Protecting pain patients. The evaluation of a chronic pain educational intervention.

Running title: Learning safer analgesia practice

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Dr Hayes has undertaken sponsored consultancy and educational work with Mundipharma, Janssen and Pfizer prior to 2013.

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Abstract

Introduction

Advocacy and commercially-funded education successfully reduced barriers to the provision of long-term opioid analgesia. The subsequent escalation of opioid prescribing for chronic non-cancer pain has seen increasing harms without improved pain outcomes.

Methods

This was a one-group pretest-posttest design study. A multi-disciplinary team developed a chronic pain educational package for General Practitioner trainees emphasising limitations, risk-mitigation and deprescribing of opioids with transition to active self-care. This educational intervention incorporated pre-readings, a resource kit, and a 90-minute interactional video-case-based workshop incorporated into an education day. Evaluation was via pre- and post-

intervention (2 months) questionnaires. Differences in management of two clinical vignettes were tested using McNemar's test.

Results

Of 58 eligible trainees, 47 (response rate 81.0%) completed both questionnaires (36 of whom attended the workshop). In a primary analysis including these 47 trainees, therapeutic intentions of tapering opioid maintenance for pain (in a paper-based clinical vignette) increased from 37 (80.4%) pre-intervention to 44 (95.7%) post-intervention (p=0.039). In a sensitivity analysis including only trainees attending the workshop, 80.0% pre-intervention and 97.1% post-intervention tapered opioids (p=0.070). Anticipated initiation of any opioids for a chronic osteoarthritic knee pain clinical vignette reduced from 35 (74.5%) to 24 (51.1%) (p=0.012) in the primary analysis and from 80.0% to 41.7% in the sensitivity analysis (p=0.001).

Discussion

Necessary improvements in pain management and opioid harm avoidance are predicated on primary care education being of demonstrable efficacy. This brief educational intervention improved hypothetical management approaches two months subsequently. Further research measuring objective changes in physician behaviour, especially opioid prescribing, is indicated.

Introduction

The provision of analgesia has always been a staple responsibility for doctors with estimates of the prevalence of painful conditions amongst American adults as high as 43% (1). What constitutes quality analgesia has changed over time in response to prevailing advocacy, cultural

beliefs and education about which is the lesser of two evils: the suffering of pain or the deployment of opioids, the latter being coupled to addiction fears (1-3).

For much of the twentieth century in the West, opioids were considered too dangerous even to use in end-of-life cancer patients(4). The hospice movement revolutionised analgesia for the dying by advocating successfully for liberal access to opioids. In the 1980s, the newly formed speciality of pain medicine argued that pain was not just a sign but a disease which was under-treated (2). Furthermore, chronic non cancer pain (CNCP) should be, and could be, effectively treated by the "proper" integration of opioids; albeit with education to help physicians overcome their 'misunderstandings' and 'fear of addiction' (2, 3, 5-7). Management principles for palliative care were conflated with those for CNCP, and still are (8). This is despite insufficient to low level of evidence supporting the efficacy of opioids in CNCP, and emerging evidence of associations between longer durations of opioid usage and harms such as hyperalgesia or addiction (1, 9). Opioid use for CNCP has become commonplace with 3-4% of adult Americans prescribed long-term opioid analgesia in 2005 (1) and 11.8% of Australian general practice (GP) patients reporting their use in the previous year (10). Australian opioid dispensing levels increased 4-fold from 1990 to 2014 (11). As in the US, increasing opioid analgesic prescribing in Australia has been related to increasing presentations for opioid analgesic dependency management (12) and increasing opioid-related hospitalisations and accidental deaths (13). The latter are now predominantly from pharmaceutical opioids rather than heroin (13, 14). The differentiation between pharmaceutical and illicit opioids has become blurred due to their similar pharmacodynamics and increased availability for misuse (1). Transitions from the misuse of opioid analgesics to the initiation of heroin use have been

documented (15). Those who have misused opioid analgesics are 19-times more likely to initiate heroin use (16). Some have expressed concern that reductions in liberal opioid prescribing will be replaced by increased consumption of heroin (17). However, across 28 US states, there have been dramatic increases in drug-related overdoses involving both heroin and opioid analgesics (18). Opioid analgesic prescribing rates vary significantly across Australia, potentially indicating unwarranted or inappropriate prescribing and risks of increased harms (19). With up to a 10-fold prescribing rate difference between localities, higher prescribing rates are found in more rural localities and areas of lower socio-economic status (19-21). Contributing to this variation are prescribing practices, training, knowledge and attitudes of GPs (19). Previous cross-sectional data involving GP trainees has shown increased opioid prescribing associated with patient age, male gender and Aboriginal or Torres Islander status, as well as more rural or disadvantaged localities (21). To reduce the over-medication of CNCP, the Faculty of Pain Medicine of the Australian and New Zealand College of Anaesthetists (ANZCA) has stated that "it is clear that opioid pharmacotherapy cannot be considered to be a core component of the management of CNCP" (22). US guidelines go further, indicating in CNCP opioids are "rarely" needed for durations of more than seven days (1).

