Rationing of hip and knee referrals in the public hospital: the true unmet need

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ABSTRACT

AIM: The aim of this paper is to outline the development of a triage system for elective hip and knee referrals to the Orthopaedic Department of the Canterbury District Health Board (CDHB), and to determine the unmet need within this population for accessing first specialist assessment (FSA).

METHODS: Between 1 August 2015 and 31 March 2016 data was collected from all elective hip and knee referrals that underwent triage for a FSA. The number of outpatient appointments available according to the government four-month waiting time is set by the CDHB. Patients were triaged by two consultant surgeons on the basis of their referral letter and radiological imaging into one of five categories: accepted for FSA, insufficient information, no capacity, low priority or direct entry to waiting list (if already seen by a specialist). Those not accepted for an FSA were returned to general practitioner (GP) care.

RESULTS: During the study period there were 1,733 referrals (838 hip related referrals and 895 knee related referrals) to the orthopaedic department with a request for FSA. All patients had failed conservative management. Of these referrals 43% of hip and 54% of knee related referrals could not be offered an FSA and were returned, following triage, to general practitioner care unseen. Only 8% and 9% respectively were declined for insufficient information in the referral letter or lack of need.

CONCLUSION: This study details the implementation of a triage system for elective hip and knee referrals to the CDHB and with accurate data we have been able to determine the large number of patients unable to access a specialist opinion. These patients represent the unmet need within our community and highlights the degree of rationing taking place within the public hospital.

New Zealand's public health system is under increasing pressure in terms of service delivery, particularly with regard to the provision of elective surgery. In Canterbury the reasons for this include: an increasing population, high patient expectations, restriction of resources and limitations on funding. Within the Canterbury District Health Board (CDHB), orthopaedic surgical services are particularly strained due to the increasing Canterbury population and added responsibility for surgical services in both the Chatham Islands and the West Coast District Health Board. This has resulted in an added demand on resources, increasing the difficulty of the CDHB to meet the orthopaedic needs of the community.

The population in New Zealand is ageing rapidly with predictions this will increase the requirement for orthopaedic surgery. Elective hip and knee replacements alone are predicted to increase by 84% and 183% respectively by 2026. US data suggests demand for elective hip and knee replacements will increase by 174% and 673% respectively by 2030. This inevitable growth in demand needs to be matched by a similar growth in resource.

In an attempt to improve surgical service delivery, within the public system, the Government has insisted on achieving a first specialist assessment (FSA) and, if indicated, a surgical procedure within mandated time frames. An FSA must be provided within
four months, and if indicated, a surgical procedure performed within a further four months. Failure to meet these targets results in a significant financial penalty for the district health board (DHB), further reducing valuable resource and limiting service delivery. As well as these service targets, the Ministry of Health sets total surgical volumes for the year with the anticipation that each DHB will manage these appropriately. Failure to do so results in further financial penalties and reduction in volumes for subsequent years. These restrictions place a considerable responsibility on DHBs and individual departments to manage their service within the constraints imposed.

In order to comply with these time restrictions, the number of patients accepted for an FSA needs to be closely monitored. It is also imperative that those considered to require a surgical procedure do not exceed departmental resources and can be adequately managed to comply with the mandated Ministry of Health four-month time frames. In reality this means that patients need to be triaged prior to accessing an FSA.

Triage as defined by the Merriam-Webster Dictionary is: “The sorting of patients according to the urgency of their need for care”. However, reviewing the literature, there is no consensus in the methodology of selecting patients most in need of surgical care and thereby providing reliable triage.

Within the CDHB Orthopaedic Department a triage system has been implemented to manage this surgical workload for patients presenting with elective hip or knee problems. This paper outlines the development of this system and reports the first eight months results with the specific aim of determining the number of patients who miss out on an FSA, and it additionally assesses the unmet need within the community.

**Method**

Two orthopaedic surgeons with a combined experience of 60 years practice in orthopaedic surgery were tasked to develop a process to triage all elective hip and knee referrals that were likely to benefit from surgery. Triage is dependent on the quality of the referral letter provided, so a protocol was developed informing general practitioners (GPs) and specialists alike of the information required to facilitate an accurate assessment. This protocol was communicated to all GPs in Canterbury by
hard copy and was posted on the GP website (ERMS). Workshops were then conducted by orthopaedic surgeons to ensure understanding of the triage process and the importance of detailed information in the referral letter. (Appendix 1) The functional limitation and pain highlighted in this referral letter was predominantly used to determine the requirement for an FSA.

In addition to the requested clinical information in the referral letter, standard radiographs (no older than six months) were required. These radiographs were then assessed to confirm the clinical diagnosis and the degree of disease severity (Kellgren and Lawrence and Ahlback Classification). As over 90% of the patients undergoing triage were for arthritic joint problems, this formed an important part of the assessment process. Patients were then triaged, based on the information in the referral letter and their radiology, according to clinical severity (Figure 1). Failure to comply with the protocol in terms of the requested clinical information and radiological views resulted in a return of the referral letter with an invitation to re-submit when the requested data was provided.

