



Hospital discharge information after elective total hip or knee joint replacement surgery: A clinical audit of preferences among general practitioners

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CLINICAL AUDIT

Please cite this paper as: Briggs AM, Lee N, Sim M, Leys TJ, Yates PJ. Hospital discharge information after elective total hip or knee joint replacement surgery: A clinical audit of preferences among general practitioners. AMJ 2012, 5, 10, 544-550. <http://dx.doi.org/10.4066/AMJ.2012.1471>

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Abstract

The demand for elective joint replacement (EJR) surgery for degenerative joint disease continues to rise in Australia, and relative to earlier practices, patients are discharged back to the care of their general practitioner (GP) and other community-based providers after a shorter hospital stay and potentially greater post-operative acuity. In order to coordinate safe and effective post-operative care, GPs rely on accurate, timely and clinically-informative information from hospitals when their patients are discharged. The aim of this project was to undertake an audit with GPs regarding their preferences about the components of information provided in discharge summaries for patients undergoing EJR surgery for the hip or knee.

GPs in a defined catchment area were invited to respond to an online audit instrument, developed by an interdisciplinary group of clinicians with knowledge of orthopaedic surgery practices. The 15-item instrument required respondents to rank the importance of components of discharge information developed by the clinician working group, using a three-point rating scale.

Fifty-three GPs and nine GP registrars responded to the audit invitation (11.0% response rate). All discharge information options were ranked as 'essential' by a proportion of respondents, ranging from 14.8–88.5%. Essential information requested by the respondents included early post-operative actions required by the GP, medications prescribed, post-operative complications encountered and noting of any allergies. Non-essential information related to the prosthesis used. The provision of clinical guidelines was largely rated as 'useful' information (47.5–56.7%).

GPs require a range of clinical information to safely and effectively care for their patients after discharge from hospital for EJR surgery. Implementation of changes to processes used to create discharge summaries will require engagement and collaboration between clinical staff, hospital administrators and information technology staff, supported in parallel by education provided to junior medical staff.

Key Words

General practitioner; joint replacement surgery; discharge; hospital; communication

What this study adds:

1. This study describes a contemporary clinical audit of discharge information needs of GPs after elective joint replacement (EJR) surgery.
 2. GPs require a range of clinical information to maintain safe and effective continuity of care for patients discharged after EJR surgery.
 3. Information related to the surgical procedure, allergies, hospital-prescribed medications and incision care is essential for GPs.
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Background

Elective joint replacement (EJR) surgery is one of the most common elective surgical procedures performed in Australia¹ and is highly effective for treating the symptoms of degenerative joint disease in the hip and knee.²⁻⁴ Current projections suggest that the demand for EJR surgery for the hip or knee due to osteoarthritis will continue to rise at approximately 5-10% per annum,^{5,6} although this conservative projection is likely to be an underestimate owing to an increasing proportion of the population being overweight or obese and an ageing population; all drivers for an increasing incidence of osteoarthritis.⁷ Moreover, as surgical techniques and technologies improve and expectations for improved quality of life increase, the demand for EJR surgery is likely to escalate even further, placing increasing pressures on hospital systems and primary care practitioners. In order to meet demand and maintain service quality and safety, implementation of well-coordinated, evidence-based and sustainable models of service delivery is critical; particularly with respect to the effective articulation between hospital and primary care systems.⁸ In order to address this issue in Western Australia (WA), the WA Musculoskeletal Health Network

(<http://www.healthnetworks.health.wa.gov.au/network/musculoskeletal.cfm>), a collaborative of multidisciplinary stakeholders from across the health sector who share a common interest in musculoskeletal health, developed a Model of Care for EJR surgery for WA. The Model of Care outlines how services should be planned and delivered along the continuum of care for consumers who undergo hip or knee EJR surgery⁹; that is, describing the *right care*, delivered at the *right time*, by the *right team*, and in the *right place*.¹⁰

An important component of the continuum of care for patients undergoing EJR surgery is the discharge pathway. The Model of Care recommends timely communication between the hospital-based orthopaedic surgery team and the general practitioner (GP) at the time of discharge.⁹ Given the length of stay for patients undergoing EJR surgery is decreasing¹¹⁻¹³ due to improved surgical techniques and post-operative recovery pathways, patients are discharged back to the care of their GP and other primary care practitioners after a shorter hospital admission and with potentially greater post-operative acuity. This situation underscores the importance of providing GPs with timely and clinically-relevant discharge information in order to minimise the chances of post-operative complications and optimise care coordination, clinical outcomes and patient satisfaction.¹⁴ While some information published in 1985¹⁵ describes the information needs of GPs in this context, no recent audits have been undertaken in the context of contemporary surgical procedures and hospital administrative processes. Therefore, the aim of this project

was to undertake an audit with GPs in one geographic zone in WA to ascertain GPs' perceptions of importance of discharge information for patients undergoing EJR surgery of the hip or knee and develop recommendations for optimising hospital discharge summaries.

