Health Education in Practice: Journal of Research for Professional Learning

Vol. 3 | No. 1 | 2020

Research & Evaluation article (double blind peer-review)

Citation: Holliday, S, Hayes, C, Jones, L, Gordon, J, Fraser, C, Harris, N, Nicholas, M, Holder, C, Oldmeadow, C & Magin, P 2020, 'Prescribers or Multidisciplinarians? An Evaluation of Brief Education for General Practitioners on Chronic Pain Management', *Health Education in Practice: Journal of Research for Professional Learning,* vol. 3, no. 1 http://dx.doi.org/10.33966/hepj.3.1.14146

Prescribers or Multidisciplinarians? An Evaluation of Brief Education for General Practitioners on Chronic Pain Management

Simon Holliday[1], Chris Hayes[2], Lester Edmund Jones[3], Jill Gordon[4], Catherine Fraser[5], Newman Harris[6], Michael Nicholas[7], Carl Holder[8], Christopher Oldmeadow[9], Parker Magin[10]

ABSTRACT

PURPOSE

Active pain self-management (PSM) for patients with chronic pain (CP) is assumed to require multidisciplinary care, leaving prescribing analgesics the most accessible option for general practitioners (GPs). As such, we sought to upskill GPs in multimodal PSM with a harm minimisation approach for any opioid prescribing.

DESIGN AND METHODOLOGY

Having developed an educational training resource, a multidisciplinary team (MDT) delivered the program to attendees at a GP conference in 2017. The educational package comprised pre-readings, a six-hour interactive, skills-based workshop, and post-workshop resources. The single-group intervention was evaluated with an original and unvalidated pre-/post-test (three months) survey of four domains: knowledge, attitudes, utilisation of strategies involving PSM and opioid harm minimisation. Paired t-tests were conducted on each domain score and overall, with effect sizes assessed using Cohen's d. A sensitivity analysis was performed on the data lacking a post-test survey response. Post-survey scores were imputed using chained regression equations, then paired t-tests analyses were conducted on imputed datasets using Rubin's method to pool estimates.

FINDINGS

Of 99 participants, 33 returned both surveys for primary analysis. These were combined in the sensitivity analysis with 60 unpaired surveys with modest internal consistency (Cronbach's alpha 0.736). Primary analysis demonstrated significant self-reported improvements in each educational domain, with the overall score increasing 10.54 points out of 130 ($p < 0.001$, Cohen's d 1.11). Improvements were similar in a sensitivity analysis.

DISCUSSION, LIMITATIONS AND CONCLUSIONS

This study found that a brief GP educational package might be a viable intervention for facilitating PSM and promoting safer prescribing strategies. Outcomes at three months, from this unvalidated survey instrument, suggest improvements in knowledge, attitudes and self-reported facilitation of PSM and opioid prescribing. As this study did not measure clinician behaviour or patient outcomes objectively, further

educational research is indicated to confirm the findings and identify how best to deliver CP management training.

Keywords: analgesics, opioid, chronic pain, general practice, educational measurement, pain management, deprescribing

---

[1] simon.holliday@healthhubtaree.com.au, School of Medicine and Public Health, University of Newcastle, NSW, Australia, BMed(Newc), GradDipA&DSt

[2] chris.hayes@health.nsw.gov.au, School of Medicine and Public Health, University of Newcastle, NSW, Australia, MMed

[3] lester.jones@singaporetech.edu.sg, Singapore Institute of Technology and La Trobe University, Melbourne, VIC, Australia, MScMed(PainMgt)

[4] jill.gordon@sydney.edu.au, Avondale College, NSW, Australia, PhD

[5] catfra@optusnet.com.au, retired, no institutional affiliations, Masters in General Practice Psychiatry (Monash)

[6] newman.harris@sydney.edu.au, University of Sydney, Pain Management Research Institute, Sydney, NSW, Australia, MMed(Pain Med)

[7] michael.nicholas@sydney.edu.au, University of Sydney, Pain Management Research Institute, Sydney, NSW, Australia, PhD

[8] carl.holder@hmri.org.au, Hunter Medical Research Institute, Newcastle, NSW, Australia, PhD

[9] christopher.oldmeadow@hmri.org.au, Hunter Medical Research Institute, Newcastle, NSW, Australia, PhD

[10] parker.magin@newcastle.edu.au, School of Medicine and Public Health, University of Newcastle, NSW, Australia, PhD

Corresponding author: Simon Holliday, HealthHub Taree, PO Box 834, Taree NSW 2430, simon.holliday@healthhubtaree.com.au, Ph: +61 (0) 2 6552 5533 Fax: +61 (0) 2 6552 4249

BACKGROUND

Pain is common, experienced in the last month by most (68%) adults in Australia, with 15% reporting recurrent or persistent pain in the previous six months (Miller et al. 2017). General practitioners (GPs) often manage chronic pain (CP) as if it were an acute condition and focus on elimination of pain rather than promotion of functional restoration (Schneiderhan, Clauw & Schwenk 2017; Semple & Hogg 2012; Sullivan & Ballantyne 2016). Historically, pain management education has been advocacy driven. Professor Emeritus John Bonica championed the multidisciplinary team (MDT) combined with interventional approaches (Loeser 2017), and Dame Cicely Saunders (1978), of the hospice movement, taught how the multifaceted nature of pain in terminal illness required attention to social, psychological and spiritual distress along with liberal access to opioid analgesics. Liberal access—appropriate in palliative care practice—was promoted for all patients for 'under-treated' non-cancer CP by pain specialists and commercial interests, despite a lack of clear scientific evidence (Sullivan & Ballantyne 2016). Pharmaceutical manufacturers underwrote pain advocacy organisations, medical societies, medical education and guideline development to influence prescribing culture (Davis & Carr 2016; Organisation for Economic Co-operation and Development [OECD] 2019). Continuing medical education (CME) for CP claimed that 'judicious' opioid prescribing strategies could prevent prescription opioid analgesic (POA) patients from being transformed into addicts (Dyer 2019; Kertesz & Gordon 2018; Kuehn 2017; Madras 2018; OECD 2019). A composite model of CP care soon emerged, highlighting specialist multidisciplinary and interventional care combined with opioids titrated to symptoms (Sullivan & Ballantyne 2016).

Consequently, over the last three decades, the availability of POAs has boomed across the Western world (OECD 2019). Iatrogenic harms such as opioid-related deaths (ORDs) increased an average of 20% across 25 OECD (2019) countries. In the United States (US), opioid prescribing escalated over 300% (Madras 2018), with over one-third (37.8%) of adults reporting POA use during 2015 (Han et al. 2017). In America, drug poisonings (predominantly ORDs) are now the leading contributor to reduced gains in life expectancy (Dowell et al. 2017; OECD 2019). The situation in Australia is similar, with POA dispensing increasing 15-fold from 1992 to 2012 (Blanch, Pearson & Haber 2014). An estimated 16% of adult Australians are being dispensed a POA annually (Lalic et al. 2019), with a 10-fold variation in prescribing rates across the nation (Australian Commission on Safety and Quality in Health Care 2015). Past or current POA misuse is common and, in 2016, was reported by 11% of adults (Australian Institute of Health and Welfare 2018). In the decade leading to 2016, the rate of ORDs almost doubled to three each day with over three-quarters involving POAs (Australian Institute of Health and Welfare 2018; Department of Health 2019). Tapering or termination of long-term POAs may actually increase ORDs without the introduction of active pain self-management (PSM) as well as strategies used for opioid maintenance in dependency (James et al. 2019).