One of the main "crises" impeding the improvement of pain management today is the inadequacy of education for primary care (3, 23). The US Food and Drug Administration has made continuing medical education (CME) on CNCP central to their Risk Evaluation and Mitigation Strategy (REMS) (24).The evidence-base to determine their most effective form, duration and provenance, however, is lacking. A systematic review identified 19 studies but meta-analysis was precluded by the heterogeneity of methodological designs and quality,

subject matter and outcome measures (25). Based on pre/post assessment outcome measures, improved clinician knowledge and attitudes have been shown among: US hospital residents after two hours of face-to-face or web-based training (26, 27); Australian GPs after 6.5 hours of training (28); US physicians (sanctioned for mis-prescribing) after three days of training (29) and REMS participants (30). A trial amongst German GPs on lumbago care found three interactive seminars plus two academic detailing visits improved patient outcomes at six months compared to the receipt of posted guidelines (31).

Educators of doctors-in-training have been said to have a moral obligation to assume responsibility for improved CNCP care (3). In order to address the evidence gap in evaluations of continuing medical education on CNCP, we set out to develop, deliver and evaluate a brief multi-faceted non-commercially-funded CNCP educational intervention for GPs undergoing vocational training. We aimed to determine whether this intervention, when embedded in a routine training day, reduced the hypothetical opioid prescribing of GP trainees.

Methods

We performed a questionnaire-based evaluation of a pragmatic intervention, delivered to GP trainees in the course of their usual training, using a one-group pretest-posttest design study.

Study population and recruitment

The study population was GP registrars (vocational trainees) in one of Australia's 17 Regional Training Providers. These are government-funded, not-for-profit, geographically-defined

organizations charged (until 2016) with delivery of general practice vocational training. Trainees eligible for this study were in one of the first two of their three mandatory general practice-based training terms. Each term lasts a full-time-equivalent of six-months and is undertaken after at least two years spent in hospital training.

Trainee inclusion criteria were Term 1 and 2 trainees eligible to attend a workshop conducted as part of their vocational training program. All trainees were invited at a previous workshop or via email or post to complete a study questionnaire before the intervention, as well as to complete a questionnaire two months afterwards.

Intervention

The intervention aimed to improve CNCP guideline concordance by emphasising the transition to active self-management, opioid deprescribing and the use of opioid prescribing boundaries. It comprised:

i) selected papers provided on-line as pre-reading for the educational session

ii) a 90 minute face-to-face educational session conducted as part of a day-long educational release workshop

iii) participant resources to facilitate implementation of guideline-endorsed pain management strategies, provided on-line post-workshop.

A multi-disciplinary group contributed to the preparation of the intervention package. The group included a pain physician, two addiction physicians, a public health physician, a psychologist and several GP medical educators.

Pre-Reading: Readings covered: the history, science and culture of opioid use in CNCP (32); the integration of the principles of pain medicine and addiction medicine into CNCP management (33); shared CNCP decision-making (34); and an introduction to motivational interviewing (35).

Workshop sessions: Workshop content is summarised in Box 1. Following the lead of Sullivan (27), we developed four 2-3 minute videoed vignettes. These aimed to increase immediacy, to illustrate negotiation skills and to enhance group discussion. The vignettes involved an actor playing the patient and a GP trainee supervisor playing a doctor commencing at the practice. The first visit involved the doctor running late and seeing an inherited CNCP patient for the first time. The doctor was given numerous challenges to manage including a request for routine repeat oxycodone prescription. The next two scenes in the video vignette showed the patient-centred development of functional goals, an opioid agreement, the implementation of monitoring based on the 4 "A's" of Passik (6). Things went awry with a dose escalation negotiated following pressure from the patient who claimed under-treatment of pain. The final vignette revealed accumulating aberrant behaviours. Discussion between the doctor and patient resulted in agreement to gradually deprescribe (i.e. taper or discontinue) opioids and commence more multi-modal care. The videos are freely available from links given in the online supplementary material. The style of the presentation was interactive with trainees encouraged to reflect on and compare and contrast their attitudes and practice. Approximately half the duration of the presentation involved viewing the vignettes and discussing them as a group in the context of their own practice. The facilitator linked discussions of each vignette back to the clinical processes described in the presentation, reinforcing the key messages regarding biopsychosocial assessment of CNCP (including psychiatric and substance use problems),

