

Dasco Systems' MiSim Intelligent Printer Solution

BALL MEMORIAL HOSPITAL IS A 400-BED HOSPITAL IN MUNCIE, INDIANA, located approximately one hour north of Indianapolis. The institution is the flagship of Cardinal Health System, an integrated network of hospitals, diagnostic centers, pharmacies, a primary care physician network, comprehensive rehabilitation services, urgent care centers, and managed care partnerships. It is the only major medical facility in the area and continues to be at the forefront of using new medical technologies.

Our inpatient pharmacy department has been using McKesson STAR v.10.23 software, including the McKesson ROBOT-Rx APS2 dispensing system, which we installed in November 1997 to process our 3000-plus daily medication orders. Our facility operates 425 IV pumps, including the 34 Alaris autoID modules currently used on ICU, RCU, and CRU.

Two years ago, our pharmacy support staff decided to upgrade our label printers from impact printers to modern thermal printers. We chose thermal printers because they offer quiet operation, as well as crisp bar codes and highly readable text in comparison to impact printers. This addressed pharmacy's concerns about noise in the workplace while creating our complex and highly customized labels.

When Ball Memorial decided to purchase Cardinal Alaris programmable pumps, Alaris referred us to Dasco Systems' MiSim "intelligent printer" solutions. Dasco and MiSim have years of experience interfacing Intermec intelligent printers with lab, pharmacy, and other health care information systems. These system solutions for legacy or new pharmacy software print all pharmacy labels, including those for infusion pumps.

The MiSim "intelligent printer" solution is a middleware application installed on Intermec FingerPrint printers. These printers contain an on-board programmable computer, and MiSim takes the data stream from the host system and does all the formatting of the label at the printer. The labels generated by the MiSim software include 2D symbols that can be scanned by a bar code reader attached to our facility's Alaris pumps. Our pumps then use the information from the 2D symbol to program their IV medication administration activities. Both Aztec and DataMatrix 2D symbologies are supported by the application.

The MiSim application also includes tables for valid units of measure. The application checks the tables against the data from the host for another level of security. If a unit of measure is missing, mismatched, or not supported by the pump, no 2D symbol is produced, so our pumps cannot be programmed automatically by an improperly labeled IV medication. Even though our pharmacists check all IV labels before applying them to medications, this added level of safety is appreciated.



To generate the 2D symbol for the pump, MiSim "reads" the label print data and extracts the following information from the host system: patient ID, order number, drug alias for the primary additive, drug amount and units of measure for the primary additive, total volume, and volume units of measure. The resulting data is checked to insure that required fields are present, and each unit of measure is validated against those supported by the pump. If all checks pass, a message is constructed and encoded in a Datamatrix or Aztec symbol in accordance with Alaris's published interface specification for the pump's bar code module.

From this information, the pump can match the patient ID on the IV label to the ID scanned from the patient wristband and calculate the final concentration of the primary additive. Combined with the manually entered or selected information, the pump performs safety checks through the Alaris GuardRails drug library.

The overall implementation took about eight weeks. Minimal changes to the label data stream from the McKesson STAR software were required to allow the MiSim application to construct 2D symbols. The

drug alias, drug amount, and units of measure for the primary additive required by the Alaris pumps were added to the data stream. We found that Aztec symbols were superior to Datamatrix symbols, in terms of their ease of use on the curved surfaces of the IV bags.

Since implementing the Intermec printers and the MiSim solution, our pharmacy has enjoyed fast and quiet label printing, in addition to the added safety benefits of working with Dasco's program. ■

With more than 30 years' experience in health care, Vicki M. Ferrell currently serves as the director of application support in Ball Memorial Hospital's information systems department.

An employee of Ball Memorial Hospital for the past six years, Karen S. Hutson, CPhT, currently serves as that facility's senior pharmacy purchasing technician.

WHERE TO FIND IT:

Dasco Systems Circle reader service number 65
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