

With an increase in the number of patients with cancer receiving treatment in the ambulatory setting, a need exists to evaluate lean approaches to provide safe, effective, and timely care delivery. Acuity-based scheduling (ABS) was implemented across the regional ambulatory care centers of a National Cancer Institute–designated comprehensive cancer center. ABS involved templates and a reconfiguration of clinical space and staff according to acuity levels. Results suggest improvement in wait times, capacity, infusion hours, chair use rate, patient visits, chair turns, average infusion length, and patient satisfaction.

**AT A GLANCE**

- Evaluating opportunities for the implementation of lean methodologies in the ambulatory oncology treatment setting is essential to consistently respond to increasing patient volumes.
- The use of ABS allows for natural delineation of patients based on the type and acuity of care they are receiving.
- ABS may result in a lean, efficient clinic environment that enhances nursing practice, patient care delivery, fiscal responsibility, and a more favorable patient and provider relationship.

**KEYWORDS**

acuity-based scheduling; regional cancer center; wait times; chemotherapy

**DIGITAL OBJECT IDENTIFIER**

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# Acuity-Based Scheduling

## Outcomes in ambulatory oncology centers

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**O**ncology care, specifically medication administration and chemotherapy infusions, have increasingly moved to the ambulatory setting. Increases in patient and procedural volumes have led to operational challenges and patient satisfaction, particularly around wait times, which are consistently reported as a contributor to patient dissatisfaction (Hendershot et al., 2005; Leddy, Kaldenberg, & Becker, 2003). The need for operational efficiency is critical to enhance financial outcomes for institutions and quality outcomes for patients. The use of lean-based approaches, including defined space for infusion services, and an acuity-based approach to ambulatory chair management, have been reported as means to enhance the efficiency and efficacy of ambulatory oncology care (Duska, Mueller, Lothamer, Pelkofski, & Novicoff, 2015; Lamm, Eckel, Daniels, & Amerine, 2015). An opportunity was identified to enhance the efficiency of infusion chair use at the regional cancer centers (RCCs) of the University of Texas MD Anderson Cancer Center, a National Cancer Institute (NCI)–designated comprehensive cancer center.

**Background**

Timeliness is one of the six aims identified by the Institute of Medicine ([IOM], 2001) for improving healthcare quality; however, it also is one of the most consistently reported concerns among patients.

Long waits create emotional distress and, in some cases, lead to harm (Leddy et al., 2003). Improving wait times for shorter chemotherapy infusions and injections has been reported to promote increased efficiency for longer treatments (Kallen, Terrell, Lewis-Patterson, & Hwang, 2012). The idea of creating a dedicated space and/or template for fast-track services is growing in popularity as patient volume increases (Ahmed, Elmekawy, & Bates, 2011; Looker et al., 2016).

The University of Texas MD Anderson Cancer Center conducted about 1.5 million ambulatory visits, treatments, and procedures in 2015, including both the main campus operations and at four RCCs. In 2015–2016, the RCCs generated 215,000 billable encounters, a growth of 9% from the previous fiscal year, and 31,000 appointments, a growth of 27% during a three-year fiscal period. With significant increases in patient volume came patient concerns about wait times.

An interdisciplinary team of nurses, administrators, and pharmacists from one of the RCCs engaged in a quality improvement project to maximize efficiency of patient scheduling and the use of chair space for different types of infusions. They identified the challenges of mixing treatment types of varying durations in one chair space and with one nursing assignment as a primary source of inefficiency, resulting in extended waiting periods for procedures lasting only minutes. The aim of this project was to increase chair use and to maximize scheduled (patient) hours per day.

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