

# Interdisciplinary Rounds on a Hospitalist Service



1.5  
Contact  
Hours

## *Impact on Palliative Care Measures, Quality, and Utilization Outcomes*

Catherine V. Smith, DNP, RN, CCNS, CCRN; Ralitsa S. Maduro, PhD;  
Merri K. Morgan, DNP, RN, CCRN; Patricia Ver Schneider;  
Carolyn M. Rutledge, PhD, FNP-BC; Kathie S. Zimbardo, PhD, RN

### ABSTRACT

**Background:** Despite growth in service availability, palliative care (PC) referrals are often underutilized or delayed, which may compromise patient outcomes.

**Local Problem:** Underutilized or delayed PC referrals among hospitalized adults prompted this project aimed at improving PC measures, quality, and utilization outcomes.

**Methods:** Data extracted from the electronic medical record were used to identify needed improvements in PC.

**Intervention:** Interdisciplinary rounds (IDRs) were implemented on the hospitalist service in a nonintensive care setting.

**Results:** Following implementation, median time to PC referral decreased by 2 days. Length of stay (LOS), direct cost, and 30-day mortality also decreased. Postintervention patients were more likely to transition home compared with another facility.

**Conclusions:** Results support IDRs as a mechanism to improve time to PC referral, decrease LOS, direct cost, and 30-day mortality among hospitalized adults. A more objective method of identifying patients with unmet PC needs may be warranted.

**Keywords:** hospitalists, interdisciplinary rounds, palliative care, palliative care referral, referral and consultation

Palliative care (PC) is a clinical specialty that has emerged to improve coordination of care and quality of life for patients with serious, complex, and potentially life-limiting illnesses such as metastatic cancer, chronic obstructive pulmonary disease, and dementia.<sup>1</sup> The World Health Organization Global Health Estimates indicates an estimated 20 million people annually require PC services.<sup>2</sup> In the

Americas, the rate for adults in need of PC at end of life ranges between 353 and 366 per 100 000, with the greatest need among adults with progressive, nonmalignant, and non-communicable diseases followed by cancer.<sup>2</sup> Despite PC's prominence as an essential aspect of comprehensive health care, it is still widely acknowledged that most people worldwide face inadequate access to PC services.<sup>2</sup>

The availability of PC as a consultative service in acute care hospitals has increased rapidly over the past decade.<sup>3</sup> Despite significant growth in service availability, PC referrals are often underutilized or delayed.<sup>4</sup> Service delays may compromise quality outcomes (eg, inpatient mortality and care transitions) and utilization outcomes (eg, length of stay [LOS], readmission rates, and direct cost). It is unknown whether interdisciplinary rounds (IDRs), designed to improve care coordination, will increase the uptake of PC services and improve quality and utilization outcomes for adult patients on a hospitalist service in a nonintensive care unit (ICU) setting.

**Author Affiliations:** Nursing Administration, Sentara Williamsburg Regional Medical Center, Williamsburg, Virginia (Dr Smith); Quality Research Institute, Sentara Healthcare, Virginia Beach, Virginia (Drs Maduro, Morgan, and Zimbardo and Ms Schneider); and School of Nursing, Old Dominion University, Norfolk, Virginia (Dr Rutledge).

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**Correspondence:** Catherine V. Smith, DNP, RN, CCNS, CCRN, SWRMC Nursing Administration, 100 Sentara Circle, Williamsburg, VA 23188 ([cvsmith2@sentara.com](mailto:cvsmith2@sentara.com)).

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## LITERATURE REVIEW

A systematic search of the Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE, and the Cochrane Library databases was conducted using the key words interdisciplinary rounds, multidisciplinary rounds, palliative care, referrals, and patient outcomes. Due to a paucity of literature specifically examining the impact of IDRs on referral and consultation rates in non-ICU settings, the literature review was expanded to include articles published since 2000.

