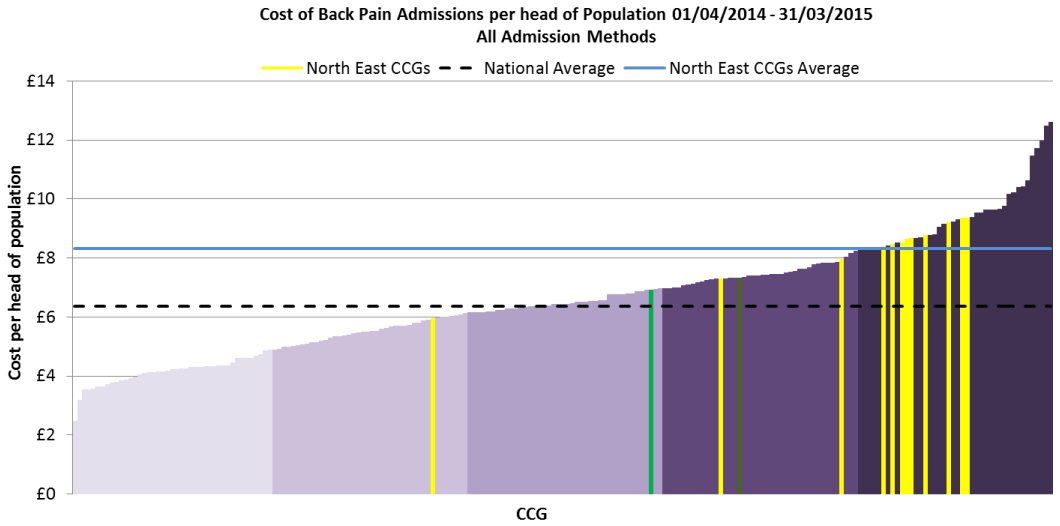
Rates of elective admissions for types of injections by CCG

North East Quality Observatory Service

- Wide variation in rates of injections across North East and North Cumbria CCGs with 6 CCGs below national rates and 8 higher
- Darlington CCG has over twice the rate of admissions for injections compared to national rate driven mainly by very high rates of lumbar facet joint injections compared to national average



Back pain costs for all hospital admissions



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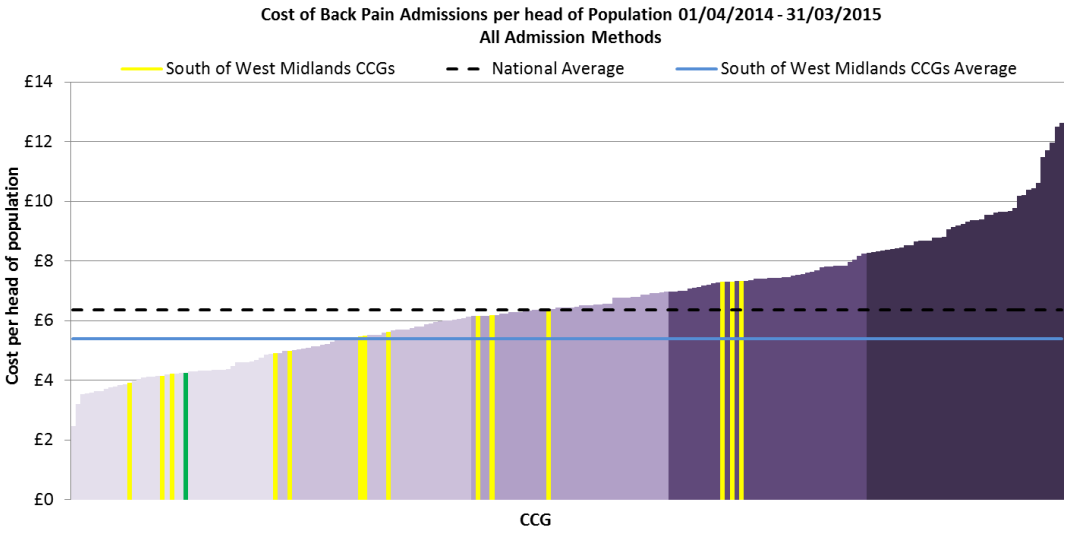

Highlighted CCGs:

Birmingham Crosscity

Back pain costs for elective admissions by procedure group

North East Quality Observatory Service

Hospital admissions Elective Admissions cost data by procedure group for low back and radicular pain in people aged 16 years and over (April 2014 - March 2015)

- Costs for surgery greatest for most CCGs followed by injections.
- Some CCGs are spending more on injections for back pain (e.g. lumbar facet joint injections) than radicular pain (e.g. spinal nerve root injections and epidurals)
- Darlington CCG spent more on injections than on surgery in 2014/15

