Purpose. To develop an evidence-based structured algorithm tool that might be used by nursing leaders at a cancer center to decrease chemotherapy medication errors.

Background. In spite of available technology and known factors resulting in medication errors, chemotherapy errors remain the major cause of iatrogenic patient morbidity in hospitals (Gilbar, 2001; Heidt et al., 2001). A major risk factor for chemotherapy errors is lack of standardization in administration (ordering, dispensing, administration, monitoring). Failure to identify necessary staff skills/aptitude required to prevent errors may also be problematic.

Significance. Use of the developed algorithm may lead to development of evidence-based strategies to decrease errors in chemotherapy administration in cancer patients.

Methods. A comprehensive review of literature related to Chemotherapy Administration and medication errors was performed. Search included the following: Science Direct, CINAHL, Pub Med, MEDLINE, Expanded Academics. Search limits included publication within 10 years, peer reviewed journals, English. Primary key words: “chemotherapy process,” “medication error,” “error prevention,” “error rate,” “protocol violation.” Secondary search terms: “Medication Use Process,” “tumor biology and kinetics,” “protocol guidelines,” “risk management,” “prevention strategies,” utilization of “information technology systems.” Articles addressing error reduction and standardized verification of treatment/dosing were reviewed. Data sources examined reduced error rates, and consisted of books, articles, and abstracts from scientific conferences.

Findings. Several sources support chemotherapy error reduction is achievable through use of evidence based strategies. Standardizing formats through procedures/protocols reduces potential for medication errors. Integration of information systems elements such as Computer Prescribing Order Entry, Bar-coded medication administration, Electronic medication administration records, Automated dispensing machines and IV PumpGuardrails decrease errors in medication administration. Other strategies that enhance error reduction for chemotherapy were Standardized Ordering Forms, Infusion-related Hypersensitivity Reaction information and Adverse Reaction guidelines, Extravasation Management Protocols, Verification Grids, and Standardized Patient Identifiers. A decision-tree algorithm incorporating all aspects of this evidence was developed.

Implications to practice. The practical implication of this project is that standardized protocols for medication administration, information systems strategies, and a variety of other techniques aimed at specific points in the error process may reduce error rates and assist in improved outcomes related to medication safety, in particular, chemotherapy administration.

Recommendations. The utilization of an algorithm should be tested in clinical practice to determine the effect on chemotherapy error rates.