Potential biases in the review and the limitations it places on inferences

mortality rate. A description of the baseline characteristics of the patients is important to decide whether the results are generalisable and to

for detection bias. It was impossible to blind the care providers of the trials to wearing or omitting a surgical face mask. The blinding of patients was

random list for one year at a time denoting weeks as masked or unmasked but did not describe the method by which weeks were

item

infection being identified by a high vaginal swab. All patients in this study were examined daily until discharge.
infection, but two out of the three wound infections reported were noted as serious enough to warrant antibiotics, the other

this review. In the study by

of 30% in the wound infection rate. It is unclear whether the power calculation took account of the clustered nature of the data. A power calculation informed

study standard masks were used (e.g. bacterial load). We included two studies. We identified no unpublished studies that met the criteria for inclusion. There was

studies identified. We reported estimates for dichotomous outcomes as odds ratio (OR) as the event rate was less than 30%

ft

masks a

ft

Data collection and analysis

Searching other resources

Intercollegiate Guidelines Network (e.g. RCTs) and quasi randomised with unclear allocation concealment. We excluded three studies because they did not involve any

Characteristics of excluded studies

Description of the intervention

Why it is important to do this review

is imperative to ensure accurate surveillance. A surgical wound infection is defined by purulent drainage and at least

items

Documentation of co

Filtering capacity/specification of masks.

Discussion

Authors' conclusions
Potential biases in the review and the limitations it places on inferences

We relied on the goodwill of experts in the field to provide information on completed or ongoing, published or unpublished studies. When critically appraising the validity of the studies we had to rely on adequate reporting of the trials. When there is minimal information in the trial report one cannot automatically assume that rigorous methods have not been followed. We attempted to obtain additional clarifying data from the investigators of two studies, however no responses were received. Webster 2010 provided data on patients undergoing clean surgery.

The examination of the effectiveness of disposable surgical face masks must be seen in the context of the number of variables associated with wound infections. It is difficult to interpret from small studies, such as Chamberlain 1984, whether the wearing of surgical face masks has an impact on rates of surgical wound infections in patients undergoing clean surgery.

Applicability of results

The results extracted for this review were limited to clean surgery and therefore cannot be extrapolated to other categories of surgery. The contribution that disposable surgical face masks make towards preventing infection is likely to be less consequential in contaminated wounds than in clean surgery.

The types of disposable surgical face mask used in the study were specified by Tunevall 1991 but not by Chamberlain 1984 or Webster 2010. It is possible that the specific mask composition changed in the years spanning the studies and this has the potential to influence results.

Although the review did not exclude trials involving the implantation of prostheses, we found no trials of this nature therefore limiting application of the review’s results to this type of surgery. One study, Webster 2010, differentiated between scrubbed and non-scrubbed members of the team but, because only non-scrubbed staff were randomised into the study, it was not possible to discriminate between the contribution of the scrubbed and non-scrubbed members of the surgical team to any resulting surgical wound infection. It could be argued that non-scrubbed members of the team are less likely to be in a position to contaminate the surgical site.

All included studies were based in the operating department and so application of the results to other invasive procedures in other clinical areas is limited.

We examined the potential for surgical face masks to benefit the patient by reducing surgical wound infections or to harm the patient by increasing surgical wound infections in this review. We did not undertake analysis of the potential to harm or benefit the surgical team by way of protection. Although Chamberlain 1984 favoured the use of surgical face masks, the trial was relatively small and was discontinued due to the identification of wound infections in three out of the five major clean cases performed. This may have been a chance finding and thus these results are potentially biased in favour of wearing masks. Tunevall 1991 and Webster 2010 were larger trials, more rigorously designed and did not detect differences in the infection rate.

Both national and international guidelines acknowledge the controversy surrounding the use of disposable surgical face masks and yet continue to recommend their use. We found no other reviews in this area and the limited number of trials in this review make it unsafe to draw definitive conclusions about the effect of surgical face masks on reducing surgical wound infection in clean surgery.