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The Knee



Implications of the getting it right first time initiative for regional knee arthroplasty services

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ABSTRACT

Study aim: The aim of this case study of regional orthopaedic practice was to estimate the potential impact of the GIRFT recommendations (iGIRFT) of minimum unit and surgeon specific volumes to orthopaedic units within the Severn Region, UK.

Method: Practice profiles for surgeons and units were generated using the UK National Joint Registry Surgeon and Hospital Profile Database. Minimum volume thresholds were set at 13 procedures/year for surgeons and 30 procedures/year for units.

Results: Five thousand five hundred seventeen knee arthroplasty procedures were recorded within the Severn Region between 1st of January and 31st December 2012 and these were performed by 94 surgeons in 18 units. During this time, 4232 (76.7%) primary TKR, 751 (13.6%) primary UKR, 97 (1.7%) primary PFJR and 437 (7.9%) revision TKR were performed. Median surgeon volumes were 33 (range two to 180) for primary TKR, ten (range 2 to 64) for UKR, two (range two to 41) for PFJR and five (range two to 57) for Revision TKR. Amongst 48 surgeons performing UKR, 26 (54%) performed less than 13 procedures per year accounting for 108 (14%) procedures. Amongst 20 surgeons performing PFJR, 19 (95%) performed <13/year, accounting for 56 (58%) of cases. Fifty surgeons performed revision TKR with 37 (74%) performing <13 revisions per annum, accounting for 151 (35%) procedures. Amongst 16 units performing UKR, eight (50%) performed <30/year, accounting for 16% overall. Revision TKR was performed in 15 units whilst eight (53%) performed <30/year, accounting for 62 (15%) cases.

Conclusion: We have hypothesised the impact of implementing minimum unit and surgeon volume thresholds for the organisation of regional arthroplasty services. Our analysis suggests that whilst these effects may be considerable, they may be mitigated by local rationalisation to achieve an appropriate caseload mix.

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1. Introduction

The Getting it Right First Time (GIRFT) Report was released in September 2012 and identified the challenges faced by UK Orthopaedic Services to meet the arthroplasty demands of an ageing population [1]. To address some of the challenges faced, the GIRFT Report suggested a number of organisational changes that include the introduction of minimum annual procedure case-loads and centralisation of complex procedures to those units with appropriate expertise and a “critical mass” of the procedures in question.

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Two recent studies have examined joint registry data and suggest an inverse relationship between surgeon and unit procedure volume and revision rate for unicondylar knee replacements [2,3]. Extrapolation of this work has helped to establish minimum unit and surgeon procedure volumes necessary to achieve acceptable revision rates for primary total knee replacement (TKR), patellofemoral joint replacement (PFJ) and revision TKR.

The aim of this study was to estimate the impact of implementing minimum surgeon and unit volumes upon the organisation of regional knee arthroplasty services using the Severn Region as a case study.

2. Materials and methods

All knee arthroplasty procedures recorded for the Severn Region within the National Joint Registry [4] between 1st of January 2012 and 31st December 2012 were included. Surgeon and unit level data was compiled from the NJR Surgeon and Hospital profile service and collated to allow analysis [5].

Threshold surgeon and unit volumes were set based upon observations in the literature and direct dialogue with the author of the GIRFT Report. The Surgeon level threshold was thus set at 13 procedures per year for each arthroplasty procedure, whilst each unit would be expected to achieve a minimum of 30 cases of each arthroplasty procedure per annum. A revision “hub” would be expected to exceed 100 cases per annum in accordance with those recommendations already implemented within the Sarcoma network, in recognition of the complex nature of this work.

2.1. Data handling

Unit and surgeon caseloads were compiled from the 2012 NJR Surgeon and Hospital database. Where volume case loads were reported as <5 per annum, data were adjusted to reflect a volume of two procedures performed for the time period studied. Whilst this assumption was necessary to allow data analysis to be performed we do recognise that it has introduced an element of inaccuracy. All data was collected and analysed in Excel 2011 V14.1 (Microsoft Corporation). 95% confidence intervals were calculated using the CausaScientia calculator which uses a Bayesian approach (<http://www.causascientia.org>).

3. Results

Five thousand five hundred seventeen knee arthroplasty procedures were recorded within the Severn Region between 1st of January and 31st December 2012 and these were performed by 94 surgeons in 18 units. During this time, 4232 (76.7%, 95% C.I. 75.6 to 77.8%) primary TKR, 751 (13.6%, 95% C.I. 12.7 to 14.5%) primary UKR, 97 (1.7%, 95% C.I. 1.4 to 2.1%) primary PFJR and 437 (7.9%, 95% C.I. 7.2 to 8.6%) revision TKR were performed.

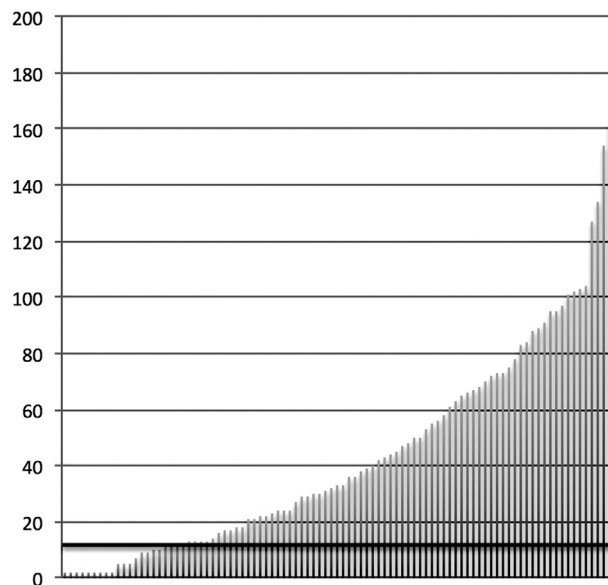


Figure 1. Primary TKR volume by surgeon in 2012 (4232 cases). Each bar represents the practice of a single surgeon. Horizontal line depicts surgeon level threshold volume (13 cases/yr).

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