ORIGINAL ARTICLE

Effect of Video Call Follow-up at Chulabhorn Hospital on Readmission Rates in Metastatic Cancer Patients after Palliative Care

Ruechuta Molek, MNS[1], Piyarat Limpawittayakul, MD[2], Prach Kosarussawadee, MD[3], Sujinda Kriangsamut, MPA[1], Jirada Kaewchuchuen, PhD[4], Phongthara Vichitvejpaisal, MD, PhD[5]

[1] Inpatient Department, Chulabhorn Hospital, Bangkok, Thailand; [2] Medical Oncology, Chulabhorn Hospital, Bangkok, Thailand; [3] Chulabhorn Hospital, Bangkok, Thailand; [4] Department of Foundation Nursing, Princess Agrarajakumari Faculty of Nursing, Chulabhorn Royal Academy, Bangkok, Thailand; [5] Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Metastatic cancer patients often require palliative care to alleviate symptoms and preserve quality of life. Nevertheless, unplanned hospital readmissions remain a significant concern, suggesting potential gaps in continuity of care and post-discharge support.

Objective: To evaluate the effectiveness of video call follow-up using the Chulabhorn Assessment Form in enhancing patient self-care and reducing unplanned hospital readmissions among metastatic cancer patients after palliative care.

Materials and Methods: A descriptive, prospective cohort study was conducted at Chulabhorn Hospital between July 2023 and January 2024. One hundred eighty metastatic cancer patients were enrolled. Video call follow-ups were conducted on days one, seven, and twenty-eight post-discharge to provide emotional support, assess symptoms, and encourage self-care. Variables such as distress scores and previous unplanned readmissions were analyzed using logistic regression.

Results: Patients with a history of unplanned readmissions were significantly more likely to be readmitted within 28 days, even with video call follow-up (adjusted OR 11.13, 95% CI 4.38 to 28.27, p<0.001). High distress scores, of 4 or greater, were also strongly associated with increased readmission risk (p<0.001). While video calls enabled nurses to assess patients' home environments and provide timely advice, certain high-risk patients remained vulnerable to readmission.

Conclusion: Video call follow-up using the Chulabhorn Assessment Form provides valuable insights into patients' needs and supports self-care. However, it alone is insufficient to prevent hospital readmissions in all cases. Targeted interventions for high-risk patients are essential. Nurses play a crucial role in identifying these patients and delivering individualized post-discharge care.

Keywords: Chulabhorn Assessment Form; Metastatic cancer; Palliative care; Unplanned readmissions; Video call follow-up

Received 20 October 2025 | Revised 15 January 2026 | Accepted 16 January 2026

J Med Assoc Thai 2026;109(3):208-17

Website: http://www.jmatonline.com

Cancer remains one of the leading causes of death worldwide. In 2020 alone, there were an estimated 19.3 million new cancer cases and approximately 10 million cancer-related deaths globally[1]. In Thailand, cancer has been the leading cause of mortality since 2010[2]. Despite continuous advancements in treatment modalities, mortality rates continue to rise, due to late-stage diagnoses and metastatic progression. Such progression often leads to complex complications, including pain, fatigue, nausea, weight loss, emotional distress, and depression. Patients may also experience significant concerns about their disease stage, potential treatment complications, financial burdens, and spiritual well-being[3,4].

At Chulabhorn Hospital, more than 50% of patients with metastatic cancer require palliative care to manage adverse effects resulting from chemotherapy, radiation therapy, or the disease itself. Common complications include febrile neutropenia, pleural effusion, infection, and renal dysfunction. After hospital discharge, these patients frequently face considerable challenges in managing symptoms independently, which often results in unplanned readmissions within 28 days.

Correspondence to:

Vichitvejpaisal P.

Department of Anesthesiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand.

Phone: +66-81-8384393

Email: phongthara@gmail.com

How to cite this article:

Molek R, Limpawittayakul P, Kosarussawadee P, Kriangsamut S, Kaewchuchuen J, Vichitvejpaisal P. Effect of Video Call Follow-up at Chulabhorn Hospital on Readmission Rates in Metastatic Cancer Patients after Palliative Care. J Med Assoc Thai 2026;109:208-17.

DOI: 10.35755/jmedassocthai.2026.3.03341

Patients with metastatic cancer require continuous, close monitoring to delay disease progression and maintain their quality of life[5,6]. However, comprehensive treatment plans can affect their physical, psychological, social, and financial well-being, contributing to heightened anxiety and stress. Relatives and caregivers often feel overwhelmed or guilty for being unable to provide sufficient care, partly due to limited access to appropriate and targeted resources[7,8].