The World Health Organization recently discontinued two CP guidelines due to the emerging science supporting non-pharmaceutical strategies, as well as reports of conflicts of interest involving the experts who developed the guidance (Dyer 2019). Evidence informed CP management emphasises non-pharmacological and non-invasive PSM (a multidisciplinary engagement with multimorbidity), the non-initiation or deprescribing of opioids, and a harm minimisation approach to addictive pharmacotherapies (Australian Commission on Safety and Quality in Health Care 2015; Department of Health 2019; Hogans et al. 2018; Holliday et al. 2018; Malfliet et al. 2019; Manhapra & Becker 2018). The shift away from POAs reflects concerns about harms including pre-clinical research that indicates opioids may intensify and prolong

pain (Grace et al. 2016), and a prospective one-year clinical trial showing better outcomes from non-opioid management of musculoskeletal pain (Krebs et al. 2018).

Most pain education supports referral to a multidisciplinary team (MDT) (White et al. 2019) but this is usually impractical, with less than 0.2% of those with CP accessing them each year (Semple & Hogg 2012). GPs often deal with patients with CP—in fact, discussing pain in almost half of their consultations (Tai-Seale et al. 2011). GPs are responsible for half of all POA initiations (Lalic et al. 2019) which are a GP's most commonly prescribed (10%) initial script (NPS MedicineWise 2019). Overall, POAs comprise 4.4% of GP prescribing (NPS MedicineWise 2019).

GP care may be less expensive than specialist MDTs, but considering the costs of lost earnings and productivity, GP care is less cost-effective (Deloitte Access Economics 2019; Lin et al. 2011; Semple & Hogg 2012). Cost-effectiveness may be improved with the addition of PSM, whether delivered by a GP or accessed by referral (Lin et al. 2011). To date, there have been no direct comparisons of multidisciplinary care against a biopsychosocial approach taken in a monodisciplinary setting (Malfliet et al. 2019), so we simply do not know which approach is more cost-effective. However, we can make some assumptions based on what we know. For example, the prevalence of CP and opioid consumption is higher in populations with demographics characterised by low levels of education, low income, rurality and complex psychosocial issues (Hardman, Lawn & Tsourtos 2018). Such populations are less willing or able to access specialist MDTs and are more likely to dropout from PSM (Hardman, Lawn & Tsourtos 2018). That said, GPs offer greater geographical and financial accessibility along with opportunistic and longitudinal care. This may explain why population-level research shows strengthening of the GP sector improves many health outcomes, including mortality (Basu et al. 2019).

In the US, the National Institutes of Health has committed to developing and disseminating non-addictive pain management strategies integrated with the prevention and treatment of addiction (Kuehn 2017). In Australia, the Department of Health (2019) has called for action to translate best practice CP management into primary care to make it accessible. The department identified a need for short training courses for GPs, which featured engagement activities such as webinars and workshops (Department of Health 2019). To equip GPs to address the biopsychosocial under-treatment of CP and to minimise the unsafe provision of POAs, our MDT developed training, compatible with standard CME scheduling, promoting strategies deliverable within routine clinical workflow. As the authors are not aware of any evaluations of similar training, we undertook this study.

METHODS

This paper describes a questionnaire-based evaluation of a pragmatic educational intervention, using a pre-/post-test design without a control group. Our working group included a pain physician (CHa), a pain physiotherapist (LJ), a clinical psychologist (MN) and a psychiatrist (NH)—all of whom specialise in CP—as well as three non-pain specialised GPs. All the GPs worked in private practice—two with special interests in mental health (CF and JG) and one as a rural GP and addiction physician (SH).

The project was named 'Time-efficient Management of Pain in the Office' (TEMPO). It was designed to promote positive, active pain care involving multiple PSM micro-interventions delivered longitudinally during standard GP consultations. Reliance on safety strategies, derived from a non-pain dependency model, was recommended for any provision of POAs. Content advice was also received from the pain and addiction specific interest groups within the Royal Australian College of

General Practitioners (RACGP). During 2016–2017, the TEMPO package was delivered and refined in a webinar and at four conferences, and was specifically accredited by the RACGP as an 'active learning module' (ALM). Every three years, Australian GPs are required to obtain CME credits from such a module in which two-thirds of a six-hour workshop involves active learning exercises. Participants in this study were emailed readings before the workshop (Holliday & Jammal 2015; Lack 2016; Schneiderhan, Clauw & Schwenk 2017), directed to relevant websites such as the NSW Health ACI Pain Management Network (https://www.aci.health.nsw.gov.au/chronic-pain) or the Hunter Integrated Pain Service (http://www.hnehealth.nsw.gov.au/Pain/Pages/Health_professionals.aspx). Online CME and patient education resources were provided subsequently as published in detail previously (Holliday et al. 2018) and cited in the Australian National Strategic Action Plan for Pain Management (Department of Health 2019). The content is summarised in Box 1.

BOX 1: WORKSHOP CONTENT

- The history of pain and opioid management: acute analgesia, palliative care and dependency treatments
- Opioid-related harms in chronic pain including how prescribing volume correlates with overdoses and addiction
- The regulators' view: identifying misprescribers
- The non-initiation and de-prescribing of opioid analgesics
- Management or prevention of the various opioid-related harms including dependency, naloxone rescue provision, and avoiding co-consumption with benzodiazepines
- Stigma and opioid substitution therapy
- The limited role of pharmaceuticals including medicinal cannabis
- Over-investigation
- Patient-centred care
- The role of practice nurses
- Pain active self-management
- Biopsychosocial case formulation
- Assessment of function and of pain outcome scores
- Screening with 10-item Örebro
- Patient neuro-education including central sensitisation
- Active versus passive therapies
- Goal setting and activity pacing
- Cognitive behavioural therapy for pain or insomnia
- Depression and affective disorders
- Active relaxation: breathing and mindfulness

- Strategies for flare-ups
- Addressing coping-orientated substance use
- The endogenous opioid system: social reward and social pain
- Social reconnection with work, family and partner or with art or spirituality
- Couple interventions
- Obesity-independent nutritional factors and the microbiome
- How to operationalise PSM into time-poor general practice

WORKSHOP DETAILS

The six-hour skills-based workshop was presented by an MDT and included 16 learning activities. Participants undertook role-plays and small group discussions covering patient education, outcome assessments, deprescribing and the provision of PSM. Most of the workshop involved non-pharmacological management with less than an hour allocated to discussing POAs and other pharmacotherapy.

