

# The effectiveness of application of the standardized terminology for telephone follow-up model in discharge follow-up of patients with cancer pain.

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## Research article

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# Abstract

**Purpose** This article aims to explore a standardized telephone follow-up model for patients with cancer pain, thus to promote standardized management of discharge follow-up of the patients with cancer pain.

**Method** We have developed a flow chart of standard terminology for discharge follow-up of the patients with cancer pain. The 80 patients with cancer pain who have discharged from our hospital were divided into the control group (40 cases) and the observation group (40 cases), both groups were followed up by telephone within one week of discharge. The pain nurses have done the discharge follow up by telephone using the communication method of routine follow-up and the communication method of standardized terminology, self-monitoring, treatment compliance, adverse reaction management, self-management ability and satisfaction with telephone follow-up were compared between the two groups.

**Results** The total scores of self-pain monitoring, treatment compliance, adverse reaction management and self-management ability in the observation group were higher than those in the control group ( $P < 0.05$ ). The satisfaction of the observation group was significantly higher than that of the control group ( $P < 0.05$ ).

**Conclusion** The application of the standardized terminology telephone follow-up mode can promote effective communication between nurses and patients, standardize the process and content of telephone follow-up. It can effectively improve the effectiveness of telephone follow-up and the satisfaction of patients with nursing services, which is suitable for clinical reference.

## 1. Introduction

Cancer-related pain is a common symptom for the patients with cancer and represents a major challenge in clinical area [1]. Recently, relevant statistics reveals that there are 40% of clients with early or intermediate stage cancer and 90% with advanced cancer have moderate to severe pain, up to 70% of clients of them cannot be acquired adequate pain relief, which significantly influence their physical and psychological well-being, and lowering their quality of life [2–3]. Cancer patients need to be nursed and rehabilitated at home for most of time, in addition to regular hospital treatment and follow-up. Telephone follow-up of discharged patients with cancer pain aims to understand the pain situation of the patients, and provide targeted help to resolve the pain issues of the patients [4]. Due to the lack of professional knowledge of pain in nurses, there was no specific way of thinking and intervention techniques in the traditional telephone follow-up, hence the patients' pain cannot be solved and controlled timely and effectively. To this end, our department has applied the standardized term telephone follow-up mode, after 1 year of clinical application, efficiently improved patient satisfaction.

## 2. Object And Method

**2.1 Object** Patients with advanced breast cancer who were hospitalized in the department of breast oncology of our hospital from October 2019 to April 2020 were selected. They were divided into control

group and observation group with 40 cases each, and are all females with aged between 22 and 65 years.

**Major grouping criteria** 1). A female with an age  $\geq 18$  years old, recurrent metastatic breast cancer was confirmed by pathology or imaging; 2) The client who has received an effective standardized treatment plan for cancer pain and the treatment is effective; 3) The client who possesses normal cognitive function, able to understand and answer questions correctly; 4) The numeric pain rating scale (NRS) which is used to measure the clinical pain has been used in our study. Clients are instructed by the nurse to choose a single number by using the NRS that best indicates their level of pain. The NRS score of 0/10 indicates no pain, 1-3/10 indicates mild pain, whilst 4-6/10 indicates moderate pain, and 7-10/10 indicates severe pain that the clients may unable to fall asleep or wakening from sleep [5].

**Exclusion criteria** 1). Existence of life-threatening situations of visceral and/or meningeal metastases; 2). Pain associated with other non-malignant tumors; 3). Clients with cognitive impairment; 4). The clients with a score of Barthel Index for activities of daily living (ADL) below 70 [6].

In addition, all the included clients were confirmed as breast cancer by pathology, accompanied by varying degrees of cancer pain during hospitalization, and received pain treatment. There was no significant differences in gender, age, education and disease between the two groups ( $P>0.05$ ).

## 2.2 Method

**2.2.1 Control group** The patients were followed up by telephone according to the pain follow-up schedule in the conventional nurse-patient communication mode, and corresponding answers were given when the patients raised questions.

