Enhancing Oncology Side Effect Management Using a Remote Monitoring System

Taylor M. Cora, BSN, RN, Mary E. Doerner, DNP, RN, CPAN, CAPA, and Charlotte S. Connerton, EdD, RN, CNE

IV oncology treatments are associated with severe side effects (SEs) that can decrease patients' quality of life and lead to increased hospitalizations. However, improved reporting with remote monitoring systems (RMSs) may decrease patients' treatment-related SE burden and improve quality of life. For this project, participants wore the BioIntelliSense BioSticker™, a medical-grade remote monitoring device. Data on participants' heart rates, respiratory rates, and temperatures were collected and transmitted, which alerted clinicians to follow up with participants for SE management if clinical data were outside of target ranges. All project variables except for hospitalizations showed a statistically significant decrease from pre- to post-test. Of the 13 SEs evaluated, 3 showed a statistically significant decrease in severity from pre- to post-test.

AT A GLANCE
- The BioSticker can improve the reporting of oncology treatment–related SEs, leading to significant decreases in patients' SE burden.
- RMS alerts can notify clinicians of patient vital sign data to inform assessments and mobilize earlier management.
- The project's findings support using RMSs to improve patients' treatment-related SE burden and reinforce the importance of effective patient–provider communication.

An estimated 86% of patients with cancer receiving treatment report at least one side effect (SE), with an estimated 65% reporting a grade 3 or higher SE during treatment (Pearce et al., 2017; Winstead, 2022). In addition, an estimated 15% of patients report experiencing SEs that never resolve (Lee et al., 2022). The SE burden of oncolytic treatment is highly individualized and affects patients' and caregivers' overall well-being and quality of life (QOL) (Hassen et al., 2019; Mohammadzadeh Nimekari et al., 2019; Padmaja et al., 2017).

More than one-third of patients with cancer are hospitalized annually (Whitney et al., 2018). Although some hospitalizations are the result of complications from the cancer itself, others are preventable and attributable to poor management of treatment-related SEs (Whitney et al., 2018). Hospitalizations add to the already high financial burden of cancer care (Roeland et al., 2018). Evidence-based discharge programs and structured discharge checklists reduce hospital readmissions (Beaver & Magnan, 2016; Rohlfs, 2022). However, to improve the efficiency of healthcare delivery and reduce costs, strategies to prevent initial hospitalizations are needed.

Reductions in treatment-related SE burden and hospitalizations can improve QOL for patients with cancer and their caregivers (Fjell et al., 2020; Hassen et al., 2019; Lee et al., 2022; Padmaja et al., 2017). To improve QOL and potentially reduce mortality throughout treatment, patients must understand treatment-related SEs and how to manage them (Olver et al., 2018). However, many patients are incapable of monitoring SEs daily and often delay reporting SEs that require prompt management (Almohammadi et al., 2020; Maguire et al., 2021; Olver et al., 2018).

Although professional oncology organizations have established guidelines for healthcare providers (HCPs) to better manage treatment-related SEs, no gold standard for SE reporting exists (Bray et al., 2018; Hesketh et al., 2017; LeFebvre et al., 2020). HCPs rely on timely and accurate patient self-reporting in the decision-making process for dose modifications and supportive care (Batra et al., 2020; Pearce et al., 2017; Sodergren et al., 2016). By enhancing patient communication and access to resources, RNs and other HCPs can reduce hospitalizations, improve patient outcomes, and improve patients' personal health management (Almohammadi et al., 2020; Bayraktar-Ekincioglu & Kucuk, 2018; Fjell et al., 2020).

Remote monitoring systems (RMSs) are innovative technology platforms used to manage chronic diseases, monitor complex conditions, and prevent