According to the Institute for Healthcare Improvement, IDRs, also referred to as multidisciplinary rounds, represent a structured gathering of interdisciplinary team members to discuss patient care in real time.<sup>5</sup> IDRs provide a forum where interdisciplinary team members offer their unique expertise, identify care priorities, and collaboratively establish patient-centered goals.<sup>5</sup> Numerous studies in a variety of acute care settings report improvements in perceived teamwork, interdisciplinary communication, and collaboration following implementation of IDRs.<sup>6-10</sup>

In addition to teamwork and collaboration, IDR studies frequently examine the impact of rounds on patient outcomes including LOS, cost, and complications. A systematic review of published reports on IDRs conducted on hospitalized patients on general medical units identified several high-quality studies reporting statistically significant reductions in LOS following implementation of IDRs.<sup>11</sup> To a lesser extent, decreases in hospital cost, adverse events, and mortality were reported. Significant reductions in LOS<sup>12</sup> and 30-day mortality<sup>13</sup> have also been reported following IDR implementation in specialty units such as oncology and ICUs.

The impact of IDRs on referral and consultation rates has not been widely studied and very few studies specifically target PC referrals. One study conducted nearly 2 decades ago suggested that IDRs may positively affect referral and consultation rates.<sup>14</sup> In addition to increased communication and earlier identification of clinical issues, IDRs positively affected several outcomes including consultation and referrals but the finding was not specific to PC referrals.<sup>14</sup> More recently, the impact of rounding on PC service measures has been studied in ICU settings. Daily pre-rounds by members of the PC and ICU team

to identify patients who may benefit from PC services resulted in a significant increase in the number of PC consults for patients at risk for poor outcomes.<sup>15</sup> Furthermore, the effect of a proactive PC rounding intervention (ie, PC clinician joined the ICU team on daily rounds) led to earlier and more frequent interdisciplinary family meetings and a significantly shorter overall hospital LOS.<sup>16</sup>

The impact of IDRs on PC service measures for adult patients on a hospitalist service is unclear. In today's complex health care environment, collaboration and teamwork are critical for providing high-quality care that aligns with patient goals. Input from all team members is especially important in complex clinical situations such as end-of-life decisions.<sup>17</sup> IDRs are an example of an intervention that clinicians can employ to enhance teamwork, collaboration, and contribute to quality decisions.<sup>17,18</sup>

## PURPOSE

The purpose of this quality improvement (QI) project was 2-fold: (1) improve PC service measures (PC referral rate and time to PC referral) and (2) improve patient outcomes (LOS, direct cost, transition of care, 30-day mortality) for hospitalized adult patients following implementation of IDRs on a hospitalist service in a non-ICU setting.

## METHODS

### Context

This project was conducted in a non-ICU setting (eg, medical, surgical, telemetry, and progressive care units) on the hospitalist service at a 145-bed, acute care, community medical center in southeast Virginia. The hospital offers a broad range of medical and surgical services under a patient-centric care model. Most general medical patients are admitted to the hospitalist service with consultation provided by specialists upon request.

The IDRs were initially implemented in January 2014. IDRs underwent modifications early in the process and became fully operational and stable by the end of the first year. Therefore, 2014 served as a transition period between the pre-IDR and post-IDR groups.

Data were collected via the electronic medical record (EMR). Pre-IDR data were collected between October 2012 and December 2013, with

post-IDR data between January 2015 and March 2016. Patients admitted to a service other than the hospitalist were excluded because IDRs were not conducted. Patients were also excluded if they spent any time in the ICU as they would have experienced a separate and distinct IDR process. The weekday-only rounding model captured 93% of inpatient admissions to the hospitalist service during the study period. Lastly, patients admitted Friday through Sunday with an LOS of 2 days or less (7%) were excluded, as IDRs only took place Monday through Friday.

The project was approved by the local institutional review board (IRB) as exempt. A waiver of informed consent was granted by the IRB. All data were deidentified by an information analyst prior to electronic transfer into a password-protected database for analysis.