CCG Name	Procedure not linked to back pain	Back pain injections	Imaging	No procedure done	Other non-surgical	Pain management excluding injections	Radicular pain injection	Surgery	Total Cost
NHS CUMBRIA CCG	£ 312,224	£ 669,491	£ 8,218	£ 45,700	£ -	£ 121,004	£ 622,151	£1,748,388	£ 3,527,176
NHS DURHAM DALES, EASINGTON AND SEDGEFIELD CCG	£ 157,770	£ 442,008	£ 18,246	£ 1,765	£ -	£ 99,282	£ 368,835	£1,271,887	£ 2,359,792
NHS NORTHUMBERLAND CCG	£ 229,918	£ 228,770	£ 10,673	£ 9,244	£ -	£ 89,901	£ 692,865	£1,036,642	£ 2,298,014
NHS HARTLEPOOL AND STOCKTON-ON-TEES CCG	£ 186,908	£ 446,826	£ 9,377	£ 3,048	£ 2,334	£ 61,697	£ 388,127	£1,092,222	£ 2,190,538
NHS SUNDERLAND CCG	£ 245,755	£ 226,364	£ 6,497	£ 16,723	£ -	£ 30,713	£ 387,531	£1,033,005	£ 1,946,588
NHS NORTH DURHAM CCG	£ 134,230	£ 179,176	£ 4,878	£ 12,288	£ -	£ 72,663	£ 253,897	£1,109,325	£ 1,766,457
NHS NORTH TYNESIDE CCG	£ 179,743	£ 167,195	£ 7,318	£ 3,042	£ -	£ 70,156	£ 385,744	£ 740,368	£ 1,553,566
NHS SOUTH TEES CCG	£ 96,342	£ 93,625	£ 6,497	£ 8,265	£ -	£ 80,621	£ 322,658	£ 896,868	£ 1,504,876
NHS GATESHEAD CCG	£ 89,429	£ 112,100	£ 3,243	£ 10,504	£ -	£ 51,586	£ 176,883	£ 647,585	£ 1,091,330
NHS SOUTH TYNESIDE CCG	£ 71,080	£ 115,081	£ 4,529	£ 2,832	£ -	£ 23,349	£ 194,315	£ 611,921	£ 1,023,108
NHS HAMBLETON, RICHMONDSHIRE AND WHITBY CCG	£ 71,086	£ 30,494	£ 2,878	£ 2,630	£ -	£ 25,777	£ 83,870	£ 620,894	£ 837,629
NHS NEWCASTLE WEST CCG	£ 81,450	£ 79,083	£ 1,776	£ 1,413	£ -	£ 23,280	£ 97,337	£ 519,895	£ 804,234
NHS DARLINGTON CCG	£ 69,282	£ 217,978	£ 2,838	£ -	£ -	£ 22,466	£ 131,838	£ 341,060	£ 785,462
NHS NEWCASTLE NORTH AND EAST CCG	£ 76,947	£ 85,022	£ 5,697	£ 706	£ -	£ 39,441	£ 102,436	£ 364,375	£ 674,624

Summary

Measurement can support commissioners and providers to identify priorities for implementing best practice by understanding:

- Burden of disease and prevalence of MSK disorders
- Process of care
  - Variation in overall activity levels compared to national view
  - Variation in rates of different procedures used for back pain
  - Monitoring reductions in length of stay against unintended consequences of increasing emergency readmissions
- Outcomes
  - PROMs for joint replacement
  - Clinical outcomes (e.g. revisions of primary replacements within a year)
  - *Note: need to develop robust outcome measures to evaluate back pain procedures, particularly injections and other non-surgical interventions*
- Current costs and opportunities for savings where there are high rates of procedures of limited clinical value

Acknowledgements:

Analyses undertaken by NEQOS analysts Adam Fearing, Andrea Brown, Paul Hawkins and Valerie Corris.

Professor Charles Greenough (National Clinical Director for Spinal Disorders) provided expert clinical advice for agreeing codes used for back pain analyses. These codes have been supported by Mr Ashley Cole, Chair of Specialised Spinal Surgery Clinical Reference Group.

Hip and knee dashboard uses procedure codes defined by the National Joint Registry for hip and knee replacements. Use of these codes has been support by national clinical experts including Tim Wilton (President BOA), John Nolan (BHS) and Richard Parkinson (BASK).

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NEQOS is jointly hosted by Northumberland, Tyne & Wear and South Tees Hospitals NHS Foundation Trusts