STUDY POPULATION AND RECRUITMENT

The ALM ran during the RACGP national annual conference in Sydney, Australia, on 25 October 2017. Registrants were invited to participate in the research study and provided with hard copy or electronic forms of the study questionnaire.

QUESTIONNAIRE

No previously published CP education evaluation instruments covered non-pharmacological PSM, as they related predominantly to opioid-focused paradigms of care. Therefore, we developed an instrument specifically for this study, informed by an evaluation of the US Risk Evaluation and Mitigation Strategy (REMS) program (Alford et al. 2016). Our instrument (Box 2) covered four domains: knowledge, attitudes, current utilisation of PSM strategies, and last-month use of pharmaceutical REMS strategies. The questionnaire was not validated, though piloted in two TEMPO workshops during 2016.

Demographic factors elicited included age, gender, Prescription Shopping Information Service registration status and main practice site postcode (to describe rural versus urban status) (Department of Health 2018). A unique identifier allowed pairing of pre/post data.

Questionnaires were emailed one month before the workshop. Participants could return the pre-workshop form by email, fax or post, or else hand-deliver it at the workshop. Participants were able to indicate consent for their responses to be used for educational research. The presenters were blind to these evaluations at the time of the workshop.

The post-workshop questionnaire was delivered to all delegates at 12 weeks post-workshop and included an invitation for qualitative feedback. There was a $20 shopping voucher offered for the first 10 responses, and all registrants were emailed two reminders. Ethics approval was given by the RACGP National Research and Evaluation Ethics Committee (NREEC 16-005).

OUTCOME FACTORS

Eleven multiple-choice questions assessed knowledge of assessment, PSM and REMS, with one question derived from previous work (Alford et al. 2016). Each question gave 4–6 options with the one correct answer scoring two points. Other domains utilised a five-point Likert scale from 0–4, with approximately one-third of items being reverse scored. Attitudes were assessed based on participants' level of agreement with 11 statements, with four of these items based on previous work (Alford et al. 2016). Current utilisation of PSM was assessed with nine items, and past-month REMS with seven. Domain sums were calculated to give maximum scores of 22, 44, 36 and 28, respectively, and totalled to give an overall maximum score of 130.

STATISTICAL ANALYSES

Internal consistency of the instrument domains, and of the overall instrument, was assessed with Cronbach's alpha. Paired *t*-tests were conducted on each domain score and on the overall score. Effect sizes for domain scoring changes were assessed with Cohen's d.

For sensitivity analysis, each domain's item scores underwent multiple imputation. The pre-survey section scores, along with the respective section items, were used to predict the imputed post-survey section scores. The imputations were also adjusted for gender, Prescription Shopping Information Service registration status, age and practice location. The chained regression equations method was used to impute 30 completed datasets, and results of the paired *t*-test were produced over the datasets using Rubin's method. Paired *t*-tests were performed on the imputed data, as for the primary analysis. All analyses were conducted using SAS Version 9.4 (SAS Institute Inc, Cary, NC, USA).

RESULTS

From 99 attendees, 91 completed the pre-workshop survey. Of these, 33 participants (36%) completed a post-workshop survey (overall completion rate 33%). The demographic characteristics of the sample are presented in Table 1. Baseline participants had a mean age of 48 years, an even gender split, with over two-thirds from major urban centres, and six practicing outside Australia.

Table 1. Demographics (Pre-workshop)

	Statistic	Total (*n* = 91)	Chi square	Degrees of freedom for chi square	*P*
Age	Mean	47.9 (14.4)	.	.	0.3644
	Median	47 (27, 100)			0.4162
Gender	Male	45 (49%)	0.113	2	0.9450
	Female	46 (51%)			
Remoteness classification	Major city	53 (62%)	16.876	12	0.1543
	Large regional	5 (5.9%)			
	Medium–large regional	8 (9.4%)			
	Medium regional	6 (7.1%)			
	Small regional	6 (7.1%)			
	Remote	1 (1.2%)			
	Overseas	6 (7.1%)			

Statistic	Total (n = 91)	Chi square	Degrees of freedom for chi square	*P*
Missing	6			

The instrument sub-scales assessing attitudes and utilisation of PSM and REMS had Cronbach's alphas of 0.57, 0.73 and 0.41, respectively. Overall, the entire survey had good overall internal consistency with a Cronbach's alpha of 0.736.

The comparison of pre- and post-workshop scores showed increases in every domain and overall (Figures 1 and 2). For our primary analysis (33 paired questionnaire responses), there were changes of 1.6 (95%CI 0.4,2.8; $p = 0.001$), 2.7 (95%CI 1.28,4.1; $p < 0.001$), 4.4 (95%CI 2.6,6.2; $p < 0.001$) and 1.8 (95%CI 0.5,3.1; $p < 0.010$) for knowledge, attitudes, and utilisation of PSM and REMS, respectively. The Cohen's d for these effect sizes for the pre–post differences by domain were 0.49, 0.68, 0.86 and 0.48. The overall score increased by 10.5 ($p < 0.001$), with Cohen's d of 1.11.

