The Effectiveness of a Self-Reporting Bedside Pain Assessment Tool for Oncology Inpatients

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Abstract

Background: Pain is common during cancer treatment, and patient self-reporting of pain is an essential first step for ideal cancer pain management. However, many studies on cancer pain management report that, because pain may be underestimated, it is often inadequately managed.

Objective: The aim of this study was to evaluate the effectiveness of bedside self-assessment of pain intensity for inpatients using a self-reporting pain board.

Methods: Fifty consecutive inpatients admitted to the Oncology Department of Chungbuk National University Hospital were included in this observational prospective study from February 2011 to December 2011. The medical staff performed pain assessments by asking patients questions and using verbal rated scales (VRS) over 3 consecutive days. Then, for 3 additional days, patients used a self-reporting pain board attached to the bed, which had movable indicators representing 0–10 on a numeric rating scale (NRS) and the frequency of break-through pain.

Results: Patient reliability over the medical staff's pain assessment increased from 74% to 96% after applying the self-reporting pain board ($p=0.004$). The gap (mean $\pm$ standard deviation [SD]) between the NRS reported by patients and the NRS recorded on the medical records decreased from 3.16 ± 2.08 to 1.00 ± 1.02 ($p<0.001$), and the level of patient satisfaction with pain management increased from 54% to 82% ($p=0.002$).

Conclusion: This study suggests that the self-reporting bedside pain assessment tool provides a reliable and effective means of assessing pain in oncology inpatients.

Introduction

PAIN IS A COMMON SYMPTOM in cancer patients, with a prevalence estimated at 25% for newly diagnosed patients, 33% for those undergoing active treatment, and >75% for those with advanced disease.^{1,2} Therefore, pain management is an important component of cancer treatment during all phases of cancer. Untreated or undertreated pain directly affects quality of life and profoundly influences the patient's ability to endure treatment, return to health as a cancer survivor, or achieve a dignified death. For these reasons, reliable and comprehensive pain assessment is an essential first step for ideal cancer pain management. Measuring pain intensity is part of universal screening and comprehensive pain assessment, and can be achieved using visual analogue scales, numerical rating scales (NRS), and verbal rated scales (VRS).^{2–7} Furthermore, pain intensity should be assessed based on patient self-reporting. Despite the availability of the

above-mentioned effective pain assessment tools, suboptimal pain assessment is common and thought to be related to a range of barriers that prevent optimal cancer pain management.^{6–10} Moreover, we anticipate that failure to adequately assess self-reported cancer pain will inevitably lead to inappropriate decisions regarding pain management options.

It is relatively easy to use a self-reporting system, such as a pain diary, for outpatients whose performance status is relatively good and whose condition is stable. However, it is relatively difficult for inpatients with poor general health and acute problems (in addition to pain) to express their degree of pain. In fact, many studies on cancer pain management report that observer and patient assessments do not correlate well, and that there is a tendency for medical staff to underestimate pain levels.^{11–13} Therefore, the aim of this study was to evaluate the effectiveness of inpatient bedside self-assessment of pain intensity using a self-reporting pain board attached to the bed.

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FIG. 1. The self-reporting pain board. (A) The self-reporting pain board uses moving indicators representing a 0–10 numeric rating scale (0 indicates “no pain” and 10 the “worst pain imaginable”) and the frequency of breakthrough pain. (B) Pain assessments were carried out using the self-reporting pain board at the patient bedside on 3 consecutive days after baseline values were obtained from staff-collected data.

Methods

Patients

All consecutive eligible inpatients admitted to the Oncology Department of Chungbuk National University Hospital were considered for this study. The following inclusion criteria were applied: age > 18 years, a histologically confirmed diagnosis of cancer, pain due to cancer or cancer treatment, ability to understand the Korean language, and normal cog-

nitive function. Patients with terminal conditions or low performance status (Eastern Cooperative Oncology Group [ECOG] performance status ≥ 4) were excluded. Opioid treatment varied from patient to patient, and short-acting analgesics were available to all patients. Written informed consent was obtained from all patients prior to participating in the study. This observational study was reviewed and approved by the Institutional Review Board of Chungbuk National University Hospital.

FIG. 2. Study design.