**2.2.2 Observation group** On the basis of routine telephone follow-up, the standardized terminology communication chart (see table 1) was adopted for telephone follow-up. The specific method is as follows:

**2.2.2.1** Setting up 2 pain specialist team leaders, headed by the head nurse, ensuring each department has at least one pain nurse who has worked in the department of oncology for more than 5 years and is good at communication, and will be trained once a month. The training includes telephone follow-up procedures, polite language, pain expertise (assessment tools, methods and content), adverse drug reactions and management, pain outbreak observation and management, pain relief methods, control goals, follow-up hotline questions, and case scenario drills. We simulated and designed various telephone follow-up scenarios, with a group of three people who acting as a tutor, a nurse and a patient. Through

the competition, the theoretical knowledge of pain nursing can be transformed into clinical practice. By practicing the "role transformation", the nurse presents empathy and easily to understand the health issues from the perspective of the patient. The nurse who passes both the scenario simulation exercise and the theoretical examination can be qualified.

**2.2.2.2** Establishing of discharge follow-up file of patients with cancer pain: 1). The patients' general condition, pain location, quality, intensity, and scores (by using the NRS); 2). The patient's medication status, including the name, dosage, usage and adverse reactions of analgesics; 3). Treatment of drugs' adverse reactions; 4). Treatment of outbreak pain; 5). Satisfaction of pain control.

Table 1 Glossary of standard terms of patient telephone follow-up for pain nurses

**2.2.2.3** Follow-up time: Follow-up was conducted by telephone every Monday afternoon and completed within one week after discharge. For the patients with NRS score  $\geq 3$  points were followed up again within three days and to guide them how to adjust the drug dose; For the patients with NRS score  $\geq 3$  points lasting for three consecutive follow-up visits are recommended to return to the hospital for treatment; For the patients with effectively controlled pain by three consecutive follow-up visits, it were changed to one monthly visit for a total of 3 months.

**2.2.3 Observational index** The total scores of self-pain monitoring, treatment compliance, diet management, adverse reaction management and self-management ability of the two groups have been observed. Likert Scale is a psychological measurement which based on the principle of asking people to give their response by choosing among a series of statements concerning a given topic. Through the respondents' answers in terms of extent to which they agreed or disagreed, this can reflect their cognitive and affective attitude. [7] There are 23 items of the given topics in total by using the Likert Scale. The corresponding scores are 23-161 in the scale that ranging from 'Strong agree' to 'strong disagree' [8]. The higher scores mean the better self-management skills. In terms of the satisfaction of telephone follow-up, the satisfaction questionnaire of nursing service for patients with cancer pain designed by our department has been used. The survey includes 7 items: Whether the patients can correctly grade the pain scores by using the NRS; Patients' attitude to telephone follow-up personnel service; Satisfaction with the medication instruction which was provided by the nurse; Satisfaction with the answers to adverse reactions and precautions; The attitude towards the answers about how to cope with the pain; Attitude towards the help with the pain control; Overall satisfaction with the telephone follow-up and so on. The survey's full score is 100, while the scores  $>95$  indicate highly satisfactory, the scores between 90 and 95 means the patients felt satisfied, the scores between 80 and 90 means ordinary, however, the

scores below 80 means unsatisfied. Degree of satisfaction (%) = Highly satisfactory ratio (%) + Basic satisfactory ratio (%).

**2.2.4** Statistical approach data input software SPSS20.0 was used for statistical analysis. The measurement data are subject to t test, while the counting data were tested with X2 test; They are expressed as (mean ± standard deviation) and percentage respectively. P<0.05, which means the difference was statistically significant.

### 3. Results

**3.1** The total scores of self-pain monitoring, treatment compliance, adverse reaction management, diet management and self-management ability in the observation group were all higher than those in the control group, with statistically significant differences between the two groups (P<0.05). (See table 2)

Table 2 Comparison of scores of self-management ability between the two groups

**3.2** The satisfaction of patients in the control group was 37.5%, while that in the observation group was 92.5%. The difference between the two groups was statistically significant (P<0.05). (See table 3)

Table 3 comparison of satisfaction between the two groups (%)

### 4. Discussion

**4.1** The application of standardized follow-up glossary has improved the effectiveness and purpose of follow-up. In the traditional telephone follow-up, there was no uniform terminology and follow-up template, nurses have no specific and logical train of thought, and do not know how to ask and answer certain questions, which increases the difficulty of follow-up and fails to achieve the purpose of pain follow-up. Through the standardized follow-up glossary, the pain nurse firstly explained the identity, the purpose of the call to the observation group, and created an ideal communication environment. Following up accurately according to the follow-up process, significantly avoided the randomness of questions, and timely and effectively answered the patients' questions in terms of pain control, medication time, adverse reactions, and medication precautions; Using communication skills to obtain accurate and feasible information, to meet the needs of patients of acquiring pain knowledge. The results showed that the total scores of pain monitoring, treatment compliance, adverse reaction management and self-management

ability in the observation group were all higher than those in the control group ( $P < 0.05$ ). It means the effectiveness and purposefulness of telephone follow-up have been improved.