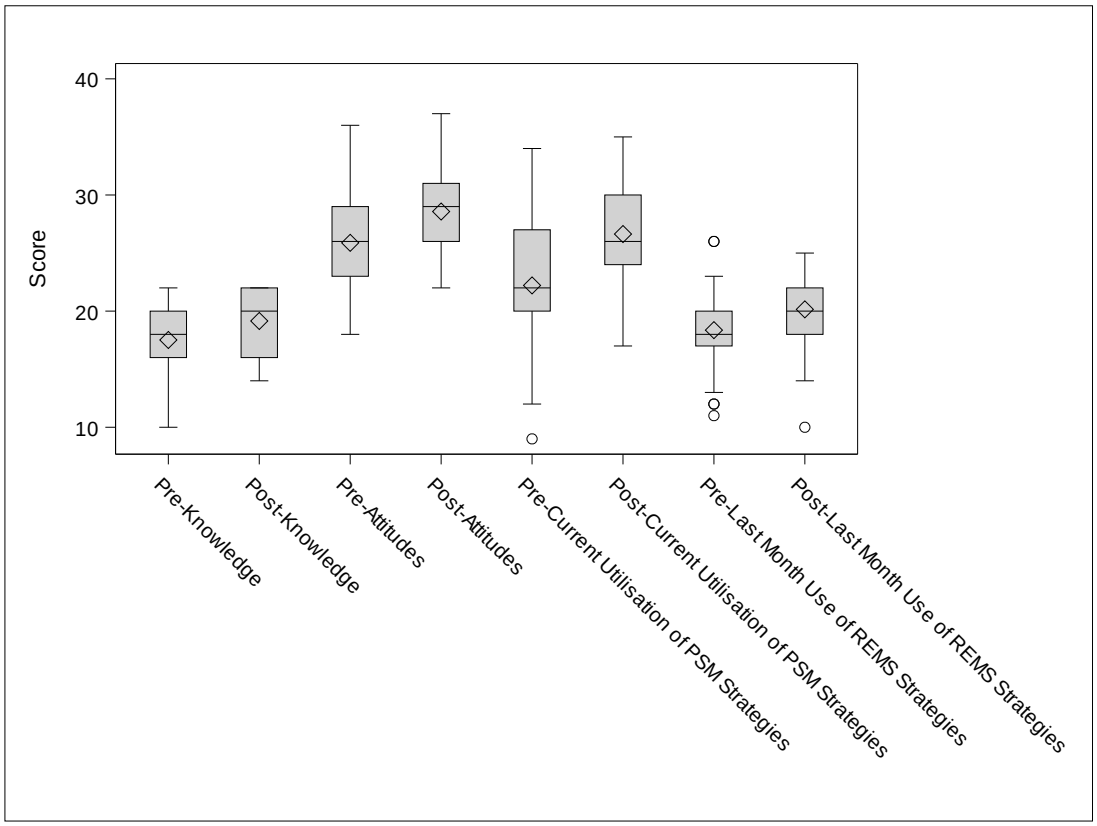

Figure 1. Boxplot of pre- and post-workshop domain scores with complete data (n = 33)

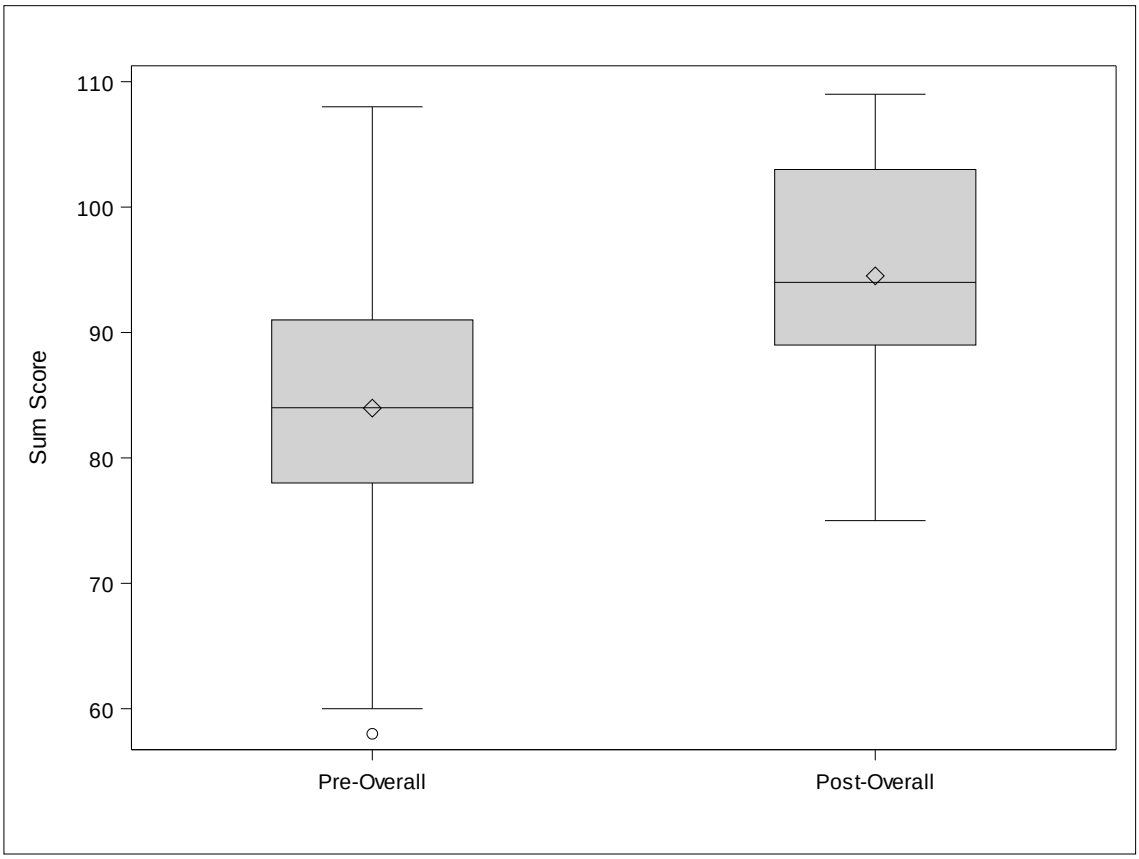

Figure 2. Boxplot of pre- and post-workshop overall scores (n = 33)

The sensitivity analysis using imputed data (91 paired questionnaire responses) produced similar findings with marginally larger changes of 2.2 (95%CI 1.4,2.6; p = 0.001), 3.6 (95%CI 2.6,4.6; p < 0.001), 3.5 (95%CI 2.9,4.3; p < 0.001) and 2.2 (95%CI 1.6,2.7; p < 0.001) for knowledge, attitudes, and utilisation of PSM and REMS, respectively. The total score increased by 11.1 (95%CI 9.1,13.3; p < 0.001).

QUALITATIVE FEEDBACK

There were 40 comments about the beneficial aspects of training. For example, one respondent stated 'it empowered me to think I can do it and gave me tools to start using to achieve this' (Participant 4), while another acknowledged the 'use of objective measure for function (e.g., sit-to-stand test and online resources for patients to understand chronic pain)' (Participant 5). Participant 16 expressed 'how increasing physical activity and providing psychoeducation may decrease a need for analgesic medications', therefore, 'providing the rationale of moving from opioids and providing clear alternatives to manage chronic pain' (Participant 22). Others simply 'enjoyed it', particularly as the 'case examples and role-plays work well' (Participant 28), including the 'simple strategies and a common-sense approach to management' (Participant 32).

There were also 27 comments about areas to improve. For example, one thought that 'not enough time [was] spent discussing modes to reduce dosing' (Participant 7), while another requested 'extension ALMs to build on skills' (Participant 30). One

participant queried whether 'there [was] online access to the presentations', as 'each speaker offered excellent strategies but there was too much to take in' (Participant 8). This sentiment was echoed by Participant 52, who:

> found the information hard to translate into my older chronic pain patients and would appreciate a top-up education about what to do to help the elderly, or chronic pain patients who have been the same situation for years. I have started initiating the conversation with them but would appreciate more helpful tips.

Nonetheless, some participants shared no criticisms about the training, believing 'it was a good session and every GP should be required to undertake the course', particularly 'GP registrars' (Participant 40).

DISCUSSION

Various allied health providers have successfully trained in PSM (Nicholas & Blyth 2016) and this evaluation suggests that GPs may do so as well. Three months after brief training, scores for knowledge, attitudes and self-reported practice improved for each measure, with moderate to large effect sizes.

