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QUALITY IMPROVEMENT

Interventions to Improve Advanced Practitioner Work-Related Quality of Life and Patient Satisfaction

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Authors' disclosures of conflicts of interest are found at the end of this article.

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Abstract

Background: Across the United States, an incremental need for cancer care continues to emerge. Specialty nurse practitioners and physician assistant teams have helped in meeting this demand. However, there is a need for evidence-based recommendations to inform appropriate provider-patient staffing ratios that encompass complex cancer treatments and ensure optimal care. **Methods:** A literature review identified a gap in existing research with regard to recommended inpatient provider-patient ratios for hematology and oncology services. The conceptual framework of ICU nursing workload was utilized to ensure a comprehensive understanding of an inpatient specialty cancer provider's duties. **Results:** Within the unit, job, patient, and situation workload levels, there were multiple interventions implemented to streamline systems and improve workplace conditions for providers, as measured by the work-related quality of life (WRQoL) scale. Patient satisfaction scores improved an average of 4% across multiple criteria and exceeded benchmark rankings by 10.7% surrounding communication with nurses and physicians (a 6.3% increase). Discharge efficiency improved, with 6.1% more discharges occurring by 11:00 am, and length of stay was noted to be 8.8 days fewer than teaching services treating the same cancer diagnosis. Finally, additional shift pay was greatly reduced and turnover decreased by 17%. **Conclusion:** Application of the conceptual framework of ICU nursing workload provided a scientific assessment of specialty inpatient cancer services within one institution. Interventions resulted in improved working conditions, patient satisfaction, discharge efficiency, and reduced turnover, ultimately ensuring the provision of high-quality cancer care.

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Nurse practitioners (NPs) and physician assistants (PAs) serve a critical role in the care of hospitalized patients with cancer. Given the rising demand for cancer treatments and shortage of physicians within the United States, NPs and PAs are well positioned to meet patient needs (Yang et al., 2014). As utilization of NPs and PAs in hematology/oncology increases, various staffing and leadership structures have emerged.

BACKGROUND

A 2018 career satisfaction study among PAs in oncology reported causes of burnout to be a lower percentage of time spent on direct patient care, overtime, and lack of acknowledgement for job-related contributions, as well as deficiencies in teamwork and organizational leadership (Tetzlaff et al., 2018). Establishing safe provider-patient ratios improves quality of care and mitigates burnout with subsequent turnover (Hinkel et al., 2010). Numerous studies report an association between nursing staff ratios and patient outcomes such as hospital-related mortality, length of stay (LOS), and patient safety indicators (Kane et al., 2007; Shekelle, 2013). Equivalent guidance for provider staffing is scant; however ample evidence advises burnout adversely impacts patient safety, quality of care, and patient satisfaction (Harvey et al. 2021; Dewa et al., 2017; West et al., 2018; Tawfick et al., 2018). The purpose of this 18-month quality improvement project was to inform inpatient hematology/oncology provider-patient care ratios within an academic medical center as well as address a gap in existing evidence.

METHODS

A thorough literature review was conducted with the assistance of a medical reference librarian and identified a need for additional evidence informing provider-patient staffing ratios for cancer inpatient services. Additionally, 11 cancer centers provided survey results via professional membership communication portals identifying a need for evidence-based guidance when determining appropriate provider-patient care ratios. Assessment of the hematology/oncology provider role was performed at each level of the conceptual framework of ICU nursing workload (Carayon et al., 2005). Application of this framework directed a thorough examination of patient needs and a global view of the complexity involved in caring for patients with cancer (Figure 1). The conceptual framework of ICU nursing workload was selected for this project as it guided a comprehensive assessment of the hematology/oncology provider work and allowed for differentiation when compared to other inpatient services. By organizing the duties of these providers into a relationship of causes, workload, consequences, and outcomes, leaders were able to identify opportunities to support best practices.