To address these challenges, the inpatient department (IPD) at Chulabhorn Hospital has implemented video calls for certain patient groups post-discharge, such as those receiving home total parenteral nutrition (TPN) or patients discharged with wounds or drainage tubes. The discharged patients receive a follow-up phone call from nurses within 24 to 48 hours. However, operational barriers remain for video follow-ups, including difficulties in scheduling appointments, adding patients or primary caregivers to communication platforms, and the lack of dedicated mobile devices in some wards, resulting in staff often using personal devices. Additionally, not all patients have smartphones capable of video calls, and some live in areas with poor internet connectivity, limiting the feasibility of virtual consultations.

In the outpatient department (OPD), video calls are used selectively, particularly for patients receiving palliative care. This enables healthcare providers, especially physicians, to observe patients' real-time conditions and daily living activities, supporting more comprehensive and accurate assessments than voice calls alone can offer.

The Physical Therapy Unit similarly employs video calls for palliative care patients who have limited mobility or face challenges traveling to the hospital. These virtual sessions allow therapists to evaluate patients' functional status, such as limb mobility, and to provide personalized guidance on posture, ambulation, and home-based exercises. This approach helps improve access to rehabilitation services while reducing the physical and emotional strain associated with hospital visits.

Chulabhorn Hospital's Palliative Care services have gained international recognition, having received the European Society for Medical Oncology (ESMO) award. The hospital is also pursuing the Distinction in Palliative Care certification, underscoring its commitment to delivering high-quality, patient-centered care. Insights from this study highlight the importance of addressing logistical and technological barriers to telemedicine, supporting the potential for structured video call follow-ups to become an integral part of post-discharge care for patients with metastatic cancer.

Nurses play a pivotal role in supporting patients with metastatic cancer and their caregivers[9,10]. Through collaboration with a multidisciplinary team, nurses help ensure seamless, continuous care while promoting effective long-term self-management practices at home[11]. Patients and caregivers have reported greater confidence in managing daily life and have appreciated the opportunity to engage in follow-ups via video calls, which allow them to participate in daily activities and maintain a more positive outlook[12,13].

Efforts are underway to develop an effective follow-up care model for metastatic cancer patients post-discharge, with the goal of reducing unplanned readmissions and enhancing patient satisfaction[14]. Telemedicine has emerged as a vital tool for providing accessible and timely medical services, offering valuable guidance and support to both patients and caregivers. This enhanced collaboration with healthcare teams fosters improved self-care behaviors, reducing unplanned hospitalizations and increasing patient satisfaction[15].

Therefore, the present study aimed to evaluate the use of the Chulabhorn Assessment Form via video calls for the follow-up of metastatic cancer patients after palliative care. Specifically, it seeks to identify factors contributing to unplanned readmissions within 28 days and to assess the effectiveness of this follow-up model.

The findings of the present study are expected to provide meaningful implications for strengthening and expanding the hospital's telemedicine infrastructure, particularly in the context of follow-up care for metastatic cancer patients.

Materials and Methods

Study design and setting

A prospective observational study was conducted in the Department of Oncology at Chulabhorn Hospital. Data were collected from 180 metastatic cancer patients admitted between July 2023 and January 2024.

Study procedures

Prior to discharge, the principal investigator met individually with each patient to obtain written informed consent, explained the study's objectives, and arranged scheduled follow-up appointments via video call on day 1, 7, and 28 post-discharge. These

video calls were designed to provide individualized advice, facilitate coordination with physicians or other healthcare professionals as needed, and systematically collect information on any unplanned readmissions and their underlying causes.

Consent process

Informed consent was obtained systematically and in accordance with established ethical standards. Potential participants were identified through the Admission Unit, which is responsible for hospital bed assignments. Preliminary eligibility screening was conducted using the Hospital Information System (HIS).

Eligible patients were approached by the principal investigator or a co-investigator, who explained the study objectives, data collection procedures, duration of participation, potential benefits, and the voluntary nature of participation. Patients were informed of their right to decline participation or withdraw from the study at any time without any impact on their current or future medical care.

Participants were encouraged to ask questions, and all inquiries were addressed to ensure a clear understanding of the study. Patients who agreed to participate provided written informed consent. Demographic and clinical data were then collected, and video-call appointments were scheduled. Patient contact details were added to the LINE application, and participants were informed of the specific dates and times for their scheduled video follow-up sessions.

Inclusion and exclusion criteria

Inclusion criteria were patients diagnosed with metastatic cancer receiving palliative treatment in the inpatient ward.

Exclusion criteria were patients who could not be contacted via video call after discharge and patients who died at home before any unplanned readmission occurred.

Population

Accessible population: The accessible population comprised of patients with metastatic cancer receiving palliative care in wards of Chulabhorn Hospital. All patients had been discharged from the hospital. Approximately 180 patients were eligible for inclusion.

Sample selection: The sample was selected using purposive sampling and subsequently divided into two groups through stratified randomization. Stratification was based on factors considered likely to be associated with hospital readmission or revisits, including age, sex, educational level, insurance coverage, and length of hospital stay. Clinical factors included types of cancer, sites of metastasis, pre-existing medical conditions, comorbidities, Palliative Performance Scale (PPS) score, distress score, reason for hospitalization, and a history of rehospitalization within the previous month.