assessment of pain and its impact on daily functioning, universal precautions as they apply to opioids, monitoring aberrant behaviour and deprescribing (Box 1).

Post-workshop resources: Resources provided to trainees, including those absent from the presentation, are listed in Box 2 with links provided in the online supplementary material.

The lead presenter of the educational session was a GP supervisor of trainees and addiction physician (SH). Other presenters were the director of the regional pain service (CH), and the senior medical officer in addiction for the state (AD).

Questionnaires

The multiple-choice questionnaire was developed by the multi-disciplinary group. It covered attitudes to the use of long-term opioids in CNCP, as well as the management of two case-based CNCP clinical vignettes. The vignettes concerned chronic back pain uncontrolled with current opioid medication, and knee osteoarthritis pain uncontrolled with non-opioid pharmaceuticals. See Box 3 for the two vignettes.

Outcome factors

Primary outcome factors addressed our study aim of evaluating whether our intervention reduced hypothetical opioid prescribing of GP trainees.

Primary outcomes were pre- to post-workshop change in proportion of hypothetical opioid management responses on the two clinical vignettes. The pre-intervention questionnaires were completed three weeks prior to the pre-reading being made available (i.e. four weeks prior to

the workshop). The post-intervention questionnaires were completed two months post-workshop.

For the chronic back pain vignette, responses were dichotomised to those involving opioid dose maintenance or increase; and those entailing dose reduction or cessation. For the opioid-naïve knee osteoarthritis pain vignette, responses were dichotomised to those entailing initiation of an opioid and those not entailing initiation of an opioid.

Secondary outcomes were:

i) Changes to proportion of patients for whom individual opioids would be initiated for the opioid-naïve knee osteoarthritis pain vignette

ii) Changes to proportion of patients in which referrals to individual medical or allied health services would be made for the opioid-naïve knee osteoarthritis pain vignette

iii) Changes in opinions regarding whether opioids are under-prescribed or over-prescribed in CNCP (scored on a five-point Likert scale from 1=under-prescribed' to 5='over-prescribed' and later dichotomised to 'under-prescribed'/'neutral' (scores of ≤3) vs. 'over-prescribed' scores >3).

Statistical analyses

Pre-post changes on all parameters were tested using McNemar's test. If cell numbers were small, we used an Exact McNemar's. Our primary analyses included all trainees who provided both pre-intervention and post-intervention data, whether or not they had attended the workshop or used the papers or resources. We also performed sensitivity analyses including

data of only those trainees who attended the workshop. For all analyses, statistical significance was set at $p < 0.05$.

Ethical approval

Ethics approval for the study was obtained from the Human Research Ethics Committee of the University of Newcastle (Approval number: H-2009-0323).

Results

There were 58 registrars enrolled in either term 1 or 2 with 43 attending the workshop. 47 trainees (response rate 81%) completed both questionnaires (36 of whom attended the workshop). Their demographics may be found in Table 1. There were no significant differences in the characteristics of those who completed both questionnaires (n=47) and those who completed a questionnaire at one time-point only (n=11). Responses are given in Table 2.

Primary outcomes

For the back pain scenario, there was a decrease in maintaining and/or increasing opioid analgesia. In the primary analysis, there was a statistically significant increase in intended deprescribing of opioids from n=37 (80.4%) to n=44 (95.7%) (p=0.039). Among those who attended the workshop, intentions to deprescribe increased from n=28 (80.0%) to n=34 (97.1%) (p=0.070).

For the knee osteoarthritis scenario, there was a statistically significant decrease in the proportion intending to initiate opioids, from n=35 (74.5%) to n=24 (51.1%) (p=0.012). Amongst

workshop attendees, intended opioid initiation reduced from n=28 (80.0%) to n=15 (41.7%) (p=0.001).