Pain measurement method

To estimate the effectiveness of a self-reporting pain assessment system alone, we educated patients regarding the general principles of cancer pain and pain management on the first day of study participation prior to the first assessment (Appendix A). Over the first 3 days of the study, pain assessments were performed by medical staff, who asked questions and recorded the patients' answers using a 0–10 VRS, in which 0 indicated no pain and 10 indicated the worst pain imaginable. Over the following 3 days, a self-reporting pain board was attached to each patient's bed, and the patients were instructed on how to use the board by the research nurse. Pain assessments were then carried out using these self-reporting bedside pain boards, which had movable indicators representing a 0–10 NRS and the frequency of breakthrough pain (Fig. 1). The pain score was recorded 3 times a day: at 10 AM for the morning assessment, 4 PM for the afternoon assessment, and 10 PM for the evening assessment. The average pain intensity in Days 3 and 6, as recorded by the patient in the patient questionnaire, was used to generate the NRS for the medical record.

Data collection

Cancer pain knowledge questionnaire. All patients completed a seven-item cancer pain knowledge questionnaire (Appendix B). One item contained 10 questions that addressed the patient's knowledge of cancer pain, addiction, and analgesics. Two items addressed the average pain intensity and breakthrough pain experienced by the patient during the previous 24 hours, one item addressed sleep disturbance due to pain, one item (containing seven questions) addressed the patients' impressions of their current pain management, one item addressed the goals of pain control, and one item addressed levels of satisfaction with the current pain management. Questionnaires were also provided to three matched medical staff (two physicians and one nurse attending each patient) (Appendix C). A two-item cancer pain questionnaire contained questions regarding the reliability of matched patient pain and the workload required to assess patient pain. This survey was conducted twice for patients and medical staff, both before and after using the self-reporting pain board at the bedside.

Patient medical record review. Patient medical records were reviewed to obtain baseline demographic data (age and sex), performance status, stage of disease, current treatment(s), aim of treatment, reason(s) for admission, patient-recorded pain intensity, and analgesic doses. The Pain Management Index (PMI) was used to evaluate the adequacy of analgesic use.^{14–18} Analgesic strength was categorized as 0 (no analgesic), 1 (nonopioid), 2 (weak opioid), or 3 (strong opioid). In addition, patient pain levels, based on the modified Brief Pain Inventory, were classified as follows: 0 (no pain=0), 1 (mild pain=1–3), 2 (moderate pain=4–6), or 3 (severe pain=7–10). PMI values were calculated by subtracting the pain scores from the analgesic scores. Scores of 0 or above indicated adequate analgesia, whereas a negative score indicated inadequate analgesia.

Statistical analyses

χ^2 tests were used to compare percentages, and independent sample *t* tests were used to compare mean values. Descriptive statistics were reported as proportions and medians.

The means and standard deviations (SD) of the reliability of patient pain assessed by medical staff, workload required by medical staff to assess patient pain, NRS, dose of morphine, and frequency of breakthrough pain were also calculated. All significance levels refer to two-sided tests. A *p* value of <0.05 was considered significant. All statistical analyses were performed using SPSS for Windows software, version 15.0 (SPSS Inc., Chicago, IL). The study design is presented schematically in Figure 2.

Results

Of the 67 patients screened between February 2011 and December 2011, 54 were included in the study, and 13 patients were excluded because of cognitive impairment (*n*=5), refusal to participate (*n*=6), or inability to fill in the questionnaire (*n*=2). Of the 54 remaining patients, 50 had complete data that were evaluable, and 4 had incomplete data because of early discharge (*n*=2) or a rapid deterioration of disease status (*n*=2) and were excluded. The demographics, clinical characteristics, pain intensity, and analgesic drug consumption of the 50 patients who comprised the study cohort are shown in Table 1. The median age of the patients was 59.4 years (range,

