RIVA: The Most Comprehensive Pharmacy Automation Solution

Intelligent Hospital Systems is a medical technology company focused on the development of comprehensive pharmacy total dose solutions to enhance safety and productivity and reduce costs. IH Systems is the developer of RIVA, the most innovative pharmacy automation technology for the preparation of IV syringes and bags. In addition, IH Systems has created a platform for delivering end-to-end hospital pharmacy solutions that include drug inventory and supply; medication ordering, processing and workflow; pharmacy hardware and software technologies; and much more. With unmatched knowledge and expertise in pharmacy workflow enhancement, IH Systems provides:

- Needs assessment/problem identification
- Solution design
- IV workflow optimization
- Automation efficiency analysis
- RIVA delivery, setup and training
- Ramp-up and ongoing technical support
- Maintenance and service

Revolutionary technology

RIVA has numerous features that no other automated compounding system offers, including unidirectional sweeping airflow, photo and time-stamp product verification, ergonomic touch-screen operation, ability to make drug source (intermediary) bags, true walk-away capability and much more. The technology provides the safest and most flexible means of delivering labeled syringes and bags (patient-specific or non-specific) and requires no operator intervention during the compounding process. By automating medication preparation, RIVA enhances:

Safety: Eliminates manual compounding errors and contamination. The system features a fully-enclosed ISO Class 5 compounding chamber with HEPA-filtered laminar airflow and continuous particle monitoring. RIVA also uses patented high-intensity pulsed UV light for disinfection of all vial and bag ports prior to compounding.

Cost savings: Lowers cost-per-dose of medication, reduces need for medication outsourcing and decreases pharmacy waste. RIVA uses only off-the-shelf consumables and handles large multi-dose vials. Most hospital installations have reported an ROI of less than three years.

Efficiency: Prepares up to 60 doses per hour with walk-away capability and eliminates manual processes and the need for in-process inspections. RIVA also provides a complete electronic audit trail and automatic barcode labeling of every dispensed product.
Flexible technology platform
RIVA technology can be configured for specific patient populations and institutional needs. IH Systems offers three RIVA products for different institutional segments: general/adult, pediatric and chemotherapy.

RIVA General/Adult
Pharmacy need: High quantities of syringe and bag doses with low-to-medium variability
General hospital/adult IV dosing is most efficient when batches of specific medications in standard sizes can be prepared in anticipation of orders and stored for later use. Adult doses tend to have higher fluid volumes and require more frequent spanning of vials. RIVA General helps pharmacies maximize production while ensuring safety.

- Reduces outsourcing and cost-per-dose of insourced medications.
- Anticipatory batch processing with USP<797> compliant beyond-use dating.
- High productivity and efficiency with walk-away capability and high inventory capacity.
- Handles liquid or powder vials, syringes 1 mL to 60 mL and bags 25 mL to 1,000 mL.
- Automatic custom barcode labeling.
- Prepares both defined-concentration and defined-volume IV bags.

RIVA Pediatric
Pharmacy need: Highly precise syringe doses with high patient-specific variability
Pediatric IV dosing tends to be characterized by patient-specific syringe preparations based on patient size or weight. There are limited opportunities to prepare batches of standard doses, and doses tend to be small volumes and need diluted concentrations. RIVA Pediatric is the solution for precise pediatric dosing.

- Multiple technologies ensure dose safety for vulnerable pediatric patients.
- USP<797> compliant aseptic processing and preparation.
- High accuracy and dose repeatability.
- Low-volume (0.3 mL), low-concentration syringe output.
- Luer hub compensation.
- Prepares low-concentration intermediary bags.

RIVA Chemo
Pharmacy need: Patient-specific bag output with staff exposure safeguards
Chemotherapy IV dosing is generally in bags with fluid volume and/or concentration specific to patient needs. Patient and staff safety is paramount. While there is generally very little waste in chemo medication preparation, the process can be labor-intensive. RIVA Chemo increases efficiency and ensures the safety of patients and staff.

- USP<797> compliant negative pressure helps protect pharmacy staff from cytotoxic preparations.
- Multiple technologies to reduce surface contamination:
  - Robot paths and product motion do not pass over unused inventory.
  - Drip mitigation logic and pressure management algorithms prevent dripping in vials.
  - Drip and spill containment to protect other products in the compounding area.
- Integrated ChemoClave™ needle-free bag spike.
- Fill queues allow loading of inventory in anticipation of preparing patient doses.