

Research Project:

# New Knowledge About Nurses' Perception of Traditional Lighting in Newly Built Hospitals



**AALBORG  
UNIVERSITY**

**chromaviso**  
Lighting · Evidence · Health

# New Knowledge About nurses' Perception of Traditional Lighting in Newly Built Hospitals



**How do nurses perceive traditional lighting in a new hospital? This is examined in a new article published by Kathrine M. Schledermann, Ph.D. student, MSc., in collaboration with Chromaviso and Aalborg University - partly financed by the Danish Innovation Fund. The Ph.D. study investigates the implementation of circadian lighting at new hospitals, focusing on the staff's working environment. The study covers the time leading up to the implementation.**

Previous research from Rigshospitalet has shown that circadian lighting reduces depression, anxiety, circadian rhythm disturbances, and fatigue for hospitalized patients (Anders West - Ph.D.: The effects of Naturalistic lighting in stroke patients, Copenhagen University 2018).

These results have led to the use of circadian lighting as an active part of care and treatment at nursing homes and hospitals. However, it has also created a demand for further investigation into how circadian lighting is implemented.

The article examines how the traditional light, installed prior to the circadian lighting, is perceived by nurses working at the Neuro Intensive Care Unit and a Post-anesthesia Care Unit at the Danish National Hospital. Furthermore, the study examines the advantages and challenges of traditional lighting in connection with the nurse's daily work and routines.

## How the original lighting is used and other key observations in the daily work of the nurses

- 1.** The patient's needs and health play a central role in how nurses use lighting in their work routines. E.g., the evening and night shifts often work in darkness to spare the patients and minimize disturbances in their circadian rhythm. This is specifically seen in the use of nurse's penlight (flashlight), which is frequently used at night when dosing medicine and controlling medical instruments.
- 2.** The nurses experience that they are placed in a dilemma where they must choose between lighting that suits their work task or lighting that minimizes disturbances to patient's well-being.
- 3.** In Postanesthesia Care Units with multiple beds, patients are disturbed when one patient is being examined, as the nurses must turn on the lighting in the entire room for examination, lacking the possibility to divide the room into individual light zones.
- 4.** The nurses appreciate being able to adjust the ceiling light's intensity and determine the height and angles of desk lamps in patient rooms. In order to avoid turning on the ceiling lighting and disturbing the patients' circadian rhythm, the nurses use the desk lamps creatively.
- 5.** The nurses find the traditional lighting challenging to operate and are generally critical to the purpose of the lighting and how it is being used, e.g., when it is optimal/most appropriate to use the different light settings.



*Kathrine M. Schledermann, Ph.D. student, MSc*

- 6.** The nurses often use the patient tables as a workstation to place medicine, medical equipment, and gloves. However, they have no lighting for the patient tables, which makes nurses use the desk lamp to illuminate the patient tables when needed. The nurses are generally pleased with the desk lamp, as it has a warmer color temperature and can be adjusted in height and angle. Some nurses pointed out the lack of desk lamps on the patient tables.
- 7.** The nurses lack the possibility to provide warm color temperatures to create cozy atmospheres for the patients and their relatives. They also lack lighting that changes naturally throughout the day. This is especially appropriate in the PACU departments, where patients wake up post-surgery. With many patients being light-sensitive, the nurses also lack warmer and dimmed light for this patient group.



## Results and conclusions

The study finds multiple elements essential to support patients' well-being and nurses' work tasks and routines.

The study concludes that it is essential to involve the nurses and staff during the design phase, as they can contribute with knowledge about specific needs and the use of lighting in different task-specific situations - something that is usually not taken into consideration in the design phase. In addition, the study indicates that even new buildings do not live up to the activities and users in a complex environment such as a Neuro-intensive Care Unit and Postanesthesia Care Unit.

## The study presents several recommendations for how lighting should be implemented at hospitals.

- Introduce and educate the staff in the use of light and the different settings so as the effect of light on people's circadian rhythm and well-being
- Design lighting systems and control panels for each department's specific needs
- Include light zones in, e.g., shared patient rooms so that other patients are not disturbed at night when one patient needs to be examined
- Create flexible lighting solutions that can be adjusted after installation, as new needs arise
- Install lights for specific tasks and workspaces in a room, e.g., in places where medicines and medical equipment are being handled
- Design a dynamic lighting profile that supports people's natural circadian rhythm, with night lighting that allows work to be carried out without affecting the sleep of patients and staff

Schledermann, Kathrine & Bjørner, Thomas & Mullins, Michael & Hansen, Torben. (2022). Identifying Nurses' Perception of a Lighting Installation in a Newly Built Hospital. IOP Conference Series: Earth and Environmental Science. 1099. 012027. 10.1088/1755-1315/1099/1/012027

## About Chromaviso

Chromaviso is changing the standards of lighting to improve health, treatment quality, care, work environment, and efficiency within the healthcare sector. Through technological innovation and close collaboration with healthcare professionals, we create and apply integrated and highly preferred lighting solutions with proven effectiveness.

### Learn more at

[www.chromaviso.com](http://www.chromaviso.com), [LinkedIn/Chromaviso](https://www.linkedin.com/company/chromaviso) or [X/Chromaviso](https://twitter.com/Chromaviso).