Sample size calculation

The sample size for the logistic regression analysis was determined using the rule of at least 10 outcome events per predictor variable expected to influence the likelihood of hospital readmission in the final model by Peduzzi et al. (1996)[16].

Based on hospital readmission statistics for patients with metastatic cancer at Chulabhorn Hospital, 3 out of 30 patients were readmitted, corresponding to an estimated readmission rate of 10%. To ensure an adequate number of readmission events for the planned analysis, a total sample size of 180 patients was required. This sample size was estimated to be achievable within six months of data collection and was sufficient to support univariate and subsequent multivariable analyses.

Data collection

Data variables included age, sex, marital status, caregiver information, health coverage, cancer type, sites of metastasis, underlying diseases and comorbidities, time since diagnosis, prior cancer treatments, distress score, history of unplanned readmission within 30 days, problems encountered during admission, length of hospital stay, unplanned readmission within 28 days, and whether the readmission was related to the previous hospitalization.

This structured data collection approach ensured comprehensive information was captured to facilitate detailed analysis of factors contributing to unplanned readmissions among metastatic cancer patients.

Statistical analysis

All statistical analyses were performed using STATA/MP, version 18.0 (StataCorp LLC, College Station, TX, USA). Normally distributed continuous variables are reported as mean ± standard deviation (SD), while categorical variables are presented as frequencies and percentages. Differences in continuous variables between the readmission and non-readmission groups were compared using an

independent samples t-test. Categorical variables were compared using the chi-square test or Fisher's exact test, as appropriate.

Univariate logistic regression analyses were conducted to identify potential risk factors for unplanned readmissions or revisits. Variables with a p-value less than 0.05 in the univariate analyses were entered into the multivariable logistic regression model using forward selection to identify independent predictors of unplanned readmission or revisit[17].

Study instrument

The research and data collection instrument used in this study was the Chulabhorn's Assessment of Video Call Follow-up Form.

The instrument was developed through a multi-step process. Initially, the research team adapted a patient follow-up call form that had been used in the department's continuous quality improvement (CQI) program for more than one year. This was followed by a comprehensive literature review and consultations with relevant experts, including inpatient internal medicine physicians and medical oncology specialists. In addition, three specialist nurses with expertise in cancer patient care were selected to review the instrument. Feedback from these experts was incorporated, and the final version of the assessment form was revised accordingly.

Validation of the instrument

The research instrument was validated using content validity assessment. Three experts reviewed the instrument, including one physician specializing in medical oncology, one physician specializing in inpatient and outpatient internal medicine, and one nurse specializing in oncology nursing. These experts evaluated the structural integrity, content relevance, and clarity of the assessment form. Objectivity of the instrument was also considered during the review process. The researchers collected comments and suggestions from the experts and revised the instrument accordingly before piloting it with patients. Final approval of the instrument was based on consensus agreement by at least two of the three experts.

To assess feasibility and suitability prior to full implementation, a pilot test was conducted using the Assessment of Video Call Follow-up Form with a group of 30 patients who had characteristics similar to those of the target sample. The pilot study aimed to evaluate the practicality of the instrument, identify potential problems, and inform necessary revisions before its use in the main study.

Results

During the study period, 18 participants were unable to complete follow-up via the video call system and were excluded. Additionally, three patients passed away at home within 28 days post-discharge and were also excluded from the final analysis.

Data from 180 participants were analyzed. The cohort comprised an equal number of males and females, with 90 males and 90 females, with a mean age of 65.5±13.2 years. Regarding marital status, 75% were married, 9.4% were single, and 15.5% were widowed.

Primary caregivers were most commonly the patients' children (46.1%), followed by spouses (38.7%), siblings (9.6%), parents (3.9%), and friends/others (1.7%). In terms of healthcare coverage, the majority were covered under government health schemes (46.7%), followed by universal health coverage (37.8%), state enterprise schemes (7.2%), self-payment (5.0%), and other schemes (3.3%).

The most common cancer diagnoses were bronchus and lung cancer with 24.5%, gastrointestinal cancers with 22.2%, and liver cancer with 18.3%, followed by breast cancer with 11.7%, head and neck cancers with 6.7%, gynecological cancers with 6.1%, urological cancers with 3.3%, hematological malignancies with 3.9%, and other types with 3.3%. Metastatic sites included the lung with 31.1%, bone with 29.4%, liver with 27.8%, lymph nodes with 25.6%, brain with 17.8%, and other organs with 10.6%.

Prevalent underlying conditions included hypertension with 31.7%, dyslipidemia with 29.4%, diabetes mellitus with 18.9%, heart disease with 7.8%, chronic obstructive pulmonary disease with 2.8%, cerebrovascular accident with 0.6%, and other conditions with 21.6%.

Co-morbidities observed were pleural effusion at 5.6%, ascites at 6.1%, pulmonary embolism at 5%, and superior vena cava obstruction at 2.2%.

