

## Analysis of needlestick injuries in a hemodialysis center

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### Background

Medical personnel are at high risk for contamination with infective body fluids through mucous membranes or during skin lesion injuries. Such injuries are caused by surgical instruments, broken glassware or needles. In the setting of a hemodialysis unit, the most common type of injury is the needle-stick injury involving a high risk of blood contamination and infection. Needle-stick injury counts for all incidental skin lesion that are caused by needles used for subcutaneous injections, venipunctures, introducing intravenous canules, or used for intravenous injections and infusion therapy.

### Objective

We have analyzed all needle stick injuries that occurred at our hemodialysis unit over the last 10 years. All workers and all cases were included in the study. We were looking at

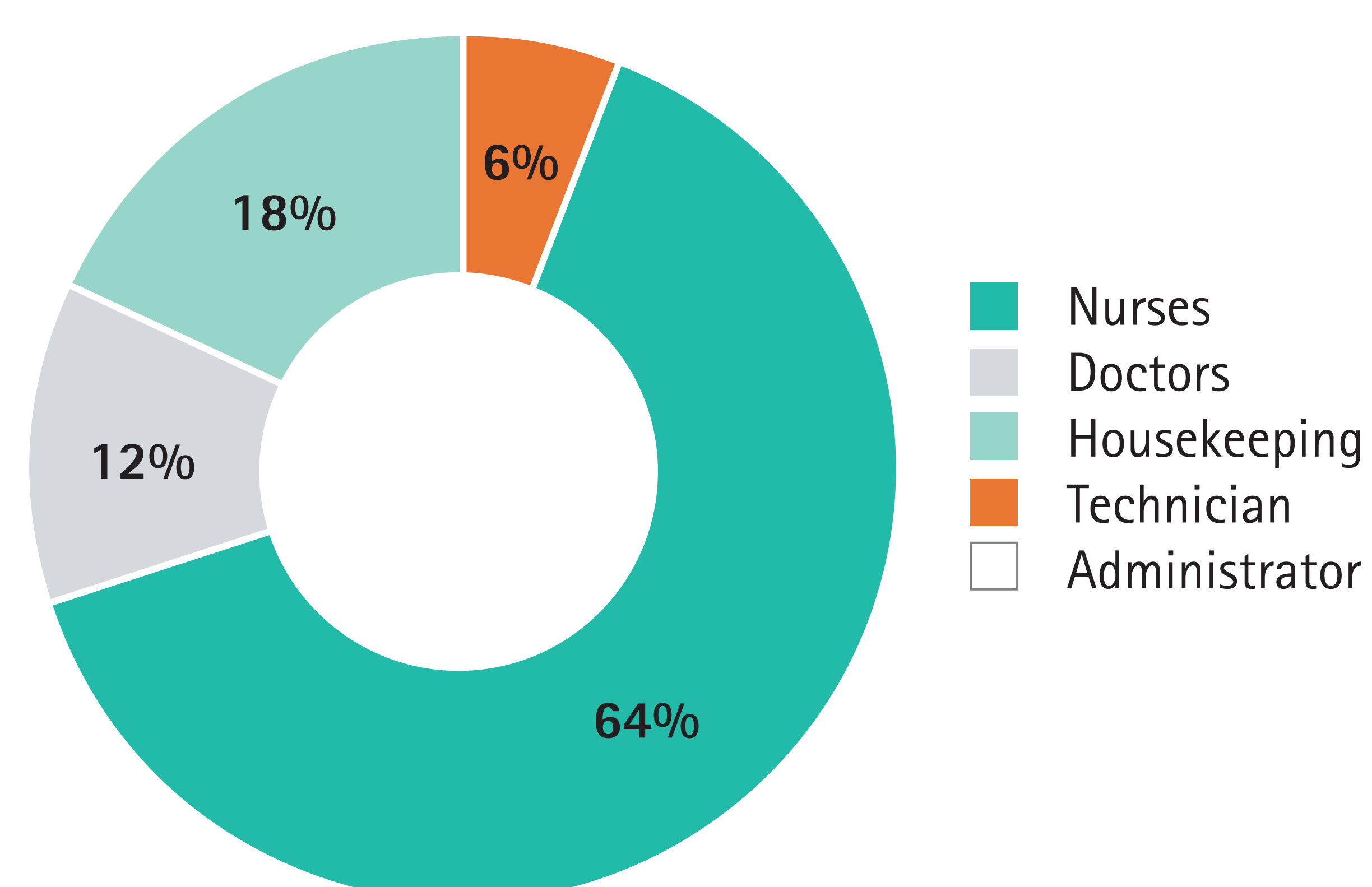
- the distribution of injuries between the different group of workers at the unit
- the different causes for the injuries and
- the actions taken for preventing further injuries