A convenience sample of 800 acutely-ill, hospitalized adults randomly selected from the total eligible population was used in the project. Patients 18 years or older admitted to and transitioned from a non-ICU setting on the hospitalist service were included. Actual age was reported up to 89 years, and participants greater than 89 years of age were grouped into a 90-year and older category as required by the IRB. In the pre-IDR group, 8.8% were 90-year and older compared with 9.8% in the post-IDR group; these patients were excluded before calculating the mean age but included in all other analyses.

## Intervention

The acute care clinical nurse specialist (CNS) served as the organizational leader for the design and implementation of IDRs. Preimplementation CNS activities included identification of IDR participants and pertinent patient information to be presented based on IDR purpose and targeted outcomes (eg, PC referral rate and time to PC referral).

IDRs included a structured gathering of interdisciplinary team members for the purpose of patient case review, goal-setting, and care planning. IDRs were conducted Monday through Friday at 8:30 AM in a central location and well-attended by interdisciplinary team members in addition to the hospitalists on duty for the day. Interdisciplinary team members who regularly attended IDRs included the acute care CNS; a nurse representative and care coordinator from each of the 4 inpatient units; 2 clinical pharmacists; a dieti-

tian; a team coordinator representing rehabilitation services (eg, physical therapy, occupational therapy, and speech therapy); 2 licensed clinical social workers; a baccalaureate-prepared, certified PC nurse; a home care liaison; a hospice liaison; and a chaplain. There were up to 5 hospitalists on duty each day, depending on the hospital daily census, which ranged between 70 and 110 patients. Each hospitalist attended IDRs at approximately 10-minute intervals to present each patient on their service. The hospitalist's presentation included an overview of the patient's current hospitalization, medical plan of care, and discharge/transition plan.

As the hospitalist presented each patient, the CNS simultaneously reviewed the patient's EMR and shared relevant information and updates (eg, consult notes, current orders, and diagnostic test results) as indicated. Following the hospitalist's presentation, interdisciplinary team members contributed information based on their assessment and interactions with the patient, individual expertise, and scope of practice. The team collaboratively established a plan for each patient with consideration given to patient's individual preferences and personal goals. In cases where the plan of care included a recommendation to initiate a PC referral, the PC nurse was present and accepted the referral at that time. Although no specific criteria were used during IDRs to prompt a PC referral, situations leading to suggestion for referral included patients of advanced age with multiple comorbid conditions, frequent readmissions for the same underlying disease process, or uncontrolled symptoms associated with a serious medical condition. If a PC referral was initiated, the PC nurse would meet with the patient and significant others following IDRs to establish goals of care.

## Measures

Demographic variables included gender, age at discharge, and race/ethnicity. The clinical variables pertaining to the hospitalization included the dates of admission and transition/discharge, the medical-surgical unit of admission, and principal and secondary diagnoses.

PC service measures included the rate and timeliness of PC referrals. PC referral was defined as the presence of an order for PC referral/consult in the EMR. If an order for PC referral was present, the difference in number of days

from the hospital admission date to the PC referral date served as the time to PC referral.

Quality outcome measures included inpatient mortality, transition of care status, and mortality within 30 days postdischarge. Inpatient mortality was defined as death during the hospital admission. Transition of care was defined as discharge from the hospital to home, home with home health services, home with hospice, or a postacute care facility (eg, skilled nursing facility or long-term acute care facility). Mortality 30 days after discharge was defined as patient death within 30 days of being discharged from the hospital.

Utilization outcome measures included LOS, 30-day readmissions, days to readmission, and total direct cost. LOS was defined as the number of days during the hospital admission. The readmission variable identified patients who were readmitted 30 days postdischarge. The number of days between discharge and readmission was also calculated. Total direct cost was limited to patient-related expenses.

