Promoting Safety by Standardizing Chemotherapy Administration Practices

Deborah S. Echtenkamp, BSN, RN, CPON; Robin McCune, RN, CPN, CPON; Cathleen McLaughlin, BSN, MSN, RN, OCN; Molly Sutton, MS, RN, OCN; Thelma Baker, RN, OCN; Rodney Moffett, BSN, RN; Mary Elizabeth Barnthouse, BSN, RN, OCN; Charles Gibbs, RN, MS, Hosp Pharm; Amy Yacubek, RN, Medical City & Medical City Children’s Hospital

Background
Chemotherapy administration is a high-risk procedure for patients as well as healthcare workers. Risks of exposure to antineoplastic agents are well defined in the literature. Processes must be well defined and硬化 within all areas of the institution to ensure the safety of all involved. Medical City Children’s Hospital (MCCH) is a 156-bed children’s hospital within a large, 600 bed tertiary care hospital. MCCH & Medical City provide full service oncology care across five units for a total of 82 oncology beds. The pediatric oncology unit consists of 18 beds, and we have an additional 20 beds on a mixed pediatric/adult Stem Cell Transplant unit.

The use of a Closed System Transfer Device (CSTD) had been explored within our hospital several times. However, due to a lack of agreement on devices, timing in relation to other major hospital equipment changes, and a lack of support from materials management, a device was never selected. Following the conversion to a new IV pump system, we experienced an increase in chemotherapy exposures and near misses due to leaking from the injection caps and IV tubing. An interdisciplinary task force that included pediatric and adult care providers was established to investigate and ensure best practices were in place.

Objectives
• Standardize chemotherapy preparation and administration processes throughout the institution to reduce the risk of exposure to antineoplastic agents and promote workplace safety.
• Identify steps to a successful implementation of a Closed System Transfer Device (CSTD)

Methodology
Our first steps were to review all practices from preparation to administration. We reviewed policies, interviewed caregivers, and audited administration practices. We found differences in practice between pediatric and adults, among nursing units, and even between caregivers on the same unit. The new IV pump system required nurses to be creative with their line set-up in order to administer chemotherapy safely. To provide real time data regarding exposures, we had the pediatric unit record how many times they entered a line and note leaking at connection sites. We researched several products (PhaSeal, ONGUARD, Texium, ChemoClave). These products were evaluated for the potential to reduce exposures.

We chose to trial the ChemoClave system. The keys to a successful trial/implementation include the following:

• Support of the supply chain committee
• Supply chain representative on initial interdisciplinary team
• House-wide education and support from vendors
• Specific line set-up education for pharmacy, nursing, and supply chain personnel

Results
We found that the ChemoClave secondary sets with bonded Spinning Spire connectors were the perfect solution for chemotherapy administration. We were able to standardize chemotherapy line set-up practices across all units, which helped workflow and efficiency for nursing, pharmacy, and materials management departments.

In addition to implementing a new CSTD for oncology, three additional changes were made house-wide in our oncology beds. The pediatric oncology unit consists of 18 beds, and we have an additional 20 beds on a mixed pediatric/adult Stem Cell Transplant unit.

Table: Exposures/Potential Exposures to Blood/Fluids/Chemotherapy in a 24-Hour Period

<table>
<thead>
<tr>
<th>Connector</th>
<th>Times Line Entered</th>
<th>Exposures/ Potential Exposures</th>
</tr>
</thead>
<tbody>
<tr>
<td>MicroClave/Spine</td>
<td>47</td>
<td>0</td>
</tr>
<tr>
<td>MaxPlus</td>
<td>24</td>
<td>23</td>
</tr>
</tbody>
</table>

Graph: Pediatric Hematology/Oncology/Surgical Unit CLABSI Occurrence

We researched several products (PhaSeal, ONGUARD, Texium, ChemoClave). These products were evaluated for the potential to reduce exposures.

Graph: Stem Cell CLABSI Occurrence

We chose to trial the ChemoClave system. The keys to a successful trial/implementation include the following:

• Support of the supply chain committee
• Supply chain representative on initial interdisciplinary team
• House-wide education and support from vendors
• Specific line set-up education for pharmacy, nursing, and supply chain personnel

Conclusion
Improving workplace safety through the standardization of chemotherapy administration practices is possible across multiple disciplines and nursing units by utilizing an interdisciplinary team approach. Through this process change we have seen a reduction in accidental chemotherapy exposures, improved workflow and efficiency, increased teamwork between pediatric and adult nursing units, and an overall increase in employee satisfaction.

Our team set out to improve chemotherapy administration practices, but was also successful in affecting house-wide change in CLABSI rates. By switching to the ChemoClave Clear Connector and adding the trifurcated extension set with bonded Claves, the number of times the primary line needed to be disconnected was greatly reduced. This change in practice maintained line sterility and reduced the risk of central line infections.