Methods

The clinical audit followed a three stage process, as outlined below.

Stage 1: Identification of the clinical issue

In 2011 the WA Musculoskeletal Health Network, Department of Health, WA, convened an interdisciplinary working group of clinicians representing orthopaedic surgery, nursing, physiotherapy, occupational therapy, pharmacy and general practice; health service planners; and policy makers to examine routine post-operative discharge processes for EJR surgeries at a public metropolitan secondary hospital, representative of other secondary hospitals in the state. The aim of establishing this working group was to collaboratively identify opportunities for local quality improvement, particularly communication practices between the hospital-based care team and referring general practitioners, consistent with the recommendations of the Model of Care.⁹ As the first phase of an audit exercise in the context of communication practices between hospitals and GPs, establishing a better understanding the information needs of GPs in the context of post-operative discharge summaries was identified as a key priority. A cross-sectional, stakeholder-targeted audit was undertaken to address this priority.

Stage 2: Development of audit criteria

A project officer (NL) undertook face-to-face consultations with 10 clinicians, representing orthopaedic surgery (n=2), nursing (n=1), physiotherapy (n=2), occupational therapy (n=1), pharmacy (n=2) and general practice (n=2) to identify clinical information related to the EJR surgery and hospital admission which they considered to be clinically-important for the GP to maintain safe and effective care. Using qualitative information from these consultations, the project officer developed a 15-item audit instrument. Each item was written as a statement, describing a possible piece of clinical information related to the surgery and hospital stay (refer to results Table 1). GPs were asked to respond to each item using a nominal response category, related to the perceived importance of the information: 'essential', 'useful', 'not needed'; scored 3, 2, 1, respectively. An additional item was included for free text



comments. The final version of the instrument was pilot tested among policy officers and a GP.

Stage 3: Data collection

GPs within the catchment area of the Perth North Metro Medicare Local (<http://www.pnml.com.au>) were invited to participate in the audit (n=484) over a seven week period. Australian Medicare Locals are organisations tasked with planning, developing and coordinating community-based health services for residents in defined geographic areas. The Perth North Metro Medicare Local catchment area covers an area of 830km², representing an estimated 475,000 residents and 484 GPs.

Invitations to participate in the audit were distributed to GPs via the electronic and facsimile newsletter sent weekly to GP practices, the Medicare Local's website, GP education events, personal emails to GPs, and practice visits by Medicare Local staff. A prize of a single iPad was offered as an incentive to participate. GPs had the option of completing the survey online using a Survey MonkeyTM platform (<http://www.surveymonkey.com>), or a paper-based format.

Data analysis

Frequency statistics were used to analyse survey responses. Data were analysed using Microsoft Excel 2010 (Microsoft Corporation, Redmond, WA, USA).

Results

Fifty-three GPs (response rate: 11.0%) (60.4% male) and nine GP registrars (50.0% male) responded to the audit instrument (N=62). The GPs and registrars were registered as medical practitioners in Australia for a mean (SD) of 21.9 (11.6) and 3.3 (2.5) years, respectively. Table 1 details the responses to the 15 items in the instrument. All discharge information was ranked as 'essential' by a proportion of respondents, ranging from 14.8-88.5%. Essential information requested by the respondents included early post-operative actions required by the GP, medications prescribed, post-operative complications encountered and noting of any allergies, while non-essential information related to the prosthesis used. The provision of clinical guidelines was largely rated as useful information.

Free text comments included: "provide contact details for the doctor to call should complications develop", "provide information about long-term follow-up" and "timely summaries are very useful".