Secondary outcomes

There was a statistically significant reduction in intended initiation of immediate-release oxycodone (p= 0.004 in the primary analyses and 0.008 among workshop attendees) and a non-significant trend to reduced intention to initiate modified-release oxycodone (p= 0.063 in both analyses). There were no significant changes in intention to initiate any other specific opioids or referrals. There was a non-significant trend for more registrars to regard opioid analgesics for CNCP as over-prescribed (p=0.248) in primary analyses.

Discussion

A brief educational package on CNCP management was prepared and delivered by a multi-disciplinary team. Responses to the questionnaire two months later showed changed attitudes towards opioid monotherapy with increased intended deprescribing.

Comparisons with other studies

While teaching the curriculum recommended by the International Association for the Study of Pain has been estimated to require up to 74 hours (34), the brevity of this CNCP education package is meaningful. There is a diversity of approaches by US states to relevant CME for physicians (23), reflecting the lack of evidence-base regarding how much (or how little) education is needed and whether education regarding the role of opioids in the management of

CNCP is effective. Very few US states mandate relevant CME and those that do only require one-off or periodic training of a similar duration to this package. Still about half US physicians report having never undertaken CME on the non-opioid management of CNCP (23). The US Food and Drug Administration (FDA) planned the REMS CME to be mandatory for opioid prescribers, but almost a third (31.2%) of Pennsylvanian GPs indicated that they would rather discontinue prescribing opioids altogether than undertake the proposed 4-8 hours involved (24). The REMS has been rolled out as a voluntary 3 hours live or online training (30).

Scenario management:

The duration of opioid maintenance for new episodes of CNCP has been found to be strongly associated with rates of incident opioid use disorders (36). In the case involving chronic back pain refractory to opioids, trainees in the primary analysis significantly increased their rate of proposed opioid deprescribing. The importance of this is that opioid deprescribing in CNCP is rare amongst Australian GPs with 89% in one survey reporting never or only "occasionally" doing so, even when faced with addictive behaviours (37). GP trainees predominantly prescribe opioids as repeat prescriptions to regular practice CNCP patients (21), reflecting the significant barriers to deprescribing (38).

The proposed management of the opioid-naïve knee osteoarthritis pain case saw the number of trainees intending to initiate opioids reduce by approximately a third and a half respectively in the primary and sensitivity analyses. Recent guidelines do not support the use of opioid analgesics in CNCP, even when envisaged as a time-limited trial (1, 39, 40). Reduced oxycodone initiation (statistically significant for the immediate release formulations in our study) is

important given that oxycodone has been found to be the second most highly prescribed opioid by trainees (21) and accounted for 38% of the total opioid dispensings in Australia (14).

Strengths and Limitations

Despite the plethora of mainly commercially-funded CNCP educational packages available to GPs, few have been evaluated; with none being evaluated for GP trainees. A strength of our study is that we carefully developed the content and format of the package based on multi-disciplinary input, previous pain educational research and on observational data of opioid prescribing in this population (21). We then tested it in a 'real world' situation of GP trainees' routine educational programs. Conducting an analysis of all trainees - including those who did not receive all or any elements of the intervention - best approximates the real-world logistics of delivering education in vocational education programs. By way of comparison and to better evaluate the efficacy of the actual workshop we conducted a sensitivity analysis of those trainees who attended the workshops.

A limitation of the study is that our outcome variable was expressed management intentions rather than actual clinical practice (where the practical barriers to deprescribing must be confronted). The sample size, particularly in the sensitivity analysis, may have prevented some effects of the intervention reaching statistical significance. The lack of a control group is also a limitation of the study, but given the short time frame involved, these data are unlikely to reflect more widespread changes in trainee analgesia practice. The parameters of the registrar training day did not allow for more active modalities of learning such as individualized skill rehearsal and feedback, serial on-line learning units, clinical audits or educational outreach

visits (25). A further limitation may be social-desirability bias of trainees wishing to report changes sanctioned by their educators. Relying on a duration of two months for the administration of our post-intervention questionnaire may be regarded either as a strength or a limitation due to the inconsistency of outcomes reported in the literature (25).

Implications for practice and further research

This study demonstrates how a complex, non-commercially-funded educational intervention, delivered as part of a usual education program and with face-to-face contact of only 90 minutes can change trainees' intended CNCP management. Relevant non-commercial training has been previously associated with better quality CNCP care, in terms of increased guideline-concordance (37). Further research has been called for to evaluate changes in actual CNCP management, as opposed to expressed intentions, with the employment of a control group (28). This should strengthen program development, and improve learner, patient, and healthcare outcomes (29).