### Results

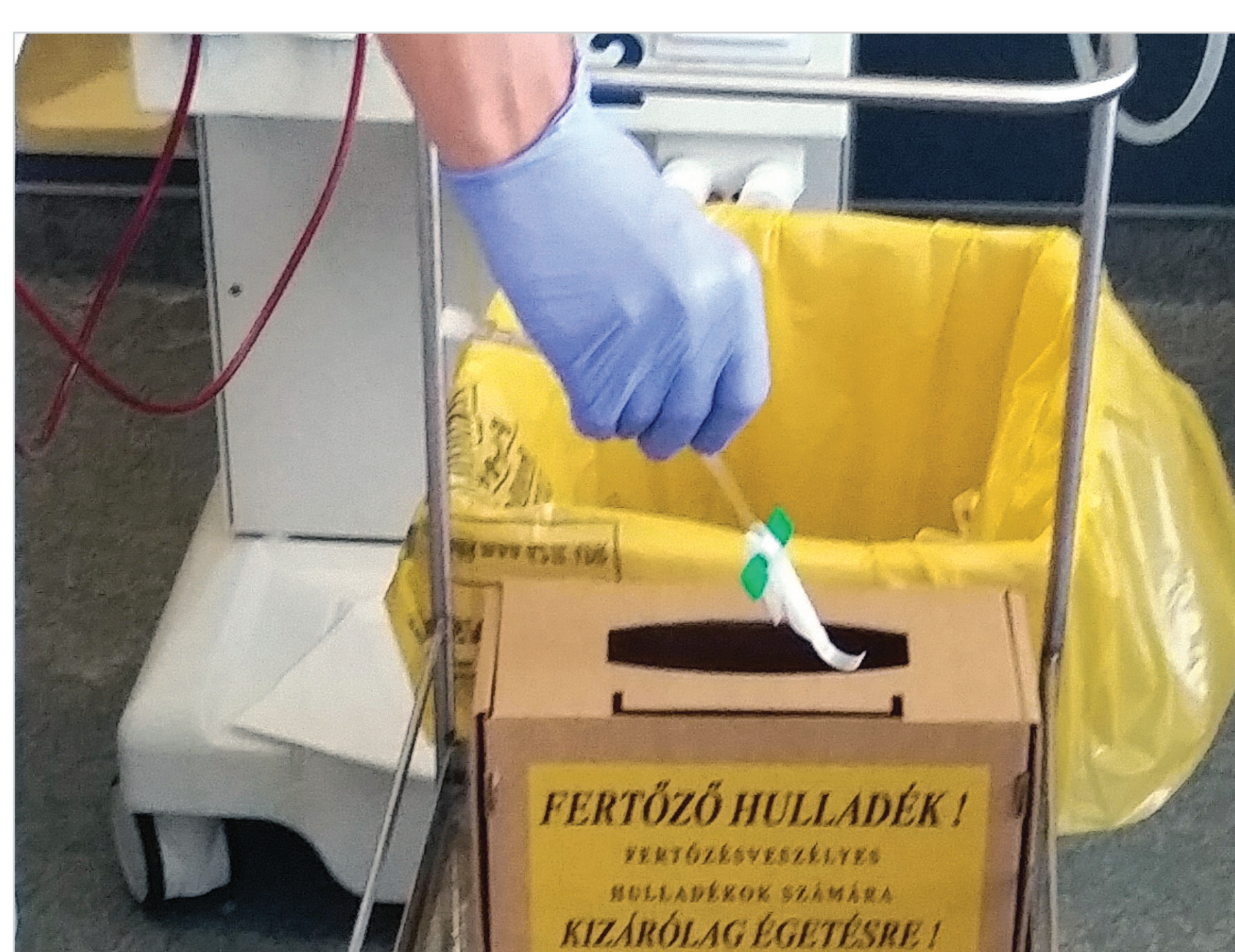
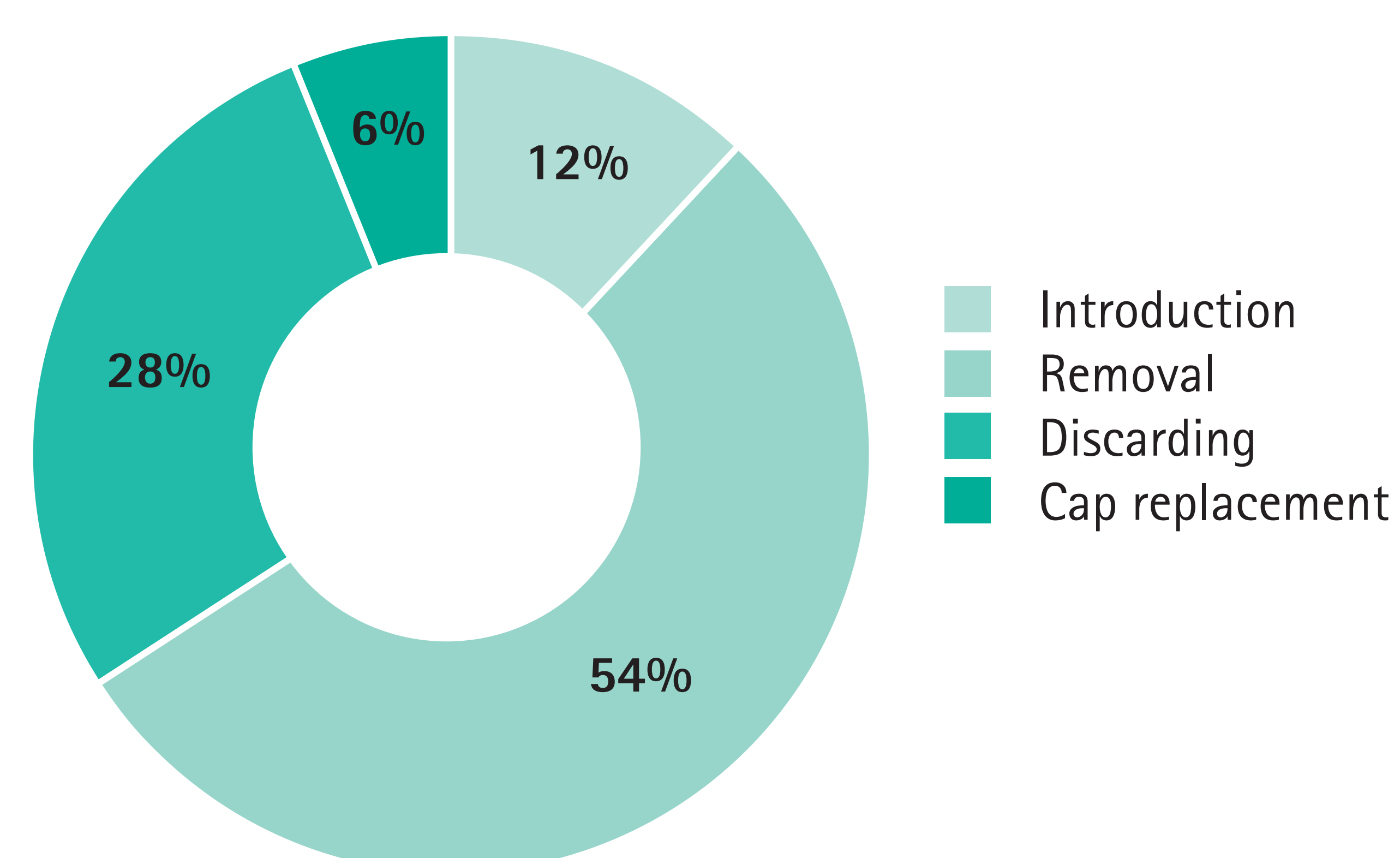
We found that 83% of the workers have suffered at least one injury through the years. People at the least risk were the administrative workers and the technicians. The group at the highest risk suffering 64% of all injuries was the nurses followed by doctors and housekeeping personnel (fig 1). Amongst the nurses needle-stick was more common during the first year at the unit and interestingly the frequency of injury was also increased in nurses working in dialysis for more than 8 years.

The most common cause of the injuries was rushing, inattention, patient-nurse misunderstanding during needling and improperly discarded sharp objects. The majority of the injuries occurred during or after the removal of the needle (fig 2).

Distribution of needle-stick injuries among dialysis personnel



Distribution of needle-stick injuries according to the phase of use



Picture 1



Picture 2

### Prevention

The continuous survey of needle-stick injuries has led to several changes in the daily routine for our nurses in order to avoid such further injuries. Sharp containers were moved as close to the working area as possible (pic 1). Safety needles were introduced in order to cover the sharp ends (pic 2). The most important part of the prevention is still the education of the personnel about the proper use and proper discard of the sharp objects.

It is also important to screen patients and workers for viral infections on regular bases in order to identify carriers.

### Conclusions

Prevention of needle-stick injury is important because of the high risk of acquiring blood born infections.

All medical personnel and patients should be vaccinated for HBV in order to reduce the risk of seroconversion.

As a result of the above preventive measures the frequency of needle-stick injuries was significantly reduced over the last few years.