



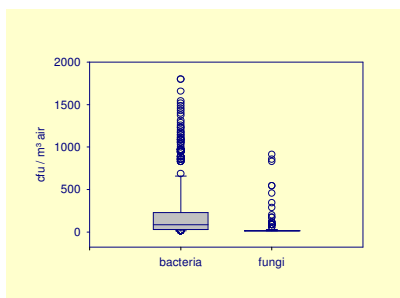
Does air-conditioning on vessels make people sick ? Investigations on hygienic quality in air-conditioning systems on sea going vessels

OBJECTIVES

Due to the observation of occupational physicians that nearly the moiety of the seamen will come down with diseases of the upper respiratory tract, a research project was initiated to analyse the hygienic quality of indoor air on sea going vessels. Therefore, a potential relationship between the content of bacteria and fungi in the air of work and living places on vessels and their distribution by air-conditioning systems (AC) should be determined. Under different climatic conditions (from cold to tropical regions), investigations were done on-site on three ferries, three container vessels and a research vessel. Outside air was used as reference. Parallel to air sampling, mucus probes of noses of 96 crew members were taken and analysed for the occurrence of staphylococci and streptococci, pathogenic staphylococci and fungi.

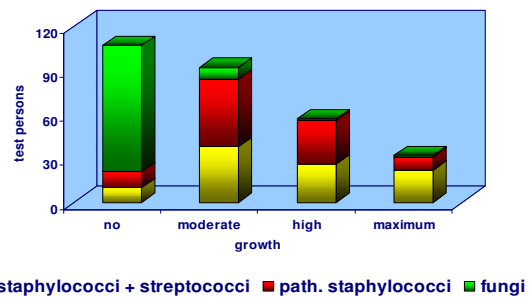
Which organisms are dominant in

... indoor air ?



⇒ **Bacteria show highest contents and highest distribution.**

... nasal flora ?

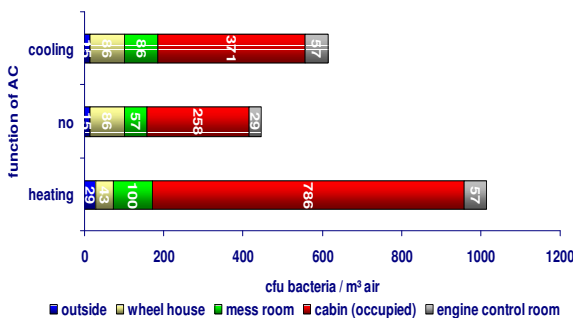


⇒ **Fungi are not found.**

⇒ **Bacteria show moderate to high growth rates.**

Have different functions of AC an impact on quality of

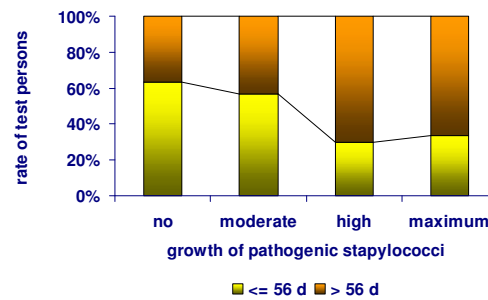
... indoor air ?



⇒ **During heating and cooling, cell numbers of bacteria increase.**

⇒ **In cabins, highest contents of bacteria are determined.**

.. nasal flora ?



⇒ **After 56 days on board, ratio of pathogenic staphylococci in noses of test persons increases.**

⇒ **Colonisation of mucous membranes depends on duration of stay on board.**

CONCLUSIONS

Air-conditioning seems to influence either quality of indoor air or colonisation of nasal mucous membranes of crew members by pathogenic bacteria.

Based on investigations on samples of filter layers of AC, it can be supposed that bacteria will be sucked in by outdoor air and proliferate on filter layers. Then, they will be distributed by air flow. In contrast, fungi seem to be retarded.

The study will be continued.

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