



I.V. Pump Selection

Overview of Miami Children's Hospital

Miami Children's Hospital (MCH) is a world leader in pediatric healthcare. With a medical staff of more than 650 physicians and over 2,000 employees, the hospital is renowned for excellence in all aspects of pediatric medical care. Founded as Variety Children's Hospital in 1959, today Miami Children's treats more than 185,000 pediatric patients each year. This not-for-profit hospital in Southeastern United States, with a tele-education programs reaching more than 40 sites in Latin America and the Caribbean. Miami Children's Hospital is also the only licensed specialty hospital in South Florida that's exclusively for children. Our focus is always on advancement in pediatric medicine.

MCH offers world-renowned excellence in comprehensive pediatric services for children from birth to age 21. In addition to hospital clinical services, Miami Children's Hospital supports over 40 pediatric specialties and sub-specialties.

MCH is licensed for 268 inpatient beds, including 54 critical care/ neonatal intensive care beds, 2 bone marrow transplant beds. In addition, the hospital operates 30 observation beds.

Debbie Cagen, ARNP, MSN, CPON
Clinical Nurse Specialist
Pediatric Intensive Care Unit (PICU)

Frank Magnarelli
Director
Clinical Engineering

Introduction

Approximately 10 years ago at Miami Children's Hospital a special task force was brought together to select a new IV pump. At that time we had over 5 different devices in use, which was very cumbersome for the staff to have to learn various pumps. Members of this task force included staff nurses/clinical nurse specialists/directors from the medical/surgical units and intensive care units, engineering, education, and a performance improvement representative.

Our clinical objectives for selecting a new IV pump were as follows:

- Accurate control and site monitoring
- Safety and reduced risk exposure
- Increased nursing productivity
- Reduced operator error
- Standardization of equipment and sets
- Decreased in IV related complications

In essence, we asked our nurses to design the "ideal IV pump". The team felt strongly that the users would be more satisfied with their choices if they carefully defined the product requirements and specifications. The team worked hard in defining the specifications of the IV pump such as: battery life, resolution of flow, pressure settings, alarms, air in line, accuracy, etc.

Essentially, what we did is selected a criteria and then we looked at only those pumps that matched our criteria. There were only three devices available at the time that had the qualities we desired. We wanted a device that could be a controller, a macro and a micro pump. We wanted one pump that would meet most of our needs as an institution. Then we set up a very formal evaluation to review the Hospira Plum Pump, i.e. ease of use, inserting cassette, changing flow rates. This highly systematic approach resulted in the selection of products that truly reflected our clinical needs while remaining sensitive to the economic realities of cost containment. We felt we were successful with this process because we included the end users in all phases of the process. Because our central theme was the development of clinical objectives and specifications, we were able to stay focused on the products that best suited our clinical needs. The Hospira Plum won out. At Miami Children's Hospital since safety is of the utmost concern, the feature of the Hospira Plum with no free flow influenced our decision to choose this product. Nurses have the comfort of knowing that if you remove the cassette for any reason, the patient will not receive a bolus of fluid or medication. In addition to the safety features the ability to measure the PSI pressure of the line was a clinical asset. Nurses can have the heads up on an IV line before an infiltrate occurs by keeping a close watch on the PSI readings.

The beauty of the Hospira Plum according to nurses is the ability to infuse more than one fluid at a time. The nurses really love the secondary infusion function. This function allows you the ability to infuse a medication whether it is an antibiotic, steroid, anti-emetic, etc., along with your IV fluids. The Hematology/Oncology Unit utilizes the secondary line for concurrent flow with specific chemotherapy drugs such as: Methotrexate®, Cytoxan®, Adriamycin® and allows for continual infusion on

the primary line with one pump and two continuous infusions. Both the ICU and Medical/Surgical area utilizes the concurrent flow for antibiotics, steroids, Aminophylline®, Fosphytoin®, Potassium, Calcium, to name a few. It's quick, and easy, and works great in the Pediatric setting. When working in Pediatrics, the Hospira Plum pump is the ideal product for all ages from birth to young adulthood. The beauty of the pump is it allows us to administer medications that could be prepared in very small volumes or those that are prepared in larger volumes such as piggybacks fluids and medications. Since we started using the Hospira Plum IV pumps in our institution we have heard nothing but wonderful comments from our nursing staff. This pump has truly served our special needs for over 10 years.

“I love the secondary medication administration function that the Hospira Plum Pump offers; instead of having to use two separate pumps.”

Debbie Hill-Rodriguez, ARNP, MSN
Clinical Nurse Specialist
Neurology/Neurosurgical Unit
Specialty Medical Unit

“Easy to program, user friendly.”

Cheryl Topps, ARNP, MSN
Information Specialist

“I feel really safe with the Hospira Plums because they check for air and you can obtain PSI which is very important with ECMO patients”.

Lourdes Lopez, RN, BSN
Staff Nurse
PICU

“The pumps are able to administer small volumes to our tiny NICU patients”.

Amanda Raft, ARNP, MSN
Clinical Nurse Specialist
Neonatal Intensive Care Unit

“Being in a fast paced unit (emergency department) the capability of administering medications through the secondary infusion with out doing extra steps in mixing (medications) is a timer saver”.

Rachel Philotus, RN, BSN
Clinical Educator
Emergency Department

“I love the alarm features, the pump alarms when there is air in the line, calls you back when the infusion is completed. Being called back is especially useful when administering sequential chemotherapy agents”.

Nicole Banhan, RN
Manager
Hematology/Oncology Unit
Bone Marrow Transplant Unit

“As an educator in both the Pediatric Intensive Care Unit (PICU) and the Hematology/Oncology Unit it has always been a challenge to teach new staff how to operate IV infusion pumps when caring for critically ill children. However, it has been a pleasure to teach new nurses how to use the Hospira Plum IV Pump, because it is a very easy pump to learn and more importantly use.”

Debbie Cagen, ARNP, MSN, CPON
Clinical Nurse Specialist
Pediatric Intensive Care Unit
(PICU)
Hematology/Oncology Unit

As the hospital environment has changed over the last ten years, the Plum infusion device continues to serve our clinical needs today. The concurrent delivery capability provides clinical benefits as well as asset management.

Flow of care from the neonate to the adolescent patient is to provide safe, effective, and accurate I.V. fluid and medication delivery.