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Title: Increased respiratory symptoms and medication use in COPD patients living in the vicinity of livestock farms

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Body: Background and aims: Potential health effects of livestock farm emissions are of great interest for public health in the Netherlands. Some studies indicate that livestock farm emissions can affect respiratory health of local residents, but only few studies have addressed this issue. The aim of this study was to explore associations between the presence of livestock farms and respiratory health in a population sample of individuals living in a rural area with intensive livestock farming. Methods: Between November and December 2012, a questionnaire survey was conducted in a high density livestock farming area. In total, 16,300 adults (response 58%) filled out a questionnaire which consisted of questions on respiratory health, personal characteristics, and smoking habits. Proximity of livestock farms, number of animals, and type of animals relative to the home address were determined using a Geographic Information System. Results: Preliminary results showed a lower prevalence of asthma and hay fever with a shorter distance from livestock farms, however, all associations were not statistically significant. Within the group of COPD patients, more wheezing and increased use of inhaled corticosteroids (ICS) were observed for those with at least 12 livestock farms within 1 km of the home address (ICS: OR 1.49, 95% CI 1.01 - 2.19, wheezing: OR 1.92, 95% CI 1.30 - 2.83). Conclusions: The first results showed no association between proximity of livestock farms, number of animals, and type of animals and asthma and hay fever. COPD patients seem to have increased wheezing and medication use when living in close proximity to a high density of livestock farms.