

**The efficacy and effectiveness of Q fever vaccines in high-risk groups: a systematic review and meta-analysis**

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Q fever causes significant morbidity in high-risk, occupationally exposed groups including veterinarians. Vaccination is recommended as effective means of preventing clinical disease. To assess the available evidence and derive a pooled estimate of vaccine efficacy (VE), a research synthesis approach, including comprehensive and replicable scoping study, systematic review and meta-analysis was undertaken. Primary research of VE of whole-cell and acellular vaccines to prevent clinical Q fever in exposed high-risk individuals was identified, appraised, summarized or synthesized when appropriate. Sixteen electronic databases and grey literature were searched for potentially relevant publications. Abstract-level initial classification relevance screening, full-paper primary and secondary review, data extraction and assessment of study risk of bias (RoB), were performed by two independent reviewers on included control trials (CT) and cohort studies (CS). From twenty-four potentially relevant publications, eighteen were excluded because non-relevant vaccine strains (n=2), lack of comparison groups (n=15) or non-relevant outcomes (n=2) were reported. As our aim was to assess the public health and clinical vaccine effect, studies only reporting antibody or T-cell assays were excluded. Clinical cases in abattoir employees, shearers, and farmers were extracted from CT (n=1) and CS (n=5). Risk ratios were calculated from published raw data and varied according to study design, case definition, and length of follow-up. A fixed-effect meta-analysis of pooled RR resulted in an overall whole-cell Henzerling phase I VE of 90% (95% CI:82-94%). Assessment of heterogeneity will be conducted. RoB revealed unclear to high risk of bias across most design categories. Available evidence of Q fever VE in high-risk groups needs to be interpreted with caution due to the low number of studies and observations, and limited methodological reporting that could potentially bias the outcome.

**Framework to evaluate the cost-effectiveness of rabies control on Flores Island, Indonesia**

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Rabies is a zoonotic disease caused by the rabies virus. Because of the human losses on the island of Flores (Indonesia) and the associated economic consequences because of expensive post exposure treatment, since 2001 different control programs have been applied to control this virus. The programs included different measures: (1) applying mass vaccination in the dog population, (2) culling stray dogs, (3) sterilizing dogs, (4) putting imported dogs in quarantine, and (5) applying post exposure treatment in human. Unfortunately, the cost-effectiveness of these programs is yet unknown. Therefore, the objective of this paper is to present a framework to evaluate the cost-effectiveness of various rabies control programs on Flores Island. The framework consist of 5 parts: (1) effectiveness; and (2) costs of programs in dogs; (3) effectiveness; and (4) costs of programs in humans; and (5) cost-effectiveness of programs in dogs and humans. Effectiveness of programs in dogs is defined as how effective the programs in reducing of number of rabies infected dogs. Effectiveness for the human population is defined as the number of (disability adjusted life years) DALYs prevented. This effectiveness depends strongly on the rabies control in dogs and on the right application post exposure treatment (PET) in humans. The costs of the programs both in dogs and humans will be calculated using a cost-benefit approach. The most preferable programs are those that show the lowest net cost for one DALY saved. Although we apply this framework on control of rabies on Flores island, it provides an approach that can be used for a wide range of zoonotic infectious diseases.