Incident description

A patient is to be treated under anaesthesia with the third fraction of a prescribed HDR vaginal brachytherapy. No other brachytherapy treatments are scheduled that same day, but three patients with similar brachytherapy treatments are scheduled with their series of three fractions that week.

The standard patient identification procedure implemented in the radiation therapy department prescribes how RTTs must actively ask the name and date of birth of the patient and compare the answer with the data visualised on the MOSAIQ screen in the treatment room. This data from MOSAIQ is visual as soon as patients scan their badge at the treatment console. This procedure applies both for external therapy and for brachytherapy.

On the day of the incident, the medical physicist enters the treatment room to switch on the afterloader and to connect the vaginal cylinder. As the patient is under anaesthesia, there's no active patient identification done by the medical physicist.

Upon retrieving the patient data and treatment plan at the treatment console of the afterloader, the medical physicist compares the dose rate on the computer with the expected dose rate in the decay table and communicates an irradiation time of 12,5 min to the radiation oncologist and RTTs. The physician claims the previous fraction lasted 8 min whereas the RTTs indicate that it lasted 10 min. No further action is taken on the difference in irradiation time as it is assumed that it's related to the decay of the radioactive source and so the treatment is administered.

After irradiation, the physicist shuts down the brachy computer and wants to record the treatment in MOSAIQ at the console of the linear accelerator. But there, the physicist notices that another patient has been opened upon scanning the patient's badge. The physicist goes back to the physics room to check the patient's name and then realises that the wrong plan has been administered to the patient.

Given the small differences between the two plans, the dose limits of the OAR were not exceeded and no clinically relevant side effects are expected.

Root cause analysis

The following root causes have been identified:

Technical factor: Design
There is no software connection between the R&V system, MOSAIQ, and the brachy computer and therefore no check of the irradiation time in the R&V system with the irradiation time on the brachy computer.

Organisational factor: Procedures
There's no time-out procedure before the start of the HDR-treatment.

Human factor: Intervention
The patient's identity was not passed on to the medical physicist when leaving the treatment room.

Human factor: Verification
The patient's identity is not verified when opening the treatment plan at the console of the afterloader.

Corrective actions:

Implementation of a time-out procedure:

- The medical physicist opens the plan in the R&V system and on the brachy computer after active enquiry of the patient name.
- The RTTs check the patient name in the R&V system after active enquiry of the patient name and birth date, pass the patient's name on to the medical physicist who repeats the name after active verification on the brachy computer.