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Title

Screening and audit as service-level strategies to support implementation of Australian guidelines for cancer pain management in adults: a feasibility study

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Abstract

Background

Pain in people with cancer is common but often under-recognized and under-treated. Guidelines can improve the quality of pain care, but need targeted strategies to support implementation.

Aim

To test the feasibility of two service-level strategies for supporting guideline implementation - a screening system and medical record audit.

Design

Multi-methods.

Setting

One oncology outpatient service, and one palliative care outpatient and inpatient service.

Participants

Patients with advanced cancer.

Methods

Patients were screened in the waiting room with a modified version of the Edmonton Symptom Assessment System-revised (ESAS-r) either electronically or in paper-based format. Feasibility was concerned with the percentage of patients successfully screened from the total number attending the services. An audit assessed adherence to key indicators of pain assessment and management. Feasibility thresholds were set at 75% incidence for screening and a median of 30 minutes per patient for audit.

Results

Of 452 patient visits, 95% (n=429) were successfully screened, 34% (n=155) electronically and 61% (n=274) paper-based. Electronic pain screening was technically challenging and time-intensive for nurses. Thirty-one patients consented to have their records audited. The median audit time was 37.5 minutes (range 10 to 120 minutes). Variability arose from the number and type of record (outpatient or inpatient). Adherence to indicators varied from 63% (pain assessment at first presentation) to 94% (regular pain assessment and medication prescribed at regular intervals).

Conclusion

This study confirmed the need to implement evidence-based guidelines for cancer pain and generated useful insights into the feasibility of pain screening and audit.

Key words

Clinical guideline; cancer pain; screening; clinical audit

Introduction

Pain is experienced by more than half of people with cancer and can have serious impacts on everyday functioning and quality of life (Breivik et al., 2009; van den Beuken-van Everdingen, Hochstenbach, Joosten, Tjan-Heijnen, & Janssen, 2016). Multidisciplinary management of cancer pain is essential to ensure comprehensive assessment and patient education, and to optimize non-pharmacologic and pharmacologic intervention (Peng, Wu, Sun, Chen, & Huang, 2006). However, cancer pain has been identified as under-treated and highlighted as a priority for remediation internationally (Deandrea, Montanari, Moja, & Apolone, 2008; Fisch et al., 2012; Foley, 2011). Barriers to cancer pain care exist at the levels of the healthcare system (e.g. lack of coordination), service (e.g. confusion regarding multidisciplinary roles), clinician (e.g. lack of knowledge and time) and patient (e.g. reluctance to report pain) (Fazeny et al., 2000; Jacobsen et al., 2009; Oldenmenger, Sillevis Smitt, van Dooren, Stoter, & van der Rijt, 2009). Clinical practice guidelines can improve both the processes and outcomes of care for cancer pain (Brink-Huis et al., 2008; Du Pen et al., 1999; D. Dulko, E. Hertz, J. Julien, S. Beck, & K. Mooney, 2010). However, guidelines are unlikely to be implemented without targeted strategies to incentivise use and overcome barriers (Grimshaw et al., 2004).

The current authors have undertaken a program of work to develop and implement *Australian Guidelines for Cancer Pain Management in Adults,* which are available online (Australian Adult Cancer Pain Management Guideline Working Party, 2013; M. Lovell et al., 2015). Guideline implementation constitutes a 'complex intervention' as defined by the UK's Medical Research Council (MRC) (Craig et al., 2008; Medical Research Council, 2006). The MRC's Framework for Complex Interventions was therefore used as a guide, using the four phases of *development*, *feasibility and piloting*, *evaluation,* and *implementation*.

