The Case For A Standby Preprint

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Individual items need to be uniquely identified if specific data about each item is important. Typically, a unique item (piece) identifier consists of either (i) a Specialized AlphaNumeric String (SANS) or (ii) a "License Plate Number" (LPN). A SANS is typically created just as the item becomes unique while an LPN can usually be preprinted. In the case of adhesive labels, SANS labels must be printed "on site" while sequential LPN labels may be printed "off-site".

I'll use the identification of histological (pathology) cassettes as an example. Cassettes are used to hold tissue (biopsy) samples during chemical processing prior to those samples being embedded in wax and sectioned for microscopic examination.

The SANS Approach

Figure 1

Here, the cassette is labeled with a 14 character Specialized Alphanumeric String[1]. This string contains specific information which may well be useful to the laboratory technician[2]. The corresponding DataMatrix (2D) code requires a minimum 14 x 14 cell code[3].

The LPN Approach

Here, the cassette is labeled on the otherwise unused side with a 10 decimal digit LPN. The first cassette (Figure 2) uses a linear (Code

128C) symbology while the second cassette (Figure 3) uses a 2D DataMatrix code.

Figure 2

[1]*The dashes are included in this count as they are also encrypted in the 2D code.*

[2]*Although this author does not know the specific meaning of the string characters, we can suggest a possible "code". The Hospital might be coded "S" and the year is "03", the accession (sequence) number is "12445" , this being the first sample and will be interpreted by pathologist "F". Such a code has the advantage that certain fields can be used without reference to a data base*

[3]*The code shown here is 18x18 cells , possibly as a result of increased error code correction.*
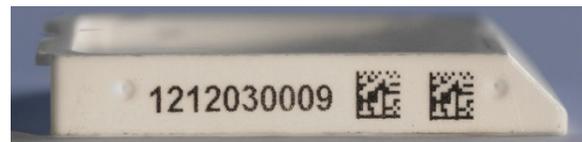

Figure 3

Typical Comments:

"We cannot change the way we do things – our specialized string isn't perfect but it's the way we do things here"

"The use of a sequential number would certainly permit us to buy preprinted cassettes and eliminate the hassles of printing them here—we are a lab not a print shop"

"The use of a sequential number would require extensive changes in our LIS system—it would be just too costly"

"Bar codes would certainly help us reduce the errors and confusion which results from poor manual markings and the misreading of them"

"We don't use bar codes here – we don't even have any bar code readers"

Compromise?

It would be logical for cassettes to arrive from the vendor already marked with a never to be repeated License Plate Number as well as the corresponding high quality bar code. There is no dictum that these LPNs or the bar codes be used.

The addition of such markings would of course add a cost to the cassettes but it is this author's belief that the cost is easily justified by the accuracy and automation which can result from it's use.

Gradually, the existence of the barcoded LPN will result in positive changes in the way things are done. For example:

A. When the tissue sample is placed in the cassette, the cassette can be scanned and a simple keyboard wedge can place the LPN information anywhere in any LIS field. This information would be invaluable if there ever is a sample mix-up which must be resolved.
B. A similar scan at the time the sectioned sample is transferred to the slide is a positive way to log the sample traceability into any (existing) LIS system.
C. When automated instruments are added to the lab, they can utilize the barcoded LPN for sequencing and process control.
D. When samples are archived, a scan of the LPN will permit an accurate record of just where the samples went.
E. New LIS software would start to use the LPN as a new database record field and bidirectional conversion between the traditional specialized string and the preprinted LPN would be seamless.

A Call to Codes!

Lab samples and the medical decisions they engender certainly require as much accuracy as do pharmaceuticals where bar code traceability is a (legislated) given. Starting out with preprints will enable your traceability capability to grow.