

Medical residents' beliefs and concerns about using opioids to treat chronic cancer and noncancer pain: A pilot study

Craig S. Roth, MD;^{1–3*} Diana J. Burgess, PhD;^{2–3} Maren L. Mahowald, MD^{1–2}

¹Department of Medicine, Minneapolis Department of Veterans Affairs (VA) Medical Center, Minneapolis, MN;

²Department of Medicine, University of Minnesota, Minneapolis, MN; ³VA Center for Chronic Disease Outcomes Research, Minneapolis, MN

Abstract—This study assessed and compared residents' beliefs and concerns about using opioids for treating pain in patients with cancer and noncancer low back pain (NLBP). Participants included 72 Internal Medicine and Medicine-Pediatrics residents who completed a survey questionnaire. Based on a scale of 0 = “No concern” to 10 = “Very concerned,” residents expressed greater concern that treating NLBP with opioids, compared with cancer-related pain, causes addiction (6.01 vs 1.15), abuse (5.57 vs 1.39), and side effects (4.76 vs 2.87); limits other treatments (5.36 vs 1.30); draws criticism from faculty (4.33 vs 0.88); or risks sanctioning (state board 4.12 vs 1.12, legal 4.06 vs 1.17); $p < 0.001$ for each (paired t -tests). They had more comfort (8.94 vs 4.31) and more empathy (9.09 vs 6.79) using opioids to treat for cancer pain than NLBP and would give whatever doses necessary for pain control (8.41 vs 3.66); $p < 0.001$ for each. Our findings show that residents are far more concerned about using opioids to treat NLBP than cancer-related pain.

Key words: addiction, analgesics, cancer pain, chronic pain, low back pain, noncancer, opioids, pain, physician attitudes, psychological, resident education, treatment.

INTRODUCTION

Painful conditions such as osteoarthritis are common and represent a growing proportion of chronic pain diagnoses in primary care [1]. Patients with these conditions may either obtain unacceptable pain relief or functional improvement or may suffer intolerable side effects or

organ toxicity from taking salicylates, acetaminophen, or nonsteroidal anti-inflammatory agents. Pain specialists advocate treating moderate-to-severe chronic noncancer pain with opioids [2–4], because they provide effective musculoskeletal pain relief with improved function and low risk of abuse or side effects in many patients [5–9].

Regulatory boards and the clinical community have come to support prescribing strong opioids for treating chronically painful musculoskeletal conditions [10–11]. However, many practicing physicians are still strongly prejudiced against opioid analgesics and do not prescribe them for conditions such as osteoarthritis and low back pain [12–13]. Reasons cited include fears of patient addiction, misuse, or sanctioning by medical boards; increased time and efforts required for documentation and follow-up; and negative attitudes of physicians and staff toward patients with chronic pain from “benign” conditions [14–17]. Physicians often overestimate the risks of using opioids chronically to treat pain because of their inaccurate knowledge about different opioid formulations, side effects, and the difference between physiological dependence and addiction. Although the careful selection and monitoring of opioid use are important

Abbreviation: NLBP = noncancer low back pain.

*Address all correspondence to Craig S. Roth, MD; Section of General Medicine (1110), Minneapolis VA Medical Center, One Veterans Drive, Minneapolis, MN 55417; 612-725-2158; fax: 612-725-2288. Email: rothx009@umn.edu

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when chronic noncancer pain is treated, withholding them because of unfounded concerns and lack of knowledge has likely caused needless suffering in patients who could have safely benefited from their use [18].

Little is known about the attitudes and beliefs of residents toward using opioids to treat conditions such as low back pain [19]. But if less experienced physicians have the same negative attitudes and lack of knowledge about using opioids for treating noncancer pain as their instructors and peers, understanding the causes would be useful for designing educational interventions leading to more enlightened approaches to managing chronic pain [20]. The objective of this study was to assess and compare residents' beliefs and concerns about using opioids for treating noncancer low back pain (NLBP) and cancer-related pain.

METHODS

Setting

In January 2003, we conducted a 4-hour workshop titled "Using Opioids to Treat Chronic Noncancer Pain" for resident physicians in the Medicine and Medicine-Pediatrics programs at the University of Minnesota, Minneapolis, Minnesota. At the beginning of the workshop, participants were asked to complete a survey questionnaire.