Prior to the implementation of an advanced practice leadership, there were no scheduled meetings or venues to discuss facilitator or barriers (Causes). At the time of implementation, NP/PA teams were divided into two inpatient teams: stem cell transplant and hematology/oncology. The hematology/oncology team consisted of three services, each with its own attending physician: benign hematology, malignant hematology, and oncology. Inconsistent with teaching services, there were no provider-patient ratios or cap for the NP/PA services. Team members reported a significant amount of time spent documenting with insufficient computer access (Workload - Unit Level). All team members worked 10-hour shifts, which

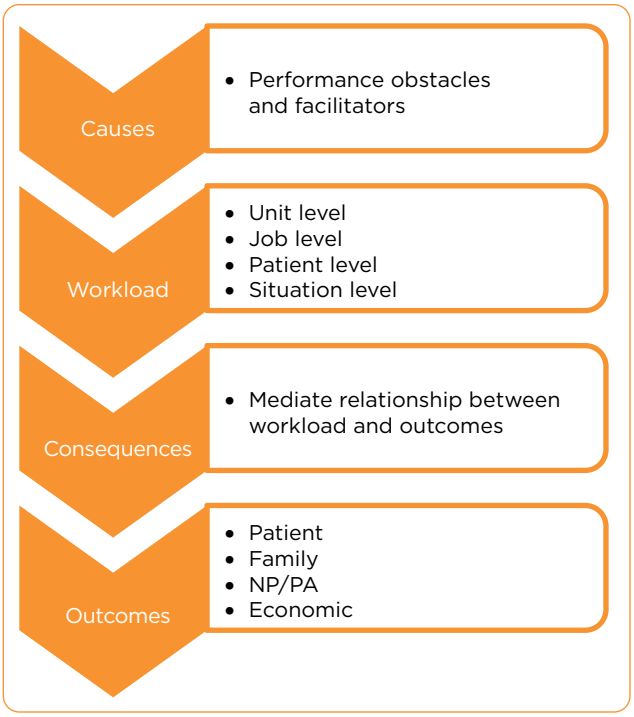

Figure 1. Conceptual framework of ICU nursing workload.

was inconsistent with the teaching oncology service (12-hour shifts). An effort was made to assign the NP/PA patients within no more than two services to facilitate communication among multiple attending physicians. Quality of work life was reported to be low (Workload - Job Level).

Given the high acuity often associated with a hematology/oncology admission, frequent provider intervention and coordination of care with consulting teams is required. Additionally, procedures such as bone marrow biopsies and intra Ommaya chemotherapy administration must be performed (Workload - Patient Level). Situationally, there was need for workroom renovations and office supplies. Additionally, team leaders were not provided administrative time to coordinate scheduling, monthly meetings, and plan agendas, or implement quality improvement projects (Workload - Situation Level).

Consequences of the above-mentioned workload resulted in teams frequently working beyond shift hours (Consequences). Overall, there was job dissatisfaction, frequent turnover, and a need for specialty orientation development. Turnover led to preceptor burnout and limited veteran providers. Patient accessibility was prevented with no established care ratios and the broad coverage of three specialties (Outcomes - Patient). Communication with family members was often a challenge and resulted in discharge delays (Outcomes - Family). Team members reported feelings of burnout and ongoing dissatisfaction as they were unable to complete their workload within a shift. Further frequent turnover prevented participation in professional development opportunities (Outcomes - NP/PA). Turnover was estimated to be an average of 18 months at a rate of 30% (Economic Outcomes). As a result, retention bonuses were paid for each year of service. Additional shift pay was necessary to maintain staffing, and there was a constant need to recruit and onboard new providers.

RESULTS

Causes

Facilitators and barriers were identified through monthly meetings with team members, advanced practice leaders, and physician leaders. Obstacles were discussed within these meetings and action items were assigned, in addition to celebrating the successes of individuals as well as the team. Opportunities identified for intervention are included in the following sections and categorized as guided by the conceptual framework of ICU nursing workload.

Workload - Unit level

In response to patient volumes and acuity, provider-patient ratios were established. As with teaching services, if patient volumes and needs exceeded caps, additional shift pay would be offered to the team, or patients would be cared for by the hospitalist team. Of note, there have only been two incidences in which the NP/PA team required hospitalist team assistance. Additional laptops were secured, and a quality improvement initiative was implemented to improve charting efficiency, which resulted in faster documentation at an average of 9 minutes per provider.

Workload - Job Level

The team voiced a desire to specialize in either hematology or oncology. Therefore, specialties were established, and expansion of services yielded four separate teams: stem cell transplant, hematology, oncology, and benign hematology (sickle cell and hemophilia). Shifts were determined by the service line and aligned with existing teaching coverage. The oncology team extended shifts to 12 hours and hematology and stem cell transplant teams continued 10-hour shifts. After implementation of the specialties, NPs/PAs reported their work-related quality of life to be predominately high (Table 1) as measured by the work-related quality of life (WRQoL) scale (Van Laar et al., 2007).

