

Natural ventilation effective in 'nightingale' wards

April 25 2013



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Carl A. Gilkeson, Ph.D., from the University of Leeds in the United Kingdom, and colleagues used a pulse-injection gas tracer method to assess potential infection risk and local ventilation rates in a 200 m³ cross-ventilated Nightingale ward (a large, naturally-ventilated environment with multiple openings).

The researchers found that local external [wind speeds](#) in the range of 1 to 4 m/s led to indoor ventilation rates of between 3.4 and 6.5 air changes per hour in the Nightingale ward. In open wards with an even distribution of potential airborne infection risk throughout patient locations, natural ventilation was found to be effective. In the vicinity and downstream of a tracer source, the concentrations of tracer were higher, but physical partitions were effective for containing the source. Infection risk was dramatically increased with closed windows (representing winter conditions), with a four-fold increase in exposure to the tracer compared with scenarios with the windows open; this problem was alleviated with use of extract fans.

"A hybrid approach utilizing the respective strengths of natural and [mechanical ventilation](#) may offer the best year-round solution in this and similar settings," write the authors.

More information: [Abstract](#)
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