Previous evaluations of pain education for GPs have focused on the under- or overuse of opioids (Hogans et al. 2018; Ospina et al. 2013). Reviews indicate they lack consensus on content, or on how outcome measures are defined or gauged (Davis & Carr 2016; Hogans et al. 2018). A diversity of findings with differing evaluation methods was demonstrated by dual evaluations of opioid REMS training for Australian GP registrars. The pre-/post-test survey showed improved knowledge and reported practice, but the objective prescribing data revealed no reduction in total opioid prescription (Holliday, Hayes, Dunlop, Morgan, Tapley, Henderson, Larance, et al. 2017; Holliday, Hayes, Dunlop, Morgan, Tapley, Henderson, van Driel, et al. 2017). In 2015, over 7,000 Australian GPs received academic detailing, led by specialists and GPs, that recommended a transition from opioid prescribing to non-pharmacological care (NPS MedicineWise 2017). One year afterwards, a questionnaire found improved knowledge about prescribing, but none regarding non-pharmacological care (Deloitte Access Economics 2019; NPS MedicineWise 2017). In 2016, 19 GPs in New South Wales, Australia, and other primary health clinicians were invited to two workshops. These aimed to encourage deprescribing of POAs and referral to local MDTs to deliver regimes similar to specialist MDTs (White et al. 2019). Eleven attitudinal items were assessed with an unvalidated questionnaire within a pre-/post-test design. At the conclusion of the second two-hour workshop, six attitudinal items had improved. Since 2012, US pharmaceutical manufacturers have been mandated to fund REMS education, despite the risks for conflicts of interest (Davis & Carr 2016). Two months after the voluntary 2–3 hours of training, clinician knowledge and confidence had improved, with 86% reporting changes in practice (Alford et al. 2016). Of previously evaluated CP education interventions, none have focused on upskilling and empowering GPs to provide psychobehavioural care.

SIGNIFICANCE OF THE STUDY

The National Strategic Action Plan considers it vital to upskill time-poor GPs in early interventions, including PSM, to prevent the chronification of acute pain (Department of Health 2019). This study indicates such training may be considered viable. One report estimated that a nationwide CP education program for GPs would be cost-

effective based solely on the reduction of ORDs (Deloitte Access Economics 2019). Another goal of the National Strategic Action Plan is the addressing of barriers to safer pharmacotherapy (Department of Health 2019), a major one of which is a perceived lack of effective alternatives (White et al. 2019). If further evaluations show TEMPO-like education is effective, then the initiation, or re-triggering, of opioid-related harms may be reduced (Nicholas & Blyth 2016). Variability in healthcare provision also may be reduced as higher rates of opioid provision and overdoses are found rurally, in lower socio-demographic areas and among Aboriginal and Torres Strait Islander populations (Australian Commission on Safety and Quality in Health Care 2015; Penington Institute 2017). These are demographic factors shared with CP and multimorbidity (Barnett et al. 2012; Lujic et al. 2017).

The facilitation of PSM is now considered a core GP competency in the management of chronic disease (Rochfort et al. 2018). As such, the dissemination of PSM skills through primary care should reduce healthcare disparities and the burden of non-communicable disease (Bruggink et al. 2019; Department of Health 2019; Hardman, Lawn & Tsourtos 2018).

IMPLICATIONS FOR REGULATORS

This interprofessional collaboration developed an innovative approach to a common and complex clinical conundrum. Such non-commercial educational research partnerships will be unlikely without financial support from health funding bodies (Hogans et al. 2018). Since discontinuation of POAs (particularly if non-consensual) risks increased harm, more resourcing is required for addiction training and management (Kertesz & Gordon 2018). Should regulators mandate periodic training in pain and addictions, TEMPO-like education may provide a template (Davis & Carr 2016).

FUTURE RESEARCH

To appraise effectiveness, investment in development and validation of an educational assessment instrument will be necessary, potentially involving interrogation of GP electronic health records and patient-reported functional outcome measures (Hogans et al. 2018; Sullivan & Ballantyne 2016). Improved outcomes from training may require repeated training exposures, with scaleability enhanced by the utilisation of web-based formats (Hogans et al. 2018).

STRENGTHS AND LIMITATIONS

These data reflect real-world GP education, delivered at a mainstream conference. Individually matched outcomes were sustainable; the three-month, post-workshop gap exceeds most other evaluations of similar interventions.

A major limitation of the study is the lack of a control group. This workshop occurred four months before codeine was ‘up-scheduled’, making it unavailable over the counter (Holliday et al. 2018). A control group would have helped to identify bias from concurrent training. There is also a risk of sampling bias due to the ALM registrants being self-selected. However, the matching of individualised results may ameliorate this bias. We also relied on a pragmatic uncontrolled mode of evaluation—the pre-/post-test, which is the most commonly used instrument evaluating CP education (Ospina et al. 2013). Our evaluation instrument was original with moderate internal validity. As with the majority of educational evaluations, lack of instrument reliability and validity data and modest response rates limits the strength of our

conclusions (Hogans et al. 2018). That said, our response rate was consistent with many surveys of GPs (Bonevski et al. 2011).

Our pre-readings may have boosted pre-test scores, reducing the apparent effect of the package. Further, we did not observe objective clinical behaviour, which may be discordant with paper-based self-report (Holliday, Hayes, Dunlop, Morgan, Tapley, Henderson, Larance, et al. 2017; Holliday, Hayes, Dunlop, Morgan, Tapley, Henderson, van Driel, et al. 2017). Finally, pain and opioid education is ultimately designed to improve patient and societal health, neither of which was measured in this evaluation (Hogans et al. 2018).

CONCLUSION

GPs manage the vast majority of CP and do so without the resources and interventions of specialist MDTs. Therefore, an alternative is needed to allow GPs to transition from biomedical medication management towards a multifaceted approach. We showed that it is feasible to assemble an MDT involving specialist pain practitioners and GPs to deliver brief CP training as standard CME to disseminate competencies appropriate for a GP's clinical workflow. Our unvalidated instrument showed modest evidence that the training had sustainable value. Three months following the workshop, GPs self-reported improved knowledge and attitudes as well as increased utilisation of multimodal PSM and less reliance on addictive pharmacotherapy. Further studies are needed to explore whether PSM training for GPs improves access to affordable holistic pain care. Intriguingly, such training may improve outcomes for the common and intersecting problems of CP, addictive pharmacotherapy, disadvantage and multimorbidity.

Acknowledgements

We thank Dr Sarah Overton, Senior Clinical Psychologist, for co-presenting on the day and Debbie Quain, RN, our research assistant. We thank all the staff in the RACGP Faculty of Specific Interests who provided support with accreditation compliance, registration and communication. Dr Michael Tam assisted with the ethics procedures, and John and Lizzie Stevens helped with advice and graphic design, respectively. In addition, Judy Passlow, editor of *Medicine Today*, gave participants free access to the pre-readings. We also thank Reed Medical Education, for providing us presentation opportunities despite our lack of sponsorship, and Associate Professor Daniel P Alford, who shared his SCOPE assessment questionnaires with us. We thank Associate Professor Erin Krebs for sharing insights into her SPACE trial.

Competing interests and funding

LJ, CF, JG, NH, CHo, CO and PM: No conflicts of interest.

SH and CHa: Contribution to this project was supported by public hospital staff specialist salary with Hunter New England Local Health District.

