

Title: Updated systematic review of the association between proximity to animal feeding operations and the health of individuals in nearby communities - **NPB# 13-265**

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Revised

Scientific abstract

Objective: Update a systematic review of associations between living near an animal feeding operation (AFO) and human health.

Methods: The protocol registration number is CRD42014010521. The MEDLINE® and MEDLINE® In-Process, Centre for Agricultural Biosciences Abstracts, and Science Citation Index databases were searched. Reference lists of included articles were hand-searched. Eligible studies reported exposure to an AFO and an individual-level human health outcome. Two reviewers performed study selection and data extraction.

Results: The search returned 3702 citations. Sixteen articles consisting of 10 study populations were included in the analysis. The health outcomes were lower and upper respiratory tract, MRSA, other infectious disease, neurological, psychological, dermatological, otologic, ocular, gastrointestinal, stress, and other health outcomes. Most studies were observational and used prevalence measures of outcome. An association between Q fever risk and proximity to goat production was reported. Other associations were unclear. Risk of bias was serious or critical for most exposure-outcome associations. Multiplicity (i.e., a large number of potentially correlated outcomes and exposures assessed on the same study subjects) was common in the evidence base.

Conclusions: Few studies reported an association between surrogate clinical outcomes and AFO proximity for respiratory tract related outcomes. There were no consistent dose-response relationships between surrogate clinical outcome and AFO proximity. A new finding was that Q fever in goats is likely associated with an increased Q fever risk in community member. The review results for the non-respiratory health outcomes were inconclusive because only a small number of studies were available or the between-study results were inconsistent.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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