In order to comply with Ministry of Health directives the number of patients able to be accepted onto the waiting list following FSA was constantly monitored, with the number of FSAs performed adjusted accordingly. In reality the triage process developed into a ‘virtual FSA’. Patients with a high likelihood of surgery were then moved on to a ‘real FSA’.

Data was collected from the triage process between 1 August 2015 and 31 March 2016 and information was obtained under five different categories for patients referred with hip and knee pathology (Table 1). Those who were not accepted for an FSA or did not gain direct entry to the waiting list were referred back to their GP. It was confirmed that all referrals were deemed to have failed conservative treatment.

Early in the study, patients who were seen privately by an orthopaedic surgeon and assessed as requiring surgery were admitted to the waiting list without triage. However, because of concerns related to equity of access to public hospital treatment, patients seen privately were required to go through the same triage procedure. If they were accepted for progression to an FSA they were then placed on the waiting list without further assessment.

**Results**

In the eight-month study period there were 1,733 hip and knee referrals to the CDHB Orthopaedic Department for an FSA. Over 90% of the referrals were for arthritis; the remainder were a mixture of non-traumatic complaints. Traumatic conditions were rarely referred to the public hospital and were assessed separately under ACC. Of these, 838 referrals were for patients with hip pathology (Table 1). This included 87 (10%) referrals from orthopaedic surgeons, which following triage were passed directly through to the waiting list as they were felt to have had an FSA, and to be assessed again

<table>
<thead>
<tr>
<th>Table 1: Triage categories.</th>
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<tbody>
<tr>
<td>Insufficient information</td>
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<tr>
<td>No capacity</td>
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<tr>
<td>Low priority</td>
</tr>
<tr>
<td>Direct entry to waiting list</td>
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<tr>
<td>Accepted for FSA</td>
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</tbody>
</table>
Figure 2: Result of referral letter triage for hip patients.

![Pie chart showing the outcome of Hip Triage]

- Accepted: 47%
- No capacity: 19%
- Low priority: 16%
- Direct to waitlist: 10%
- Insufficient Information: 8%

Insufficient Information | No capacity | Low priority | Direct to waitlist | Accepted

Figure 3: Result of referral letter triage for knee patients.

![Pie chart showing the outcome of Knee Triage]

- Accepted: 33%
- No capacity: 26%
- Direct to waitlist: 15%
- Low priority: 19%
- Insufficient Information: 9%

Insufficient Information | No capacity | Low priority | Direct to waitlist | Accepted
would be an unwise use of resources. Of the remaining hip referrals, 393 (47%) were accepted for FSA after triage; 66 patients (8%) were declined an FSA as there was insufficient information in the referral letter. There were 134 (16%) patients not seen as they were felt to have a condition of lower priority when compared with other patients referred, and 158 (19%) patients were not seen due to the fact there was not enough capacity within the service even though they had pathology that would have benefited from an operative procedure.

There were 895 referrals for knee pathology during the study period (Figure 2), of which 113 (13%) were from orthopaedic surgeons and following triage were sent directly to waiting list. Only 295 referrals (33%) were able to accept for an FSA following triage, with 84 declined (9%) due to insufficient information in the referral letter. This left 45% who were unable to be given an FSA with 173 referrals deemed low priority (19%) and 230 due to no capacity (26%) despite having a condition that would benefit from surgery.

In total there were 43% of hip and 54% of knee problems that were denied access for an FSA, most of whom were returned to their GP.

The predictive accuracy of the triage process in assessing patients who would be subsequently placed on the waiting list was >90%.

Discussion

This paper describes a consultant-led triage process whereby the referred clinical data (history, examination and past treatment) was assessed with the relevant radiological data, and a decision made as to whether the patient was likely to benefit from a surgical intervention and therefore proceed to an FSA. The triage process was influenced by the surgical capacity of the department and its ability to remain compliant with a maximal four-month waiting time requirement as determined by the Ministry of Health.

The triage process could be criticised because of the lack of objective scoring. The process relied on a clinical assessment from two experienced surgeons following a full functional and symptomatic history from the GP, which was supported by radiological changes. However it soon became apparent that this process was a "virtual FSA", with those patients progressing to FSA almost always being placed on the waiting list (>90% predicted accuracy). Over the time course of this study the triage process was refined, and in particular the standard of the GP referral letters improved so that towards the end of the eight months very few letters were being rejected because of lack of information.

