

F. Franchimon, R.C.G.M. Loonen, J.E.M.H. van Bronswijk. Towards an economically acceptable prevention of Legionnaire's disease. *Gerontechnology* 7(2):107. The incidence of Legionnaire's disease is three times higher among older adults (50+) as compared to younger ones¹. Legionnaire's disease is caused by *Legionella* species. These bacteria arise from natural fresh water and survive the purification steps towards potable water. The major transmission mode is with fine water droplets (e.g. showering). Decontamination of domestic water systems in households of older persons is required. More than 50% of the cases of Legionnaire's disease are community acquired and another 20% is related to travel accommodations². Outbreaks are also noted in hospitals and nursing homes^{3,4}. Chloramines added to potable water appear to be the most effective intervention to reduce bacterial concentrations⁵. In this contribution we calculated actual gains and costs of such an intervention in individual, targeted households. **Methods** We calculate the DALY (Disability Adjusted Life Years) gained when decontamination with chloramines lowers the concentration of *Legionella* species and assess the economic acceptability of this intervention. Incidence figures were supplied by the National Health Counsel of the Netherlands. The value of the Attributable Factor (AF) of *Legionella* species for Legionnaire's disease is based on statistics of the Dutch Institute for Public Health and Environment and studies on community acquired pneumonia. The current health loss caused by this disease is expressed in DALYs. The Reduction Factor (RF) after decontamination with chloramines is assessed from published intervention and epidemiological studies. The gained DALYs through the intervention are based on AF and RF. The maximum value of economically acceptable intervention costs per household arises from the DALYs gained and the sum society is willing to pay for one healthy year (DALY). **Results and discussion** The reported incidence of *Legionella* related pneumonia (AF) is 0.6%. With a RF for chloramines of 0.9, the DALY gain is 440 / year for the Netherlands. In general, the acceptable value of a healthy year is €25,000-75,000, bringing the maximum allowable investment for a decontamination device at a level of € 3,5 -10 / household / year. At this price a mass introduction of *Legionella* decontaminators in the household water systems of the 3.2 million 50+ persons in the Netherlands is not possible. However, the incidence of *Legionella* related disease is underdiagnosed with a factor of at least 2.5. If 4% instead of 0.17% of all registered pneumonia is caused by *Legionella* species, as much as 2,600 DALYs can be gained each year, leading to an economically feasible investment of € 25-70 / household / year, sufficient to install local decontamination. **Conclusion** Decontamination of drinking water for *Legionella* species in households for older persons appears to be economically acceptable in the Netherlands and should be advocated.

References

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Keywords: Legionella, potable water, economic assessment, households, chloramines

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