**4.2** The application of standardized follow-up glossary has improved the quality of nursing service. The results of this study showed that the satisfaction rate of 92.5% in the observation group was significantly higher than that of 37.5% in the control group. Good communication quality has a direct impact on patients' feelings and satisfaction during follow-up, which in turn affects patients' cooperation degree and success rate of telephone follow-up. In the traditional way of communication, due to the lack of professional knowledge and communication skills of follow-up nurses, they cannot effectively help patients to solve the pain issues, and the pain related symptoms cannot be timely and effectively controlled. In this study, the pain management team was established to develop a standardized follow-up glossary, with clear content items and standard answers to the specific questions, so as to make communication more quantitative, which accurately grasped the patient's pain situation, solved the patient's pain issues; Thus, to enhance the patient further painless life, painless physical and psychological goals, to improve the patient satisfaction and nursing service quality.

**4.3** The application of standardized follow-up glossary is beneficial to promote the sharing of nursing information resources. Terminology standardization refers to the use of standardization principles and methods, through the formulation of terminology standards, to achieve a certain range of terminology unity, to obtain the best order and social benefits [26]. At present, our hospital does not have a standardized nursing term system designed for the professional characteristics of telephone follow-up for cancer pain, which results in the diversification of follow-up records and information system for cancer pain, which is not conducive to standardized management and data sharing. Therefore, in view of the problems encountered in cancer pain nursing and the actual situation, according to the standard of cancer pain follow-up nursing terminology, to provide a telephone follow-up template for clinical reference, which is beneficial to optimize the follow-up process, and promote the sharing of nursing information resources.

## 5. Conclusion

In summary, this study aims to explore a standardized telephone follow-up model for patients with cancer pain. Our nursing team have developed a flow chart of standard terminology for discharge follow-up of the patients with cancer pain, which includes a range of professional advice for the patients with specific adverse reactions of analgesics and the guidance of corresponding interventions. The results show that the application of standardized telephone follow-up glossary in the follow-up management of cancer pain has an ideal effect, which improved the self-management ability of the patients and enhanced their

satisfaction with nursing services. It also improved the patients' quality of life, and facilitated their independence and self-esteem.

## Declarations

- **Ethical approval** This study has been approved by the Ethics Committee of Drug Clinical Trials of Huazhong University of Science and Technology; It has been carried out in the city of Wuhan, where located in the middle south of China, with the registration number 1900022422. The participants who have been involved in this study has signed the informed consent form before being included in the study.
- **Consent for publication** Not applicable.
- **Availability of data and materials** The data be used and analyzed during the current study are available from the corresponding authors on reasonable request.
- **Competing interests** The authors declare that they have no competing interests.
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## Tables

Table 1 Glossary of standard terms of patient telephone follow-up for pain nurses

Initiate terms	Hello! I am the pain nurse, my name is A. I am responsible for follow-up of patients with discharge pain. I would love to call you today for a simple follow-up of your current pain progression. Is it convenient for you to answer the phone now?		
	1. Unavailable- OK. I am sorry to bother you. I will call you back at the same time next week. In order to help you with managing relevant pain issues, please reserve time in advance if convenient, thank you.		
	1. Available- Do you have any new developed questions about pain controlling? Or are there any pain related questions that we can help you with?		
Basic questions	Question	Answer	
1	Are you the client Mr./Mrs./Miss B?	Yes/No	Could you please tell me the current pain progression of the client? If you don't understand, please tell me the phone number of the patient or his/her relatives, so that we can follow up, thank you!
2	What is your current analgesic treatment?	X Treatment	Do you have a dose adjustment for pain medication? Yes/No
3	Do you have a dose adjustment or change of medication for pain?	Yes/No	It is recommended that you'd better communicate with your doctor in charge before adjusting the dosage and/or changing the medicine, then adjust the dosage and/or change the medications that basing on the doctor's suggestion.
4	May I ask the medications you are currently taking?	Y1 and Y2 medications	
5	Could you tell me the dosage and the delivery route of the medication?	Y1 by oral/ Y2 by anal plug	
6	Do you take the medications regularly?	Yes/No	Aims to ensure the usage of medications' safety and effectiveness, we recommend you to take the analgesics timely and regularly for your long-term chronic pain management. Generally, people who take their medications on time can achieve effective pain relief with minimal doses; However, if the analgesic is always used irregularly, the dose may need to be increased <sup>[9]</sup> .
7	Do you have any adverse reactions after taking the analgesics?	Yes/No	Do the adverse reactions still appear recently? If the adverse reactions still exist, please contact your doctor in charge in time, so that the doctor can provide specific solutions for you.
8	The effectiveness of analgesic usage (self-pain score by using NRS)	Very efficient/Not efficient	You mentioned that the effect is not ideal, is it because of the worsened pain or the shortened duration of analgesic which less than 12 hours? Or the analgesic acting duration is less than previous times in this week?
9	Have the clients' pain scores of NRS changed? Does it affect the clients' sleep pattern?	Yes/No	If you are awakened by pain or cannot fall asleep due to the pain, this indicates that the pain score of NRS is $\geq 3$ points. You'd better contact your doctor in charge in time to adjust the appropriate dosage according to your current pain progression.
10	Do you have any new questions about the pain or do you need our help?	Yes/No	See the specific issues and responses that be illustrated below.
Complimentary close	Thank you for accepting our follow-up visit. If you have any questions about pain, please contact your competent doctor in time. Thank you!		

