

Abstract

Safety of the Antineoplastic Drug Process and the Nurse's Role in the Antineoplastic Drugs Unit

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Introduction. Handling antineoplastic drugs is a highly complex and high-risk process requiring structured error-prevention barriers, traceability, and rigorous control of each operational phase. The Antineoplastic Drugs Unit represents a critical component of the therapeutic pathway because inconsistencies in prescribing, compounding, or distribution may result in potential patient harm and treatment delays. This study aimed to describe how specialist nursing competencies and multidisciplinary collaboration contribute to the safety of the antineoplastic drug process.

Methods. A descriptive organizational and process study was conducted in a high-volume service delivering approximately 30,000 preparations annually through two dedicated units. The model was based on operational integration among nurses, pharmacists, and oncologists. The workflow included electronic prescribing with safety alerts, prescription validation, and digital traceability of preparations. Nursing activities comprised initial verification of prescriptions and materials, aseptic compounding using closed-system transfer devices, documented double-checking supported by digital tools, controlled management of residual products, and final reconciliation with the pharmacist before distribution. The quality system included on-the-job training, periodic audits, microbiological monitoring, and annual media-fill simulations.

Results. The organizational model, based on multiple controls and digital traceability, supported the timely identification of inconsistencies involving prescriptions, dilutions, and compounding phases, thereby strengthening safety barriers. Standardization of critical steps and documented double-checking performed by dedicated nurses supported error prevention and process consistency. Structured review of procedures facilitated the identification of recurring critical issues and informed updates to procedures and training pathways.

Discussion. Although operating predominantly without direct patient contact, nurses working in the Antineoplastic Drugs Unit play a pivotal role in governing the therapeutic process and safeguarding medication safety. They ensure procedural adherence and the integrity of verification processes. Collaboration with pharmacists and oncologists, combined with continuous training, strengthens specialist competencies and promotes a shared culture of risk management.

Keywords: Antineoplastic Drug Preparation, Medication Safety, Traceability, Near Miss, Risk Management, Oncology Nursing

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