



RFID VS. BAR CODING: SHOULD YOU WAIT FOR RFID BEFORE IMPLEMENTING BEDSIDE AUTOMATION?

I'VE BEEN THINKING ABOUT TELEPHONE poles, legal tablets, and RFID tags.

Some experts suggest that Radio Frequency Identification (RFID) tags are going to displace bar codes on single-item drug packages. I am not among them.

Such pundits say adopting technology that identifies drugs with bar codes instead of RFID is akin to China stringing copper wire on poles instead of leapfrogging to wireless technology

of Cheerios I found its bar code sitting redundantly above number 16999 66660.

When the RFID chip begins appearing on cereal boxes, it will sit redundantly above the bar code and number for a long time, if for no other reason than it will take the nation a long time to completely replace bar code scanners with RFID readers.

Just as today's bar code scanners can read multiple bar code symbols, tomorrow's scanners will read bar codes *and* RFID tags. It is not an either/or scenario.

Consider the medication-use process. For tracking drug inventory, RFID clearly has the edge. An ever-deciphering internal reader instantaneously could know:

- 1) when an item is placed into an automated drug cabinet;
 - 2) all of the items in it; and
 - 3) when an item is removed.
- Inventory management bliss.

RFID also offers advantages for medication administration. First, RFID wristbands can carry more patient information than bar codes. Next, RFID wristbands allow nurses to identify patients without having to wake them and maneuver their wrists into the bar code gun's line of sight. Finally, because readers must be in the proximity of RFID tags, nurses must actually be with patients to perform the patient ID step of each drug administration. This militates against the work-around of nurses scanning patients' bar codes down the hall instead of at the bedside.

But RFID also has disadvantages. If the range of read is too wide, a nurse's handheld will pick up both patients in the room, compromising positive patient ID. Narrowing the range to a foot or so deals with this issue but does not solve the drug ID problem. Because the reader picks up everything in range all at once (e.g., the two drugs in her pockets and the six in her hand), the nurse is not sure which is which. Herein lies the advantage of the bar code. Only one item can be read at a time, eliminating the



Photo courtesy of Health Care Logistics, Inc.

Thermal Bar Code Printer

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confusion over which two of the eight items do not belong to the patient.

One school of thought warns that we should wait for RFID before implementing bedside technology. I disagree. First, it will be a long time before RFID appears on single-item drug packages, if ever. Second, the cost of applying RFID chips on drugs by manufacturers and hospital pharmacies is high. Even if the fantasy of the five-cent chip comes true, it's still too expensive and only calculates the cost of materials and not its application to the package. Finally, if they do find their way to all single-item drug packages, I believe that RFID chips will be in addition to, not in place of bar codes. Hospitals that undertake bar code scanning early will be able to migrate easily over to RFID in the time required for this snazzy technology to displace bar codes.

Nevertheless, even with RFID's full coming out, I predict the bar code, like the movie theater, the legal tablet, and the telephone, will maintain its value for years to come.

Other than this, I have no opinion. **FR&P**

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Photo courtesy of Precision Dynamics Corp.

A Multi-Function RFID and Bar Code Reader

for their phone system. While the leapfrog analogy supports a cellular China, I'm not so sure it applies to bar coded drugs in hospitals.

New technology does not always displace old technology. Television has not displaced the silver screen. The computer has not eliminated pen and paper (I caught Bill Gates on an airplane

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scribbling on a yellow legal pad), and it would be foolish to suggest that China should leapfrog the telephone altogether and go right to e-mail. Each has its advantage. The same is true for bar codes and RFID.

One limitation faced early on with bar codes was that while machines could decipher the meaning of lines and spaces, humans could not. The problem was posed to an MIT professor. When he learned that a bar code was simply a number represented in machine-readable symbols, he suggested the corresponding human-readable number be placed underneath. Thirty years have passed, and this morning on my box