Adverse reactions	answers
Constipation	How is your stool condition? There are various reasons for constipation. First of all, most constipation is related to any forms of opioid analgesics, such as oxycodone and naloxone <sup>[10]</sup> . From the relevant study, there are 55% of patients who did not take oxycodone still have developed constipation. Some patients experience constipation for no apparent reason, which is also associated with a combination of other medications, illnesses, and physical conditions <sup>[11]</sup> . I recommend you to start by adjusting your diet to avoid spicy, oily and Fried foods, eat more fruits and vegetables and drink more water every day. Many patients who go through constipation will need to use laxatives <sup>[12]</sup> . I think you'd better to talk to your doctor about current condition which related to your constipation and use some laxatives on your doctor's advice.
Nausea, vomiting	First of all, you need to determine if there are other causes of such symptoms. There are many causes of nausea and vomiting. You don't need to stop taking the medicine. The symptoms like nausea and vomiting should be temporary. From the pilot study, the adverse effects of oxycodone in terms of nausea and vomiting, the ratio is as rare as 1.25%, and as the treatment progresses, the incidence of adverse reactions related to oxycodone will decrease <sup>[13]</sup> . In most patients, these symptoms usually go away by themselves within a week or so. If your symptoms of nausea and vomiting continue to be serious, you are advised to seek medical advice immediately, do not delay the interventions.
Respiratory depression	Opioid-induced respiratory depression (OIRD) can be a life-threatening lethal condition, especially when the opioid is used in combination with sedatives (such as diazepam or alcohol) <sup>[14]</sup> . Please obey the doctor's prescription, do not arbitrarily increase or reduce the dose by yourself, the analgesics cannot be break or pulverized, then, the relevant respiratory depression rare happens. If this symptom appears, seek medical services in time, any doubt, please contact your doctor to help with determining if you are in safe.
The leg swollen	Analgesic adverse reaction relates to the leg swollen belongs to the peripheral edema. Meanwhile, peripheral edema is a rare adverse reaction of oxycodone tablets <sup>[15]</sup> . based on your situation your leg swollen most probably caused by other reasons Please seek medical advice as soon as possible, under the guidance of the doctor, to determine the cause of edema and follow-up treatment.
Urinary retention	First, we recommend you better to determine if there are other causes of such symptoms; For instance, for those patients who went through previous urinary tract infections or prostatic disease further routine urine tests are needed to confirm the diagnosis. Based on your situation, we recommend you to see a doctor in time, let him to determine if there are other causes. If it's caused by oxycodone hydrochloride sustained release tablets, some physical therapy is recommended, such as the bladder massage and listening to the sound of dripping water. If these methods cannot alleviate your symptom, please seek medical service and catheterize as soon as possible.
Dizziness	You'd better try to think if the you have other causes of the condition, such as central nervous system lesions, tumor metastasis, other drugs acting on the mental system and so on. Mild dizziness may subside after a few days of opioid use <sup>[16]</sup> . It is suggested that you should pay attention to safety in your daily life. If you find your head dizziness aggravated, please seek medical service in time. In conclusion, it is not recommended to stop or change the dose at will until your doctor gives you an opinion on how to deal with it.