MN: Declares royalties from his book (Nicholas et al. 2011, *Manage your pain*, 3rd edn, HarperCollins, Sydney).

The development and delivery of TEMPO was self-funded. A grant from the Hunter New England and Central Coast Primary Health Network 'Drug and Alcohol Treatment in Primary Care Capacity Building' program (TEN-20) allowed this evaluation. The Pain Management Research Institute donated $200 as an incentive to return evaluations. Neither group had any other role with any aspect of the TEMPO package or evaluation.

References

Alford, DP, Zisblatt, L, Ng, P, Hayes, SM, Peloquin, S, Hardesty, I & White, JL 2016, 'SCOPE of pain: an evaluation of an opioid risk evaluation and mitigation strategy continuing education program', *Pain Medicine*, vol. 17, no. 1, pp. 52–63.

Australian Commission on Safety and Quality in Health Care 2015, 'Opioid medicines', in *The Australian atlas of healthcare variation*, Australian Commission on Safety and Quality in Health Care, Sydney, pp. 257–8, viewed 26 November 2015, <http://www.safetyandquality.gov.au/sites/default/files/migrated/SAQ201_06_Chapter5_v12_FILM_tagged_merged_5-0.pdf>.

Australian Institute of Health and Welfare 2018, *Opioid harm in Australia: and comparisons between Australia and Canada*, Cat. no HSE 210, AIHW, Canberra, viewed 19 April 2019, <https://www.aihw.gov.au/reports/illicit-use-of-drugs/opioid-harm-in-australia/contents/table-of-contents>.

Barnett, K, Mercer, SW, Norbury, M, Watt, G, Wyke, S & Guthrie, B 2012, 'Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study', *The Lancet*, vol. 380, no. 9836, pp. 37–43.

Basu, S, Berkowitz, SA, Phillips, RL, Bitton, A, Landon, BE & Phillips, RS 2019, 'Association of primary care physician supply with population mortality in the United States, 2005–2015', *JAMA Internal Medicine*, vol. 179, no. 4, pp. 506–14.

Blanch, B, Pearson, S-A & Haber, PS 2014, 'An overview of the patterns of prescription opioid use, costs and related harms in Australia', *British Journal of Clinical Pharmacology*, vol. 78, no. 5, pp. 1159–66.

Bonevski, B, Magin, P, Horton, G, Foster, M & Girgis, A 2011, 'Response rates in GP surveys: trialling two recruitment strategies', *Australian Family Physician*, vol. 40, no. 6, pp. 427–30.

Bruggink, L, Hayes, C, Lawrence, G, Brain, K & Holliday, S 2019, 'Chronic pain: overlap and specificity in multimorbidity management', *Australian Journal for General Practitioners*, vol. 48, no. 10, pp. 689–92.

Davis, CS & Carr, D 2016, 'Physician continuing education to reduce opioid misuse, abuse, and overdose: many opportunities, few requirements', *Drug and Alcohol Dependence*, vol. 163, pp. 100–7.

Deloitte Access Economics 2019, *The cost of pain in Australia report*, Painaustralia, Deakin, viewed 22 April 2019, <https://www.painaustralia.org.au/media/newsletters/issue-87/the-cost-of-pain-in-australia-report-released>.

Department of Health 2018, *Modified Monash model*, Australian Government, Canberra, viewed 26 August 2018, <http://www.health.gov.au/internet/main/publishing.nsf/content/modified-monash-model>.

Department of Health 2019, *The national strategic action plan for pain management*, Australian Government, Canberra, <https://www.painaustralia.org.au/static/uploads/files/national-action-plan-final-02-07-2019-wfpnnlamkiqw.pdf>.

Dowell, D, Arias, E, Kochanek, K, Anderson, R, Guy, GP Jr., Losby, JL & Baldwin, G 2017, 'Contribution of opioid-involved poisoning to the change in life expectancy in the United States, 2000–2015', *JAMA*, vol. 318, no. 11, pp. 1065–7.

Dyer, O 2019, 'WHO drops opioid guidelines after criticism of corporate influence', *BMJ*, vol. 365, no. 8205, p. 4374.

Grace, PM, Strand, KA, Galer, EL, Urban, DJ, Wang, X, Baratta, MV, Fabisiak, TJ, Anderson, ND, Cheng, K, Greene, LI, Berkelhammer, D, Zhang, Y, Ellis, AL, Yin, HH, Campeau, S, Rice, KC, Roth, BL, Maier, SF & Watkins, LR 2016, 'Morphine paradoxically prolongs neuropathic pain in rats by amplifying spinal NLRP3 inflammasome activation', *Proceedings of the National Academy of Sciences*, vol. 113, no. 24, pp. e3441–50.

Han, B, Compton, WM, Blanco, C, Crane, E, Lee, J & Jones, CM 2017, 'Prescription opioid use, misuse, and use disorders in U.S. adults: 2015 national survey on drug use and health', *Annals of Internal Medicine*, vol. 167, no. 5, pp. 293–301.

Hardman, R, Lawn, S & Tsourtos, G 2018, 'Pain self-management: easier said than done? Factors associated with early dropout from pain self-management in a rural primary care population', *Pain Medicine*, vol. 20, no. 2, pp. 267–77.

Hogans, BB, Watt-Watson, J, Wilkinson, P, Carr, ECJ & Gordon, DB 2018, 'Perspective: update on pain education', *Pain*, vol. 159, no. 9, pp. 1681–2.

Holliday, S, Hayes, C, Dunlop, AJ, Morgan, S, Tapley, A, Henderson, KM, van Driel, ML, Holliday, EG, Ball, JI, Davey, A, Spike, NA, McArthur, LA & Magin, PJ 2017, 'Does brief chronic pain management education change opioid prescribing rates? A pragmatic trial in Australian early-career general practitioners', *Pain*, vol. 158, no. 2, pp. 278–88.

Holliday, S, Hayes, C, Dunlop, A, Morgan, S, Tapley, A, Henderson, K, Larance, B & Magin, P 2017, 'Protecting pain patients. The evaluation of a chronic pain educational intervention', *Pain Medicine*, vol. 18, no. 12, pp. 2306–15.

Holliday, S, Hayes, C, Jones, L, Gordon, J, Harris, N & Nicholas, M 2018, 'Prescribing wellness: comprehensive pain management outside specialist services', *Australian Prescriber*, vol. 41, no. 3, pp. 86–91.

Holliday, S & Jammal, W 2015, 'The analgesia tango: chronic pain cases from a general practice', *Medicine Today*, vol. 16, no. 6, pp. 26–32. https://medicinetoday.com.au/sites/default/files/cpd/4-MT2015-06SUPPL-PRESCRIPTION_OPIOID_MISUSE-HOLLIDAY.pdf

James, JR, Scott, JM, Klein, JW, Jackson, S, McKinney, C, Novack, M, Chew, L & Merrill, JO 2019, 'Mortality after discontinuation of primary care–based chronic opioid therapy for pain: a retrospective cohort study', *Journal of General Internal Medicine*, vol. 34, no. 12, pp. 2749–55.