Participants

Medicine residents were in either their first, second, or third year of a 3-year training program. Medicine-Pediatrics is a 4-year residency; thus, some participants could have been in a fourth postgraduate year.

Selection Process

At the time of the study, 96 residents (75 Medicine, 21 Medicine-Pediatrics) were enrolled in the two programs. All residents were required to attend this workshop instead of their regularly scheduled continuity clinic. Some did not attend because of approved absences, on call duties, or other personal reasons.

Survey Instrument

One author performed a Medline search for studies assessing efficacy, safety, and attitudes of physicians and students about using opioids to treat chronic noncancer pain. From this information, we developed a 28-item assessment questionnaire (**Figure**).

Residents were asked to rate their level of concern, worry, or fear (0 = "No concern" to 10 = "Very concerned") about the consequences of prescribing opioids for chronic cancer pain compared with NLBP and the consequences for their patients. We aligned answers to each question side-by-side to encourage comparison of the two types of pain.

Residents were also asked to indicate their level of agreement (0 = "Strongly disagree" to 10 = "Strongly agree") with statements about their beliefs and feelings toward patients with chronic cancer pain compared with those with NLBP. Again, we aligned answers side-by-side to encourage comparison of the two pain types. To identify barriers to prescribing opioids for treating NLBP, we asked participants to indicate the degree (0 = "None" to 10 = "A great deal") to which various concerns, feelings, or factors limit them from comfortably prescribing opioids for such patients.

Data Analysis

Responses from the questionnaire (**Figure**) were grouped into four categories comparing the use of opioids for treating cancer pain and NLBP:

- Resident *concerns* about consequences of prescribing opioids.
- Resident *feelings* about using opioid.
- Resident *beliefs* about efficacy and safety of opioids.
- Resident *barriers* to prescribing opioids.

Differences in ratings of responses for treating cancer pain with opioids compared with ratings for treating NLBP with opioids were tested using paired *t*-tests. Mean scores were calculated for each of the questions related to barriers to comfortably prescribing opiates for noncancer pain.

RESULTS

Of the eligible residents, 75 percent participated ($n = 72$), and 100 percent completed the questionnaire. Residents expressed moderately high concern that prescribing opioids for patients with NLBP would cause addiction, abuse, and serious side effects and would reduce use of other pain treatments (**Table 1**). By contrast, they expressed little concern that any of the same negative effects would occur if opioids were prescribed for cancer pain. They were moderately concerned that prescribing opioids for patients with NLBP could result in sanctioning by the state medical board, legal action or punishment, or

Section 1

Indicate your degree of concern, worry, or fear about the following consequences of prescribing opioids chronically for cancer versus noncancer pain using the following scale: 0 = No concern, 2–3 = A little concern, 4–7 = Moderate concern, and 8–10 = Very concerned.

PATIENTS

	Cancer Pain	Low Back Pain
–Causing addiction.	_____	_____
–Being abused (sold, to get “high”).	_____	_____
–Causing serious side effects.	_____	_____
–Reducing chances that other treatments (e.g., exercise, biofeedback, etc.) will be used.	_____	_____

YOU

	Cancer Pain	Low Back Pain
–Could lead to sanctioning by state medical board.	_____	_____
–Increasing risk of legal action/punishment.	_____	_____
–Drawing criticism from attending staff.	_____	_____
–Drawing criticism from pharmacist.	_____	_____

Section 2

In general, how do you feel about PATIENTS with chronic pain from cancer versus noncancer pain? Please indicate your level of agreement with the statements below using the following scale: 0–2 = Strongly disagree, 3–4 = Disagree, 5 = Not sure, 6–8 = Agree, 9–10 = Strongly agree.

	Cancer Pain	Low Back Pain
–Opioids are very effective at controlling pain.	_____	_____
–Long-term opioid use is generally well tolerated.	_____	_____
–Risk of addiction is low.	_____	_____
–I feel comfortable prescribing opioids for these patients.	_____	_____
–I am annoyed when these patients request refills and/or increased dosages.	_____	_____
–I am comfortable giving whatever dose of opioids necessary to control the pain.	_____	_____
–I have a great deal of empathy for the pain these patients are experiencing and the negative effects it may be having on their lives.	_____	_____

Section 3

Indicate the degree to which the following concerns, feeling, and/or factors *limit* you from comfortably prescribing opioids for noncancer pain. Use the following scale: 0 = None, 2–3 = A little, 4–5 = Some, 6–8 = Moderate degree, 9–10 = A great deal.

