



# Vaccines for preventing anthrax (Cochrane Review - abstract)

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**Background:** Anthrax is a potentially fatal bacterial disease with cutaneous, inhalation, and gastrointestinal forms. Three anthrax vaccines are commercially available, but their comparative effectiveness and safety is not clear.

**Objectives:** To assess the effectiveness and safety of vaccines against human anthrax in relation to adverse effects and disease incidence.

**Search strategy:** We searched the Cochrane Infectious Diseases Group Specialized Register (March 2004), CENTRAL (The Cochrane Library Issue 1, 2004), MEDLINE (1966 to March 2004), EMBASE (1988 to March 2004), Science Citation Index (1981 to March 2004), the U.S. National Institutes of Health (NIH; March 2004), and the reference lists of articles. We contacted the UK Ministry of Defence, US Department of Defense, and individual researchers in the field.

**Selection criteria:** Prospective randomized, quasi-randomized, and cluster randomized controlled trials comparing anthrax vaccines with placebo, other (non-anthrax) vaccines, or no intervention.

**Data collection and analysis:** Six reviewers independently assessed trial methodological quality and extracted data. Adverse effects data was collected from the trials.

**Main results:** Two trials involving 16,052 people met the inclusion criteria. Both trials had methodological limitations. Compared to placebo, vaccination was associated with a reduced risk of contracting anthrax (Relative Risk 0.16; 95% confidence interval 0.07 to 0.35). In the one trial reporting adverse effects, the killed vaccine was associated with a higher incidence of adverse effects compared to the placebo (Peto odds ratio 5.15; 95% confidence interval 2.28 to 11.61). Just over 5% of participants in the vaccine group reported adverse effects. The effectiveness of the vaccine does not appear to be influenced by the route of inoculation (scarification compared to needling injection - odds ratio 1.61; 95% confidence interval 0.39 to 6.75).

**Authors' conclusions:** Killed anthrax vaccines appear to be effective in reducing the risk of contracting anthrax with low rate of adverse effects. Further research should be carried out on the short and long term safety effects of available vaccines and if possible their effectiveness.

**Citation:** Jefferson T, Demicheli V, Deeks J, Graves P, Pratt M, Rivetti D. Vaccines for preventing anthrax. *The Cochrane Database of Systematic Reviews* 1998, Issue 1. Art. No.: CD000975. DOI: 10.1002/14651858.CD000975.

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This is an abstract of a regularly updated, systematic review prepared and maintained by the Cochrane Collaboration. The full text of the review is available in *The Cochrane Library* (ISSN 1464-780X).

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