Whilst a reduction of non-evidence-based CNCP management in the form of long-term opioid prescribing is an important goal, it is not the only indicator of quality care. Of crucial importance is the education of GPs about appropriate evidence-based alternatives to opioids. Accessible, pragmatic educational models of non-pharmacologic management of CNCP will have to be constructed, implemented and evaluated. These would address better patient education about the neurobiology of pain and need for lifestyle modification as well as improving GP skills for the psychological and functional management of pain and opioid deprescribing (23).

Conclusion

Our interactional educational package aimed to both improve CNCP care and reduce poor opioid care. The readings, provision of resources and the single interactive and vignette-based workshop produced significant changes to trainees' judgements about, and intentions towards, long-term opioid analgesia maintained at two months. It is important that any educational interventions to be disseminated in primary care have effectiveness that is evidence-based. The contents and mode of dissemination of models of analgesia education should thus improve patient outcomes and protect them from iatrogenic harm.

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Declaration of Conflicting Interests

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has received untied educational grants from MundiPharma, Reckitt Benckiser and Indivior for postmarketing surveillance studies of opioid medications.

Box 1 Presentation Content:

- The history of opium and analgesia practice.
- The escalation in the West of opioid prescribing and associated harms, including overdose and addiction.
- CNCP neurophysiology including neuro-plasticity, central sensitization and opioid-induced hyperalgesia.
- Guideline-concordant and patient-centred management of CNCP
- Biopsychosocial assessment in CNCP including past and present psychiatric and substance use problems, in preference to tool-based risk-stratification (38).
- Use of the Pain Intensity, Enjoyment of Life, General Activity (PEG) measurement scale (40).
- The importance of multi-disciplinary and multi-modal CNCP management with appropriate referral to physiotherapy, psychology, pain specialists or addiction treatment services.
- The non-pharmaceutical self-management management of CNCP.
- The non-opioid pharmaceutical management of CNCP.
- The lack of evidence supporting opioids in CNCP in terms of efficacy and safety.
- The practice, principals and limitations of universal precautions if or when opioids are used in CNCP.
- The importance of assessing and responding to the emergence of aberrant behavior.
- Deprescribing opioids.

Box 2: Additional resources provided to every registrar after the workshop

An opioid conversion table from the Faculty of Pain Medicine (ANZCA) (41).

The Pain Intensity, Enjoyment of Life, General Activity (PEG) scale (42).

Details about registration for the National Prescription Shopping Programme (43).

Details about NSW Ministry of Health regulatory requirements (44).

A sign for the waiting room explaining practice opioid and benzodiazepine medication policy to patients.

A list of contact people from whom to seek advice after the session.

A list of further learning opportunities.

See online supplementary material Appendices 1 and 2 for more information including patient education videos and information sheets, and an example of an opioid patient agreement or contract

Box 3: Clinical vignettes

Vignette 1

Mrs Bird is a 57-year-old ex-competitive skier. She has a 10-year history of severe osteoarthritis of her lumbar spine with multiple levels involved. She has previously seen an orthopaedic surgeon and her condition is not suitable for surgery. She was prescribed modified-release oxycodone tablets 6 months ago by another doctor in the practice. Her pain didn't really improve, and now she is experiencing severe back pain. She is currently taking modified-release oxycodone 20 mg bd, regular modified-release paracetamol and occasional meloxicam 15mg. There are no red flags that warrant further investigation.

Vignette 2

Mr Wilson is 68 and has a long history of osteoarthritis particularly affecting his knees. He continues to have mild pain in his right knee and severe pain in his left knee on which he has had a Total Knee Replacement (one year ago, with a difficult post-operative course leaving him with marked pain and stiffness). The pain causes marked limitation of activities. He takes regular modified-release paracetamol and frequent non-steroidal anti-inflammatory drugs with only modest effect on his pain.