- _____ Your knowledge of regulations regarding safe, legal prescribing.
- _____ Your skills at determining patients most likely to abuse medication.
- _____ A general suspicion of patients seeking opioids.
- _____ Your knowledge of which medications and dosages to use.
- _____ Caring for these patients takes a lot of time.
- _____ These patients are frequently demanding, impatient, and get angry when they don't get their medications on time.
- _____ Your knowledge of documentation required for the medical record.
- _____ Access to staff with expertise in managing chronic pain.
- _____ Access to multidiscipline pain management team.
- _____ Knowledge of how often I need to see these patients back.
- _____ Your skills at dealing with these patients when they are angry or demanding.
- _____ Your ability to set limits with patients who demand extra attention and time.
- _____ Your ability to deal confidently with patients who want early refills or who break agreements for prescribing opioids.

Figure.

Attitude assessment questionnaire used to survey 72 residents.

Table 1.

Questionnaire reporting mean scores of residents' ($N = 72$) concerns about consequences of prescribing opioids chronically for noncancer low back pain (NLBP) and for cancer pain, and mean difference reported as standard deviation (SD). 0 = No concern, 2–3 = A little concern, 4–7 = Moderate concern, and 8–10 = Very concerned.

Resident Concern	Mean NLBP	Mean Cancer	SD of Difference *
Patients			
Addiction	6.01	1.15	± 2.50
Abuse	5.57	1.39	± 2.63
Serious side effects	4.76	2.87	± 2.48
Reduced use of other treatments	5.36	1.30	± 2.93
Residents			
Sanctioning by state medical board	4.12	1.12	± 2.55
Legal action or punishment	4.06	1.17	± 2.56
Criticism from attending physicians	4.33	0.88	± 2.74
Criticism from pharmacist	2.91	0.76	± 2.53

*Paired t -tests, $p < 0.001$.

criticism from attending staff and pharmacists. They expressed none of these same worries about prescribing opioids for patients with cancer pain.

They agreed that opioids were effective and well tolerated in patients with cancer but were less certain about NLBP. The belief was much stronger that cancer patients benefited more and tolerated opioids better compared with those with NLBP (**Table 2**). Risk of addiction was deemed dramatically lower for patients receiving opioids for cancer pain than for those receiving opioids for NLBP.

Residents were much more comfortable prescribing opioids, regardless of doses needed, for patients with cancer than with NLBP (**Table 2**). Although they expressed empathy for both pain groups, it was stronger toward those patients with cancer pain. Also, they were far less likely to be annoyed by requests from cancer patients for early refills or increased dosages.

Several factors were identified as barriers to residents prescribing opioids for NLBP (**Table 3**). These included skills for determining patients most likely to abuse opioids, abilities to set limits with patients who demand extra time, and abilities to deal confidently with demanding or angry patients or those wanting early refills or break prescription agreements. Their comfort was further limited by questions about how to document and prescribe opioids for chronic noncancer pain and about their knowledge as to regulations that govern opioid use.

Table 2.

Questionnaire reporting mean scores of residents' ($N = 72$) feelings and beliefs about efficacy and safety of opioids to treat noncancer low back pain (NLBP) and cancer pain, and mean difference reported as standard deviation (SD). 0–2 = Strongly disagree, 3–4 = Disagree, 5 = Not sure, 6–8 = Agree, and 10 = Strongly agree.

Resident Response	Mean NLBP	Mean Cancer	SD of Difference *
Feelings			
Comfortable prescribing opioids	4.31	8.94	± 2.30
Annoyed by requests for early refills or more opioids	6.22	1.90	± 2.83
Strong empathy toward patient's pain	6.79	9.09	± 2.09
Beliefs			
Opioids are effective for pain control	5.82	8.31	± 2.14
Long-term opioids are well tolerated	5.51	7.81	± 2.22
Addiction risk is low	3.91	7.82	± 2.97
Give whatever dose is needed	3.66	8.41	± 2.67

*Paired t -tests, $p < 0.001$.

