# Barcode System Ensures Safety In Day Care Medication Verification

*One Midwest day care center goes the extra mile in protecting the children it serves by using a barcode verification system including barcoded wristbands, labels, and scanners.*

Young children, because of such factors as immature immune systems and proximity to other children, frequently acquire infections and other conditions that require medication during the day. This makes medication administration an issue for many day care centers.

A study published in the Journal of the American Pharmacists Association found that, on average, 5.5 percent of children received medications while attending a day care center during a two-week period. While no data exists regarding incorrect medication administration in day care centers, in hospitals, research finds that 1-in-40 patients receive the wrong medication. Hospital staffs are highly trained to handle medications, and yet even they make errors. The potential for children to be given incorrect medication in day care centers can realistically be considered significant.

In fact, the American Academy of Pediatrics has written a curriculum for how to handle medications in day care settings. Among the steps the Academy recommends caregivers take when administering medications are: check the name on the medication label and the child's name, and read the label to make sure you have the correct medication.

Such instructions sound simple and easy. In practice, though, the potential for error is real in the chaotic environment of a day care center with workers who have limited training. Day care center owners and administrators must be ever vigilant when dealing with the medication needs of the children they care for.

## The Challenge

A day care center in the Midwest, which cares for 12 to 15 children a day, approached All Barcode Systems for help managing its medication process. "We have several children we give medications to and we don't want to give out the wrong medication," the owner told Scott Steiner, president of All Barcode Systems.

All Barcode Systems went to work to design a system



that would help assure the day care center properly administered medications each and every day, and yet did not require much time to use nor training to learn. In so doing, it addressed the issues mentioned by the American Academy of Pediatrics.
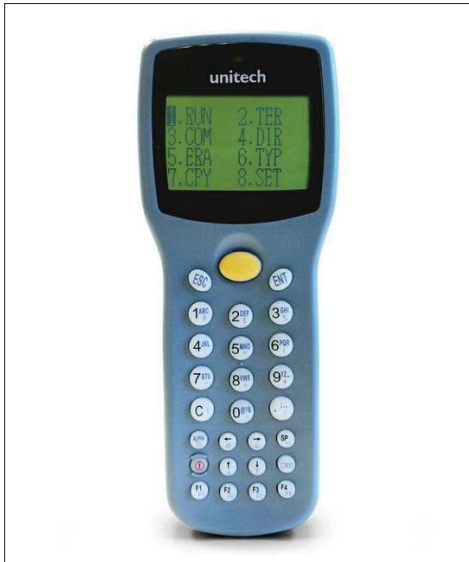
## The Solution

All Barcode Systems assembled a barcode verification system that included a wristband printer, a regular barcode printer and a scanner. The customer requested dedicated desktop printers. The scanner chosen was the Unitech HT630.

When children arrive each day, those to receive medication are given a polypropylene, barcoded wristband similar to ones used in hospitals, which is generated by the wristband printer. The second printer produces a duplicate barcode label that is placed on the child's medication bottle. The barcodes are printed with consecutive numbers that started at the beginning of the program.

When the child needs his or her medication, the day care center employee, using the Unitech scanner, scans the wristband and the medication bottle. The software, developed jointly by All Barcode Systems and Unitech, matches the barcodes on the wristband and the bottle. If they match, the scanner display reads OK and beeps once. If they do not match, the scanner display reads NO MATCH and beeps three times, providing both visual and auditory warnings of an error. The label placed on the medication bottle is easily

A key component of the medication verification system, the HT630 scanner helps the day care center protect its children by preventing improper medication administration and ensuring accuracy.

removed at the end of the day.

The process takes between one-and-a-half to two minutes per child. This time is easily accommodated as children tend to arrive at staggered times. Of course, only those children who receive medications get wristbands.

Initial training on the system was quick and easy. The day care center that ordered the system learned how to plug in everything, load the software, design the print formatting for the wristbands and bottle labels, and load the consumables in about one hour. This is a system designed for those who are not technical.

### The Costs

The two printers cost about $750, and the scanner $700. Neonatal wristbands come in a roll of 640 for $125, while child wristbands cost $110 for a roll of 550 bands. The software comes with the system.

Total initial costs for the system run about $1,600, including a beginning supply of consumables. If the day care center does not have babies, the cost for consumables will be less.

Buying multiple rolls of wristbands may generate pricing discounts.

### The Benefits

Quantifying the benefits of the system is difficult. How does one place a dollar or other value on *not* giving a child a wrong medication? What price does one put on a day care center owner's piece of mind?

In the future, calculating a hard return on investment may be possible. Day care centers carry liability insurance, but because this is a new system, no insurance carriers have yet offered a discount to a day care center using it. All Barcode Systems has approached the insurance carriers and a future discount of 10 percent to 20 percent is plausible. With such a discount, the return on investment will be one to two years. Since the system easily scales, the larger the day care center, the quicker the return on investment.

Yet, even lacking an insurance discount, the benefits to parents and their children, and day care center owners and their administrators, are priceless.

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