Kertesz, SG & Gordon, AJ 2018, 'A crisis of opioids and the limits of prescription control: United States', *Addiction*, vol. 14, no. 1, 169–80.

Krebs, EE, Gravely, A, Nugent, S, Jensen, AC, DeRonne, B, Goldsmith, ES, Kroenke, K, Bair, MJ & Noorbaloochi, S 2018, 'Effect of opioid vs nonopioid medications on pain-related function in patients with chronic back pain or hip or knee osteoarthritis pain: the SPACE randomized clinical trial', *JAMA*, vol. 319, no. 9, pp. 872–82.

Kuehn, B 2017, 'NIH strategy to combat opioid crisis', *JAMA*, vol. 318, no. 24, p. 2418.

Lack, L 2016, 'Treating insomnia: alternatives to drug therapies', *Medicine Today*, vol. 17, no. 10, pp. 41–8. https://medicinetoday.com.au/system/files/pdf/medicine_today/article/MT2016-10-041-LACK.pdf

Lalic, S, Ilomäki, J, Bell, JS, Korhonen, MJ & Gisev, N 2019, 'Prevalence and incidence of prescription opioid analgesic use in Australia', *British Journal of Clinical Pharmacology*, vol. 85, no. 1, pp. 202–15.

Lin, C-WC, Haas, M, Maher, CG, Machado, LAC & van Tulder, MW 2011, 'Cost-effectiveness of general practice care for low back pain: a systematic review', *European Spine Journal*, vol. 20, no. 7, pp. 1012–23.

Loeser, JD 2017, 'John J Bonica: born 100 years ago', *Pain*, vol. 158, no. 10, pp. 1845–6.

Lujic, S, Simpson, JM, Zwar, N, Hosseinzadeh, H & Jorm, L 2017, 'Multimorbidity in Australia: comparing estimates derived using administrative data sources and survey data', *PLoS ONE*, vol. 12, no. 8, p. e0183817.

Madras, BK 2018, 'The President's commission on combating drug addiction and the opioid crisis: origins and recommendations', *Clinical Pharmacology & Therapeutics*, vol. 103, no. 6, pp. 943–5.

Malfliet, A, Ickmans, K, Huysmans, E, Coppieters, I, Willaert, W, Bogaert, WV, Rheel, E, Bilterys, T, Wilgen, PV & Nijs, J 2019, 'Best evidence rehabilitation for chronic pain part 3: low back pain', *Journal of Clinical Medicine*, vol. 8, no. 7, p. 1063.

Manhapra, A & Becker, WC 2018, 'Pain and addiction: an integrative therapeutic approach', *Medical Clinics of North America*, vol. 102, no. 4, pp. 745–63.

Miller, A, Sanderson, K, Bruno, R, Breslin, M & Neil, AL 2017, 'The prevalence of pain and analgesia use in the Australian population: findings from the 2011 to 2012 Australian National Health Survey', *Pharmacoepidemiology and Drug Safety*, vol. 26, no. 11, pp. 1403–10.

Nicholas, MK & Blyth, FM 2016, 'Are self-management strategies effective in chronic pain treatment?', *Pain Management*, vol. 6, no. 1, pp. 75–88.

NPS MedicineWise 2017, 'Evaluation: GP survey results for chronic pain program. Has management of chronic pain in general practice changed?', NPS MedicineWise, viewed 22 April 2019, <https://www.nps.org.au/news/evaluation-gp-survey-results-for-chronic-pain-program>.

NPS MedicineWise 2019, *General practice insights report 2017–2018*, NPS MedicineWise, viewed 30 October 2019, <https://www.nps.org.au/medicine-insight#general- practice -insights- report>.

Organisation for Economic Co-operation and Development 2019, *Addressing problematic opioid use in OECD countries*, OECD, Paris, France.

Ospina, MB, Taenzer, P, Rashiq, S, MacDermid, JC, Carr, E, Chojecki, D, Harstall, C & Henry, JL 2013, 'A systematic review of the effectiveness of knowledge translation interventions for chronic noncancer pain management', *Pain Research and Management*, vol. 18, no. 6, pp. e129–41.

Penington Institute 2017, *Australia's annual overdose report 2017*, Penington Institute, Melbourne, <http://www.penington.org.au/australias-annual-overdose-report-2017/>.

Rochfort, A, Beirne, S, Doran, G, Patton, P, Gensichen, J, Kunnamo, I, Smith, S, Eriksson, T & Collins, C 2018, 'Does patient self-management education of primary care professionals improve patient outcomes: a systematic review', *BMC Family Practice*, vol. 19, no. 1, p. 163.

Saunders, CM 1978, *The management of terminal disease*, 1st edn, Edward Arnold, London.

Schneiderhan, J, Clauw, D & Schwenk, TL 2017, 'Primary care of patients with chronic pain', *JAMA*, vol. 317, no. 23, pp. 2367–8.

Semple, TJ & Hogg, MN 2012, 'Waiting in pain', *The Medical Journal of Australia*, vol. 196, no. 6, pp. 372–3.

Sullivan, MD & Ballantyne, JC 2016, 'Must we reduce pain intensity to treat chronic pain?', *Pain*, vol. 157, no. 1, pp. 65–9.

Tai-Seale, M, Bolin, J, Bao, X & Street, R 2011, 'Management of chronic pain among older patients: inside primary care in the US', *European Journal of Pain*, vol. 15, no. 10, pp. 1087.e1–.8.

White, R, Hayes, C, Boyes, AW, Chiu, S & Paul, CL 2019, 'General practitioners and management of chronic noncancer pain: a cross-sectional survey of influences on opioid deprescribing', *Journal of Pain Research*, vol. 12, pp. 467–75.

BOX 2: TIME-EFFICIENT MANAGEMENT OF PAIN IN THE OFFICE (TEMPO)

PRE-WORKSHOP SURVEY

Thank you for participating in the pre-assessment survey for the Time-efficient Management of Pain in the Office (TEMPO) program. It should take you about 15 minutes to complete. We request that you please answer all questions, so that, with the post-assessment survey, we can measure the effectiveness of this educational activity. Ethical approval for this evaluation has been given by the RACGP National Research and Evaluation Ethics Committee (NREEC) 16-005.

Please complete the following.

Q1 **For GPs**: RACGP Continuing Medical Education number _____

or ACRRM Continuing Medical Education number _____

For non-GPs: Please note your profession _____

For non-GPs: Specialty Continuing Education number _____

Q2 What is your gender? _____

Q3 What is your age? _____

Q4 Postcode of your main practice address _____

Q5 **Circle <u>one</u> only**: Are you registered with the Prescription Shopping Information Service (or for Tasmanians, the Drugs and Poisons Information System Online Remote Access [DORA])?

a) Yes, and use it often

b) Yes, but rarely use it

c) No, not registered

For the following questions, please give your initial responses without dwelling on any question.

