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SPINE

The impact of a spinal best practice tariff on compliance with the British Spine Registry

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Aims

The British Spine Registry (BSR) was introduced in May 2012 to be used as a web-based database for spinal surgeries carried out across the UK. Use of this database has been encouraged but not compulsory, which has led to a variable level of engagement in the UK. In 2019 NHS England and NHS Improvement introduced a new Best Practice Tariff (BPT) to encourage input of spinal surgical data on the BSR. The aim of our study was to assess the impact of the spinal BPT on compliance with the recording of surgical data on the BSR.

Methods

A retrospective review of data was performed at a tertiary spinal centre between 2018 to 2020. Data were collated from electronic patient records, theatre operating lists, and trust-specific BSR data. Information from the BSR included operative procedures (mandatory), patient consent, email addresses, and demographic details. We also identified Healthcare Resource Groups (HRGs) which qualified for BPT.

Results

A total of 3,587 patients were included in our study. Of these, 1,684 patients were eligible for BPT. Between 2018 and 2019 269/974 (28%) records were complete on the BSR for those that would be eligible for BPT. Following introduction of BPT in 2019, 671/710 (95%) records were complete having filled in the mandatory data ($p < 0.001$). Patient consent to data collection also improved from 62% to 93%. Email details were present in 43% of patients compared with 68% following BPT introduction.

Conclusion

Our study found that following the introduction of a BPT, there was a statistically significant improvement in BSR record completion compliance in our unit. The BPT offers a financial incentive which can help generate further income for trusts. National data input into the BSR is important to assess patient outcome following spinal surgery. The BSR can also aid future research in spinal surgery.

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Introduction

The British Spine Registry (BSR) was introduced in May 2012 as a web-based database for spinal surgeries performed in the UK. Prior to the introduction of the BSR, there was no national registry collecting data on spinal surgical outcomes in the UK. The BSR collates information on patient outcomes including following surgery for spinal tumours, spinal deformity, and degenerative spinal conditions. The aim of the BSR is to provide a database to allow further analysis and evaluate outcomes following spinal surgery.[1]

The National Joint Registry (NJR) was introduced in 2003 and has over 3 million records to date, making it one of the largest registers of this kind in the world.[2] The NJR has allowed analysis of patient outcomes, led to technological advances of implants, and reports surgeon-specific outcomes.

Data submission was made compulsory for NHS organisations in 2011.[3] Spinal surgery has lagged behind arthroplasty

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regarding a national mandatory registry.[4] A total of 60% of UK hospital income was previously calculated via the payment by results system. This scheme is based on nationally determined units of healthcare known as Healthcare Resource Groups (HRGs) and incorporates specific groups of diagnoses and procedures. Each HRG covers a unit of care and the price reimbursed to the organization is based on the national average cost of treating patients in that HRG.[5,6] In 2019, the Department of Health introduced a Best Practice Tariff (BPT) scheme for the BSR and spinal surgery.[5] The BPT provides an additional financial top-up for excellence in clinical practice. To qualify for the BPT, 50% of operative procedures should be recorded in the BSR by the hospital trust, with an aim to increase the case ascertainment rate to over 80% in the future. In the year prior to the introduction of the BPT, the Commissioning for Quality and Innovation framework (CQUIN) introduced measures and payment triggers in 2017/18 for BSR data entry.[7]

The BPT allows the full spinal tariff to be claimed for the procedure. The base price for each HRG is 90% of the income for the procedure with a conditional top-up payment of 10% if all procedure data was inputted into the BSR. The procedure note on the BSR would include information such as patient risk factors, type and details of surgery, American Society of Anesthesiologists grade, operating surgeon, complications, etc. This section is mandatory and would need to be completed in its entirety to qualify for the BPT. Though patient details, consent, and email are desirable, these are not mandatory for the BPT to be paid and the information would be anonymized if not present.[1,4]

There have been many studies looking at how BPT affects clinical practice and patient outcome.[8,9] Literature observes that improving upon mandatory tariff requirements can provide a greater financial reward for the institutions. BPT is often not achieved due to clerical errors and a "disconnect between management and clinical staff".[10]

The primary aim of this study was to assess the difference in BSR compliance before and after the introduction of a BPT. The secondary aim is to analyze whether the impact of a dedicated taskforce for BSR entry can benefit a trust in qualifying for the BPT.

Methods

A retrospective review of a collated spinal database was performed in a single tertiary orthopaedic hospital specializing in degenerative spinal pathology, spinal deformity, and spinal tumours. The database collated information on all patients who underwent spinal surgery between April 2018 and April 2020. Exposure covariates recorded in the database included patient demographic characteristics (sex, age), surgical procedures, patient consent to data input into the BSR, and patient consent to be contacted via email. Data were compared with a control group of patients who underwent a spinal surgery prior to introduction of the BPT at our institution.

The primary outcome was to assess the compliance of mandatory data entry (input of procedure note) into the BSR pre- and post-implementation of the BPT in January 2019. NHS Improvement has set a standard of 50% to qualify for the BPT for selected spinal procedures.[5] Secondary outcomes to be investigated were recording of patient consent to data input into the BSR, and email addresses collected to complete patient-reported outcome scores (PROMs).