The purpose of this study was to accurately report the number of patients who fail to receive an FSA for elective hip and knee problems within the orthopaedic department of the CDHB. Our data clearly show that for hip and knee problems, 43% and 54% respectively of referred patients are not accessing further assessment. These results do not match the recently reported figures released by the Ministry of Health, which show for the CDHB in June 2016, that only 0.6% of patients waited longer than the required timeframe for their FSA. This metric is misleading and implies that only 0.6% of patients miss out on an FSA and that this represents the unmet need. In fact, the metric is actually measuring those patients that have been accepted for an FSA and as shown by this study, patients must first pass through the triage process before accessing this FSA. The triage process rations access so that the true unmet need is closer to 50% for those patients referred. It is acknowledged that this may not necessarily be the total unmet need, as GPs may be reluctant to refer patients because of the high threshold for acceptance and progression of treatment. In the last year 14.3% of the Canterbury population has not accessed GP care due to cost, and they too are therefore unable to access specialist care and will not be represented in our figures.

It seems unlikely that this unmet need within our community for these elective procedures is isolated to Canterbury. Gwynne-Jones et al reviewed the Otago shortfall, where 241 patients requiring joint replacement in 2014 were returned to their GP while 367 (60%) patients underwent surgery. Blacket et al found a similar situation when exploring the effect of the introduction of a six-month waiting time in Whangarei and Hawkes Bay hospitals, with
up to 36% of people being declined surgery for hip and knee osteoarthritis.8

This current study has concentrated on hip and knee pathology, which is overwhelmingly that of osteoarthritis, and it is acknowledged that because of previous hip and knee initiatives, this group of patients have had better access to treatment within the public hospital than those presenting with other orthopaedic disorders. Patients with non-arthritic problems are likely to have reduced access to an FSA and subsequent surgery, resulting in an even greater percentage of unmet need. Inglis et al reported on the access for spinal disorders within the CDHB and confirmed that the unmet need was considerably higher than hip and knee problems, with 74% unable to access an outpatient appointment.9

This problem may not be limited to the specialty of orthopaedics, with a recent health survey showing a significant unmet need for surgical healthcare in general in New Zealand, with 170,000 people being told they would benefit from public-funded surgery but not formally placed on a waiting list.10

Remaining compliant and avoiding financial penalties is clearly one of the driving forces in limiting the number of FSAs. This reduction in waiting times for both an FSA and subsequent surgery, although well intentioned, has let to deleterious consequences. Patients with a surgically treatable problem are failing to be assessed and offered a surgical option. At least prior to the introduction of minimum waiting times, patients were able to have an assessment and reach a decision as to whether surgery was an option. Admittedly, waiting times often were excessive, but at least patients had assurance that they were on a waiting list and had a diagnosis that was confirmed. The FSA is important in maintaining ongoing patient assessment and management. The request for an FSA is an indication from the GP that help is required either for patients who have exhausted conservative care or to establish a diagnosis to enable a reliable management plan. The failure of GPs to gain this FSA creates a serious deficiency in our historical referral process, leaving GPs isolated and patients vulnerable.

The Ministry of Health has funded a trial of further non-operative treatment with the engagement of dietitians, physiotherapists and GPs to deal with the large number of arthritic patients who fail to gain access to the waiting list. This may be of some benefit to a few, but is unlikely to help the majority of patients with end-stage osteoarthritis in whom the only viable option is joint replacement. This approach should be questioned as the patients have already been subjected to a comprehensive conservative management approach demanded by the Hip and Knee Arthritis Protocol,1 (Appendix 1) a necessity before even being considered for the triage process.

Numerous scoring tools have been used to try and improve the access to surgery for those with musculoskeletal disability15–17, but none of these have been validated for this purpose and there is no standardisation between institutions.4 Currently a new tool (CPAC) has been developed to help prioritise a patient’s access to the waiting list and this tool may be helpful in comparing different DHBs. However, it is being implemented after triage has been undertaken and is therefore of debatable value. With 97% of patients who pass to FSA being placed on the waiting list for surgery and most progressing within four months, there seems little need to re-prioritise these patients. The current problem is lack of resource, not how a patient is prioritised for the waiting list: it matters little to the patient what score they achieve on an assessment tool if they can’t access surgery.

Increasing surgical resource is a complex problem, and increasing current outputs is not just a function of increased health expenditure. We have already highlighted the expansion of joint replacement surgery alone, whereby servicing the projected increase by 2026 is likely to require up to 80 additional surgeons in New Zealand if current working practices continue. This surgical training requires 6–7 years of time investment and is not something that can be turned on and off with impunity. Likewise, training other members of the surgical team (anaesthetists, theatre nurses, anaesthetic technicians, etc) requires time and educative commitment. Hospitals need to have the infrastructure to accommodate this increasing requirement for elective surgery,
including operating theatres and wards, and enough staff to deal with the “flow-on” effect of patient care following surgery. To plan for this expansion of orthopaedic services within the public hospital, rigorous data must be used to substantiate change. In the past there has been significant criticism of data released by the Ministry of Health, in particular its assessment of unmet need. We believe that the data in this study is 100% accurate, and as such shows that the true referred unmet need within our community for hip and knee problems is likely to be closer to 50%.

