

# Improving Chemotherapy Safety via Use of ChemoClave® System (Spiros®), Priming Technique, DoseEdge™, and Volutrols

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## BACKGROUND

Oncology nurses can be at risk for dangerous exposures from chemotherapy drugs during preparation and administration to their patients. In response to these risks, Cook Children's Medical Center (CCMC) in Fort Worth, Texas has devoted efforts to implementing new policies and procedures to keep clinicians and patients safe.

## OBJECTIVE

CCMC was determined to improve the safety and efficiency of their hazardous drug handling process by creating a unique system of chemotherapy preparation and administration processes to minimize hazardous drug leaks and spills and reduce the risk of microbial contamination of patient lines.

## METHODS

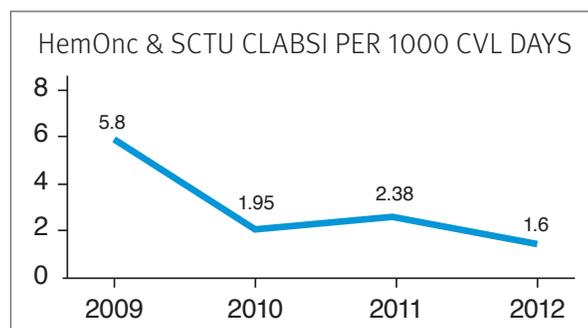
CCMC initiated a multi-faceted safety improvement effort aimed at reducing exposure to hazardous drugs during both pharmacy preparation and patient administration. In order to decrease the potential for aerosolization and leaks of dangerous chemotherapy drugs, CCMC implemented the ChemoClave closed system transfer device (CSTD), which included the Spiros closed male luer, needlefree vial access devices and bag spikes, and administration devices.

In order to facilitate the effective implementation of these closed system devices, ICU Medical provided in-servicing for both pharmacy and nursing staff and worked to create a custom administration set with a pre-bonded Spiros closed male luer. In addition to implementing the ChemoClave system, CCMC initiated a variety of practice changes including priming tubing under the hood of their biological safety cabinet, priming with chemotherapy drugs, utilizing the DoseEdge™ pharmacy system, and using volutrols for time-limited infusions.

ChemoClave system components made it possible to prime tubing under the compounding hood, helping to minimize the risk of chemotherapy aerosolization and surface contamination in the medication room, while also decreasing the risk of microbial contamination of the patient line.

## RESULTS

CCMC has not experienced any events related to chemotherapy leaks since February 2012. Following additional process changes in chemotherapy drug preparation and administration, overall central line associated bloodstream infection (CLABSI) rates for the Hematology/Oncology and Stem Cell Transplant units decreased from 5.8 per 1,000 catheter days in 2009 to 1.6 per 1,000 catheter days in 2012.



Graph: Reduction in CLABSI rates from 2009 to 2012 following changes in chemotherapy drug preparation and administration.

## CONCLUSION

Implementation of the ChemoClave system, in combination with a variety of procedural improvements, correlated with a reduction to zero chemotherapy leaks or spills and a reduction in CLABSI rates.