Statistical analysis. Categorical data were compared using Fisher's exact test. Continuous data were analyzed using a paired *t*-test. Significance was set at $p < 0.05$. Analyses were performed using R package (R Foundation for Statistical Computing, Austria).

Table I. British Spine Registry data entry for all Healthcare Resource Groups in spinal surgery.

Data entry	BPT/HRG 18 to 19	BPT/HRG 19 to 20
Mandatory Data complete	269	671
Mandatory Data incomplete	705	39
Total	974	710

Mandatory Data is a fully completed Procedure Note on the BSR.
BPT, Best Practice Tariff; HRG, Healthcare Resource Group.

Table II. British Spine Registry data entry for all spinal surgical procedures.

Variable, n	2018 to 2019	2019 to 2020
Total number of procedures	2,540	1,047
Mandatory procedure note completed	275	881
Consent	1,567	980
Email	1,095	707

Results

Best practice tariff eligible data. Out of 3,587 patients included in the study, 1,684 classified as HRG from 2018 to 2020. These were the patients to whom the BPT would apply based on the procedure and payment criteria set out by NHS England.[11] Of these, 974 cases were classified as HRG between 2018 and 2019 and 710 between 2019 and 2020 (Table I). There was a statistically significant improvement of mandatory procedure data entry into the BSR from 28% (269/974) to 95% (671/710) following the introduction of the BPT ($p < 0.001$, Fisher's exact test).

Other BSR data. Following the introduction of the BPT, the trust improved in both mandatory (procedure note) and non-mandatory BSR domains (patient consent and email) in all spinal procedures carried out irrespective of whether it was a HRG (Table II). There were a total of 2,540 operative cases between 2018 and 2019 and 1,047 between 2019 and 2020.

Between 2018 and 2019, the BPT for spinal procedures was not present and compliance was low. For a total number of spinal cases done between 2018 and 2019, the compliance for mandatory data entry was 10.8% (275/2,540). This improved to 84% (881/1,047) between 2019 and 2020 for all spinal surgical patients ($p < 0.001$, Fisher's exact test).

Consent to BSR in all patients was 61.7% (1,567/2,540) between 2018 and 2019 and this significantly improved to 93% (980/1,047) the following year ($p < 0.001$, Fisher's exact test). Attaining email details for patients also improved significantly from 43.1% (1,095/2,540) to 67.5% (707/1,047) ($p < 0.001$, Fisher's exact test).

Discussion

Following the introduction of a BPT for spinal surgery, there was a clear improvement in the overall compliance for BSR data entry in the trust. In 2018/19, BPTs were not applicable and only 28% of cases were completed on the BSR. A concern for our trust was the inability to meet mandatory BSR compliance following introduction of the BPT leading to a potential reduction in financial income. With this in mind, adequate administrative support was provided by the trust with resource allocation and a clearly defined system put into place.

Suc et al[12] and Sale et al[13] have shown that change management models in a hospital setting can be successful. The success in our institution was predominantly due to a culture shift with clinicians engaging more with an appropriately resourced system pathway. The trust employed a Spinal Outcomes Co-ordinator who co-ordinated BSR data entry, which was one of the key factors to achieving the BPT. Clinical staff were only asked to input the surgical procedures details onto the BSR and compliance increased from 10.8% to 84% in all spinal surgical procedures following the introduction of the BPT.

NHS Improvement published spinal surgery BPT reports for the first and second quarters of 2019/20. The trust was able to reach the 50% target in the first two quarters to qualify for the BPT. Nationally, our trust had one of the best achievement rates in the country against other high-volume centres.[14] The authors felt that with a dedicated role given to the Spinal Outcomes Co-ordinator, the clinical staff were adequately supported from an administrative point of view. The authors highly encourage to use of administrative staff for data input into the BSR rather than clinicians.

Acquiring patients' email addresses improved from 43.1% to 67.5%; however, few patient responses were received regarding patient reported outcome measures (PROMs). This highlights the question of whether the registry and the BPT improves reporting of patient outcomes. Due to the poor PROMs, the BSR may have a limited impact upon clinical decision-making. Even with clinician compliance, studies have shown that patient response rates to email surveys can vary, with figures from 43% to 83% being quoted.[15,16]

The NJR is a good example of how registries can help in guiding clinical practice by using patient outcomes and robust data regarding implant failures.[17] If compliance in gathering patient outcomes is poor, there is a risk that a registry could be used as surgeon surveillance instead which in turn may lead to higher-risk cases being avoided.[18]

One of the issues in this study was distinguishing whether BSR compliance improved due to administrative support for clinicians or due to the introduction of the BPT. The authors feel that compliance would have improved even without administrative support, but not to the same extent. A national audit of compliance of trusts with BSR would allow for a comparison between institutions.

In conclusion, this is the first UK study to compare compliance with the BSR pre- and post-introduction of the BPT. Our study highlights the way in which financial incentives for trusts can change practice significantly and the importance of administrative support to achieve such targets. The authors would advise other tertiary spinal units to have dedicated administrative support for BSR data entry.

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- A. Habeebullah: Collected and analyzed the data, Wrote the manuscript.
- H. D. Rajgor: Collected and analyzed the data, Wrote the manuscript.
- A. Gardner: Edited the manuscript.
- M. Jones: Initiated the project. Edited the manuscript.

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