

There are a number of different techniques that are used for counting pills in today's variety of pharmacies. First let's examine the techniques and see how they apply to different types of pharmacies and to different jobs within the pharmacy.

The oldest technique is to count the pills out manually using a tongue depressor, or equal, on a flat surface, such as a counting plate designed just for this purpose. The counting plate is a valuable assist in that it has a groove on one side for the collecting any excess pills that are poured out onto the plate, and a groove on the other side for collecting the pills that have been counted out to fill the script.

Since the user's styles vary (pills per sweep of the depressor, when the script pills go to the vial groove, how many get poured out, etc.) the rate at which scripts get counted varies, with the tradeoff usually being speed versus accuracy. A good technique for small counts (30 or less) a bad technique for large counts (50 or more), and a very bad technique for doing pill inventory counts (100 or more).

This manual technique suffers the problem of cross contamination because the residues of a drug can be left behind on the counting plate. The plate, however, is easily and quickly cleaned and good housekeeping will prevent problems. A bigger problem is the time consumed on larger counts and maintaining accuracy on large counts. Anything that breaks the user's concentration can cause errors, such as interruptions, distractions, fatigue, the need to start a new supply bottle, a sneeze, etc. While this technique may be slow it is also the least expensive in terms of initial cost. Pharmacies doing large numbers of scripts look to automation to solve their counting problems and speed up their operations.

The next oldest technique is to count pills mechanically, which today has come to mean optically (almost exclusively). In this technique the pills are poured into some type of a hopper, from there they enter a chute which usually is used to try to align them, then past (or through) a photo-optical type head (where they are detected and counted) and onto a collection section that may contain a diverter to deflect excess pills into a separate collection tray (for return to the supply bottle). The script vial may be used directly to collect the customer's pills. Many robotic machines use this type of technology. Some of the problems here are:

1. Cross contamination can be very serious because the path from the hopper to the collection device can be long and require the pills to make contact with the walls. This also means that the pills going back into the supply bottle have been contaminated. Cleaning can be quite time consuming and require that the machine be partially disassembled. This problem can rise to the level where counting accuracy is compromised by the pill dust particles blocking the optics. Many of the newer generics are uncoated and powder badly. How often to clean the machine can become a dilemma. A dilemma where safety can be sacrificed for speed.
2. Not all pills can be counted optically, especially those that are filled with translucent fluid. The manufacturer must supply a comprehensive list of the pills that the machine has trouble counting.

The newest technique to be allowed for counting pills in the pharmacy is counting them based upon their weight (used for inventory counting in industry for centuries), using a precision scale that has been approved for this use in the pharmacy by the National Type Evaluation Program (NTEP). This technique was approved in 2004. This is the second least expensive technique as far as initial investment, but it can be true automation when a bar code scanner is included. Here the average weight of a pill (usually quite different from the dosage weight) is established by weighing a sample quantity of the pills to be dispensed. Usually the average weight of the pill is stored in memory, cross referenced to its NDC code. The customers vial is placed on the weigh pan, where tare is used to zero out its weight, and then pills are counted, based upon their average weight, as they are poured directly from the supply bottle into the customers vial. The pill counting is very fast (about as fast as they are poured). There is no cross contamination as the pills go directly from the supply bottle to the customers vial. All pills can be counted.