The development phase of our program involved the conduct of two systematic reviews (T Luckett et al., 2013; Marie, Luckett, Davidson, Lovell, & Lal, 2013) and consideration of the wider literature by an organizing committee within a theoretical framework called the *Behavior Change Wheel* (S. Michie, Atkins, & West, 2014; Susan Michie, van Stralen, & West, 2011). This process identified two service-level strategies as showing promise for improving processes and outcomes of cancer pain care, namely routine screening for pain and audit and feedback. The feasibility and utility of symptom screening and its capacity to identify unmet needs and improve the processes of supportive care have been well established in patients undergoing active cancer treatment (Kotronoulas et al., 2014), but less so in patients with advanced disease and the palliative care setting (Etkind et al., 2014). Audit and feedback has been shown by many studies to support improvements in adherence to best practice (Ivers et al., 2012), including cancer pain guidelines (Dorothy Dulko, Elisheva Hertz, Jerelyn Julien, Susan Beck, & Kathi Mooney, 2010). Audit and feedback involves a cycle wherein local data are collected routinely on selected quality of care indicators and are reported back to the teams involved to assist them in planning actions to improve performance.

The current paper reports the feasibility and piloting phase of our program, which was designed to inform future evaluation and implementation phases (Thabane et al., 2010). A study was designed to test feasibility of electronic (e-) screening for pain in people with advanced cancer and an audit tool for assessing adherence to guideline recommendations.

Methods

A multi-methods study was conducted at one publically funded palliative care service (inpatient and outpatient) and one private oncology care service (outpatient only) in Sydney,

Australia, from September 2013 to June 2014. In Australia, universal healthcare ensures that everyone can access oncology and palliative care within the public healthcare system. Some people choose to access private healthcare by paying additional insurance premiums, primarily in order to choose the location of care and physician. Health professionals at the services involved were made aware of the *Australian Guidelines for Cancer Pain Management in Adults*, but were not given training on how to use them. Patients attending the public palliative care service could also access the private oncology service, and vice versa. The study was granted Human Research Ethics Committee approval by the Human Research Ethics Committee of the Cancer Institute New South Wales.

Participants and Recruitment

A waiver on consent was obtained to assess the feasibility of screening all patients attending consultations at the participating sites during the project period. Patients with advanced cancer who had an average pain severity score over the past 24 hours of ≥2 on a 0-10 Numeric Rating Scale (NRS) were invited to give informed consent to have their medical records reviewed using the audit tool. Patients were purposively sampled to include a range of cancer diagnoses and experiences of pain assessment and management.

Guideline Implementation Strategies

Symptom screening system.

A screening system was introduced to screen all outpatients at every visit during the pilot study period.

The Edmonton Symptom Assessment System-revised (ESAS-r) (Watanabe et al., 2011) was used as the screening measure with an additional item included for constipation, due to this being a common adverse effect from opioid therapy for cancer pain. Two further open-ended items were added asking patients to identify 'the symptom or issue causing the most distress now' and 'any other symptoms experienced'.

Patients were screened in the waiting room prior to consultation with a physician. Pain screening was conducted electronically via tablet touch-screens using software called QUICATOUCH, which was developed in Australia (Carter et al., 2011). A nurse provided assistance to patients in completing the e-screening as required. A nurse (first author, MRB) was employed as part of the research to train and support clinic nurses where these personnel were available, or else provide support to patients herself. Screening scores were sent wirelessly to a remote server and via email to the patient's physician. Feedback to the physician indicated that pain scores of ≥2 on the 0-10 NRS required further assessment and management, and referred to the online guidelines for related recommendations. A paper-based alternative was provided when patients did not want to use the computer version or technical problems proved prohibitive. In these cases, the hard-copy survey was brought into the consultation by the patient or by an accompanying nurse.

Audit.

Audits of consented patients' medical records were conducted to assess the feasibility of using an audit tool to evaluate adherence to the guidelines. The team adopted an audit tool developed by the Victorian Palliative Care Network (Brando, 2011), which assessed key indicators of cancer pain care emphasised across guidelines (Dy et al., 2008). The pain assessment items in the tool included site, radiation, quality of pain, temporal onset, associated features, and impacts on functioning

and quality of life. Adherence to this indicator was met if assessment of at least one of these items was documented. Evidence of repeated pain assessment was required where a patient had reported pain at a previous visit. Pain management was considered to have adhered to the indicators if a pain management plan had been documented and discussed with the patient, provision made for regular and breakthrough analgesia, and a bowel regimen plan made for patients on opioids. Details regarding dose and frequency were not assessed.

