

### Handling Sterile Material

When you assist in a procedure and would like to pass sealing caps, needles, or other items, make sure to avoid any unnecessary contamination with germs or your own skin flora: Do not press the material out of the package (Fig. 10.1-4), rather open the packages carefully (↶ ↷) so that the contents can be removed under sterile conditions as in Fig. 10.5-8. The upper row of figures demonstrates how the contents can otherwise become contaminated by contact with the outer surface of the packaging of your fingertips (↘ ↓ ↙).



Fig. 10.1 Wrong!



Fig. 10.2 Not like this!

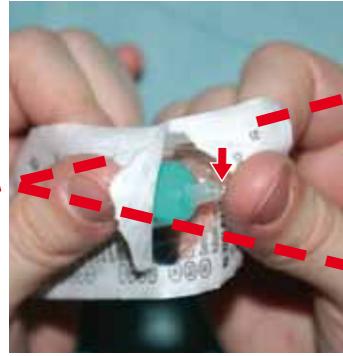


Fig. 10.3 Do not touch.



Fig. 10.4 Also wrong

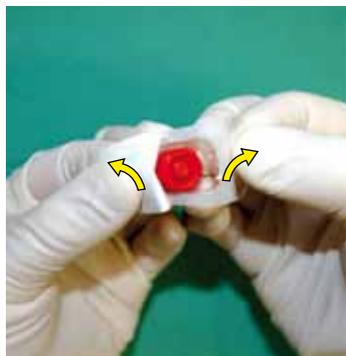


Fig. 10.5 Correct

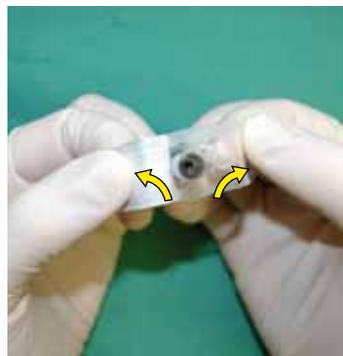


Fig. 10.6 Open up



Fig. 10.7 Sterile transfer

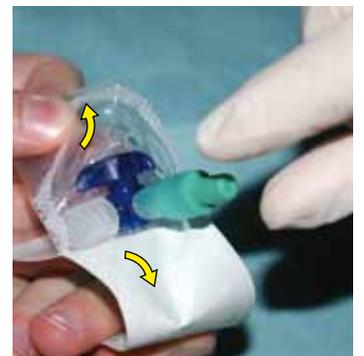


Fig. 10.8 Correct

This care does not require any extra effort; with practice it becomes second nature. In case of inadvertent contamination, make it a habit (both to yourself and in your dealings with colleagues or patients) to be honest and not to tolerate an unsterile procedure simply to avoid risking personal embarrassment. In general, there should be performed a disinfection of both connected ends in every manipulation of tubular systems, valves or infusion lines.

Naturally, this applies even in cases where you have inadvertently made an expensive multi-lumen central venous catheter unsterile or when obtaining replacement material from another room will delay the procedure.

To prevent any avoidable spread of pathogens, the current WHO guideline recommends disinfecting the hands on every occasion listed in Table 10.9, allowing at least 30 seconds for the disinfectant to take effect:

- 1 Prior to contact with the patient,** such as measuring vital functions, auscultation, percussion, any palpation, before putting on gloves
- 2 Prior to aseptic procedures,** such as before putting on gloves; contact with mucous membranes or skin; contact with invasive catheters, lines, etc.
- 3 After contact with potentially infectious material:** contact with mucous membranes or skin, catheters, lines; after removing gloves
- 4 After contact with the patient,** such as washing, measuring pulse, auscultation, percussion, and after removing gloves
- 5 After contact with the patient's immediate environment** (even without patient contact): such as bed, monitor, respirator, perfusor, infusion pump, or personal effects

Table 10.9 Occasions for hygienic hand disinfection.

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Therefore, attach the photoelectric barrier to the reservoir (Fig. 16.1), taking care to ensure that the drip chamber is not filled too high with fluid, like in Fig. 16.1, but only up to the lower third (→) of its lower part (see Fig. 13.6). Otherwise the photoelectric barrier would constantly emit an alarm signal. Then close the infusion pump (↷) so that the cover snaps into place (Fig. 16.2). The last step is to set the desired flow rate and start (↑) the infusion pump (Fig. 16.3). Make sure that you have removed any clamps from the infusion lines and that all three-way valves are in the correct open position (see p. 11).

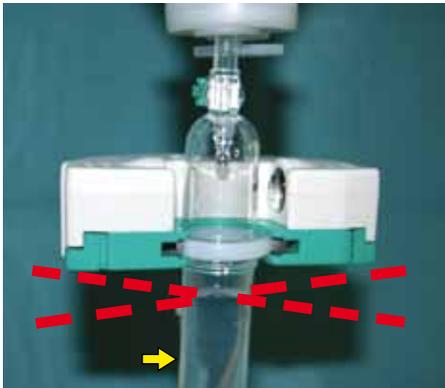


Fig. 16.1 Fluid level not too high!



Fig. 16.2 Close cover



Fig. 16.3 Flow rate, start

### Common Sources of Error

If the reservoir hangs at too oblique an angle the falling drops will fail to interrupt the light beam, triggering an alarm. Occasionally the tubing was not properly inserted or the cover of the unit was not fully closed; then the pump cannot achieve the proper flow rate. You may merely have neglected to reopen the clamp on the infusion line, or the drip chamber is fogged up (see p. 15). The infusion line may also be kinked farther distally toward the patient. Venous access may be blocked by a thrombosed cannula, or, in the case of a central venous catheter, it may be inadvertently blocked by a closed three-way valve.

### Disposal of Used Infusions

Most people think of disposing of glass waste separately in suitable containers to protect coworkers against injury from glass splinters. Some forget the infusion systems themselves: After you have withdrawn (↓ in Fig. 16.4) the needle and drip chamber from the infusion bottle, either cut them both off the infusion tubing and dispose of them in a suitable container (Fig. 16.5), or insert the needle in the special needle receptacle (↘) on the clamp (Fig. 16.6) so that it cannot injure anybody handling the waste bag later (Fig. 16.7). The perfect way to do this is then to pull the tubing taught and fix it in place with the clamp. Finally, remember to carefully turn your gloves inside out without contaminating yourself and then disinfect your hands (see p. 10).



Fig. 16.4 Withdraw needle



Fig. 16.5 ... throw away ...



Fig. 16.6 ... place needle in receptacle.



Fig. 16.7 Caution!