Table 1: Participating trainee and practice characteristics (n=58)

Variable	Class	Only pre or post questionnaire (n=11)		Both Questionnaires (n=47)	
		n (%)	[95% CIs]	n (%)	[95% CIs]
Trainee variables					
Gender	Female	7 (63.6)	[31.9-86.7]	33 (70.2)	[55.3-81.8]
Enrolled pathway	General (vs rural)	3 (27.3)	[8.3-60.9]	18 (38.3)	[25.3-53.3]
Qualified as a doctor in Australia	Yes	8 (72.7)	[39.1-91.7]	35 (74.5)	[59.7-85.2]
Age, years	Mean (SD)	31.9 (3.5)		34.6 (6.7)	
Training Term	Term 1	5 (45.5)	[18.9-74.8]	33 (70.2)	[55.3-81.8]
	Term 2	6 (54.6)	[25.2-81.1]	14 (29.8)	[18.2-44.7]
Working fulltime	Yes	7 (63.6)	[31.9-86.7]	35 (74.5)	[59.7-85.2]
Practice variables					
Routine bulk billing	Yes	2 (18.2)	[4.1-53.4]	6 (12.8)	[5.7-26.2]
Number of GPs working there	1-4	4 (36.4)	[13.3-68.1]	18 (38.3)	[25.3-53.3]
	5-10+	7 (63.6)	[31.9-86.7]	29 (61.7)	[46.7-74.7]
Location Rurality	Major City;	7 (63.6)	[31.9-86.7]	23 (48.9)	[34.7-63.4]
	Inner Regional;	3 (27.3)	[8.3-60.9]	21 (44.7)	[30.8-59.4]
	Outer regional, remote or very remote	1 (9.1)	[1.1-47.5]	3 (6.4)	[2.0-18.6]
Location SEIFA* Index (decile)	Mean (SD)	5.7 (2.1)		5.1 (2.0)	
Workshop Attendance		7 (63.6)	[31.9-89.7]	36 (76.6)	[62.0-86.8]

***** Socioeconomic Index for Area (SEIFA) Relative Index of Disadvantage (44)

Table 2: Scenario management

Vignette	Management Response (n=47)		Analysis of all eligible registrars			Analysis of registrars who attended workshop		
			Pre Questionnaire n (%)	Post Questionnaire n (%)	McNemar's Chi square p-value	Pre Questionnaire n (%)	Post Questionnaire n (%)	McNemar's Chi square p-value
Opioid refractory back pain	**Would you:**							
	a. Increase dose or maintain dose of oxycodone	Yes	9 (19.6)	2 (4.4)		7 (20.0)	1 (2.9)	
	b. Wean off and/or add in anti-epileptic and/or low-dose tricyclic	Yes	37 (80.4)	44 (95.7)	0.0391*	28 (80.0)	34 (97.1)	0.0703*
Opioid-naïve chronic knee osteoarthritis pain #	**Would you prescribe opioids for this patient?**	Yes	35 (74.5)	24 (51.1)	0.0116	28 (77.8)	15 (41.7)	0.0008
	Type of opioid prescribed – if any**							
	a. short-acting oxycodone	Yes	15 (31.9)	6 (12.8)	0.0039*	13 (36.1)	5 (13.9)	0.0078*
	b. modified-release oxycodone	Yes	7 (14.9)	2 (4.3)	0.0625*	6 (16.7)	1 (2.8)	0.0625*
	c. codeine	Yes	10 (21.3)	13 (27.7)	0.4054	7 (19.4)	8 (22.2)	1.0000
	d. tramadol	Yes	10 (21.3)	6 (12.8)	0.2482	8 (22.2)	5 (13.9)	0.5078
	e. a fentanyl patch	Yes	5 (10.6)	4 (8.5)	1.0000	5 (13.9)	2 (5.6)	0.4531*
	Referrals made to a:							
	physiotherapist	Yes	46 (97.9)	42 (89.4)	0.2188*	35 (97.2)	34 (94.4)	1.0000*
	psychologist for CBT	Yes	7 (14.9)	7 (17.0)	1.0000*	4 (11.1)	7 (19.4)	0.3750*
	pain management group	Yes	11 (23.4)	15 (31.9)	0.2850	8 (22.2)	11 (30.6)	0.5078*
	pain specialist	Yes	23 (48.9)	23 (48.9)	1.0000	18 (50.0)	20 (55.6)	0.5271
	rheumatologist or orthopaedic surgeon	Yes	21 (44.7)	15 (31.9)	0.2393	18 (50.0)	11 (30.6)	0.1266
Concerning opioid use in patients with chronic non-cancer pain	**Do you think they are:**							
	a. Under-prescribed	Yes	12 (25.5)	8 (17.0)		9 (25.0)	7 (19.4)	
	b. Over-prescribed	Yes	35 (74.5)	39 (83.0)	0.2482	27 (75.0)	29 (80.6)	0.5271

* Exact McNemar significance probability used

** No trainee selected: short-acting morphine, modified release morphine or methadone

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