Workload - Patient Level

Specialty NP/PA teams reported improved accessibility in meeting acuity and psychological needs of the patients and family. Coordination of care and education reinforcement was conveyed as manageable and supported optimal transition of care to outpatient.

Workload - Situation Level

Office supply chains were secured through advanced practice and nursing leadership communications. Renovations were implemented to improve the workroom environment, including new flooring, expanded desk workspace, and

Table 1. Work-Related Quality of Life (WRQoL) Scale for Health-Care Workers

Percentiles	GWB	HWI	JCS	CAW	WCS	SAW	Full Scale WRQoL
Lower QoWL							
Average QoWL				10.4	11.2		
Higher QoWL	24.3	12.1	23.7			6.0	87.7

Note. n = 12, 80% survey participation. GWB = General Well Being; HWI = Home-Work Interface; JCS = Job and Career Satisfaction; CAW = Control at Work; WCS = Working Conditions; SAW = Stress at Work; QoWL = Quality of Working Life.

ergonomic chairs. Advanced practice leadership provided a forum to identify opportunities for improvement, facilitated communication across multiple disciplines, and ensured dedicated administrative time to complete identified quality improvement initiatives.

Consequences

With the expansion of advanced practice leadership, professional development was supported and encouraged. As a result, multiple initiatives were completed, including a palliative care certificate program, internal grand rounds, stem cell transplant weekly education hour, pursuit of promotion tracks, and optimized specialty onboarding.

Patient Outcomes

Review of existing satisfaction surveys established within the institution and as measured by Press Ganey surveys (2022) revealed patient satisfaction improved an average of 4%. Patient satisfaction increased related to the following care delivery questions: overall rating of care (4.0%), pain management (4.1%), and hospital rating (3.8%). Additionally, top box scores surpassed benchmark percentile rank by 10.7% regarding communication with nurses as well as physicians (6.3%).

Family Outcomes

Communication with family members of patients was greatly improved as specialty NPs/PAs reported an ability to respond faster and address questions and concerns, as well as coordinate transition of care. Meeting the needs of family members during discharge planning further facilitated morning discharges.

NP/PA Outcomes

With the interventions implemented as previously described, the NP/PA teams were able to complete their duties within allotted shifts. Further expansion of the advanced practice leadership included an inpatient manager to facilitate a meeting series and provide representation at institutional meetings.

Economic Outcomes

Stabilization of these NP/PA teams provided a significant economic benefit as turnover was reduced from 30% to 13%. Leaves were associated with out-of-state relocations rather than burnout. Retention of team members reduced additional shift pay and saved turnover expense, which was estimated to be 1.5 times an advanced practitioner's annual salary (Kapu et al., 2020). Additionally, retention incentives were no longer necessary. In relation to institutional expenses, the NP/PA teams incrementally increased morning discharges before 11:00 am from 8.0% to 14.1%, with fiscal year 2022 yielding an overall 10% higher rate than teaching teams. Analysis of LOS by diagnosis-related group further displayed NP/PA teams averaged 6.4 days, which was 8.8 fewer days than teaching services. However, the acuity for teaching services was slighter higher, as measured by case mix index (3.0 vs. 2.3).

CONCLUSIONS

Use of the conceptual framework of ICU nursing workload may be implemented by other cancer institutions to inform provider-patient staffing ratios. Application of this framework guided a comprehensive view of specialty cancer care provider duties necessary to deliver quality patient care. Stem cell transplant services included three rotations for team members, including pre-transplant coordination, outpatient clinic, and inpatient coverage. This service allows flexibility; therefore, no caps have been established. Prior to the interventions, the combined hematology/oncology team ranged

from 6 to 12 patient-provider ratios and was dependent on reports of acuity each shift. Collaboration among the NP/PA team and leadership determined provider-patient ratios should be established for the specialty hematology and oncology teams. Hematology patient-provider ratios were 6 to 8 patients per provider and oncology patient-provider ratios were 6 to 7. Experienced providers are cross-trained to assist with both specialty services on a volunteer basis. These ratios are specific to the functions and demands of one institution's volumes and acuity within a provider team comprised exclusively of NPs/PAs. Further assessments may be completed to evaluate potential interventions that would support increased provider-patient ratios with the addition of ancillary resources.

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Disclosure

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