Radio Frequency Identification (RFID) in the Pharmaceutical Supply Chain

Summary: *RFID is a technology that uses radio waves to automatically identify objects. RFID technology can deliver many benefits, from tracking work in process to speeding up throughput in a warehouse. As the technology becomes standardized, it will increasingly be used to track goods in the supply chain. RFID can reduce administrative error, labor costs (associated with bar code scanning), internal theft, shipping errors and increase overall inventory control. Due to their form factor adaptability, RFID tags are well suited for pharmaceutical applications. Especially when used to authenticate and track products along the supply chain and thus as a tool against counterfeiting.*

Technically, Radio Frequency Identification systems consist of the RFID tags, the RFID reader, and a computer system. The RFID tags (microchip and antenna) carry an electronic product code that identifies the manufacturer, the product, and includes a unique serial number that identifies the individual container or case. Compared to barcode technology, RFID is a “none-line-of-sight” technology that eliminates the need for a person to present a reader to each tag. This increases efficiency and reduces labor costs. Furthermore, RFID also provides additional data capacity.

RFID systems have another important advantage: RFID tags are difficult to replicate, this is in contrast to barcodes which can be easily replicated. This is what makes RFID particularly interesting for the pharmaceutical industry. It is an effective tool against counterfeiting because it provides an accurate drug pedigree and an increase of the supply chain visibility.

For this reason, the FDA has shown strong regulatory interest in this technology. The FDA wants to expedite the adoption of RFID technology to help reverse the rise of counterfeit drugs entering the market in recent years. Due to this increase in counterfeiting, (and the attendant impact on profits), several major pharmaceutical manufacturers like Pfizer, Purdue Pharma and GlaxoSmithKline are currently working on RFID pilot projects. By the end of 2007, the FDA hopes to learn enough from these RFID pilot studies and plans to propose or clarify policies and regulatory requirements. The FDA envisions that the common use of RFID technology throughout the pharmaceutical supply chain will be feasible at the unit level; and the agency believes this will likely be possible in 2007. Further,

the adoption of RFID is currently being driven by another industry: the big retail companies. Wal-Mart, for example, requires its top suppliers to have RFID technology implemented in their supply chains.

The costs of the RFID system are still an important issue. Due to the immaturity of the industry, the costs are still significant at this stage. The cost for a simple RFID tag is currently between $0.20 and $0.50 depending on the features (e.g. frequency, amount of memory, packaging, and volume). The “5-cent tag” is still several years away. The cost for an RFID reader is approximately $500 to $3000.

There are several reasons why the technology has not yet taken off in the pharmaceutical industry including: high costs, the lack of significant market place experience in this industry, standard issues, and technical limitations. These all need to be overcome in order to make this technology the standard in shipping logistics.

For our industry and customer base, there is another unexplored question regarding homeopathic medicine in particular: Is there any effect on the efficacy of homeopathic drugs due to the constant and close presence of the transmission of the necessary radio frequencies?

The promise of a safer, more accountable, and highly efficient supply chain combined with the FDA support for this technology is driving interest and demand for RFID in the pharmaceutical industry. Companies that import products, especially from overseas, might focus on RFID technology because it supports a smooth handling of their shipments through U.S. customs and allows a perfect monitoring throughout the entire supply chain.