The audit was conducted in both outpatient and inpatient settings by the research nurse for the occasion of service at which they were recruited and two subsequent clinical visits. The audit was repeated randomly by the lead investigator for inter-rater reliability.

See supplementary material for the audit tool.

Evaluation

Feasibility of the screening system and audit was defined as the extent to which these could be successfully used within the setting they were designed for (Proctor et al., 2011). The feasibility of screening was evaluated by calculating the proportion of patient visits at which screening was conducted electronically, via paper and in total. Following previous authors, a 75% incidence of screening was taken as evidence of feasibility (Wright et al., 2003). The research nurse also kept a journal of problems arising with the screening system, including those observed and raised by patients or staff, to inform future implementation.

Feasibility of the audit was assessed by means of the time taken, with an agreed threshold of a median of 30 minutes per patient. We summarised the percentage adherence to each clinical indicator against a standard of 80% used by previous studies (Cooley et al., 2015). In the absence of statistical procedures for estimating sample size for feasibility testing, a minimum of 30 patients was adopted as a common rule of thumb.

Results

Feasibility of screening.

One hundred and ninety eight patients attended the specialist outpatient palliative care clinic 452 times during the study period. Ninety-five percent (n=429) of these visits included screening for pain, exceeding the 75% threshold set. However, only 34% (n=155) of visits were screened electronically and 61% (n=274) via paper. The research nurse's journal suggested that paper-based screening was used more frequently than e-screening due to shorter completion time, variable WiFi access, difficulty matching electronic patient identifiers, technical difficulties and patient preference. Nurses sometimes lacked the technical skills to assist patients and were concerned that this task detracted from time that could have been spent on individualised clinical assessment and patient education. Frail patients and those with peripheral neuropathy found the touch-screen difficult to use.

Feasibility of audit.

Altogether, 35 patients gave informed consent to have their medical records audited; 57% (n=20) from public and 43% (n=15) from private services. There were more females (n=22, 63%) than males. Age ranged from 34 to 90 years (mean 64 years). All patients had advanced cancers, as shown in Table 1.

Table 1. Cancer types in patients giving informed consent to have their medical records audited (n=35)

Body system and cancer	Count	%
Reproductive, female (breast, ovarian, uterus)	13	37
Gastrointestinal (biliary, colorectal, anal, pancreatic)	5	14
Integumentary (melanoma, basal cell)	5	14
Reproductive, male (prostate)	4	11
Respiratory (lung, mesothelioma)	4	11
Lymphatic (Hodgkin's, Multiple myeloma)	2	6
Endocrine (carcinoid, neuro endocrine)	1	3
Urinary (bladder)	1	3

The median time required to audit files was 37.5 minutes (range 10 to 120 minutes). Variability arose from the type of record (outpatient or inpatient) and the number of records that needed auditing. Patients had between 1 and 4 medical record files each, with an overall total of 58 files across the 35 patients.

The audit identified that adherence was markedly lower in care of the private oncology versus public palliative care patients (see Table 2).

Table 2. Proportion of patients audited for whom care adhered to each standard of cancer pain assessment and management (N=35)

Indicator	Public palliative care N=20 %	Private oncology N=15 %	*Overall Adherence %*
1 – Use of validated pain scale	100	73[1]	89
2a – Pain assessment at first presentation	95	20[1]	63[1]
2b – Documented pain management plan	100	60[1]	83
2c – Evidence pain plan discussed with patient	90	47[1]	71[1]

3 – Regular pain assessment	100	87	94
4 – Bowel regime plan	90	67[1]	80
5 – Breakthrough analgesia	75[1]	67[1]	71[1]
6 – Medication prescribed at regular intervals	95	93	94

[1] < 80% a priori threshold

Discussion

The current study generated useful insights into the feasibility of service-level strategies for supporting guideline implementation. The results also add to previous research that has highlighted shortcomings in cancer pain care, thereby underlining the need for improving evidence-based practice.