Regarding disease duration, 40.0% of patients were diagnosed for less than one year, 41.7% for one to three years, 4.4% for three to five years, 8.9% for five to ten years, and 5% for more than ten years. Previous cancer treatments included chemotherapy in 70.6%, targeted therapy in 20.0%, surgery in 37.8%, concurrent chemoradiotherapy in 14.4%, radiotherapy in 13.9%, and others in 6.7%.

Most participants (64.4%) reported a distress

Table 1. Demographic characteristics of active participants

	Total	Metastasis cancer patients		p-value
		Non-unplanned re-admission	Unplanned re-admission	
Sex; n (%)				0.027
Male	90 (50.0)	60 (45.1)	30 (63.8)	
Female	90 (50.0)	73 (54.9)	17 (36.2)	
Age (years); mean±SD	65.5±13.1	66.1±12.8	63.9±13.9	0.340
Marital status; n (%)				0.885
Married	135 (75.0)	101 (75.9)	34 (72.3)	
Single	17 (9.4)	12 (9.1)	5 (10.6)	
Widow	28 (15.5)	20 (15.1)	8 (17.1)	
Caregiver; n (%)				0.900
Husband or wife	69 (38.7)	49 (37.1)	20 (43.5)	
Father or mother	7 (3.9)	5 (3.8)	2 (4.3)	
Child	82 (46.1)	62 (47.0)	20 (43.5)	
Brother or sister	17 (9.6)	13 (9.8)	4 (8.7)	
Friend/other	3 (1.7)	3 (2.3)	0 (0.0)	
Health coverage; n (%)				0.840
Government health coverage	84 (46.7)	60 (45.1)	24 (51.1)	
Universal health coverage	68 (37.8)	51 (38.3)	17 (36.2)	
State enterprise health coverage	13 (7.2)	9 (6.8)	4 (8.5)	
Self-paid health coverage	9 (5.0)	8 (6.0)	1 (2.1)	
Other	6 (3.3)	5 (3.8)	1 (2.1)	
Cancer type; n (%)				0.677
Bronchus and lung	44 (24.5)	34 (25.5)	10 (21.3)	
Gastrointestinal	40 (22.2)	31 (23.3)	9 (19.1)	
Liver	33 (18.3)	20 (15.1)	13 (27.6)	
Breast	21 (11.7)	17 (12.8)	4 (8.5)	
Head and neck	12 (6.7)	9 (6.8)	3 (6.4)	
Gynecological	11 (6.1)	9 (6.8)	2 (4.3)	
Urological	6 (3.3)	5 (3.7)	1 (2.1)	
Hematological	7 (3.9)	4 (3.0)	3 (6.4)	
Other	6 (3.3)	4 (3.0)	2 (4.3)	
Organ metastasis; n (%)				
Liver	50 (27.8)	40 (30.1)	10 (21.3)	0.247
Lung	56 (31.1)	41 (30.8)	15 (31.9)	1.000
Bone	53 (29.4)	41 (30.8)	12 (25.5)	0.494
Brain	32 (17.8)	27 (20.3)	5 (10.6)	0.136
Lymph node	46 (25.6)	35 (26.3)	11 (23.4)	0.694
Other	19 (10.6)	14 (10.5)	5 (10.6)	0.983
Underlying diseases; n (%)				
Diabetes mellites (DM)	34 (18.9)	19 (14.3)	15 (31.9)	0.008
Hypertension	57 (31.7)	41 (30.8)	16 (34.0)	0.684
Heart disease	14 (7.8)	8 (6.0)	6 (12.8)	0.201
Chronic obstructive pulmonary disease (COPD)	5 (2.8)	4 (3.0)	1 (2.1)	1.000
Old cerebrovascular accident (CVA)	1 (0.6)	1 (0.8)	0 (0.0)	1.000
Dyslipidemia (DLP)	53 (29.4)	40 (30.1)	13 (27.7)	0.775
Other	39 (21.6)	32 (24.1)	7 (14.9)	0.190
Co-morbidities; n (%)				0.012
No	129 (71.7)	102 (76.7)	27 (57.5)	
Yes	51 (28.3)	31 (23.3)	20 (42.5)	
Pulmonary emboli; n (%)				0.243
No	171 (95.0)	128 (96.2)	43 (91.5)	
Yes	9 (5.0)	5 (3.8)	4 (8.5)	
Superior vena cava (SVC) obstruction; n (%)				0.280
No	176 (97.8)	131 (98.5)	45 (95.7)	
Yes	4 (2.2)	2 (1.5)	2 (4.3)	
Ascites; n (%)				0.037
No	169 (93.9)	128 (96.2)	41 (87.2)	
Yes	11 (6.1)	5 (3.8)	6 (12.7)	

SD=standard deviation

Table 1. (continued)

