Handling expiry dates in the pharmacies:

a virtual warehouse

SYCO S.A.S.

C. Castelfidardo n. 21 Torino

It 's well known that the management of the expiry dates of medicines in the pharmacies is an unsolved problem. These dates are written, or simply impressed, sometimes in an almost unreadable way at arbitrary points of the box. For several years European Community legislation provides for the introduction of 2D barcodes that include the expiry date, which, however, have not yet been adopted by pharmaceutical companies.

Finally, the management systems of pharmacies, commonly adopted, provide a data base structured for types of medicines, and not for individual samples, and therefore do not allow the recording of the expiry dates.

The automated warehouse for pharmacies designed by SYCO s.a.s. embeds expiry date management, in fact there is a station to qualify drugs, prior to the insertion into the magazine, which automatically reads by a box of cameras the expiry date, or this is read and recorded by the warehouseman with voice recognition.

This feature is now offered separately, and can be advantageously used also in pharmacies without an automatic warehouse, adopting the virtual warehouse offered by SYCO[1].

The main points of the product are the following:

1. **Identification of the expiry date**- with multimedia techniques drugs are first individually identified, including the expiry date, in a recognition station at the entrance to the warehouse with vision and / or voice recognition.

2. **A database** - Each individual box is stored in our database with the individual's expiry date and uniquely identified through the second bar code (unique for each sample) present on the box.

3. **Connection to the management system of the Pharmacy** - All pharmacy management systems are equipped with a standard communication protocol used by the automated warehouses. Our individual database uses the same communication protocol to communicate with the management system of the pharmacy.

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[1] It applies to ethical drugs

4. **2D barcode reader –** barcode readers used by the pharmacists at thecounter, along the Ministerial code used for check-out of medicines are configured to simultaneously read the second individual bar code, this allows to maintain the individual database up to date.

5. **A computer software** our computer software let know to pharmacists and warehouse men the expiry dates of drugs in stock, and to inform in advance about expiring drugs.

6.**Virtual inventory** - If desired, the warehouse storekeeper pronounce the desired position of the drug in the store (shelf, shelf level and column) and the system maintains a graphical representation of the warehouse.

Principles of Operation

1. **Entry of drugs in the warehouse** The warehouse after introducing the drug in the pharmacy management system, check each samples with a barcode reader configured to read Ministerial and univocal codes present on each box, or insert the box in our qualification station to simultaneously reads both barcodes and expiration date. Since the automatic reading may fail, our system is equipped with voice recognition for the date directly spoken by the warehouseman for speeding up the entry of drugs into the database. The process is further accelerated in the presence of lots of drugs with the same date for which it is sufficient to check the bar code equipment.

2. **Database** - Our database behaves exactly as in an automated warehouses, record each individual sample of the drug, stored in a precise position and interacts with the pharmacy management system. At the time of check-out the pharmacist must be read with the barcode reader both codes present on the sample, the sale simultaneously updates the management system of the pharmacy and our individual data base.

3. **Maintenance of the expiry dates** - The warehouse is equipped with a graphical interface both for management and topology with which it can query the individual data base to have different information relating to the placement of drugs and their expiry dates, for example,per the type of drug or for the whole warehouse you can know the number of samples due before a certain date, after a certain date, within a certain range of dates, the distribution of the number of drugs to date.

The system can also provide reports, and automatically inform of the drugs that are approaching expiration date.