Effect of single room vs contact isolation containment rooms

This is an excerpt from the full technical report, which is written in Norwegian.

The excerpt provides the report's main messages in English.

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Systematic review

kunnskapssenteret

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We would like to thank all contributers for their expertise in this project. Norwegian Knowledge Centre for the Health Services assumes final responsibility for the content of this report.

Norwegian Knowledge Centre for the Health Services
Oslo, December 2013

Executive summary (English)

Background

The Norwegian Knowledge Centre was asked by the Health Directorate to review available research about the effect of single rooms vs. contact isolation containment rooms. There are many ongoing projects in Norwegian hospitals, construction of new buildings and the refurbishment of existing buildings. To have knowledge of available research on effect of single rooms vs. contact isolation containment rooms will be important.

Infections are a potential adverse event of hospital treatment, completely eradicating the risk of these diseases is difficult, the National Strategy for Prevention of Infections in the Health Service and Antibiotic Resistance (2008-2009) in Norway states. Norway probably has the lowest occurrence of resistant bacteria in hospitals in Europe. So far, for example, we have succeeded in preventing MRSA bacteria from establishing themselves in Norwegian hospitals.

Direct contact transmission, where the infectious agents are transferred when the individuals have bodily contact, or indirect contact transmission via objects, is the most usual way of acquiring infections in hospitals. The most common link for indirect contact transmission is the hands of patients and staff. This report does not address isolation from airborne agents.

In order to prevent the spread of infectious agents, it is important that the architectural facilities are such that patients, staff and visitors are protected from unnecessary risk of contracting communicable diseases. This applies to general conditions such as the design of patient rooms and the location of wash basins and the availability of hand disinfection. Statutory requirements have also been specified for many types of special rooms such as isolation rooms.

Only single rooms with a sluice, a separate toilet with a shower and a decontaminator are defined as an isolation containment room. To be defined as a isolation containment room, isolation guidelines recommends that a number of conditions should be met, i.e. size, and available equipment, f ex the entrance to the toilet and shower should be from the patient room, not from the sluice.

Objective

To review studies on effect of single rooms vs. contact isolation containment rooms.

Method

We conducted a systematic literature search 28.6.2013 in the following databases: Medline, EMBASE, Cinahl, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials (CENTRAL), DARE, HTA. We applied no restrictions considering publication language.

Two persons independently read titles and abstracts to identify possibly relevant articles. We evaluated the relevance of selected articles based on our inclusion criteria:

Population	Patients infected by communicable diseases or patients with carriership of such diseases
Intervention	Single rooms in hospitals for patients infected by communicable diseases or patients with carriership of such diseases
Comparison	Contact isolation containment room for patients infected by communicable diseases or patients with carriership of such diseases
Outcomes	Spreading of bacteria that are transmitted by direct contact to other patients, staff and/or relatives. Duration of infection, duration of isolation or other precautions, health complications and death, costs. Other interventions like observation of hand washing or disinfection routines on entering or leaving the patient room.
Design	Systematic reviews, randomized controlled trials (RCT), clinical controlled trials (CCT), controlled before and after studies (CBA), interrupted time series with at least three measurements before and three measurements after the intervention (ITS).

Results

Of the 7191 identified references, we considered 17 possibly relevant. We read these 17 studies in full text. None filled the inclusion criteria. We do not find any studies that can answer the question if single patient rooms are as effective in preventing transmission of pathogens as contact isolation containment rooms.

Discussion

A common flaw in the identified literature, regardless of objective, is an inadequate description of the equipment and layout of the rooms are adequately described. Of-

ten it seems as if no distinctions are made between the type of rooms, i.e. contact isolation containment rooms and a single patient rooms are apparently regarded as the same. However, according to isolation guidelines, the isolation containment rooms have to be stricter equipped than a single room to be called an isolation containment room. Among other thing there has to be a separate toilet and shower. To future researchers in this field we would request that the rooms under investigation are described in detail, to make it possible to classify the room according to isolation guidelines.

Studies that aim to evaluate hospital architectural solutions as a cause of pathogen transmission meet several methodological challenges, but are wanted. Until such studies are realised, the existing isolation guidelines should be considered when new hospitals are build or old ones refurbished. This implies that an estimation of the local need for isolation containment rooms must be evaluated.

Conclusion

We found no controlled studies that evaluated the effect of single patient romms vs contact isolation containment rooms of patients infected or colonized by bacteria that can be transmitted by contact. Therefore we do not know if the effect of these two types of rooms is comparable.

Further research seems desirable on many different issues concerning infection control in hospitals. However, we would request that the rooms studied are described in more detail to make a comparison with isolation containment rooms as defined in isolation guidelines possible.