TABLE 1. PATIENT CHARACTERISTICS

Characteristic	No. of patients (n=50)	
	No.	%
Age, years	59.4 (range: 28–80)	
Median		
Sex		
Male	33	66
Female	17	44
ECOG performance status		
0–1	18	36
2–3	32	64
Stage of disease		
I	1	2
II	1	2
III	8	16
IV	40	80
Current anticancer treatment		
Best supportive care only	18	36
Chemotherapy	24	48
Radiotherapy	4	8
Concurrent chemoradiotherapy	4	8
The reason for admission		
Scheduled	18	36
Unscheduled	32	64
Pain intensity (NRS) at day 1		
Mean $\pm$ SD	2.22 $\pm$ 2.30	
None (0)	19	38
Mild (1–3)	17	34
Moderate (4–6)	12	24
Severe (7–10)	2	4
Analgesics consumption		
None	3	6
NSAIDs	1	2
Weak opioids	6	12
Strong opioids	40	80

ECOG, Eastern Cooperative Oncology Group Performance Status; NSAID, nonsteroidal anti-inflammatory drug; NRS, numeric rating scale; SD, standard deviation.

TABLE 2. PERCEPTION OF CANCER PAIN AND PAIN MANAGEMENT AS DETERMINED BY THE PATIENT QUESTIONNAIRE

	No. of patients (%) (n =50)						
	Before applying self-reporting pain board			After applying self-reporting pain board			
	Absolutely yes or yes	No or absolutely no	I don't know	Absolutely yes or yes	No or absolutely no	I don't know	P value
Q1. Perception of pain and narcotic analgesic							
1. A good patient should endure pain as much as possible.	5 (10)	41 (82)	4 (8)	5 (10)	45 (90)	0 (0)	0.123
2. Most pain is relieved sufficiently by pain killers.	38 (76)	6 (12)	6 (12)	45 (90)	5 (10)	0 (0)	0.035
3. The use of a pain killer can easily result in addiction.	8 (16)	37 (74)	5 (10)	6 (12)	42 (84)	2 (4)	0.389
4. It is easier to endure pain than to endure the side effects of pain killers.	3 (6)	41 (82)	5 (10)	3 (6)	44 (88)	3 (6)	0.658
5. Pain killers should be saved for severe pain.	6 (12)	43 (86)	1 (2)	6 (12)	43 (86)	1 (2)	1.000
6. I wish to be free from pain regardless of cure.	43 (86)	5 (10)	2 (4)	46 (92)	4 (8)	0 (0)	0.331
7. Medical staff tend to underestimate my pain.	16 (32)	27 (54)	7 (14)	6 (12)	43 (86)	1 (2)	0.002
8. I think it is better to have less pain than to live longer.	29 (58)	11 (22)	10 (20)	39 (78)	7 (14)	4 (8)	0.085
9. Pain caused by cancer can be controlled effectively by pain killers.	24 (48)	10 (20)	16 (32)	44 (88)	3 (6)	3 (6)	<0.001
10. I want to medical staff about my pain in detail.	44 (88)	3 (6)	6 (6)	48 (96)	2 (4)	0 (0)	0.185
Q5. Perception of current pain management							
1. My doctor asks about my pain first, and determines its location and severity.	43 (86)	3 (6)	4 (8)	47 (94)	2 (4)	1 (2)	0.337
2. I have been educated by medical staff that pain control is important during pain treatment and therefore, if I have pain, I inform medical staff.	43 (86)	7 (14)	0 (0)	47 (94)	3 (6)	0 (0)	0.159
3. Medical staff trust me regarding pain severity.	37 (74)	9 (18)	4 (8)	48 (96)	0 (0)	2 (4)	0.004
4. If I consider pain treatment unsatisfactory, the doctor changes the drug or the dose.	34 (68)	5 (10)	11 (22)	48 (96)	0 (0)	2 (4)	0.001
5. If necessary, my medical staff prescribes strong pain killers without hesitation.	23 (46)	15 (30)	12 (24)	34 (68)	8 (16)	8 (16)	0.080
6. Medical staff provide me with sufficient information on pain treatment.	33 (66)	9 (18)	8 (16)	40 (80)	5 (10)	5 (10)	0.286
7. I have been informed by medical staff about the possible side effects of my medication and how to cope with them.	33 (66)	14 (28)	3 (6)	36 (72)	8 (16)	6 (12)	0.251

28–80 years) and 33 (66%) were men. Eighteen patients (36%) had good ECOG performance status (0–1), the majority of patients (80%) had stage IV disease, and 18 patients (36%) were currently receiving only best supportive care. Fourteen patients (28%) reported moderate or severe pain based on the NRS scale, and 46 patients (92%) were receiving opioid treatment at Day 1 of the study. For the matched medical staff data, 150 questionnaires (from two physicians and one nurse per patient) were analyzed. The number of medical staff participating in the questionnaire was 46 (12 physicians and 34 nurses), and the median number of questionnaires from each medical staff was 2 (range, 1 to 5).