The Charlson Comorbidity Index (CCI) and Charlson number of chronic conditions were calculated as a measure of comorbidity and illness burden.<sup>19-21</sup> The CCI was originally developed in 1987 as a method to predict risk of death associated with comorbid diseases in patients with breast cancer.<sup>19</sup> It has since been tested and modified for use in patient populations with a wide variety of illnesses and validated for its ability to predict mortality.<sup>20</sup> Test-retest reliability and interrater reliability were moderate to good.<sup>22</sup>

The CCI scores for the current project were calculated by the QI team. Up to 19 comorbid conditions were assigned a weight from 1 to 6 based on adjusted mortality risk, and the sum of all weights was used to derive a total score ranging from 0 to 37.<sup>19</sup> Higher scores indicated higher risk for mortality and higher resource utilization.<sup>21</sup>

## Data analysis

Chi-square tests of independence, independent samples *t* tests, and Mann-Whitney *U* tests were used to explore differences in outcome variables following IDR implementation. Statistical analyses were conducted using SPSS version 24 (IBM Corporation, Armonk, New York). Statistical testing was 2-sided with a significance level of  $\alpha$  set to .05.

## RESULTS

### Patient population

As shown in the Supplemental Digital Content Table (available at: <http://links.lww.com/JNCQ/A533>), the differences in patient characteristics were not statistically significant. Patients were mostly female (pre-IDR = 54.5%; post-IDR = 51.0%) and white (pre-IDR = 65.3%; post-IDR = 71.5%). Age ranged from 19 to 89 years (mean = 66.61; standard deviation = 17.07) for pre-IDR and 18 to 89 years (mean = 65.66; standard deviation = 16.28) for post-IDR. In both groups, most patients were admitted to a progressive care unit. There was no significant difference in the CCI or Charlson number of chronic conditions indicating similar illness burden among the pre- and postgroups. Therefore, there was no need to control for CCI in the analyses reported next.

### Palliative care service measures

There was no difference in PC referral rate between the pre-IDR group (9.5%) and the post-IDR group (6.3%;  $\chi^2(1) = 2.912$ ,  $P = .088$ ). Sixty-six (8.3%) patients from both the pre- and postsamples had a PC referral documented in the EMR. Of the 66 patients, 2 had extreme outlier values for time from hospital admission to PC referral. After review, it was determined that those records (ie, 1 in the pre- and 1 in the postgroup) did not belong in the distribution and were therefore removed from the analysis. The median time from hospital admission to PC referral for the pre-IDR group was longer (3.0 days) compared with the post-IDR group (1.0 day); however, that difference was not statistically significant ( $Z = -0.07$ ,  $P = .95$ ).

### Quality outcomes

Overall, 1.9% ( $n = 15$ ) of patients died during the hospital visit. There was no difference in inpatient mortality proportions between the pre-IDR group (1.5%) and the post-IDR group (2.3%;  $\chi^2(1) = 0.611$ ,  $P = .434$ ). However, there was a statistically significant difference in 30-day mortality proportions between the pre-IDR (7.4%) and post-IDR groups (3.7%;  $\chi^2(1) = 5.431$ ,  $P = .021$ ).

Approximately 94.4% ( $n = 755$ ) of patients were transitioned from the inpatient setting. Patients were significantly more likely to be transitioned home or home with home health post-IDR (81.1%) compared with pre-IDR (74.5%;

$\chi^2(1) = 4.742, P = .029$ ). There were no differences between the pre-IDR and post-IDR groups in transition to postacute care facilities (19.2% pre-IDR and 15.5% post-IDR;  $\chi^2(1) = 1.845, P = .174$ ) or hospice (6.3% pre-IDR and 3.5% post-IDR;  $\chi^2(1) = 3.287, P = .070$ ).