	Total	Metastasis cancer patients		p-value
		Non-unplanned re-admission	Unplanned re-admission	
Pleural effusion; n (%)				
No	170 (94.4)	124 (93.2)	46 (97.9)	
Yes	10 (5.6)	9 (6.7)	1 (2.1)	
Time diagnosis until now; n (%)				0.158
<1 year	72 (40.0)	49 (36.8)	23 (48.9)	
1 to 3 years	75 (41.7)	58 (43.6)	17 (36.2)	
3 to 5 years	8 (4.4)	8 (6.0)	0 (0.0)	
5 to 10 years	16 (8.9)	13 (9.8)	3 (6.4)	
≥10 years	9 (5.0)	5 (3.8)	4 (8.5)	
Previous cancer treatment; n (%)				0.916
No	16 (8.9)	12 (9.0)	4 (8.5)	
Yes	164 (91.1)	121 (91.0)	43 (91.5)	
• Chemotherapy	127 (70.6)	91 (68.4)	36 (76.6)	0.291
• Concurrent chemoradiotherapy	26 (14.4)	18 (13.5)	8 (17.0)	0.559
• Targeted therapy	36 (20.0)	29 (21.8)	7 (14.9)	0.309
• Surgery	68 (37.8)	56 (42.1)	12 (25.5)	0.044
• Radiotherapy	25 (13.9)	19 (14.3)	6 (12.8)	0.796
• Other	12 (6.7)	6 (4.5)	6 (12.8)	0.082
Distress score; n (%)				<0.001
<4	116 (64.4)	98 (73.7)	18 (38.3)	
≥4	64 (35.6)	35 (26.3)	29 (61.7)	
History of unplanned re-admit within 30 days; n (%)				<0.001
No	144 (80.0)	122 (91.7)	22 (46.8)	
Yes	36 (20.0)	11 (8.3)	25 (53.2)	
Problems of this admission; n (%)				
Fever	52 (28.9)	39 (29.3)	13 (27.7)	0.829
Sepsis	47 (26.1)	31 (23.3)	16 (34.0)	0.150
Chemotherapy side effects	16 (8.9)	12 (9.0)	4 (8.5)	1.000
Pain	9 (5)	7 (5.3)	2 (4.3)	1.000
Dyspnea	41 (22.8)	26 (19.5)	15 (31.9)	0.082
Neurological deficit	22 (12.2)	16 (12.0)	6 (12.8)	0.895
Malnutrition	3 (1.7)	2 (1.5)	1 (2.1)	0.261
Abnormal labs	42 (23.3)	30 (22.6)	12 (25.5)	0.678
Pleurodesis	12 (6.7)	10 (7.5)	2 (4.3)	0.734
Gastrointestinal-bleeding	8 (4.4)	6 (4.5)	2 (4.3)	1.000
Febrile neutropenia	2 (1.1)	2 (1.5)	0 (0.0)	1.000
Acute kidney injury	6 (3.3)	4 (3.1)	2 (4.3)	0.652
Other	41 (22.8)	30 (22.6)	11 (23.4)	1.000
Length of stay; n (%)				0.040
1 to 3 days	26 (14.5)	24 (18.2)	2 (4.3)	
4 to 7 days	75 (41.9)	58 (43.9)	17 (36.2)	
8 to 10 days	28 (15.6)	20 (15.2)	8 (17.0)	
11 to 14 days	30 (16.8)	18 (13.6)	12 (25.5)	
15 to 30 days	18 (10.1)	11 (8.3)	7 (14.9)	
>30 days	2 (1.1)	1 (0.8)	1 (2.1)	
Unplaned readmission; n (%)				
Mean±SD (days)	11.5±7.8	0	11.5±7.8	
1 to 7 days	13 (28.9)	0 (0.0)	13 (28.9)	
8 to 14 days	17 (37.8)	0 (0.0)	17 (37.8)	
15 to 28 days	15 (33.3)	0 (0.0)	15 (33.3)	
Unplanned readmission associated with the previous admission; n (%)				
No	17 (37.8)	0 (0.0)	17 (37.8)	
Yes	28 (62.2)	0 (0.0)	28 (62.2)	

SD=standard deviation

Table 2. Significant predictors of unplanned re-admissions within 28 days

	Univariable		Multivariable	
	Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Sex: female	0.47 (0.23 to 0.92)	0.027	0.47 (0.20 to 1.09)	0.077
Underlying diseases: diabetes mellites (DM)	2.81 (1.29 to 6.15)	0.008	1.62 (0.58 to 4.50)	0.355
Co-morbidities: liver disease	3.75 (1.09 to 12.92)	0.037	1.41 (0.28 to 7.02)	0.673
Previous cancer treatment: surgery	0.47 (0.22 to 0.99)	0.044	0.62 (0.25 to 1.54)	0.300
Distress score: ≥4	4.51 (2.23 to 9.12)	<0.001	3.76 (1.61 to 8.78)	0.002
History of unplanned re-admission within 30 days	12.60 (5.43 to 29.25)	<0.001	11.13 (4.38 to 28.27)	<0.001

