

# Applying the SEIPS Framework to Redesign Chemotherapy Desensitization Within the Intensive Care Unit

Muriel Moyo, DNP, MS, RN, CCRN, NE-BC, Jennifer Cook, MSN, RN, CCRN, Maurice Espinoza, MSN, RN, CNS, CCRN, and Jennifer Hoff, MSN, RN, OCN®, CMSRN

Chemotherapy desensitization (CD) enables patients with allergic reactions to receive chemotherapy safely. However, ineffective workflows, delays, and communication gaps between the oncology unit and the intensive care unit can compromise patient care and satisfaction. Using the Systems Engineering Initiative for Patient Safety (SEIPS) framework, the CD workflow at an academic medical center was redesigned to facilitate interprofessional collaboration, role clarity, technology optimization, and effective communication. Fewer care delays and reported safety events were experienced postimplementation of the redesigned workflow, despite increased CD patient admissions.

## AT A GLANCE

- Evaluating inefficiencies in the healthcare system workflow using the SEIPS framework facilitates workflow redesign and targeted improvements.
- Clarifying roles, optimizing technology, communicating effectively, and collaborating interprofessionally can result in timelier care delivery.
- The nurse navigator is a central role within the CD workflow.

## KEYWORDS

chemotherapy desensitization; intensive care unit; SEIPS framework

## DIGITAL OBJECT IDENTIFIER

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Chemotherapy desensitization (CD) is recommended for patients who had previous allergic reactions to chemotherapy drugs and allows for the safe continuation of treatment (Alvarez-Cuesta et al., 2022). The goal of CD is to reduce the patient’s immune response to a cancer drug by gradually increasing doses of the drug over several hours, while closely monitoring for hypersensitivity reactions until the target dose is administered. This process enables patients to receive full doses of important cancer agents without serious complications (Alvarez-Cuesta et al., 2022). Patients who have a history of severe or life-threatening reactions, or who have no other effective treatment options, often receive CD on the intensive care unit (Herr et al., 2021; Jakel et al., 2016). However, ineffective communication among the care teams can result in inaccurate or incomplete information and misunderstandings during the CD process (Angouri et al., 2022; Lawry et al., 2021). Care team inefficiencies adversely affect patient satisfaction and increase costs and resource utilization (Alvarez-Cuesta et al., 2022; Angouri et al., 2022; Lawry et al., 2021). Missed communications and delays during CD also increase the risk of life-threatening hypersensitivity reactions (Alvarez-Cuesta et al., 2022; Lawry et al., 2021).

The University of California, Irvine, Health is a 459-bed academic medical center. CD is offered to patients with various types of cancers including cervical, ovarian, endometrial, diffuse large B-cell lymphoma, Burkitt lymphoma, squamous cell carcinoma, pancreatic adenocarcinoma, and rectosigmoid. Patients who require CD are primarily admitted to the 12-bed medical intensive care unit (MICU) and commonly receive agents such as paclitaxel, carboplatin, cisplatin and etoposide, cisplatin, oxaliplatin, or rituximab.

The initial CD workflow was multifaceted and complex. Care delivery required meticulous coordination among oncologists, allergists, intensivists, MICU nurses, acute oncology nurses, ambulatory oncology nurse navigators (ONNs), and pharmacists to ensure that procedures were safe and effective. The prearrangement of a chemotherapy-certified nurse from the acute oncology unit was also required for chemotherapy administration oversight during MICU admission.

As the number of CD admissions increased, workflow challenges emerged. Safety reports highlighted multiple patient care delays, with some delays