Changes in perception of cancer pain and patient satisfaction with pain management

Changes in perception of cancer pain and pain management after using the self-reporting pain board are shown in Table 2. The percentage of patients who answered “most pain is relieved sufficiently by pain killers” increased from 76% to 90% after using the self-reporting pain board attached to the bed (Question 1.2 [Q1.2]; $p=0.035$). The percentage of patients who answered “absolutely yes” or “yes” to the item “medical staff tend to underestimate my pain” decreased from 32% to 12% (Q1.7; $p=0.002$). In addition, the percentage of patients who answered “pain caused by cancer can be controlled effectively by pain killers” increased from 48% to 88% (Q1.9; $p<0.001$). Patient reliability over the medical staff’s pain assessment increased from 74% to 96% after using the self-reporting pain board (Q5.3; $p=0.004$). Moreover, the percentage of patients who answered “if I consider pain treatment unsatisfactory, the doctor changes the drug or the dose” increased from 68% to 96% (Q5.4; $p=0.001$). As a result, the level of patient satisfaction with pain management increased from 54% to 82% (Q7; $p=0.002$; Fig. 3).

Changes in the reliability of patient pain and workload incurred by pain assessment by medical staff

The reliability of patient pain recorded by medical staff was not significantly different after applying the self-reporting pain board (down from 3.06 ± 1.34 to 2.98 ± 1.54) (Q2; a score of 5 indicated very reliable; $p=0.788$). However, the percentage of medical staff that answered “yes” to the item “pain intensity expressed in the medical records of this patient is recorded exactly as stated by the patient” increased from 47.3% to 65.3% (Q3; $p<0.001$). The percentage of medical staff that answered “yes” to the item “I tend to underestimate the patient’s pain” decreased from 38.0% to 16.0% (Q4; $p=0.002$). Changes in the medical staff’s perception of pain assessment, as evaluated using the medical staff questionnaire, are shown in Table 3. Moreover, the workload required to assess patient pain decreased from 46.9 ± 15.5 to 24.3 ± 11.2 after using the self-reporting pain board (Q5; a score of 100 indicated highly burdensome; $p<0.001$).

Impact of the adequacy of pain assessment and management

The gap between the NRS reported by patients and that stated in the medical records decreased from 3.16 ± 2.08 to 1.00 ± 1.02 after using the self-reporting pain board (Fig. 4; $p<0.001$). Moreover, the gap between patient- and staff- (three matched medical staff) assessed NRS decreased from 1.82 ± 1.61 to 0.92 ± 0.74 ($p=0.001$). Although the patient NRS recorded on the medical records increased from 1.50 ± 1.77 to 2.26 ± 1.85 , the patient-assessed NRS decreased from 4.28 ± 2.04 to 2.52 ± 1.59 after using the self-reporting pain board (Fig. 5).

The mean dose of morphine (mg/day/patient) used for continuous pain control increased from 79.5 ± 167.1 to

FIG. 3. Changes in the levels of patient satisfaction with pain management after applying the self-reporting pain board.

TABLE 3. PERCEPTION OF CANCER PAIN ASSESSMENT BY MEDICAL QUESTIONNAIRE

	No. of medical staff's questionnaire (%) (n=150)						P value
	Before applying self-reporting pain board			After applying self-reporting pain board			
	Yes	No	I don't know	Yes	No	I don't know	
Q3. Pain intensity expressed in the medical records of this patient is recorded exactly as stated by the patient.	71 (47.3)	54 (36.0)	25 (16.7)	98 (65.3)	11 (7.4)	41 (27.3)	<0.001
Q4. I tend to underestimate the patient's pain.	57 (38.0)	65 (43.3)	28 (18.7)	24 (16.0)	81 (54.0)	45 (30.0)	0.002

99.4±199.3, although this difference was not statistically significant ($p=0.580$). The frequency of breakthrough pain stated in the medical records was also not significantly different (2.28 ± 4.59 times before and 2.66 ± 5.30 times after using the self-reporting pain board; $p=0.702$). However, the frequency of patient-assessed breakthrough pain recorded on the patient questionnaire decreased from 2.18 ± 2.42 to 1.10 ± 1.43 times ($p=0.008$). Four patients had a negative PMI before using the self-reporting pain board; however, PMI values were positive for all patients after using the self-reporting pain board.

