

USING UV-PAINT FOR EVALUATING TOUCH-CONTAMINATION OF A PATIENT-ASSISTANCE DEVICE FOR PERITONEAL DIALYSIS

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BACKGROUND

Patients in peritoneal dialysis (PD) have beside of their disease further **comorbidities** like diabetes, arthritis and more.⁽¹⁾

This result in several limitations like **tactile and visual restrictions** or **dexterity shortfalls** or **cognitive impairment**.⁽²⁾

Dealing with a new situation of a life-threatening disease like a renal failure is challenging alone. Combining this with an **unfamiliar handling procedure** in the therapy and a **permanent fear of an infection by touch contamination** may quickly become overwhelming for the person affected. This may **result in early dropouts** or **be a reason for not being treated at home**.

OBJECTIVE

A **novel patient assistance device** aims to connect the peritoneal dialysis (PD) catheter and the PD tubing system touch free.

The objective of this work is to evaluate, if **untrained novices in PD are able to perform handling cycles** with the patient assistance device **without touching infection critical surfaces** on the PD catheter or on the PD tubing system.

METHODS

Ten volunteers (8 males and 2 females, average 26 years, range 23-37 years) were recruited and participated in one complete handling cycle, **with no training in advance but aided by the device's quick starting guide** only.

While interacting with the device, the volunteers **had UV-paint on their hands**, which is invisible in daylight but brightly colourful under UV-light. Subsequent to the handling cycle, the **surfaces were analysed with a UV-light** for contact with the volunteer's hands.

RESULTS

The volunteers touched all expected user interface features of the device such as the three buttons on the top, the lever on the right-hand side and the clamp of the PD catheter. The tip of the **uncovered PD tubing system** and the **inside of the PD catheter** were defined as **critical surfaces for potential infections**. The analysis of the touched surfaces showed **no UV-paint on these surfaces** (see Figure 1, below).

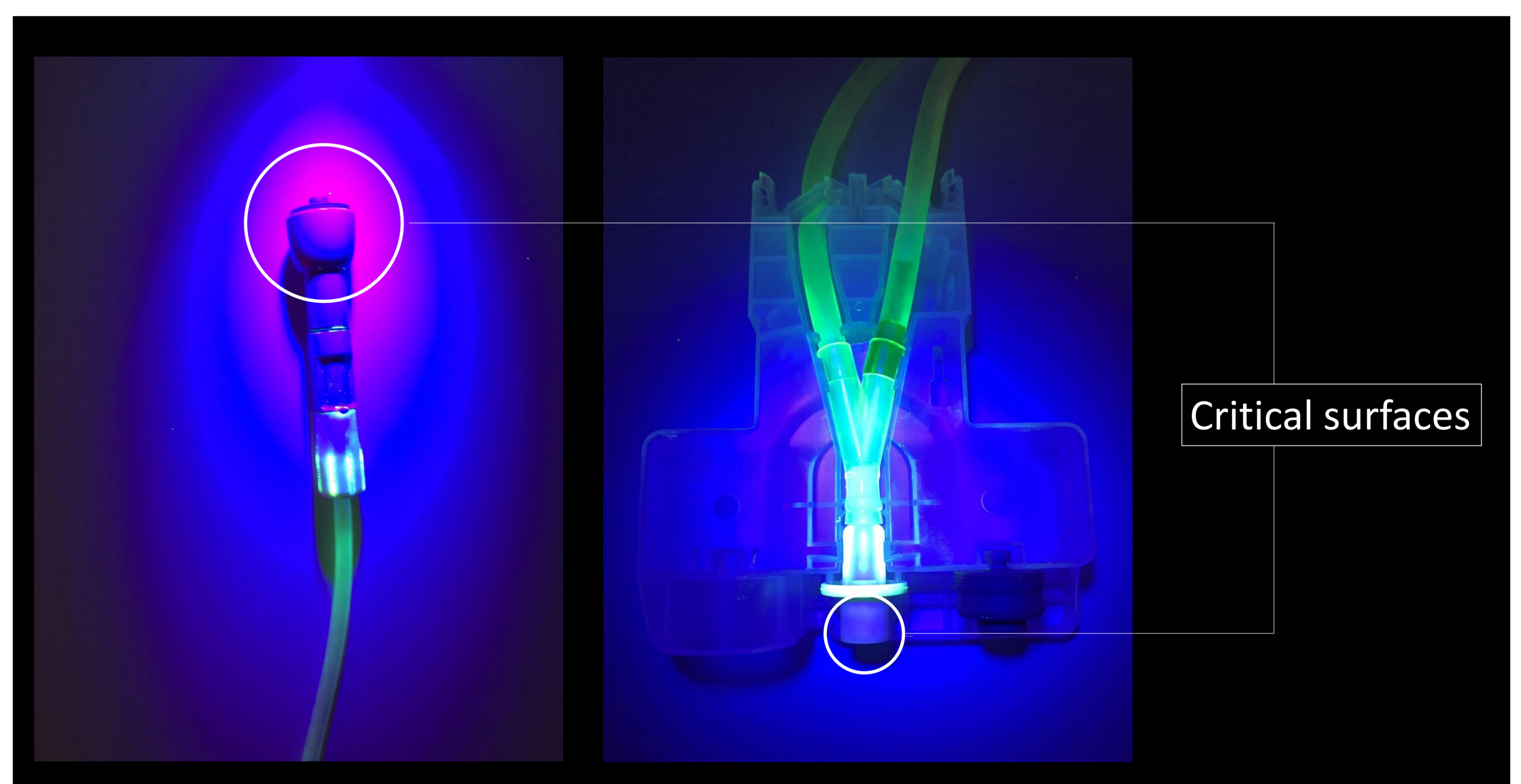


Figure 1: Examples of the PD catheter (left) and PD tubing system (right), touched with UV-paint in the handling cycle. The bright green colour is the UV-paint when illuminated by UV light. The critical surfaces are the tips of the PD catheter (left) and PD tubing system (right) show no UV-paint.

CONCLUSIONS

The results indicate that the patient assistance device **enables even untrained novices to connect a PD catheter** to a PD tubing system and performing the therapy handling **safely without touching critical surfaces** when using the patient assistance device.

REFERENCES

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