DISCUSSION

We found a significant difference between medical residents' feelings about using opioids to treat chronic pain from cancer and NLBP. On one hand, residents' comfort and willingness to use strong narcotics to treat cancer pain seem appropriate and reassuring. On the other hand, their fear about adverse effects, less-informed and empathic attitudes, and more perceived barriers to using this class of drugs when treating patients with chronic low back pain raise important concerns and questions.

Our results underscore that physicians have many fears and negative feelings about prescribing opioids for chronic low back pain. Certain beliefs, attitudes, and disease models about pain and how it should be handled by patients and treated by physicians are formed long before students arrive in medical school (probably very early in life) and are molded by ethnic and cultural values and norms [21]. Clinicians' responses to patients' pain are also influenced by many of these same factors [22] and continue to be modified by clinical experience [23].

Studies have shown that medical students [24–25] and practicing physicians [13,15–17] are concerned about using opioids to treat chronic noncancer pain. We found only one study examining the attitudes of residents toward opioid use for chronic pain [19], but since publication, changes in knowledge and regulations far more support their use [11]. The residents' beliefs and concerns about using opioids to treat chronic low back pain in this study appear similar to those of students and practicing

Table 3.

Questionnaire mean \pm standard deviation (SD) scores of residents' ($N = 72$) concerns, feelings, and/or factors about barriers to prescribing opioids for noncancer pain (0 = None, 3–5 = Some, 6–8 = Moderate, and 9–10 = A great deal).

Barrier	Mean \pm SD
Skills at determining patients who may abuse medication.	5.80 \pm 2.15
Ability to set limits with patients who demand extra attention and time.	5.52 \pm 2.70
General suspicion of patients seeking opioids.	5.52 \pm 2.50
Ability to deal confidently with patients who want early refills or break agreements.	5.45 \pm 2.21
Access to expert staff who manage chronic pain.	5.20 \pm 2.36
Access to multidisciplinary pain management team.	5.14 \pm 2.72
Ability to deal confidently with demanding, impatient, and angry patients when they don't get timely medications.	4.92 \pm 2.31
Skills at dealing with angry or demanding patients.	4.89 \pm 2.41
Knowledge of medications and dosages.	4.39 \pm 2.62
Knowledge of how often to see patients in follow-up.	4.37 \pm 2.27
Increased time required for caring for these patients.	4.36 \pm 2.51
Knowledge of regulations for prescribing.	4.35 \pm 2.51
Knowledge of documentation required.	4.14 \pm 2.22

physicians and seem to have changed little in the last 20 years.

Several other factors may have affected our residents' beliefs and concerns about using opioids to treat chronic low back pain. Historically, training in pain management has been limited in both quantity [26] and effectiveness [27] and tends to emphasize treating patients with cancer. Managing patients with chronic pain is challenging. Low back pain is especially difficult to manage, because it frequently involves a combination of poorly understood physiological processes and a complex mixture of psychological, social, and sometimes legal and financial issues. Residents cannot be expected to have the skills, knowledge, and experience with chronic illness, or the longitudinal support necessary, to confidently assess and treat such patients, particularly given the limited amount of training in pain management in medical school [28]. Evidence also shows that during medical training, the concerns and negative biases of teaching faculty toward using opioids to treat pain may be transferred or reinforced [16]. Trainees may also adopt beliefs that contribute to opiophobia. For instance, Weinstein and colleagues found that negative attitudes toward patients' psychological problems [25], which increased over the course of medical school education, predicted negative attitudes toward opioids.

A legitimate concern exists that students, residents, and practitioner's negative beliefs and concerns about opioids will lead to disparities of care among patients with chronic pain. Research has shown that residents

frequently underprescribe opioids, even for severe acute [29] and cancer pain [27]. Since residents in our study were far less comfortable prescribing opioids for chronic low back pain, this group of patients may be treated even less effectively than those with cancer pain. If true, this finding could lead to needless suffering and poor functional outcomes and indicates a clear need for improved training.