### Utilization outcomes

On average, patients remained in the hospital significantly longer for the pre-IDR group (median = 4.00 days) compared with the post-IDR group (median = 3.00 days;  $Z = -2.109, P = .035$ ). Likewise, direct cost was significantly higher for the pre-IDR group (median = \$2942) compared with the post-IDR group (median = \$2552;  $Z = -2.494, P = .013$ ). There were no differences between the pre-IDR and post-IDR groups in the proportion of patients readmitted within 30 days (42.5% pre-IDR and 42.3% post-IDR;  $\chi^2(1) = 0.005, P = .983$ ). Similarly, the median days to readmission for the pre-IDR group (median = 9) was not significantly different from the median days to readmission for the post-IDR group (median = 11;  $Z = -0.895, P = .371$ ). However, the proportion of readmitted patients with a PC consult for the post-IDR group was significantly less (1.2%) compared with patients without a PC consult (6.5%;  $\chi^2(1) = 6.416, P = .011$ ).

### DISCUSSION

This patient-focused, IDR improvement project demonstrates the valuable role of the CNS in leading cost-effective, QI initiatives. In this project, IDRs had the most significant impact on quality and utilization outcomes, including 30-day mortality, LOS, and direct cost. More patients in the post-IDR group were discharged home as opposed to a postacute care facility. This finding, coupled with a lower 30-day mortality rate, suggests that the transition plan established during IDRs was effective, team-based, and patient-centered. The significantly shorter LOS and lower total direct cost in the post-IDR group, without a significant difference in 30-day readmission rate, further supports collaborative goal setting and efficient care planning during IDRs.

Existing literature describes IDRs as a mechanism to improve teamwork and collaboration among interdisciplinary team members.<sup>6,18</sup> This QI initiative lends additional support to IDRs as a method to facilitate interdisciplinary collabora-

tion aimed at improving patient outcomes. The post-IDR improvement in quality and utilization outcomes contributes toward successful attainment of value-based purchasing requirements (eg, efficiency, cost reduction, and clinical care measures) and therefore has significant implications in today's economic health care climate.<sup>23</sup>

While previous literature<sup>14,17</sup> attributes an increase in consultations and referrals to a presumed increase in communication and collaboration during IDRs, the rate and timeliness of PC referrals did not increase significantly following implementation of IDRs in the current project. However, the PC referral rate in both groups was within the expected range for a hospital with an established PC program (ie, up to 10%) suggested by the Health Research and Educational Trust.<sup>3</sup> Although not significantly different in the current project, the lower median time to PC referral, 1 day in the post-IDR group as opposed to 3 days in the pre-IDR group, may be clinically meaningful in terms of patient and family experience. The lack of IDR influence on PC service metrics suggests that a more objective method of identifying patients with unmet PC needs may be warranted.

One limitation potentially impacting results is the weekday-only rounding model. Staffing models, particularly on the ancillary and PC services, did not support interdisciplinary participation over the weekend. While 93% of hospitalist admissions were captured under the weekday IDR schedule, the possibility exists that the additional 7%, who were admitted over the weekend with an LOS of 2 days or less, also could have benefit from IDRs. Future research should examine the impact of a 7-day per week rounding model. A second limitation to be considered is that the population was limited to patients admitted to 1 hospitalist service at a single community medical center. Early implementation challenges included consistent attendance by all team members and identifying the best time of day for the majority of attendants. Process revisions to address the challenges were enacted during the transition period and stabilized prior to the postintervention period.

### CONCLUSIONS

Results suggest CNS-led IDRs may be a mechanism to improve the timeliness of PC referrals in a non-ICU setting. A decrease in median time to PC referral from 3 days to 1 day following

implementation of IDRs may be clinically significant in terms of patient comfort and quality of life. Consistent with previous literature that described reductions in 30-day mortality and LOS for patients following implementation of IDRs, results of this project support IDRs as a mechanism to improve select quality and utilization outcomes among hospitalized adults in a non-ICU setting. The findings suggest opportunities within various practice settings to implement and evaluate site-specific IDRs that address population-specific priorities and target additional outcomes for improvement.

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