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## Bioaerosol in occupational settings: a possible application of QMRA

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### Abstract

The assessment of occupational biological risk is generally limited to the evaluation of a "potential exposure", without any quantitative estimate. However, the QMRA (Quantitative Microbial Risk Assessment) methodology, already applied to water and food, could be useful also for risk assessment and management at the workplace.

In the present work we have developed a preliminary QMRA model to assess the microbial risk associated to the inhalation of bioaerosol contaminated by HAdV. Then this model has been applied to the air contamination data coming from different settings and to several exposure time.

The virological monitoring showed the presence of HAdVs in all the considered settings, thus confirming their wide diffusion. Nevertheless, the average concentrations of HAdV were different, ranging from 2 Log GC/m<sup>3</sup> ("white" points) to 8 Log GC/m<sup>3</sup> (hospital bathrooms).

The model estimates show that in the most contaminated settings a stay longer than 3 minutes would lead to a probability of infection of 100%, while for the less contaminated areas even after 15 min the probability of infection remains around 1%.

This approach is new and should be faced with caution. However it is worthy of discussion and further investigation.