

CAN SURGICAL MASKS PROTECT EFFECTIVELY FROM AVIAN INFLUENZA?

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Problem definitions

In many domains of the health care medical mouth/nose protective products (MNP) such as surgical masks are used regularly. and They are also frequently used for the protection of the respiratory system of the medical staff against infectious agents. A study of 11 different types of MNP carried out at BGIA in 1995 was done to determine if they should be used as respiratory protection. After the occurrence of new infectious agents (e.g. SARS, bird flu) this study was updated in 2005 to reflect the present state of the art.

Methods

Three tests from European standard EN 149: 2001 for particle filtering half masks were used to evaluate the protective characteristics of 16 different, arbitrarily selected market-typical MNP products. Breathing resistance, the total inward leakage and filter material penetration were measured. Finely dispersed sodium chloride (NaCl) aerosol was used as a test surrogate for infectious agents.

Findings

Total inward leakage measurements under standardised wearing conditions and measurement of filter penetration indicated that 13 of the 16 products did not even fulfil the requirements for the lowest protection level (FFP1) for filtering half masks. The study revealed that the face seal leakage (fit) of the device is the crucial factor. The updated examination of the medical mouth/nose protection products confirms the result of the investigation of 1995 regarding respiratory protection requirements.

Conclusions

Most of the commercially available surgical masks are not suitable for the protection against bird flu and other dangerous infective agents. A concept for validation of surgical masks on the bases of respiratory protective requirements is needed if such products are intended to be used for the prevention and control of diseases.