



Chroma Zenit

Evidence-based Circadian Lighting

A high-tech solution integrated with music intervention at Hudiksvall Hospital

More calm and better sleep

Patients with individual light needs and a staff with varying schedules and associated sleep issues were the reasons the Intensive Care Unit at Hudiksvall Hospital chose Chroma Zenit circadian lighting. A comprehensive solution that creates optimal conditions for treatment and working environment.

In 2015, Hudiksvall Hospital became the first hospital in Sweden to install circadian lighting in the general intensive care unit. The solution is tailored to the unit's rhythm and the patients' diagnoses and needs. A comprehensive circadian lighting solution that combines considerations for both patients and staff with both light and sound.

Better sleep and more energy.

The solution is documented in clinical studies, follow-up studies, user surveys, and procedures in more than 130 hospitals in the Nordic region. User surveys and interviews conducted at Hudiksvall Hospital's unit indicate that circadian lighting has had a significant impact on both patients and staff.

"It is very important for us because we work in three shifts. Many had difficulty falling asleep after a night shift, but when we got the lighting, the staff quickly noticed that they felt more alert at work and found it easier to fall asleep when they got home."

Inga-Lill Bergsman, Nursing unit manager

At the same time, the staff finds that circadian lighting is pleasant to be in and work with, and it provides optimal lighting around the clock, which is crucial for the work environment, safety, and healthcare.

Comprehensive solution

Chroma Zenit stabilizes the circadian rhythm and enhances the sense of time and place. It follows the natural light outside and gradually evolves throughout the day, from the gentle morning light to the intense daylight in the middle of the day and the warm, broad-spectrum nighttime light. The lighting is adjusted at each bed based on the individual patient's preferences and diagnoses, as well as the staff's lighting needs for individual treatment. Additionally, sound masking and music therapy are integrated into the solution to create an environment focused on privacy, calm, and personal space within an open architectural design.



Patients experience more calm.

The circadian lighting solution has had a positive impact on patients' sleep and well-being.

"The different light settings are important for the patients. They provide the best environment for patients to sleep well."

Pia Lago-Lengquist, Nurse

This is told by the nurse Pia Lago-Lengquist, while her colleague Kristina Löf adds:

"Nighttime lighting is good when it should be quiet and calm, and we use the white light, for example, when we need to take a blood sample. The context-specific lighting settings are an important complement to the general circadian lighting."

In addition to sleep and calm, the user survey shows that the staff perceives an effect on factors such as the patient's risk of delirium, depression, and fatigue. These are results that are also documented in international clinical studies conducted at Rigshospitalet, Harvard University, and Aarhus University Hospital. Other international studies have further shown that circadian lighting reduces hospitalization time and improves patient health outcomes.



Monitoring rooms, bed spaces, single rooms, and corridors

The intensive care unit has Chroma Zenit circadian lighting throughout the entire unit. The lighting is individually controlled at each bed but can also be centrally managed from the monitoring room through an intuitive control panel. In the evening, when patients need to sleep, the lights are dimmed at their beds, while the corridors and monitoring rooms have warm, broad-spectrum nighttime lighting that does not disrupt the body's circadian rhythm but still provides necessary work lighting for the staff.



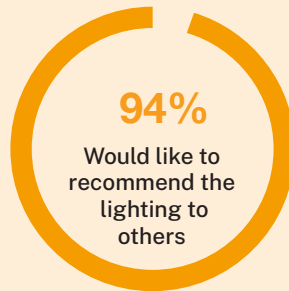
Patient-oriented light settings

The light settings have been developed in close collaboration with the staff to support various work situations throughout the day. At night, when the patient is in darkness, the staff has a range of options to turn on lights that disturb the patients as little as possible. For example, a small spotlight for simple treatments or warm, broad-spectrum light to soothe and provide comfort. Sound masking has also been integrated to shield patients from unnecessary disturbances from corridors or nearby bed spaces.



User survey of Chroma Zenit circadian lighting

Hudiksvall Hospital, november 2017



Patient

72% Improved sleep **52%** Reduced fatigue
80% More calm **52%** Reduced depression
47% Less delirium **52%** Improved well-being



Staff

75% More calm **43%** Less depression
75% More energy **72%** Less tired eyes
75% Less tired **79%** Improved well-being

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 col-laboration with healthcare professionals, we create and apply integrated and highly preferred lighting solutions with proven effectiveness.

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