In March 2012, the Pharmacy and Therapeutics Committee reviewed two different new items of business:

1. Medication Use Evaluation: The Joint Commission Standards for Medication Management, Hillary Freeman, PharmD
2. Medication Use Evaluation: Cisatracurium and Vecuronium, Lucy Cadwallader, PharmD

A brief background, conclusion, and approved recommendations are below for each report. The complete report can be reviewed by clicking the title.

The Joint Commission Standards for Medication Management

Purpose

The purpose of this activity is to evaluate the institution’s performance regarding medication management and use processes related to several Joint Commission (TJC) standards. One focus is on the management of intravenous promethazine, which is on the Institute for Safe Medication Practices high alert list and a Joint Commission high-alert standard¹ (MM.01.01.03). Patient safety issues and outcomes resulting from implementation of the intravenous (IV) promethazine use policy were reviewed. The utilization of medication reconciliation forms was reviewed to assess the accuracy of communicated patient medication information (NPSG.03.06.01). Standards related to clear and accurate medication orders (MM.04.01.01) were reviewed including the use of inappropriate abbreviations (MM.02.02.01), therapeutic duplications (MM.05.01.01), patient identifiers (NPSG.01.01.01), time interval range orders (e.g. q4-6h), and dose range orders (maximum dosage on range orders limited to 3x the minimum dose). In accordance with the standard that pharmacists must review appropriateness of orders, multiple PRN orders which may be viewed as therapeutic duplication (MM.05.01.01) were reviewed.

Conclusion

This evaluation reveals that there were some errors occurring that involve TJC accreditation standards. Upon review of UMHC’s compliance with TJC standards, UMHC is noncompliant in regards to inappropriate abbreviations, time range orders, utilization of Med Rec Forms. These areas have more than 0 to 1 occurrence in each category and are thus noncompliant according to TJC. Specifically, there were a total of 16 inappropriate abbreviations (14 U’s, 1 qd, and 1 lacking a leading 0) found in 100 charts. Also, there were three time range orders found in two charts. Only one chart was found to have an order sheet lacking two patient identifiers. None of the abbreviations, range orders, or patient identifier errors were clarified in the chart by pharmacy. There were several problems utilizing Med Rec forms and PRN indications. Overall, the appropriate inpatient Med Rec Forms are being printed and added to charts; however, only about 70% of these are being marked with who the information was received from and as complete, incomplete, unavailable, or no medications. Of the 94 complete charts, 80% had medications listed with 95% of these circled to continue or discontinue. There were only 32 charts with multiple active pain medications and 13 with multiple active nausea medications. Of the 45 charts with multiple PRN medications, there was an indication listed 60% of the time. However, only
29% had differing indications. UMHC is in accordance with TJC standards regarding patient identifiers and dose range orders as there were only 1 and 0 errors, respectively.

Upon review of UMHC’s compliance with the promethazine policy, there were errors made with interpretation of medication order and administration. In the adult hospital, there were nine patients that were potentially administered promethazine incorrectly (not all of the nursing staff in the adult hospital were interviewed). Despite some noncompliance with the administration of promethazine, there were no adverse events reported during the review period. The promethazine policy regarding order entry by pharmacy was not fully compliant.

**Recommendations**

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<tr>
<th>Recommendation</th>
<th>Action</th>
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<tr>
<td>Additional education for providers to decrease the number of inappropriate abbreviations</td>
<td>Dept of Pharmacy plans to share these findings with providers of UMHC</td>
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<tr>
<td>Additional education for pharmacy to get orders clarified and corrected</td>
<td>Dept of Pharmacy to provide education to staff</td>
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<td>CPOE order sets should have unique indications (i.e. for mild, moderate, or severe) for medications used for PRN indications</td>
<td>In progress</td>
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| Standardized, formal process to help nursing staff determine when to use medications with similar therapeutic indications is needed | Dept of Pharmacy plans to share these findings with Dept. of Nursing  
  *For instance, when both oral and IV route are available, then we recommend that oral be deemed as the preferred method unless otherwise indicated.* |
| Label comments for IV promethazine to improve communication for administration | Complete  
  *The label comments state “must only be given via large patent veins at or above the elbow or knee and infusions via the scalp are not allowed.”* |
| Warning label regarding appropriate administration to appear when promethazine removed from MedSelect | Complete  
  *The warning label states “must only be given via large patent veins at or above the elbow or knee and infusions via the scalp are not allowed.”*  
  Dept of Pharmacy plans to share these findings with Dept of Nursing |
| Additional education for nurses on appropriate promethazine administration      | Dept of Pharmacy plans to share these findings with Nursing Dept. so that appropriate education can be accomplished |

**Cisatracurium and Vecuronium**

**Purpose**

The purpose of this activity is to evaluate the utilization of cisatracurium (Nimbex®) and vecuronium (Norcuron®) in the ICU setting. Parameters used to monitor these neuromuscular blockers will be
evaluated as assessment of the depth of blockade in ICU patients is recommended to avoid excessive paralysis

**Conclusion**

The primary ordering location for cisatracurium was the MICU and the primary ordering location for vecuronium was the SICU. The results of this medication utilization review demonstrate that cisatracurium and vecuronium are being utilized for FDA approved indications. Seven out of twenty-three patients in the cisatracurium group had neither hepatic nor renal impairment at baseline. In contrast, eleven out of twenty-six patients had some form of renal or hepatic impairment in the vecuronium group. No reversal agents were used during therapy with either group. No patients receiving concomitant corticosteroid therapy or interacting antibiotics experienced acute quadriplegic myopathy syndrome (AQMS). There are discrepancies in MAR documentation of bags administered and charges to the patient. There is also a lack of consistency in TOF documentation such that it is difficult to determine if a patient is appropriately paralyzed.

**Recommendations**

The Department of Pharmacy Services recommends implementing a standard ordering process that includes dosing, monitoring (including frequency), and criteria to guide cisatracurium and vecuronium use. The use of ocular and sedative agents will also be encouraged in this process. The Department of Pharmacy Services recommends educating all services about the importance of documentation, including doses administered and doses credited when not administered to the patient.