

# Hospital design and innovative cleaning can protect patients from resistant bacteria

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Hospitals should design premises and adapt their infection control routines to a society that no longer has effective antibiotics, and that is vulnerable to fast-spreading global pandemics. This is argued in a new dissertation from Lund University in Sweden.

"Many hospitals in Sweden and the world are becoming old and worn out. Therefore, we now have the chance to build properly from an [infection control](#) point of view", says Torsten Holmdahl, doctoral student at Lund University and medical consultant at the infection clinic at Skåne University Hospital.

Torsten Holmdahl's dissertation includes studies on the planning and construction process of the new infection clinic at Skåne University Hospital in Malmö. As the former director of the clinic, he was also involved in this process.

"In my opinion, infection control should be one of the highest priorities when building new hospital premises. I realised that the new construction in Malmö was an opportunity that should not be missed", says Torsten Holmdahl.

As a result, all occupational categories at the clinic were involved in the planning. In addition, a full-scale, fully-equipped model of a patient room was also built, where extensive tests of infection safety and working methods were conducted.

The hospital decided to combine knowledge about construction from the time before antibiotics were used in healthcare with the latest requirements for a modern and well-functioning hospital. The end result became a building with very high standards of infection safety, with external entrances to all rooms and separate lifts/walkways to the clinic. The ventilation requirements, single-room standards, work patterns of the staff and the interaction with the adjacent emergency room, have all had a major impact and affected the final design.

The thesis also shows that they managed to keep construction costs down through extensive standardisation. In his conclusion, the importance of prioritising infection control and the participation of experts in disease control in the planning and construction processes are emphasised as factors for success.

Another aspect of major significance for the spread of infection is cleaning. Traditional hospital cleaning is done manually and several previous studies have pointed to deficiencies:

"According to international studies, in a newly cleaned space there is twice the risk that the newly admitted patient becomes infected with the previous patient's disease. Or that they take over as carriers of resistant bacteria", says Torsten Holmdahl.

According to the thesis, one solution involves different automated cleaning methods. It means that the staff start by removing any visible dirt, after which a machine or cleaning robot performs a more efficient decontamination.

Torsten Holmdahl found that the best results were obtained using hydrogen peroxide which, after cleaning, is aired out and broken down into eco-friendly end products. The research studies on new cleaning methods now continue at the [infection](#) clinic.

Provided by Lund University

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