Discussion

In this study, we found that a pain assessment system using a self-reporting pain board attached to the patient's bed provides a reliable and effective means of assessing pain. Of

course, general pain education alone can play a role in changing patient perceptions and knowledge regarding cancer pain and painkillers, thereby improving cancer pain management. In a large-scale, prospective, cross-sectional cancer pain survey conducted in Korea between 2001 and 2006, the percentage of patients that reported a negative PMI was >40%.¹⁸ In the present study, we educated patients regarding the general principles of cancer pain and pain management on the first day of study participation, and as a result, almost all patients had a positive PMI 3 days after admission.

However, suboptimal cancer pain management is common in the clinical setting and is believed to be related to a range of barriers that prevent good cancer pain management.^{19–21} One of the major barriers is the staff's failure to ask patients whether they are experiencing pain and to obtain a measurement of their pain intensity.^{19–25} A recent national survey of U.S. medical oncologists found that inadequate assessment

FIG. 4. Numeric rating scales (NRS) gaps between pain scores reported by patients and pain scores from medical records.

FIG. 5. Numeric rating scale (NRS) changes after using the self-reporting pain board.

of patient pain was the most significant barrier to pain management.²⁶ In clinical situations, the medical staff fail to spend sufficient time encouraging patients to accurately express the intensity of their pain and, occasionally, recorded pain intensities are estimated. For inpatients, the routine use of pain charts has considerably improved pain management;²⁷ however, according to several previous surveys of pain, a gap exists between the pain intensity recorded on medical records and the pain intensity perceived by patients.^{11–13} This situation arises because, unlike outpatient pain diaries, inpatient pain charts are recorded by nurses rather than by patients. Careceni and colleagues reported an improvement in pain assessment by having inpatients keep pain diaries²⁸; unfortunately, inpatients are often unable to keep pain diaries because they have poor performance status or acute problems in addition to pain. Therefore, an assessment tool is needed that allows inpatients to express pain intensity easily, actively, and frankly, thereby enabling the expressed pain levels to be transcribed accurately into the medical records.

The self-reporting pain board attached to the patient's bed used in this study allows patients to express pain intensity by moving an indicator. This significantly reduced the gap between the NRS recorded on pain charts and that actually perceived by patients (3.16 and 1.00, respectively). In addition to the direct expression of pain by patients, the self-reporting pain board offers other benefits. Because the board is always present at the bedside, it tends to increase patient interest in the scoring of pain. Accordingly, patients can communicate with the medical staff regarding their pain severity more frequently than they can when their pain is assessed by the medical staff intermittently at fixed times. Furthermore, as the self-reporting pain board is visible to medical staff, it stimulates their interest in patient pain and encourages active pain management. Furthermore, the self-reporting pain board can reduce staff workload with respect to pain assessment. The

patients became familiar with the pain board very quickly and, as a result, they reported their pain scores voluntarily, with no encouragement from the medical staff. These benefits increase awareness and efficiency of patient-medical staff communication and ultimately increase patient satisfaction with pain management (from 54% to 82% in the present study).

The present study has several limitations. First, the control used in this study was the VRS (via oral inquiry). Recently, pain assessments are performed using self-reporting pain indicators in many medical institutions; however, these assessments are usually carried out by the medical staff and presented to the patient only when medical staff ask about pain. Therefore, comparing the self-reporting pain board attached to the patient's bed with the pain indicator carried by medical staff, which has become common practice for oncology inpatients, would have provided a more appropriate comparison. Second, patient education on cancer pain, the questionnaire given to both patients and staff, the self-reporting pain board itself, and the overall increased attention to pain management resulting from these practices could all have contributed to the improvement seen in this study. To minimize these effects and examine only the effect of the self-reporting pain assessment system itself, this study was designed to compare the same patient before and after the use of the pain board during the same period of hospital stay, with general education regarding the principles of cancer pain given only on Day 1 of study participation. Finally, the self-reporting pain board is not effective for cancer patients with very poor performance status or impaired cognitive function; particularly those under palliative care. Therefore, it may be necessary to devise a simpler and more reliable pain assessment tool for such patients.

