Surgeons’ knowledge about the costs of orthopaedic implants

Lebur Rohman, Saifullah Hadi, George Whitwell
1 York Hospital, York, United Kingdom
2 Leeds Teaching Hospitals, Leeds, United Kingdom

ABSTRACT

Purpose. To investigate consultant surgeons’ knowledge about the costs of implants for various joint surgeries.

Methods. Questionnaires were distributed to consultant orthopaedic surgeons at 2 hospitals. Respondents were asked to estimate the implant costs of any brand for low-demand and high-demand total hip replacement (THR), total knee replacement (TKR), uni-compartmental knee replacement, arthroscopy shaver blade, total anterior cruciate ligament (ACL) fixation, and meniscal repair. The actual cost of each implant was obtained from the manufacturer.

Results. 16 consultant surgeons completed the questionnaires. The respective mean estimated and actual costs for a low-demand THR implant were £1714 (range, £600–3000) and £1448 (range, £985–2335), with an overestimation of 18.4%. The respective costs for a high-demand THR implant were £2172 (range, £600–6000) and £1737 (range, £1192–2335), with an overestimation of 25%. The respective costs for a TKR implant were £1550 (range, £600–6000) and £1316 (range, £995–1535), with an overestimation of 17.8%. The respective costs for a uni-compartmental knee replacement implant were £1040 (range, £600–2000) and £1296 (range, £698–1470), with an underestimation of 19.7%. The respective costs for an arthroscopy shaver blade were £110 (range, £75–150) and £94 (range, £80–100), with an overestimation of 16.6%. The respective costs for a total ACL fixation implant were £246 (range, £80–500) and £306 (range, £272–335), with an underestimation of 19.4%. The respective costs for a meniscal repair implant were £153 (range, £50–250) and £242 (range, £170–260), with an underestimation of 37%.

Conclusion. The knowledge among consultant orthopaedic surgeons about implant costs was poor. To reduce implant costs, cooperation between surgeons and hospital managers and measures to increase surgeons’ awareness about cost-reduction programmes are needed.

Key words: arthroplasty, replacement, hip; arthroplasty, replacement, knee; prostheses and implants

INTRODUCTION

Total joint replacement for arthritis is more cost-effective than conservative treatments, particularly in an ageing population. In 2011, 71,672 and 84,653 primary total hip replacements (THR) and total knee replacements (TKR), respectively, were recorded in the National Joint Registry of England and Wales.

The costs of total joint replacement include
outpatient consultations, preoperative assessment, theatre time, space, staff, implant cost, length of hospital stay, rehabilitation, and follow-up. In 1998, costs of THR implants varied from £958 to £1337, depending on whether the implants were uncemented, cemented or hybrid; the cost of each type of implant varies greatly worldwide. The mean implant cost ranges from £1120 to £7542 for TKR and from £1491 to £7890 for THR. After taking account of patient, hospital, and non-patient/hospital factors, the variability in cost of knee and hip implants owing to patient factors was only 2.5% and 4.4%, respectively. The implant costs are inflated even after adjusting for patient diagnosis and comorbidities. Various means to reduce implant costs have been suggested, as have cost-effective measures through clinical pathways, physician education, and surgeon awareness. This study investigated consultant surgeons’ knowledge about the costs of implants for various joint surgeries.

MATERIALS AND METHODS

Questionnaires were distributed to consultant orthopaedic surgeons at 2 hospitals in Yorkshire, England. Respondents were asked to estimate the implant costs of any brand for low-demand and high-demand THR, TKR, uni-compartmental knee replacement, arthroscopy shaver blade, total anterior cruciate ligament (ACL) fixation, and meniscal repair. The actual cost of each implant was obtained from its manufacturer.