Q6 **Circle <u>one</u> only**: The initial assessment of chronic non-cancer pain patients should routinely cover all of the following **<u>EXCEPT</u>**:

a) sleep

b) depression

c) diagnostic imaging

d) concerns and fears

e) drug and medication history

(Answer: c)

Q7 **Circle <u>one</u> only:** Chronic non-cancer pain patient education explains that …

a) pharmaceuticals have a limited role

b) long-term opioid treatment is only effective as a last resort

c) sedentary behaviour may prevent disease progression

d) pain flare-ups indicate tissue damage

(Answer: a)

Q8 **Circle <u>one</u> only:** In the self-management of chronic non-cancer pain, an important aspect for patients is …

a) learning that worse things have happened to other people

b) regulating interfering thoughts and feelings

c) learning to follow the doctor's instructions

d) accepting that suffering is mental, not physical

e) accepting that you cannot wind back the clock

(Answer: b)

Q9 **Circle <u>one</u> only:** Activity pacing means encouraging patients to …

a) gradually build up activity, taking regular breaks

b) keep pushing harder: 'no pain, no gain'

c) increase the duration of rest with increasing durations of activity

d) stop the activity whenever the pain gets too much

e) increase rest and recovery

(Answer: a)

Q10 **Circle <u>one</u> only:** Insomnia in patients experiencing chronic non-cancer pain requires …

a) 'Z-drugs' (e.g., zolpidem or zopiclone) at higher doses

b) a referral to a sleep specialist

c) a judicious balance of benzodiazepines and opioids

d) sleep-restriction strategies

e) opioid analgesia to precede any non-pharmacological management

(Answer: d)

Q11 **Circle <u>one</u> only:** When managing chronic non-cancer pain …

a) self-medication of pain with alcohol may worsen pain outcome scores

b) smoking cessation should be delayed pending effective pain control

c) stimulating SSRIs are preferred to increase activity levels

d) muscular and psychological tension are improved by benzodiazepines

f) there is strong evidence to support the medical prescription of cannabis

(Answer: a)

Q12 **Circle <u>one</u> only:** Supporting self-management of chronic non-cancer pain involves the doctor …

a) confronting patients about the dangers of their risky choices

b) always being enthusiastic and positive

c) always expressing your frustration if patients fail to practise agreed tasks

d) focusing in-depth on patient defences

e) exploring patients' hopes and goals

(Answer: e)

Q13 **Circle <u>one</u> only:** Regarding prescribed opioids in chronic non-cancer pain …

a) patients describing severe genuine pain have a right to opioid painkillers

b) reserve psychological interventions for those with psychiatric illnesses

c) tolerance or hyperalgesia is unlikely in the treatment of genuine pain

d) overdose is a risk in those taking long-term opioids, as prescribed

e) reserve urine drug tests for patients where there is suspicion of drug or medication abuse

(Answer: d)

Q14 **Circle <u>one</u> only:** If starting opioid analgesic prescription for chronic non-cancer pain …

a) patients must sign a legal contract that states their opposition to addiction

b) imaging must have shown an anatomically verified diagnosis

c) there cannot be any past or present substance use disorders

d) codeine or tramadol are always a safe choice

e) all of the above

f) none of the above

(Answer: f)

Q15 **Circle <u>one</u> only:** Opioid analgesics in chronic non-cancer pain will be safe if …

a) patients are regularly monitored for medication misuse

b) patient assessment shows they are at low risk of medication abuse

c) patients are not identified as doctor shoppers

d) patients are kept on lower opioid doses

e) all of the above

f) none of the above

(Answer: f)

Q16 **Circle <u>one</u> only:** Your patient increased his/her opioid dose because his/her pain is '10 out of 10' and he/she appears oversedated. What would you do?

a) increase dose of opioid because he/she still has severe pain

b) continue current opioid dose until tolerance to sedation is reached

c) decrease current opioid dose because of his/her oversedation

d) stop the current opioid because the patient is likely addicted

(Answer: c)

ATTITUDES

This section is designed to assess your clinical opinions and experience with chronic non-cancer pain patients. Using the five-point scale provided, where **1 = completely**

disagree and **5 = completely agree,** please indicate your level of agreement with the following statements:

Q17 Please circle the number in the right-hand column to indicate your response to each question. (target answer is answer 5 unless it is reverse scored)

My experience is that:	**Agreement**				
	Completely disagree	**Disagree**	**Neutral**	**Agree**	**Completely agree**
a) treating chronic non-cancer pain patients is time-consuming and frustrating (**reverse scored**)	1	2	3	4	5
b) pain scales help me monitor my patients' management	1	2	3	4	5
c) I am comfortable discussing patients' unhelpful thoughts	1	2	3	4	5
d) I am comfortable coaching patients regarding their activity levels	1	2	3	4	5
e) pain patients are rarely truthful about illicit drug use (**reverse scored**)	1	2	3	4	5
f) I am comfortable discussing naloxone rescue kits	1	2	3	4	5
g) I prefer to stop seeing/following a patient who has misused his/her opioid prescription (**reverse scored**)	1	2	3	4	5
h) I am comfortable asking for a urine drug test from a patient who does not seem to be abusing their opioid prescription	1	2	3	4	5
i) I am comfortable with making opioid prescribing more restrictive if there is any abuse or dependency risk	1	2	3	4	5
j) I am comfortable shifting away from opioids towards active self-care	1	2	3	4	5
k) non-pharmacological pain approaches generally are ineffective (**reverse scored**)	1	2	3	4	5

Q18 Please tick the appropriate box for each question.

Currently, with patients experiencing chronic non-cancer pain, I am:	**Never or hardly ever**	**About a quarter**	**About half**	**About three-quarters**	**All or just about all**
a) taking a psychiatric and psychological history					
b) taking a drug and alcohol history including addictive pharmaceuticals					

Currently, with patients experiencing chronic non-cancer pain, I am:	**Never or hardly ever**	**About a quarter**	**About half**	**About three-quarters**	**All or just about all**
c) using a pain outcome measurement scale d) facilitating establishment of achievable functional goals e) providing fast breathing education for self-management of flare-ups (**reverse scored**) f) exploring how emotions and thoughts affect physical symptoms g) prescribing long-term opioid analgesics (**reverse scored**) h) providing education about the neuroscience of chronic pain i) assessing activity or inactivity					

Q19 Please tick the appropriate box for each question.

Over the last couple of months with patients experiencing chronic non-cancer pain on long-term opioids, I am:	**Never or hardly ever**	**About a quarter**	**About half**	**About three-quarters**	**All or just about all**
a) discussing their side effects b) prescribing a benzodiazepine for insomnia (**reverse scored**) c) starting a conversation about opioid reduction d) seeking regulatory approval (where required) e) warning patients that anyone who misuses their analgesics will be fired from the practice (**reverse scored**) f) considering naloxone prescription g) assessing suicide risk					

Q20 **Please tick the appropriate box**: I understand these results will be de-identified and analysed to evaluate this educational project. Are you willing for your responses to be used for research purposes?

Yes ☐

No ☐

Please return this survey prior to the workshop. See over for details. Thank you.