Although the present findings were derived from a relatively small number of cases because of the limited number of available pain boards, we believe that the self-reporting bedside pain board is a reliable and effective instrument for

assessing pain in cancer inpatients. The present study shows that this board improves cancer pain management considerably by reducing under-assessment of cancer pain by staff, narrowing the NRS gap between patient-perceived and medical staff-assessed pain severity, and encouraging both patients and medical staff to pay more attention to cancer pain and its management.

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Author Disclosure Statement

No competing financial interests exist.

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(Appendix follows →)

APPENDIX A. HANDOUT USED IN PATIENT EDUCATION

Pain Is Controllable***Why should pain be controlled?¹***

Pain is a symptom that must be controlled for high quality of life.

1. Without pain control, daily life is ruined and physical strength is impaired by insomnia, poor appetite, depression, and anxiety. Consequently, recovery from disease or postoperative recovery slows down.
2. Pain weakens the body's resistance to infection (due to the deterioration of immunological competence). Most pain caused by cancer is sufficiently controllable through medication, so cancer-related pain should be treated actively.

Do not fear the use of analgesic based on wrong ideas about pain.

Q: Are narcotic analgesics addictive?

A: No. There are few cases of addiction to narcotic analgesics used for pain control (<0.008%).¹

Q: Does the use of analgesics degrade the effect of chemotherapy?

A: No. If a patient's general condition is improved by the appropriate use of analgesics, it is rather helpful to cancer treatment and, consequently, extends the survival period.²

Q: Should we endure pain as much as possible because the frequent use of analgesics induces resistance to the drug and there will be no effective drug in the future?

A: If our body becomes accustomed to the analgesic in use, the drug may lose its effect of pain relief and this is called resistance. In that case, pain control can be done by changing the dose or adding another drug. What is more, because the dose of narcotic analgesic can be increased without limitation, it is not necessary to keep the dose low for the future. Rather, if one is exposed to pain frequently, one's pain threshold drops (feel pain more easily than usual even with a mild pain) and, as a result, pain control becomes more difficult. According, efforts should be made to maintain the pain score close to 0.¹

Q: Should we endure pain as long as possible and use analgesics only when pain is unbearable?

A: No. It is more effective to control pain before pain starts rather than to use analgesics when pain has already become severe after enduring for a while. Prescribed analgesics should be used regularly at fixed intervals.¹

Q: Does the increase in the dose of an analgesic mean the exacerbation of disease?

A: No. The dose of analgesic does not indicate the progress of disease.¹

What should be done for proper pain control?¹

1. Express pain to the medical staff in order to find the cause of pain and the best pain control method.
2. Use a long-acting analgesic (sustained-release analgesic) regularly even when there is no pain for preventing pain.
3. Use a short-acting analgesic for breakthrough pain (sudden aggravating pain). (Use immediately rather than waiting until the pain becomes severe.)
4. Even if there is no pain at all, do not stop an analgesic abruptly but reduce the dose gradually before stopping. Consult with the physician before stopping an analgesic.

Do not fear the side effects of narcotic analgesic in pain control.

Most of the side effects of narcotic analgesics (constipation, nausea, vomiting, dizziness, drowsiness, etc.) disappear naturally in a few days. Because these side effects are controllable, it is important to report to the medical staff if such symptoms appear.¹

References

1. National Cancer Information Center. <http://www.cancer.go.kr/ncic/index> Cancer patients' cancer pain management data. 2007.
2. Bercovitch M, Adunsky A: Patterns of high-dose morphine use in a home-care hospice service: Should we be afraid of it? *Cancer* 2004;101:1473-1477.