Specialized teaching methods are needed if residents are expected to gain more insight into their own biases and misperceptions about pain, learn how to overcome the barriers we identified, and increase their comfort with using opioids to treat pain. Training should emphasize learning many aspects of managing chronic pain with opioids, such as assessing risk [30], prescribing guidelines, monitoring safety, considering medico legal issues, documenting complete and accurate pain contracts, and managing refills. Training should also address ways to discover and deal with physician-specific prejudices and biases and incorporate techniques for increasing understanding of the psychological impact that dealing with chronic pain has on both patients and physicians. Structured exercises to improve confidence in handling difficult conversations may help residents set better limits with patients.* Role-playing allows learners to reflect on

*Roth CS, Weissmann PF, Harris I, Sung Y-C. Increasing residents' confidence dealing with difficult conversations. Unpublished observations; 2007.

their own “hot button” issues and to adopt a perspective that may increase understanding of the challenges faced by patients with chronic pain and reduce negative attitudes [31].

Educational programs for students and residents have shown improved knowledge and attitudes toward the management of pain, including the proper use of opioids [20,29,32–34]. Postworkshop surveys from residents in this study showed that their beliefs and concerns about using opioids for chronic low back pain were changed by participating in a 4-hour interactive session using short didactics, observation exercises with reflection, and practice with feedback using patient actors [35].

This study has several limitations. Choosing chronic low back pain as a proxy for all types of chronic noncancer pain in the comparison group may have confounded our results. We selected low back pain because it is so prevalent in primary care and because we thought residents would have already developed firsthand experience trying to manage patients affected by this problem. However, because chronic low back pain is such a complex, poorly understood and heterogeneous condition, and one that is often stigmatized and frustrating to treat, residents also most likely have misunderstandings and prejudices toward patients with this condition. Possibly, they would have different beliefs about and feelings toward patients with more straightforward pain conditions such as end-stage knee arthritis, compression fractures, peripheral neuropathy, or postherpetic neuralgia. The cases in the questionnaire contained no additional information about the pain, such as pain intensity, pain duration, or previous treatments, and nothing about the patients’ ethnicity/race, social and psychological influences, or functional consequences of their pain. Since these are all factors known to influence opioid-prescribing practices of primary care physicians [36], we believe they would have influenced the residents surveyed. Finally, forcing a side-by-side comparison of the two pain groups may have increased their differences more than if they had been asked to rate each one independently.

Our findings have additional limitations. First, we did not collect demographic information on the study participants. Given the wide variability in opioid-prescribing practices among U.S. physicians, which are related to factors such as years in practice, geographic region, and training characteristics [36], using a sample from a single metropolitan area of residents about whom we know so little neither represents nor generalizes our

findings. Second, we did not develop our survey instrument using a rigorous iterative process or independently validate or standardize the scales used. Moreover, the small sample size limited our ability to conduct the appropriate analyses needed to ascertain the psychometric properties of the instrument. Because of these shortcomings, we believe that the results of this survey should be more properly regarded as pilot data.

Using these preliminary findings and reflections, we plan further research to better understand how residents feel and what they know about treating chronic pain with opioids. We plan to use a more rigorous iterative process to develop a new survey instrument and then administer it to a larger number of residents at all levels of training. We will then be able to further assess and refine its psychometric properties such as internal consistency, test-retest reliability, and construct validity and then modify it appropriately before administering it to a nationally representative sample. The revised survey would include more demographic details about the participants and more specifically ascertain their attitudes and knowledge about a wide variety of painful conditions in addition to low back pain. For each pain considered, the scenarios will be carefully described and include modifying factors such as intensity of pain, previous treatments, specific classes of opioids, psychological and social influences, and impact on function. If our findings are validated, we hope that addressing the specific concerns, i.e., negative beliefs and barriers, will prove useful for redesigning resident training in pain management that will ultimately improve patient care and outcomes.

CONCLUSIONS

Medical residents in this pilot study were uncomfortable treating chronic low back pain with opioids. Compared with cancer-related pain, they expressed many more negative beliefs, attitudes, and feelings about treating low back pain with opioids and a variety of concerns about the potential hazards of their use. These findings support the need for improved training in pain management during medical school and residency.

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