The barriers encountered with electronic screening in the current study contrast somewhat with previous evidence for feasibility, which have been reported mostly in oncology settings (Kotronoulas et al., 2014). Sites participating in this pilot did not use electronic medical records at the time of the study, so our findings may partly reflect 'teething problems' that arose from first introduction of a computer based system. These problems may have resolved with time, especially if introduction of screening had been accompanied by targeted training for nurses on how to use the electronic system. Electronic screening has advantages over paper-based in terms of ease of longitudinal analysis at both the patient and service level, and potential for integration with other electronic medical records. However, where technical problems impede electronic screening, our pilot demonstrates that paper-based screening offers a feasible alternative for informing individual patient care at a single consultation. Whether electronic or paper-based administration is used, our results indicate that patient screening requires support as a clinical rather than administrative task, a role ideally suited to a clinic nurse. The significant resource

implications of effective screening mean that, at the policy level, implementation of pain screening may need to be driven by accreditation, which has been instrumental in the United States (Joint Commission on Accreditation of Healthcare Organizations, 2006).

The audit tool demonstrated utility as a means of assessing adherence to key standards of cancer pain management, although the time to administer was greater than 30 minutes on average and highly variable. Results from the audit underline the need to improve adherence to standards of care for cancer pain, especially prescription of breakthrough analgesia and laxatives. Low rates of adherence to standards for assessment at first presentation and discussing pain management with patients observed in private oncology practice may reflect a greater focus on cancer therapy and its side effects compared to palliative care. If so, this difference between specialties might be expected to extend to public as well as private oncology - a question that could be answered by future research. Compared to a previous survey of Australian practice, our chart audit identified more frequent documentation of assessment using a validated pain scale in both palliative care and oncology clinics, presumably because the screening systems we implemented provided clinicians with ready access to assessment information of this kind. In the previous survey, only 46% of oncologists and 71% of palliative care physicians reported using a validated pain scale(M Lovell et al., 2014; T. Luckett et al., 2014; Phillips et al., 2014). Interestingly, however, >90% of physicians from both specialties reported that new patients were routinely assessed for pain using other methods. It seems possible that less formal, interview-style assessments might not be documented and, hence, not be identified by a chart audit.

The limitations of the current study are common to most preliminary investigations. The small number of services and patients participating in the research limits the generalizability of our

findings. Also, we did not include a formal test of the acceptability and perceived usefulness of screening and audit data.

The current authors have received funding for the evaluation phase of the program, which involves a cluster randomized controlled trial that has been designed to test cost-effectiveness of strategies for supporting implementation of guidelines that include not only screening, audit and feedback, but also educational strategies designed to target barriers at clinician and patient levels. The trial will assess whether these strategies can reduce pain in cancer patients attending eight palliative care and oncology outpatient centers which have been selected to represent a diverse range of services in different regions of Australia (M Lovell et al., 2014-2018).

Implications to nursing practice.

Given that most services operate under significant resource constraints, advocacy will be needed to ensure that screening for pain is appropriately resourced within the scope of practice for oncology and palliative care nurses. This may require a "business case" to be made for the potential that screening, assessment and early management offers for preventing further episodes of care due to escalating pain, as well as an explanation for why screening is best undertaken by nurses rather than administrative staff. Assigning pain screening to administrative personnel fails to acknowledge its contribution to clinical care. Also, administrative personnel are unlikely to be invested in the successful implementation of pain screening, with the result that screening may become de-prioritized. Involving nurses in screening means that they will be able to respond immediately with assessment and advice on pain management if patients are identified with moderate to severe pain. Nurses can collect a detailed pain history to support referrals for medical input where this is necessary. Nurses are also well placed to conduct audits of adherence to pain indicators to feed back data for enabling quality improvement. However, ensuring that patients

see a nurse at first presentation may require substantial new resources for clinics where this is not already embedded in routine practice, especially in those oncology clinics where nurse contact is reserved for chemotherapy infusion.

Conclusion

Ensuring adherence to evidence based guidelines remains challenging globally. This study confirmed the need for strategies to implement evidence-based guidelines for cancer pain in palliative care and oncology settings, and generated useful insights into the feasibility of pain screening and audit in outpatient service settings.

Disclosures

The authors have no relevant disclosures.

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