

The remaining unwanted pharmaceuticals must be further sorted into different categories by dosage form, (capsules, powders, solutions, suppositories, syrups, tablets). The following sorting categories and subcategories are suggested.

### 3.4 Pharmaceuticals and other materials which can still be used

A large proportion of the volume of a typical stockpile of waste drugs is not occupied by the pharmaceuticals themselves, but rather by other items, such as medical material and equipment, food, clothing, boxes, pallets, and general rubbish. The first step in dealing with these stockpiles is to remove and dispose of these non-drug, non-chemical items. All such items should be clearly separated from pharmaceuticals and chemicals.

#### **Non-pharmaceutical useful materials**

Medical equipment, beds, wheelchairs, dressings, clothing, laboratory glassware, etc. can either be utilized by the institution or by other facilities, recycled, cannibalized for spare parts or disposed to a landfill.

#### **Useful pharmaceuticals**

If feasible, pharmaceuticals within their expiry date and considered useful should be separated out and immediately used by the institution or reallocated according to the needs and instructions of the regional health authorities. A list can be prepared giving details of the items available, quantities and expiry date and circulated to others who can use the materials. While this separation is logical and appealing, experience indicates that it may not always be an efficient use of time and resources.

#### **Chemicals**

Acids, alkalis, reagents, phenol-based chemicals used for cleaning floors, disinfectants, etc. can be put to good use. If large quantities of these items are found a list may be prepared and offered to other potential users, such as hospitals, universities, or school laboratories, etc.

### 3.5 Expired or unwanted pharmaceuticals

Pharmaceuticals that should never be used and should always be considered as pharmaceutical waste are:

- all expired pharmaceuticals;
- all unsealed syrups or eye drops (expired or unexpired);
- all cold chain damaged unexpired pharmaceuticals that should have been stored in a cold chain but were not (for example: insulin, polypeptide hormones, gamma globulins and vaccines);
- all bulk or loose tablets and capsules. If unexpired these should only be used when the container is still sealed, properly labelled or still within the original unbroken blister packs;
- all unsealed tubes of creams, ointments, etc. (expired or unexpired).

#### **Sorted by active ingredient (special disposal needed):**

- controlled substances: e.g. narcotics, psychotropic substances;
- anti-infective drugs;
- antineoplastics;
- cytotoxic-anti-cancer drugs, toxic drugs;
- antiseptics and disinfectants.

The last three groups require special consideration. For more information refer to Sections 4.4, 4.5, 4.6 and 4.7.

#### **Sorted by dosage form (all other pharmaceuticals):**

##### **solids, semi-solids and powders**

- tablets, capsules, granules, powders for injection, mixtures, creams, lotions, gels, suppositories, etc.;

##### **liquids**

- solutions, suspensions, syrups, etc.;
- ampoules;

##### **aerosol canisters**

- including propellant-driven sprays and inhalers.

### 3.6 Hazardous or potentially hazardous non-pharmaceutical materials

All non-pharmaceutical, potentially dangerous waste such as chemicals, cleaning solutions, batteries and waste oil must be dealt with on a case-by-case basis by the hazardous waste expert, and must not be handled by the pharmaceutical teams unless expressly directed to do so. This waste requires separate and careful labelling and storage until disposal.

### 3.7 Recyclable material

Waste paper, cloth, packing materials, clothes, gauze and wooden items, such as pallets, can be recycled, burned or disposed of as normal waste to a landfill. Plastic, metal and glass items can be reused (glassware can be given to laboratories, mechanical items given to scrap dealers), recycled (if facilities are available) or disposed of in a landfill. Depending on the type of material and its proposed reuse, appropriate treatment, such as cleaning or disinfection, may be needed. Other general rubbish can be disposed of in a landfill. If a recycling programme exists for the reuse of such materials they can be separated from the pharmaceuticals prior to their disposal in the landfill.