The cost to the country of failing to offer appropriate treatment for patients who have failed conservative management is significant. It was estimated in 2010 that 530,000 New Zealanders suffered from arthritis. Of this number 57.8% were female and 54% were of working age. These numbers are estimated to grow to 650,000 by 2020. The total financial cost of arthritis in New Zealand in 2010 was $3.2 billion. With 50% of patients in Canterbury unable to access an FSA for hip and knee pathology and potential surgery, the cost to the community in terms of lost productivity and added support services is likely to be significant, and in our opinion is unacceptable. If the treatment options available had marginal efficacy then a conservative non-operative approach could be argued for. Hip and knee arthroplasty, however, are regarded internationally to be at the top of the most clinically successful and cost-effective procedures across all surgical disciplines.

In summary, the strength of this study was in the experience of the triage surgeons. They are likely responsible for the high surgical acceptance levels. With the now excellent referral information, the result of an education programme and the insistence of up-to-date x-rays, it has been possible to accurately assess and prioritise the need for surgery. We have accurately documented the large number of patients unable to obtain a specialist opinion within the public hospital in the Canterbury region for hip and knee problems. These data are at considerable variance to that published by the Ministry of Health. We believe that an unmet need of 50% for these common problems requires urgent attention with a coordinated plan involving the CDHB, Orthopaedic Department, New Zealand Orthopaedic Association and the Ministry of Health.

Competing interests:
All authors work within the orthopaedic department of the Canterbury District Health Board.

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Appendix

GP HIP/KNEE ARTHRITIS REFERRAL GUIDELINES

Referral letters should be written using the following guidelines and format.

**SYMPTOMS**

**Pain - document the following:**

- Anatomical location of the pain and its radiation
- Pain onset i.e. gradual / acute
- Exacerbating factors, e.g. weight bearing, twisting, impact landing etc
- Relieving factors, e.g. rest etc
- Duration of pain, e.g. intermittent/constant
- Intensity of the pain: Use an analogue scale from 0 - 5 to indicate severity. Compare with the worst lifetime pain the patient has experienced.

**Functional Limitations - describe and document:**

- Walking distance in metres and time
- Restrictions of activities of daily living e.g. putting on shoes/socks, getting in/out of car
- Knees only:
  - Locking or instability symptoms

**Treatments to Date - document the use of:**

- Regular Analgesia:
  - Paracetamol
  - NSAIDS
  - Tramadol
  - Codeine
- Walking aids
- Paramedical treatment:
  - Physiotherapy
  - Acupuncture

**INTERCURRENT MEDICAL PROBLEMS**

Document all current medical and surgical problems with particular reference to:

- Peripheral Vascular Disease
- History of bleeding disorders
- History of VTE
- Anticoagulant therapy
- BPH/urinary retention
- Active oral infection
- Open Wounds/Ulcers
- BMI $\geq 40$

Active medical issues must be completed prior to referral and if necessary specialist referral completed, to ensure patient is fit for surgery if indicated.

**EXAMINATION**

**HIP**

- Limp: antalgic | Trendelenburg
- Pain on palpation
- ROM: flexion / extension / adduction / abduction: internal/external/rotation

**KNEE**

- Limp: antalgic | Trendelenburg
- Pain on palpation
- ROM: flexion/extension
- Deformity: varus / valgus / flexion contract
GP HIP/KNEE ARTHRITIS REFERRAL GUIDELINES

MANDATORY RADIOLOGY FOR HIP/KNEE
- Osteoarthritis Hip/knee Series

INDICATIONS FOR REFERRAL
- Severe pain and functional limitations
- Patient ready to proceed to surgery if offered, and willing to accept risk of complications
- Patient not prepared to continue in current painful and restricted state

CONTRAINDICATIONS FOR REFERRAL
- Any infective focus e.g. urinary tract infection, respiratory infection
- Open wounds or ulcers
- Active/chronic oral infection
- BMI >= 40
- Failure to exhaust all non-operative treatment options

OTHER MINIMUM PREREFERRAL INVESTIGATIONS REQUIRED
FBC, ESR, CRP
U&Es
MSU

POTENTIAL SURGICAL COMPLICATIONS
- MEDICAL:
  Stroke
  Delirium (confusion)
  Myocardial infarction/cardiac arrhythmias
  Respiratory difficulties
  Renal:
    urinary retention
    renal failure
- SURGICAL:
  Scar
  Pain
  Bleeding
  DVT/PE
  Infection
  Intra operative fracture
  Leg length discrepancy
  Nerve injury
  Dislocation
  Loosening / wear of implant requiring revision surgery