In part 1 of this series we tried to present the anatomy of filling scripts manually in a retail pharmacy. We analyzed the operations and the time involved in each step. We picked the operations up after the script had been entered into the pharmacy management system (PMS).

The sequence of events was arranged by time consumed:
1. Pill counting with a counting tray and a spatula. Average time / script = 36.9 seconds.
2. Fetch / Replace Drug Supply Bottle = 16.4 seconds.
3. Deliver finished script package to the pickup location = 14.0 seconds.
4. Fetch vial and label pack, apply label = 8.0 seconds.
5. Pharmacist's Inspection = 5.0 seconds.

Total Time = 36.9 + 16.4 + 14.0 + 8.0 + 5.0 = 80.3 seconds.

OK. How do we attack the problem of reducing the time spent and the drudge of doing all of these manual chores?
First, let's recognize that the Pharmacist's Inspection cannot be eliminated. Item 5 remains at 5.0 seconds (or whatever it really is).
Second, let's recognize the prescription entry into the PMS has not been included, but it cannot be eliminated.
Third, none of the forms of automation being offered deliver the script to the pickup area. Item 3 remains at 14.0 seconds (or whatever it really is).
The only type of automation that reduces Item 4 have true robotics capabilities. Two or three (usually two) different types of vials are stored in containers and the robotic arm is capable of picking the desired type and delivering it to a label applicator, and then to a drug cell to be filled, one at a time and serially. They eliminate all of the time in label application, and most of the time in vial selection. The vial containers must be loaded which is an added chore (no time factor is available). The label printer must also be loaded with stock, but it also has to be in the manual system. Let's, sort of arbitrarily, give the robot credit for saving 6 of the 8 seconds. Item 4 becomes 2 seconds.
The type of automation that reduces Item 2 are what we call parallel cell pill counters, where each drug being automated has its own separate cell, and may have its own separate pill counter. Each cell is loaded from the appropriate drug supply bottle(s). The quantity of pills a cell can hold depends upon the volume and shape of that particular pill type. The time saving depends upon how many scripts can be delivered from a full cell, and does your pharmacy want to mix different supply bottles in a single cell? Questions come up about dating, lot numbers, drug recalls, etc. If we assume a 500 pill supply bottle is loaded and the average script is 40 pills, then we can fill 12.5 scripts before reloading the cell. If the loading time to fill a cell is 60

seconds (a best guess, use actual time if you know it), then 60sec/12.5scripts = 4.8 seconds per script, a savings of 11.6 seconds per script. If the cells hold large numbers of pills and many scripts can be filled from a single reload the time savings is significant. Some other types of automation, such as scales (pill counting by weight), hopper fed electro-optical units, and rotary table fed electro-optical units do not have any impact in this area.
That leaves Item 1, Pill Counting, which is the single most time consuming item when counting manually. This topic is too large to treat here in Part 2, so we will ask you to please turn to Pharmacy Automation Evaluation Parameters – Part 3, where we will also summarize.