RESULTS

16 consultant surgeons completed the questionnaires. The respective mean estimated and actual costs for a low-demand THR implant were £1714 (range, £600–3000) and £1448 (range, £985–2335), with an overestimation of 18.4%. The respective costs for a high-demand THR implant were £2172 (range, £600–6000) and £1737 (range, £1192–2335), with an overestimation of 25%. The respective costs for a TKR implant were £1550 (range, £600–6000) and £1316 (range, £995–1535), with an overestimation of 17.8%. The respective costs for a uni-compartmental knee replacement implant were £1040 (range, £600–2000) and £1296 (range, £698–1470), with an underestimation of 19.7%. The respective costs for an arthroscopy shaver blade were £110 (range, £75–150) and £94 (range, £80–100), with an overestimation of 16.6%. The respective costs for a total ACL fixation implant were £246 (range, £80–500) and £306 (range, £272–335), with an underestimation of 19.4%. The respective costs for a meniscal repair implant were £153 (range, £50–250) and £242 (range, £170–260), with an underestimation of 37%.

DISCUSSION

There was a tendency to overestimate the costs of more frequently used implants, and underestimate the costs of less frequently used implants. Although the consultant surgeons may be involved in decision making of implants used by the hospitals, none could correctly estimate the cost of any implant. This may lead to conflicts between surgeons and hospital managers over budget for implants. More cooperation between hospitals and surgeons is needed to drive down the implant costs and provide more cost-effective treatment, especially because the implant costs of different brands vary greatly. Surgeons’ knowledge about implant costs can be determined by multiple factors including their experience, marketing, advertisements, and relationship with the sales representative. Surgeons have long-standing relationships with implant vendors and thus may not have much interest in reducing the implant costs and may restrict themselves to certain companies. Furthermore, a very small proportion of surgeons receive financial payments from implant companies. This raises concerns about conflict of interests. The US government successfully challenged these surgeon-company financial arrangements, in which 5 companies avoided prosecution after agreeing to a set of compliance rules and monitoring. A policy for academic medical centres is proposed. A medical school has banned lunches, gifts, and samples provided by companies. Generally, it is acceptable for surgeons to receive financial reimbursement for implant advisory and/or designs, as patients believe it leads to better care and surgical outcomes, and they trust their surgeons to work with professionalism and integrity when dealing with such companies. These patients are more concerned with quality than cost and are willing to pay for the difference in cost for a better implant if their insurance company does not cover the full cost. Most surgeons feel that they are losing control over the choice of implants to hospitals in the attempt to bring down implant costs. Surgeons frequently change the brand of implant for better clinical results and/or more cost-effectiveness.

To clarify the surgeon-company relationship, guidelines/standards should be provided for...
surgeons to follow and become accountable. Many senior surgeons are thrust into the management team and may not have any training on management or business, and hospital managers are not expected to appreciate the surgeons' priorities. Thus, we suggest setting up a culture of co-production where surgeons, managers, patients, and implant companies work closely together.

Methods to reduce the costs of joint replacement include more effective use of hospital resources through clinical pathways, education of surgeons, increasing awareness among surgeons, implant company discounting, price capping, demand matching, competitive bid purchasing, and single price/case-price purchasing. The current economic model for THR is unsustainable, and more coordinated efforts by surgeons and hospitals are warranted to drive down the costs. Cost awareness programmes for surgeons and volume discounting are most commonly used by hospitals to drive down the implant costs.

In the United States, some city- and state-wide hospitals form a committee comprising administrators, surgeons, hospital managers, and ex-sales staff to lead a coordinated and evidence-based effort at driving down the implant costs, and discuss strategies of physician alignment and savings, procurement and sourcing, group purchasing, and supply chain. It is suggested that financial incentives be provided to stakeholders (hospitals, suppliers, and surgeons) to reduce the overall cost of joint replacement.

Direct marketing to patients by implant companies through the web creates a situation where patients demand particular implants that may be different from their surgeon's recommendation. This results in financial/professional conflict and damages the patient-doctor relationship.

One limitation of this study was the small number of surgeons surveyed. To increase the reliability and validity, more surgeons should have been included, possibly through national joint registries and regional procurement teams. Further investigation of how surgeons conceptualise the implant costs is important to health care cost control. In addition, the implant costs often differ considerably in different hospitals because of a variety of commercial reasons.

CONCLUSION

The knowledge among consultant orthopaedic surgeons about implant costs was poor, which is consistent with findings from another study. To reduce implant costs, cooperation between surgeons and hospital managers and measures to increase surgeons' awareness about cost-reduction programmes are needed.

DISCLOSURE

No conflicts of interest were declared by the authors.

REFERENCES