10.1 SYRINGES AND NEEDLES

10.1.1 Syringes

Three sizes and two types of disposable syringes are shown (Figure 10.1a). The type with a lock-on hub (Luer Lock) holds the needle by threads that may be metal, glass or plastic. On standard syringes, the needle is only pressed onto the tapered shaft. The plastic, threaded Luer Lock type (Figure 10.1b and 10.2) is stronger and less likely to fracture when used for quick injection on moving animals. The needle will not blow off when pressure is used to speed up injection or when thick medication is used. Each manufacturer’s product is slightly different, so always examine the syringe prior to actually using it. Common syringe sizes are 1 ml, 3 ml, 5 ml, 6 ml and 10 ml. Also choose a manufacturer with a good reputation – some syringes and needles are below par in terms of quality. Most syringes will be marked in milliliters (ml), but some may be marked with cubic centimeters (cc) (which are equivalent to ml) or perhaps international units (IU), as with tuberculin syringes. The ml or cc markings are used for measuring drug dosages – disregard any other markings. Be aware that the markings on syringes will wear off, especially if syringes are left in a drug box with excessive movement as in the back of a pick-up! It is essential to mark a syringe with a felt-tipped pen when using various drug combinations, for example with etorphine. A 1 ml tuberculin syringe used with etorphine can be used several times during a field day but probably should be discarded safely (sharps container) the following day.

Syringes are used for measuring and delivering volumes of liquid, as most drugs will be in liquid form. It is both safer and more practical to measure liquid volumes in the field than to weigh a powdered drug. Powdered drugs are measured by weight in milligrams (mg). The amount of powdered drug dissolved in a liquid is measured as milligrams per milliliter (mg/ml), which is referred to as the drug concentration. All liquid drugs come in vials with the number of milligrams of active drug per milliliter of liquid (mg/ml) clearly marked on the box and the vial (for further explanation, see Chapter 3).
10.1.2 Needle selection

Needles are marked with two numbers and, in addition, may be colour-coded. The numbers refer to the diameter and the length, i.e. 20 gauge (ga), 38 mm. The needle gauge is like the system for shotguns, i.e. the smaller the number, the larger the needle diameter (for example, a 16 ga needle is bigger than a 22 ga needle). The other number is the length in millimeters (or inches). Most commercial needles will fit either type of syringe hub (see Figure 10.2).

Needles commonly used are as follows:

- 14 ga used for pole-syringe (jab stick) injection
- 16 ga used for pole-syringe injection and blood sampling in large mammals
- 18 ga used for blood sampling and hand-held injection
- 20 ga used for hand injection and withdrawal from vials – probably the most versatile needle for field use
- 22 ga used for hand injection of small animals, and small volumes of light-viscosity drugs
- 25 ga for withdrawing and injecting very small amounts of drugs and for use on narcotic drug vials where leakage or spillage might be a serious problem.