OR=odds ratio; CI=confidence interval
Adjusted for co-morbidities (yes/no)

score below 4, while 35.6% had a score of 4 or greater. Unplanned readmissions within 30 days occurred in 20% of patients. Common reasons for readmission included fever in 28.9%, sepsis in 26.1%, dyspnea in 22.8%, abnormal laboratory results in 23.3%, chemotherapy-related side effects in 8.9%, neurological deficits in 12.2%, pain in 5%, pleurodesis in 6.7%, gastrointestinal bleeding in 4.4%, acute kidney injury in 3.3%, malnutrition in 1.7%, and other causes in 22.8%.

The length of hospital stay varied with 1 to 3 days in 14.5%, 4 to 7 days in 41.9%, 8 to 10 days in 15.6%, 11 to 14 days in 16.8%, 15 to 30 days in 10.1%, and more than 30 days in 1.1%.

Among the 47 patients who experienced an unplanned readmission within 28 days, the timing of readmission was 1 to 7 days in 28.9%, 8 to 14 days in 37.8%, and 15 to 28 days in 33.3%, with an average time to readmission of 11.5±7.8 days. In 62.2% of these cases, the cause of readmission was related to the clinical problem documented during the most recent hospital admission (Table 1).

In the univariate and multivariable regression analyses, a distress score of 4 or higher was identified as a significant predictor of unplanned readmission (adjusted OR 3.76, 95% CI 1.61 to 8.78, p=0.002). Additionally, the history of unplanned readmission within the preceding 30 days was strongly associated with subsequent readmissions (adjusted OR 11.13, 95% CI 4.38 to 28.27, p<0.001) (Table 2).

Discussion

The present study revealed that 47 patients (26.1%) experienced unplanned readmissions within 28 days. This finding aligns with incidence rates reported by Manzano et al., Solomon et al., and Guven et al., who found rates of 22.6%, 24.5%, and 22.7%, respectively[18-20]. However, the present study rate contrasts with the higher incidence of 46.2% reported by Zumbrunn et al.[21].

Additionally, the present study identified seven factors associated with unplanned readmissions. Female accounted for 58% of unplanned readmissions, consistent with findings by Burhenn et al.[22] but contrasting with Zumbrunn et al., who reported a higher incidence in male[21]. The present study results support those of Burhenn et al., Zhan et al., Bell et al., MiriMoghaddam et al., and Zhu et al.[22-26], who found significant associations between co-morbidities and readmission rates. In contrast, Zumbrunn et al. argued that co-morbidities did not play a significant role[21].

Conditions such as diabetes mellitus were prevalent among readmitted patients, in agreement with Bur et al. and Zhu et al.; however, Liuu et al. did not observe this correlation[26-28]. The present study findings are consistent with Donze et al. and other researchers, who reported liver disease as a factor contributing to higher readmission rates[29]. Consistent with James et al. and Schairer et al., the present study suggests that previous cancer surgeries, often associated with tumor cell dissemination, contribute to increased readmission risk[30,31].

A higher distress score of 4 or more was associated with greater risk of unplanned readmission due to poor physical symptom management, as supported by Johnson et al., Lage et al., and others[32,33]. An important consideration is whether the timing of distress score assessment should be adjusted. While it is currently evaluated at admission, assessing distress closer to discharge, and not necessarily by the palliative care team, may provide more relevant insights for discharge planning in real-world practice.

A recent history of unplanned readmission within 30 days was associated with widespread disease progression, complex management issues, and challenges in defining appropriate discharge criteria. In patients with metastatic disease, premature discharge may increase the risk of complications and

symptom burden, resulting in higher readmission rates[34].

Multivariable analysis further highlighted that a distress score of 4 or more and recent unplanned readmissions, particularly due to fever, sepsis, dyspnea, neurological deficits, and abnormal laboratory results, were significant predictors of subsequent readmissions. Patients with metastatic disease are especially vulnerable to infections, including nosocomial infections, which underscores the need for vigilant follow-up[34].

Limitation

The study was conducted in a single center, which may limit the generalizability of the findings to other settings. Some patients did not have access to the Line application, which restricted their participation in video-based follow-ups. However, standard telephone follow-up calls were provided by ward nurses. Finally, poor internet connectivity in certain areas affected the clarity and reliability of video calls, potentially influencing patient monitoring.

Conclusion

Integrating telemedicine with a multidisciplinary approach by nurses and healthcare teams is essential for managing metastatic cancer patients after discharge. This approach ensures continuous care, reduces unplanned readmissions, and enhances the quality of life for patients and their caregivers.

In the present study of 180 metastatic cancer patients, 47 patients (26.1%) experienced unplanned readmissions within 28 days of discharge. Significant predictors included a distress score of 4 or higher and a history of unplanned readmissions within the preceding 30 days. Proactive identification of high-risk patients and targeted interventions can play a pivotal role in minimizing preventable readmissions.