Discussion

This stakeholder audit confirms that GPs consider some clinical information essential to optimally care for their patients following hospitalisation for EJR surgery, consistent

with earlier findings.^{15,16} While we have not completed a typical clinical audit cycle by implementing changes and evaluating their effects, the results of this audit will be important for informing these later stages, particularly implementing and evaluating strategies to improve communication between hospital-based orthopaedic surgery teams and GPs. The data will be particularly relevant to medical interns, who are generally responsible for developing discharge summaries, and database architects, who are responsible for developing and implementing information fields in hospital software used to build automated discharge summaries. Moreover, as Australia implements a national e-health system and hospitals adopt paperless modes of communication and the creation of standardised discharge summaries, such data will be important in planning how discharge summaries are developed and how junior medical staff populate information fields within discharge summary templates. The Australian National E-Health Transition Authority (NEHTA) suggests that the discharge summary should include *any* information considered important for safe and effective continual management and the data collected in this audit align with the fields suggested as essential information by the NEHTA.¹⁷ The importance of such information for quality and safety of patient care is highlighted by earlier studies. For example, an Australian study identified serious problems with discharge summaries produced in a public hospital in New South Wales, most notably in terms of accuracy and the low rate of receipt,¹⁸ while a recent Scandinavian study identified that inadequate communication between hospitals and GPs significantly increased the likelihood of GPs referring their patients to non-local sites for joint replacement surgery.¹⁹

GPs considered discharge information related to early post-operative requirements (such as removal of staples or stitches), the surgical procedure and any post-operative complications, medications, allergies, and mobility and physical activity restrictions and plans to be most important for continuity of care, with more than three out four GPs identifying these as essential and almost all identifying these as useful. This is consistent with earlier literature^{16,19} and NETHA recommendations.¹⁷ These findings are unsurprising as GPs need to address immediate post-surgical priorities after discharge, particularly as the length of hospital stays are decreasing for these procedures. The data also reflect a recognition by GPs of information required for high quality care and mirror three of five Australian Commission of Safety and Quality in Health Care identified key safety issues which contribute to patient risk in primary care: diagnosis,



prescribing and communication.²⁰ Notably, an earlier study identified that GPs preferred longer and more comprehensive discharge summaries for patients undergoing orthopaedic surgery.¹⁵

Although clinical guidelines for infection control, wound care and venous thromboembolism (VTE) were largely considered 'useful' (47.5-56.7% of respondents), a proportion of GPs (25.0-30.5%) reported such information to be 'essential' for patient care. This data may suggest some uncertainty among GPs in appropriate and evidence-based management of these clinical issues and highlight a potentially important area of future research and targeted education. For example, recent data from the Australian CareTrack study identified that a sizable proportion of patients were not receiving care which aligned with clinical practice guidelines for VTE prophylaxis and surgical site infections.²¹ Our data may also highlight the difficulties associated with locating and interpreting full clinical practice guidelines and the desire to receive brief and clear guidance on best-practice management for specific clinical issues, for example brief 'care standards', as recommended by CareTrack.²² For example, in the context of managing osteoporosis, simple GP-focussed management algorithms have improved patient care in WA in the context of osteoporosis.²³

Allied health information, such as physiotherapy and occupational therapy information and arrangements (other than mobility and physical activity restrictions), were largely considered useful by respondents. Discharge summaries are routinely developed by junior medical officers, on behalf of the consultant surgeons. Consequently, the nature of the information is often medically-based and may inadequately capture other potentially important clinical and social information relevant to the GP,²⁴ such as information from the allied health team. Notably, a recent study identified that GPs desired information from all health professionals in a hospital-based lung cancer care team and suggested the development of multidisciplinary discharge summaries.²⁵ This may be an important consideration for informing the development of discharge summaries for patients undergoing EJR surgery. While information related to the brand and type of prosthesis used was viewed relatively as the least important discharge information (29.5%), 70% of respondents still identified this information as useful or essential to ongoing care. This finding may relate to recent reports concerning systemic toxicity related to hip prostheses²⁶ and/or an increased awareness of the Australian National Joint Replacement Register which prospectively monitors prosthesis performance.⁶

The results reported in this audit should be considered in the context of some limitations, particularly the limited sample

