

# Topic for Thesis

## Ethical Aspects of a System for Surveying Proper Hand Cleaning Procedures in Hospitals

### Background

*Helicoph* is a system that was developed in collaboration with Helios Klinikum in Stralsund, Germany, that has improved overall hygiene in hospitals by creating incentives for hand disinfection. A digital name tag allows the hand disinfections performed by individuals to be tracked, which enables self-monitoring as well as subsequent analysis at the hospital level. (Explanatory video from Helios: <https://youtu.be/K3RcfRq9xdg> – only available in german)

The smart name tag and the disinfectant dispensers are each equipped with a Bluetooth transmitter module. When a dispenser is activated, it searches for the name tag that is closest to the dispenser in order to record a disinfection process. The name tags regularly transmit information about themselves in the form of a Bluetooth beacon, which is collected by the dispenser.

While this system is intended to improve the hygiene in hospitals and thus also for patients by helping the nurses to self-monitor their own disinfection practices, it could theoretically also be used to collect data during the work day in order to track work processes and penalize possible non-disinfection or bad work habits. This creates an ethical conflict between the well-being of patients and maintaining a good working environment for nursing staff.

The collection of certain data sets is already prohibited under the General Data Protection Regulation (GDPR), which applies in the European Union. However, others are permitted, for example, on the basis of legitimate interest from the employer. In these cases, any non-capturing of the data is therefore attributable to an ethical conflict.

The aim of this thesis is to examine this ethical conflict through literature research to provide a detailed overview. Another important component is the creation of an overview showing possible data sets that could be collected about patients, nursing staff, and everyday clinical practice in general, when a system like that is used in a hospital. Each of these data sets must be examined in detail in order to document their “significance” and “danger” in terms of the ethical conflict.

### Possible research questions

The practical usability of the developed system shall be tested using various experiments. The following questions can be used as a basis for possible experiments. A sensible selection should be made; not all questions need to be answered. If further interesting questions arise during the course of the work, these can also be dealt with in more detail.

- What identification methods are available to correctly identify a nurse that is using a disinfectant dispenser in order to guarantee correct tracking?
- What data can theoretically be collected about users with such a system? Any number of sensors can be assumed to be present on the smart name tag and the disinfectant dispenser.
- Which data sets may theoretically be collected in relation to hand disinfection according to the GDPR? Which may not?
- Can data records be stored if they are anonymized, grouped, or aggregated? If so, which ones? Over what period of time?
- What is the general response among nursing staff to such a system? (Literature)
- Is there an “optimal” system for disinfection tracking in terms of the ethical conflict?

## References

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