What is already known about this topic?

Unplanned readmissions are common among metastatic cancer patients receiving palliative care, reflecting the challenges of managing complex symptoms and co-morbidities after discharge. Telemedicine, including video call follow-ups, has been shown to enhance patient monitoring, emotional support, and self-care in various patient populations, but evidence specific to metastatic cancer patients is still limited.

What does this study add?

This study demonstrates that structured video call follow-ups using the Chulabhorn Assessment Form can help nurses assess patients' home environments, provide timely support, and promote self-care after discharge. However, it highlights that patients with high distress scores or a recent history of readmissions remain at high risk despite follow-ups, emphasizing the need for targeted strategies and a multidisciplinary approach to reduce preventable readmissions in this vulnerable group.

Acknowledgement

The authors would like to thank all the patients and nurses at Chulabhorn Hospital for their assistance in data collection.

Authors' contributions

RM contributed to the conception and design of the study, acquisition of data, data analysis, and interpretation, drafting of the manuscript, and final approval of the version to be published. PL and PK contributed to acquisition of clinical data, data analysis and interpretation, and critical revision of the manuscript. SK contributed to statistical analysis, data interpretation, and critical revision of the manuscript. JK and PV contributed to data acquisition, data interpretation, and manuscript revision. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work.

Data availability statement

Accessed and compiled data from the Chulabhorn Hospital Information System for analysis.

Ethics approval and consent to participate

The present study was approved by the Chulabhorn Institutional Review Board (CIRB 038/2023).

Clinical trial registration

The present study was registered with the Thai Clinical Trials Registry (TCTR20230912003).

Use of artificial intelligence

Utilizing artificial intelligence (Gemini) to validate grammatical structures.

Conflicts of interest

The authors declare no conflict of interest.

