The Successful Implementation of a Fully Automated Robotic Intravenous System for Chemotherapy Preparation

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ABSTRACT

Background: Using automated technology to increase safety for both patients and staff, and to increase efficiencies that have a high degree of precision, is in its early stages of development and implementation. Highly successful models to copy or emulate do not exist or are not published to act as a resource for those implementing these technologies. The implementation of robotic intravenous technology at the regional cancer centre at Royal Victoria Regional Health Centre was carefully documented and monitored so as not only to serve as a means to continuously have feed back to monitor progress and ensure success, but it has allowed for the sharing of the process to act as a model for other similar implementations.

Description: The model used employed a set-up phase that, while extensive and lengthy, ensured that all elements required for the phased-in approach for adding antineoplastic agents to the workflow, went smoothly, rapidly and with a rejection rate of patient specific doses of less than 1 % (0.63% versus the current industry standard of 2.2%). The production rate went from 10% of all antineoplastic and related product volumes to over 50% within a 4-month period.

Results: From a patient safety perspective, precision was within 1% for all current doses for 70% of all doses prepared and within 2% for over 95% of current doses prepared. In addition, the lack of exposure by staff to these hazardous products that they now did not have to prepare manually, and the decontamination of the products before leaving the sterile environment, resulted in a significant increase in staff safety.

Conclusion: This showed that this technology was not only safe, but also highly efficient.