Blinatumomab (blina) is a monoclonal antibody that is used for high-risk and relapsed pediatric leukemia patients. Blina is administered as a 28-day continuous intravenous infusion. Previously, patients would remain inpatient for the entire infusion. To transition these patients home, local home health agencies were contacted. Unfortunately, no home health agencies were able to care for our pediatric patients with this investigational drug.

**Background**

- Blinatumomab (blina) is a monoclonal antibody that is used for high-risk and relapsed pediatric leukemia patients.
- Blina is administered as a 28-day continuous intravenous infusion.
- Previously, patients would remain inpatient for the entire infusion.
- To transition these patients home, local home health agencies were contacted.
- Unfortunately, no home health agencies were able to care for our pediatric patients with this investigational drug.

**Objective**

- The goal of this quality improvement initiative was to develop a process that would allow patients to receive at least 21 days of their 28-day infusion at home.

**Methods**

- Rental infusion pump vendor was identified and supplied home pumps with locking feature to prevent setting changes.
- Partnership with our bi-campus outpatient hematology oncology clinics, inpatient hematology oncology units, pharmacies, and infusion pump vendor.
- Twenty-five nurse champions were identified and trained on the equipment and supplies. These champions then provided hands-on training to 82 additional nurses.
- Resource packets were developed to support the inpatient/outpatient nursing teams. This included pump troubleshooting tips, blinatumomab reference sheet, documentation guides, and location of extra pump and keys. This information was shared with the pediatric emergency departments.
- Family resource folders were developed, including education on side effects, daily handwriting samples, pump troubleshooting, interruption log, when to call provider, and calendar including bag change and labs dates (Figures 1 & 2).
- Blina infusions were started inpatient to allow for pump teaching prior to discharge.

**Results**

- A clinic nurse would visit the patient and family during their hospitalization to complete training.
- This pre-discharge education included a review of the family resource folder, infusion pump video, demonstration of pump operation, and a return demonstration to verify understanding.
- The pump rental company’s case manager called the parent/guardian the first night home to address any questions or concerns and provided a 24-hour help line to support pump troubleshooting.
- Based on hours of the outpatient clinic, patients were seen in 72- or 96-hour increments throughout the infusion.
- The patients were first seen by a provider to evaluate blina tolerance and side effects, including a neurological exam and review of daily handwriting samples. Handwriting samples provide a way to monitor the patient’s CNS status (Figure 2).
- Additionally, a clinic nurse reviewed the interruption log to ensure infusion was running appropriately.
- There was coordination between interdisciplinary teams to ensure that the patient had blina bag changes at the same time each visit.
- A total of 150 (out of 168) days of blina infusions were completed outpatient utilizing the home infusion pumps (Figure 3).
- A total of 360 hours were spent in the comfort of their home instead of the hospital.
- A total of 150 (out of 168) days of blina infusions were completed outpatient utilizing the home infusion pumps (Figure 3).
- Based on an average daily inpatient cost of $3,270 per day, a total of $490,500 was saved.

**Discussion**

- This quality improvement initiative was largely successful, allowing us to complete blina infusions at home.
- The goal of reducing inpatient days was met with this initiative.
- Patients and families anecdotally reported their satisfaction with this infusion being managed in their home.
- Ultimately this was a cost-effective initiative, freeing inpatient beds for acutely ill patients and optimizing throughput.

**References**

- (2022), Oncology patient resources. InfuSystem. https://infusystem.com/resources-oncology