Pharmacy Management Systems (PMS) are very important in terms of running a modern retail pharmacy. Functions like order entry, whether done by deciphering a handwritten script or taking a telephone message from a nurse, are well done in most of these systems. Other management functions, like purchasing, accounting, billing, script label generation, inventory control, completed script status, and report generation for all of these functions are usually well done. However, the basic primary physical function of filling scripts is still done without automation, or is only partially automated at best.

The pharmacy pill counting automation that that uses robotics to either fetch the desired drug and bring it to a counting station, or bring the customers labeled vial to the desired drug cell (which is capable of counting out the drug), is expensive and requires large volumes of scripts be filled in order to justify the costs involved. Even then, only the most popular 100 to 200 drugs have enough traffic to justify the cost in the busiest of retail pharmacies. What about the rest of the formulary, and the rest of the pharmacies?

The next level of automation is pill counting by several different optical techniques. One of the most popular types requires the user to pour the pills into a common hopper which leads them to an optical counting device and then into 2 bins, one for the script pills and the other for the overflow. The customer's vial can be used as the script bin. Because of the common hopper and pill path this technique is very prone to drug cross contamination. This means that frequent cleaning is required, but it is rarely done as the time required to clean the drug path is prohibitive (if done frequently). The other optical counters, including those that use target identification technology, are not serious contaminators or can be easily cleaned. They are not particularly fast, but do eliminate the drudge of counting. Prices range from tens of thousands to about \$4,000.

Now for the subject of this article, there is a <u>new pill counting system</u> being offered which uses counting by weight (scales) to count pills. This technique was made legal by the National Council for Weighs and Measures (NCWM) in 2004. The justification was largely the fact that

the FDA monitored (controlled) total (dosage plus excipient) pill weights in order to provide uniformity in the dosage weights. The key to accurate pill counts with this technique is to establish an accurate average piece weight for each drug. The FDA later stipulated that it was important to update average piece weights (APW) for drugs periodically to compensate for lot to lot variations that occur over time (usually seasonally).

The drawback with this approach has been seen as the need for establishing and maintaining the APW database. Pharmacy law dictates that a minimum of 10 pills must be included in the sample used to establish APW's. Samples that include a larger number of pills, like 30, statistically generate more accurate APW's. This was viewed as non-productive work and involved manual counting, which is exactly what the pharmacy is trying to eliminate. One supplier tried providing a fixed database along with each scale but this technique proved unreliable for accurate counts.

In 2005 Torbal released the DRX-4 series of pill counting scales that required each pharmacy to build and update its own APW database, based upon its formulary inventory. This solved the accuracy problem but did not eliminate manual counting as part of the APW process. In 2009 Torbal released the DRX-5 series of scales which added a feature called Advanced Pill Counting Accuracy (APA) that allowed the pharmacy to update APW's without manual counting. In 2011 Torbal released the DRX-500sx Pill Counting System. This new system added automatic calibration and extended the APA capability (allowing for higher sample counts) and allowed multiple scales to share a single APW database. It simplifies the process and produces pill counting speeds that rival or exceed all the other techniques. It provides a variety of reports via standard internet browser connection. And it does all this for the lowest cost per counting station in the industry, including for one station systems. It truly can bring pill counting automation to every pharmacy, and it does every pill in the pharmacy formulary. Go to fulcruminc.net and watch the DRX500sx System demo videos and look at the equipment and specifications, lots more info there than can be covered here.

This system can be cost justified in even 100 script a day (pill counting scripts) pharmacies because it is features rich, a time saver, drudge eliminator, drug verifier, report generator, self calibrator, and does the entire pill counting formulary.