size and low response rate, and the absence of psychometric testing of the audit instrument. Given the total number of GPs in the Medicare Local's catchment area (N=484); representing 20% GPs in WA,²⁷ our sample size of n=62 represents 2.2% of the state's GPs and, arguably reflects a low sample size and possibly a responder bias. Therefore, it will be important to replicate our findings in a larger sample of GPs in diverse geographic areas. Although earlier studies in this clinical area using surveys with GPs reported higher response rates of 48-66%, the sample sizes have varied from a size comparable to this study to much larger samples (n=50-266).^{15,16,28,29} While the future of epidemiologic investigations may lie with web-based collection modalities,³⁰ such approaches may not be the most effective methods to engage with busy clinicians. For example, a recent study requiring responses from primary care practitioners to online survey reported a comparable response rate of 10.8%.³¹ Further, other authors have acknowledged the difficulty in recruitment using web-based methods³² and with GPs in busy practices.³³ The findings from this audit should now be used to assess the adequacy of discharge summaries sent to GPs, which is anecdotally reported to be highly variable, and examine whether modifications to system processes are acceptable to GPs, as reported by Castleden et al (1992),²⁹ and whether they positively influence patient outcomes. Importantly, implementation of changes to processes used to create discharge summaries will require active engagement and collaboration between clinical staff, hospital administrators and information technology staff, supported in parallel by education provided to junior medical staff. The WA Musculoskeletal Health Network may be one vehicle to facilitate this process.

Conclusion

Results of this audit support existing literature and point to a clinical need to integrate pertinent information into discharge summaries sent to GPs for EJR hip or knee patients. We also suggest that where possible, discharge summaries should also include contact details of the hospital-based care team. However, before system-wide changes are implemented a larger sample of GPs should be assessed to determine whether these findings are consistent throughout the GP population. In the context of clinical guidelines, we recommend including links to contemporary and clinically-useful treatment standards (where available), as recommended by CareTrack.²²



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ACKNOWLEDGEMENTS

The authors gratefully acknowledge the GPs who participated in this clinical audit. Stephen Bloomer, Edita Durkalic, Jeff Ewen, Charlene Goder, Peter Merralls, David Oldham, Zai Scarff and Xuan Li Yow are acknowledged for their contribution to this audit. Dr Andrew Briggs is supported, in part, by a Fellowship awarded by the Australian National Health and Medical Research Council (NHMRC).

PEER REVIEW

Not commissioned. Externally peer reviewed.

CONFLICTS OF INTEREST

The authors declare that they have no competing interests

FUNDING

Funding for this project was provided by a grant awarded by the Department of Health, Government of Western Australia.

ETHICS COMMITTEE APPROVAL

Not applicable.

Table 1: Summary of responses to the survey, based on nominal ranking of importance of discharge information options (range1-3). Data is expressed for each survey item as the frequency (%) of responses in category of importance.

Nature of discharge information	Frequency of responses and proportion in each category. N (%)			Mean rank across categories
	Essential (3)	Useful (2)	Not Needed (1)	
Presence of staples or stitches in the incision and whether these are to be removed by the GP and on what date	54 (88.5)	6 (9.8)	1 (1.6)	2.9
Summary of the surgical procedure undertaken, including any surgical or postoperative complications and their management	54 (87.1)	8 (12.9)	0 (0)	2.9
Allergies noted	49 (81.7)	11 (18.3)	0 (0)	2.8
Medications prescribed in hospital	50 (80.6)	12 (19.4)	0 (0)	2.8
Mobility and physical activity restrictions and plan (e.g. weight bearing, ambulation guidelines and restrictions)	47 (75.8)	14 (22.6)	1 (1.6)	2.7
Recommended date for GP follow-up appointment post discharge e.g. "Please arrange GP follow-up appointment for 1 week after discharge"	41 (67.2)	19 (31.1)	1 (1.6)	2.7
Foreseeable problems after surgery, e.g. related to pre-surgical status or any peri- or post-operative complications identified	35 (57.4)	25 (41.0)	1 (1.6)	2.6
Date of hospital follow-up appointment	35 (57.4)	26 (42.6)	0 (0)	2.6
Post-operative physiotherapy treatment arrangements	23 (37.1)	37 (59.7)	2 (3.2)	2.3
Post-operative occupational therapy arrangements, such as assisted personal care or home assistance	24 (38.7)	34 (58.8)	4 (6.5)	2.3
Peri-prosthetic infection control guidelines outlined	18 (30.5)	28 (47.5)	13 (22.0)	2.1
Incision care guidelines outlined	16 (26.7)	32 (53.3)	12 (20.0)	2.1
DVT/VTE [^] prophylaxis guidelines outlined	15 (25.0)	34 (56.7)	11 (18.3)	2.1
Occupational therapy equipment provided by the hospital	12 (19.4)	41 (66.1)	9 (14.5)	2.0
Brand and type of prosthesis used	9 (14.8)	34 (55.7)	18 (29.5)	1.8

[^] deep vein thrombosis / venous thrombo-embolism