References

1. Xia Z, Wang J, Xia J, Wang M, Cheng Z. Inequality

in accessibility of proton therapy for cancers and its economic determinants: A cross-sectional study. Front Oncol 2022;12:876368. doi: 10.3389/fonc.2022.876368.
2. Insamran W, Sangrajrang S. National cancer control program of Thailand. Asian Pac J Cancer Prev 2020;21:577-82.
3. Crosby D, Bhatia S, Brindle KM, Coussens LM, Dive C, Emberton M, et al. Early detection of cancer. Science 2022;375:eaay9040. doi: 10.1126/science.aay9040.
4. Caruso R, Nanni MG, Riba MB, Sabato S, Grassi L. The burden of psychosocial morbidity related to cancer: patient and family issues. Int Rev Psychiatry 2017;29:389-402.
5. Nayak MG, George A, Vidyasagar MS, Mathew S, Nayak S, Nayak BS, et al. Quality of life among cancer patients. Indian J Palliat Care 2017;23:445-50.
6. Moghaddam N, Coxon H, Nabarro S, Hardy B, Cox K. Unmet care needs in people living with advanced cancer: a systematic review. Support Care Cancer 2016;24:3609-22.
7. Mohamed Hussin NA, Mohd Sabri NS. A qualitative exploration of the dynamics of guilt experience in family cancer caregivers. Support Care Cancer 2023;31:659. doi: 10.1007/s00520-023-08060-3.
8. LeSeure P, Chongkham-Ang S. The experience of caregivers living with cancer patients: A systematic review and meta-synthesis. J Pers Med 2015;5:406-39.
9. Clayton MF, Hulett J, Kaur K, Reblin M, Wilson A, Ellington L. Nursing support of home hospice caregivers on the day of patient death. Oncol Nurs Forum 2017;44:457-64.
10. Kajiwara K, Kobayashi M, Morikawa M, Kanno Y, Nakano K, Matsuda Y, et al. Nursing support for caregiver burden in family caregivers of patients with cancer: A scoping review. Am J Hosp Palliat Care 2024;41:1184-94.
11. Elizondo Rodriguez N, Ambrosio L, La Rosa-Salas V, Domingo-Osle M, Garcia-Vivar C. Role of the nurse in the design, delivery, monitoring and coordination of cancer survivorship care plans: An integrative review. J Adv Nurs 2022;78:48-62.
12. Weller S. Using internet video calls in qualitative (longitudinal) interviews: some implications for rapport. Int J Soc Res Methodol 2017;20:613-25.
13. Tucker S, Abbott L, Anderson R, Eppen K, Laroche H, Paelmo E, et al. Implementing follow-along physical activity videos with people living with chronic conditions: A feasibility study. Worldviews Evid Based Nurs 2019;16:352-61.
14. Jayakody A, Bryant J, Carey M, Hobden B, Dodd N, Sanson-Fisher R. Effectiveness of interventions utilising telephone follow up in reducing hospital readmission within 30 days for individuals with chronic disease: a systematic review. BMC Health Serv Res 2016;16:403. doi: 10.1186/s12913-016-1650-9.
15. Yang X, Li X, Jiang S, Yu X. Effects of telemedicine on informal caregivers of patients in palliative care: Systematic review and meta-analysis. JMIR Mhealth Uhealth 2024;12:e54244.
16. Peduzzi P, Concato J, Kemper E, Holford TR, Feinstein AR. A simulation study of the number of events per variable in logistic regression analysis. J Clin Epidemiol 1996;49:1373-9.
17. van Smeden M, de Groot JA, Moons KG, Collins GS, Altman DG, Eijkemans MJ, et al. No rationale for 1 variable per 10 events criterion for binary logistic regression analysis. BMC Med Res Methodol 2016;16:163. doi: 10.1186/s12874-016-0267-3.
18. Manzano JG, Gadiraju S, Hiremath A, Lin HY, Farroni J, Halm J. Unplanned 30-day readmissions in a general internal medicine hospitalist service at a comprehensive cancer center. J Oncol Pract 2015;11:410-5.
19. Solomon R, Egorova N, Adelson K, Smith CB, Franco R, Bickell NA. Thirty-day readmissions in patients with metastatic cancer: Room for improvement? J Oncol Pract 2019;15:e410-9.
20. Guven DC, Ceylan F, Cakir IY, Cesmeci E, Sayinalp B, Yesilyurt B, et al. Evaluation of early unplanned readmissions and predisposing factors in an oncology clinic. Support Care Cancer 2021;29:4159-64.
21. Zumbrunn A, Bachmann N, Bayer-Oglesby L, Joerg R. Social disparities in unplanned 30-day readmission rates after hospital discharge in patients with chronic health conditions: A retrospective cohort study using patient level hospital administrative data linked to the population census in Switzerland. PLoS One 2022;17:e0273342.
22. Burhenn P, Sun CL, Scher KS, Hsu J, Pandya P, Chui CY, et al. Predictors of hospital readmission among older adults with cancer. J Geriatr Oncol 2020;11:1108-14.
23. Zhan KY, Graboyes EM, Nguyen SA, Day TA. Risk factors associated with unplanned readmission in patients undergoing parotid cancer surgery: A study of the national cancer database. JAMA Otolaryngol Head Neck Surg 2016;142:544-50.
24. Bell JF, Whitney RL, Reed SC, Poghosyan H, Lash RS, Kim KK, et al. Systematic review of hospital readmissions among patients with cancer in the United States. Oncol Nurs Forum 2017;44:176-91.
25. MiriMoghaddam M, Bohlouli B, Lai H, Viegas S, Amin M. Trends and predictors of unplanned hospitalization among oral and oropharyngeal cancer patients; an 8-year population-based study. Oral Oncol 2024;151:106742. doi: 10.1016/j.oraloncology.2024.106742.
26. Zhu D, Ding R, Ma Y, Chen Z, Shi X, He P. Comorbidity in lung cancer patients and its association with hospital readmission and fatality in China. BMC Cancer 2021;21:557. doi: 10.1186/s12885-021-08272-y.
27. Bur AM, Brant JA, Mulvey CL, Nicolli EA, Brody

RM, Fischer JP, et al. Association of clinical risk factors and postoperative complications with unplanned hospital readmission after head and neck cancer surgery. JAMA Otolaryngol Head Neck Surg 2016;142:1184-90.
28. Liuu E, Saulnier PJ, Gand E, Ragot S, Valero S, Jamet A, et al. Frailty and diabetes status in older patients with cancer: impact on mortality in the ANCRAGE cohort. Aging Clin Exp Res 2020;32:1809-19.
29. Donzé JD, Lipsitz S, Schnipper JL. Risk factors and patterns of potentially avoidable readmission in patients with cancer. J Oncol Pract 2017;13:e68-76.
30. James TA, Kasumova G, Alapati A, Mamtani A. Unplanned readmissions following breast cancer surgery. Am J Surg 2019;218:988-92.
31. Schairer WW, Carrer A, Sing DC, Chou D, Mummaneni PV, Hu SS, et al. Hospital readmission rates after surgical treatment of primary and metastatic tumors of the spine. Spine (Phila Pa 1976) 2014;39:1801-8.
32. Johnson PC, Xiao Y, Wong RL, D'Arpino S, Moran SMC, Lage DE, et al. Potentially avoidable hospital readmissions in patients with advanced cancer. J Oncol Pract 2019;15:e420-7.
33. Lage DE, El-Jawahri A, Fuh CX, Newcomb RA, Jackson VA, Ryan DP, et al. Functional impairment, symptom burden, and clinical outcomes among hospitalized patients with advanced cancer. J Natl Compr Canc Netw 2020;18:747-54.
34. Granda-Cameron C, Behta M, Hovinga M, Rundio A, Mintzer D. Risk factors associated with unplanned hospital readmissions in adults with cancer. Oncol Nurs Forum 2015;42:E257-68.