Question	Answer
Start to take analgesic, whether prove illness aggravates	The occurrence of pain has nothing to do with the condition and the dosage of analgesics, but mainly exists in individual differences. Women are more tolerant of pain than men [17]. It is recommended to actively treat the pain once it happens. Effective analgesia can significantly improve your quality of life, while poor analgesia can affect subsequent treatment. Thus, please follow your doctor's advice and take your medicine regularly. Under the guidance of the doctor, drugs should not be added or removed at will.
I cannot sleep. Could I change a medication?	Painless sleep is the minimum requirement for analgesia treatment. Analgesics should at least be able to make people sleep peacefully and painlessly. In addition to achieve a high-quality sleep, the ideal analgesic treatment aims to achieve a pain-free life, in order to achieve the real meaning of improving the quality of life of patients [18]. Oxycodone hydrochloride belongs to a type of morphine-controlled release tablet with a good analgesic effect. In the case, you need to follow the doctor's prescription [19]. Once you feel the medication has no effect of releasing pain on you, please tell your doctor, and alter other analgesics under your doctor's suggestion.
Could I have the analgesics only when I feel relatively painful, as having the medication regularly is a kind of waste money for me.	For variety of diseases, such as hypertension, diabetes and so on, people should have medications regularly. Aims to be safe and effective for long-term chronic pain treatment, patients must be timely, regularly use of analgesics. Generally, people who take medicine on time can achieve effective analgesic effect with only the minimum dose; In contrast, if the medicine is always used irregularly, the dosage may need to be increased. Furthermore, to follow the doctor's prescription, have the analgesics with correct dosage, route and time can significantly prevent the opioid crisis, and enhance the quality of life [20].
My liver and kidney functions are relatively unwell □ does this affect the analgesics working? Should I need to adjust the dosage in taking the X medication?	When you go to see a doctor, do you explain the liver and kidney functions to the doctor in detail? The doctor determining the treatment dose must be based on the patient's comprehensive condition; Your liver and kidney functions already have been considered in the treatment plan. If the analgesics are effective to you, we do not suggest you to adjust the dose. If you have any concerns, contact your doctor in charge please.
The medication did not work appropriately	An ineffective medical treatment can be the result of a development of medicine tolerance, in which the same dose of the medication is applied for so many times, and resulting the response gradually diminishes and the dose must be increased to produce the same response [21-22]. If your analgesic effect is not good for you, please communicate with your doctor in time and change the medication under the guidance of your doctor, but do not change or stop the medicine by yourself.
The tablet of oxycodone is too big, could I break or crush it?	The oxycodone hydrochloride tablet cannot be broke, crushed or chewed, it must be swallowed completely [23]. Medications come in many forms. It is a sustained-release tablet, which contains both ready-to-release and sustained-release components. When the pill is broken up, the slow-release portion of the medication can be released quickly, thus failing to achieve the goal of sustained and long-lasting release. In some cases, this rapid release reaction can cause the medicine concentrations in the body to rise sharply, causing drug intoxication [24]. Thus, it can only be swallowed by the whole piece.
If I take a lot of analgesics, will I addict to it?	'Addiction' is characterized by a persistent, unscrupulous desire to use drugs in order to achieve the feeling of 'euphoria'. The excessive use of oxycodone in medical practice, as well as in illegal sharing lead to a high potential of drug abuse [25]. Thus, we should strictly and rationally use the analgesics for the purpose of treating pain, under the doctor's prescription, to avoid drug addiction.

Table 2 Comparison of scores of self-management ability between the two groups

Group	Examples	Pain monitoring	Treatment compliance	Management of adverse reactions	Diet management	Total scores of self-management
Observation group	40	15.45±0.21	15.25±0.57	16.85±0.22	14.76±0.35	90.45±2.12
Control group	40	12.26±0.19	13.24±0.27	13.68±0.46	11.67±0.29	81.57±2.32
t		5.235	5.724	6.232	5.708	10.864
P		<0.05	<0.05	<0.05	<0.05	<0.05

Table 3 comparison of satisfaction between the two groups (%)

Group	Example	Very satisfied	Satisfied	general	Not satisfied	Degree of satisfaction
Observation group	40	11(27.5)	26(65.0)	3(7.5)	0(0)	92.5
Control group	40	5(12.5)	10(25.0)	14(35.0)	11(27.5)	37.5
$\chi^2$						12.275
P						<0.05