APPENDIX B. PATIENT QUESTIONNAIRE

Patient Serial Number - - Date of Survey 2011- -

This survey is designed to obtain basic data on pain control in cancer patients and patient perceptions of pain severity. Your answers will be analyzed and published together with data collected from patients that participate in this survey, and will be used to establish pain control guidelines for cancer patients. Please answer the questions below as frankly and accurately as possible.

Perception of Pain and Narcotic Analgesic

Q1. How do you think about pain and narcotic analgesics?

Please comment as frankly as possible to the statements below. If you cannot give an accurate answer, please mark "I don't know."

	Absolutely yes	Yes	No	Absolutely not	I don't know
1. A good patient should endure pain as much as possible.	☐	☐	☐	☐	☐
2. Most pain is relieved sufficiently by pain killers.	☐	☐	☐	☐	☐
3. The use of a pain killer can easily result in addiction.	☐	☐	☐	☐	☐
4. It is easier to endure pain than to endure the side effects of pain killers.	☐	☐	☐	☐	☐
5. Pain killers should be saved for severe pain.	☐	☐	☐	☐	☐
6. I wish to be free from pain regardless of cure.	☐	☐	☐	☐	☐
7. Medical staff tend to underestimate my pain.	☐	☐	☐	☐	☐
8. I think it is better to have less pain than to live longer.	☐	☐	☐	☐	☐
9. Pain caused by cancer can be controlled effectively by pain killers.	☐	☐	☐	☐	☐
10. I want to medical staff about my pain in detail.	☐	☐	☐	☐	☐

Pain Intensity

Q2. Recalling the intensity of pain that you have experienced over the last 24 hours, how do you rate the average pain intensity out of 10? Please check the appropriate box below.

No pain											Worst imaginable pain	
	0	1	2	3	4	5	6	7	8	9	10	
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Breakthrough Pain

Q3. How many times have you experienced "a sudden increase in pain" during the last day (24 hours)?

☐ Once ☐ Twice ☐ 3 times ☐ 4 times ☐ 5 times or more () times ☐ None

Sleep Interference Induced by Pain

Q4. Do you awake at night due to pain?

☐ Once ☐ Twice ☐ 3 times ☐ 4 times ☐ 5 times or more () times ☐ None

Perception of Current Pain Management

Q5. How do you think about medical staff in connection with pain treatment? If you cannot give an accurate answer, please mark "I don't know."

	Absolutely yes	Yes	No	Absolutely not	I don't know
1. My doctor asks about my pain first, and determines its location and severity.	☐	☐	☐	☐	☐
2. I have been educated by medical staff that pain control is important during pain treatment and therefore, if I have pain, I inform medical staff.	☐	☐	☐	☐	☐
3. Medical staff trusts me regarding pain severity.	☐	☐	☐	☐	☐
4. If I consider pain treatment unsatisfactory, the doctor changes the drug or the dose.	☐	☐	☐	☐	☐
5. If necessary, my medical staff prescribes strong pain killers without hesitation.	☐	☐	☐	☐	☐
6. Medical staff provides me with sufficient information on pain treatment.	☐	☐	☐	☐	☐
7. I have been informed by medical staff about the possible side effects of my medication and how to cope with them.	☐	☐	☐	☐	☐

Patient's Pain Control Target

Q6. What pain intensity score do you want to achieve during future treatment?

No pain ←————→ Worst imaginable pain

0	1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Patient's Satisfaction with Pain Management

Q7. How satisfied are you with current pain treatment?

☐ Very unsatisfied	☐ Unsatisfied	☐ Relatively unsatisfied
☐ Relatively satisfied	☐ Satisfied	☐ Very satisfied

Date of Survey 2011-□□-□□

Patient: Registration Number/name _____/_____

Job category: ☐ Doctor (☐ Resident ____ th year ☐ Professor)
☐ Nurse

Q1. Recalling pain intensity that your patient has experienced over the last day (24 hours), how do you rate his/her average pain intensity out of 10? Check the appropriate box.

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

	Yes	No	I don't know
Q3. Pain intensity expressed in the medical records of this patient is recorded exactly as stated by the patient.	☐	☐	☐
Q4. I tend to underestimate the patient's pain.	☐	☐	☐

[illegible]