FULLY AUTOMATED IV COMPOUNDING

- Eliminates cross-contamination and errors in critical medication preparations
- Lowers the cost-per-dose of medication
- Allows pharmacies to prepare compounded medications in full compliance with the most stringent pharmacy regulations
- Reduces vulnerability to medication shortages and the need for outsourcing
- Provides a complete electronic audit trail that identifies every product being used and labels every dispensed medication

Technology to...

ENHANCE SAFETY, REDUCE COSTS, INCREASE EFFICIENCY

...helping hospitals achieve USP<797> compliance
RIVA automation technology allows your pharmacy to manufacture IV medications with increased safety and decreased cost. The system provides true walk-away capability, managing extended production runs with no human intervention required. RIVA can be deployed 20 hours per day for maximum efficiency, enabling pharmacies to manufacture medications ahead of orders. RIVA is a product of Intelligent Hospital Systems, the leader in pharmacy IV automation.

Since being introduced in December 2008, RIVA systems globally have prepared millions of medication doses safely and accurately.

**ENHANCE SAFETY**

RIVA enhances the care of patients and health of pharmacy staff by improving the safety and accuracy of IV admixture compounding while reducing the risk of human error and contamination.

- **Aseptic environment.** Compounding occurs within a totally enclosed ISO Class 5 environment with laminar HEPA filtered air flow, adjustable positive or negative (to ambient) air pressure, and continuously monitored air quality; fluid transfers are through new sterile syringes, not tubas.

- **UV disinfection.** Port Disinfection System uses high-energy, pulsed UV light to disinfect critical puncture sites on vials and bags, significantly lowering the risk of human microbial contamination.

- **Dose accuracy.** Performs multiple ID and weight checks throughout the preparation process using highly accurate electronic scales and barcoding to ensure the accuracy of every dose.

- **Pediatric/neonatal dosing.** Ensures accurate dosing for pediatric and neonatal patients with a minimum syringe dose size of 0.3 mL, prepares and draws from stock bags for dilutions.

- **Label accuracy.** Eliminates labeling errors by applying and verifying customized, human and machine-readable labels to all dispensed syringes and bags, no need to manually re-label product.

- **Staff safety.** Fully contained enclosure minimizes operator exposure to hazardous chemotherapy and antibiotic medications; also automatically removes needles and installs caps on all syringes.

- **Regulatory compliance.** Allows pharmacies to compound sterile preparations in an environment that is fully compliant with USP<797>, and meets relevant NIOSH and OSHA regulations.

**REDUCE COSTS**

RIVA saves money by increasing safety while reducing the need for outsourcing, lowering the cost-per-dose of medication and cutting waste. RIVA also helps lower staff costs and liability risk, and typically provides a return on investment in less than three years.

- **Increased safety reduces cost.** Saves money by reducing risk of medication errors that can result in adverse patient reactions, emergency intervention, extended hospitalizations and tort liability.

- **Lower cost-per-dose.** Able to use all medication in an individual admixture vial, reducing the need for outsourcing, and lowering cost-per-dose and overall costs.

- **Lower inventory costs.** Customizes medications by batch or individual patient, avoiding the cost of purchasing pre-filled IV bags and syringes.

- **Less waste.** Elimination of manual process steps and associated waste. Less medication is returned because of expiration; RIVA’s aseptic preparation environment helps with beyond-use dating.

- **Operational consolidation.** Eliminates the need for pediatric and neonatal satellite pharmacies, reducing operational duplication and cost.

**INCREASE EFFICIENCY**

RIVA increases the speed and accuracy of compounding – allowing more doses to be prepared in a shorter time with fewer staff resources and less waste – while also providing automated dose validation and record keeping.

- **Rapid and flexible production.** Prepares more than 50 doses per hour – in 1 mL to 60 mL syringes, or 50 mL to 1,000 mL bags – allowing pharmacies to balance batch and just-in-time production.

- **Reduced staff time.** Easily operated by a single technician – less than three hours of staff time required to prepare more than 350 doses – allowing pharmacists to optimize staff resources.

- **Electronic record keeping.** Provides detailed electronic audit trail and automated barcode labeling allowing pharmacists to easily create reports for verification, auditing and compliance purposes.

- **Ergonomic design.** Moveable touch screens and easy-to-load inventory racks reduce physical manipulation of syringes, vials and bags, and the associated risk of repetitive strain injuries.

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RIVA technology helps hospital pharmacies save money with efficient consumer goods manufacturing and enhanced safety. Depending on how the system is deployed, hospitals could save nearly $2 million annually, maximizing ROI.

- **Savings from reduced labor** $632,538
- **Savings from reduced labor and redeploying pharmacist in clinical role** $1,202,375
- **Savings from reduced labor and adverse drug events (ADEs)** $1,368,819
- **Savings from reduced labor and ADEs, and redeploying pharmacist in clinical role** $1,938,641

* Example savings based on running RIVA 20 hours per day and compounding 550 doses per day

RIVA General/Adult
- Reduces outsourcing and cost-per-dose
- Supports USP<797> compliant beyond-use dating
- Walk-away capability
- Syringes 1 mL to 60 mL, bags 50 mL to 1,000 mL
- Automatic custom barcode labeling

RIVA Pediatric
- Multiple technologies ensure dose safety
- High accuracy and repeatability
- Prepares low-concentration dilution bags
- Low-volume syringe doses (0.3 mL)
- Luer hub compensation

RIVA Chemo
- USP<797> compliant negative pressure
- Product paths do not pass over unused inventory
- Mitigation logic prevents dripping in vials
- Spill containment protects products in compounding area
- Integrated ChemoClave™ needle-free bag spike

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**Load Inventory** ➔ **Start** ➔ **RIVA - Automatic preparation of doses** ➔ **Completed Doses**

- Load items
- S-10 minutes with on-screen instructions
- Press “Start” on screen
- Automatically makes syringes and bags
- Fully automated
- Fully labeled doses
- Complete audit trail
- Doses ready to use