VirginiaTech
Pamplin College of Business

The Feiertag Academy-to-Industry Collection

Department of Hospitality & Tourism Management

362 Wallace Hall (0429)

295 West Campus Drive

Blacksburg, VA 24061

Article Title

Small islands and pandemic influenza: Potential benefits and limitations of travel volume reduction as a border control measure [Summary]

Citation

Eichner, M., Schwehm, M., Wilson, N. et al. Small islands and pandemic influenza: Potential benefits and limitations of travel volume reduction as a border control measure. BMC Infect Dis 9, 160 (2009). https://doi.org/10.1186/1471-2334-9-160

Abstract

Some island nations have explicit components of their influenza pandemic plans for providing travel warnings and restricting incoming travellers. But the potential value of such restrictions has not been quantified. We developed a probabilistic model and used parameters from a published model (i.e., InfluSim) and travel data from Pacific Island Countries and Territories (PICTs).

Summary:

This analysis suggests that only a few PICTs might be expected to avoid pandemic influenza by relying on extremely rigorous travel volume reductions alone. Consequently, most PICTs need to consider multiple additional options in their pandemic planning (especially for pandemics with high case fatality ratios). These measures might include: entry screening using health questionnaires and use of rapid diagnostic tests; routine facility quarantine [11] or home quarantine with intensive monitoring; possibly the routine provision of antivirals to incoming travellers; pre-pandemic vaccination of their populations (if an appropriate vaccine became available); enhanced capacity for disease surveillance in the community and for rapid outbreak control capacity. As nearly 75% of infected travellers arrive without symptoms, entry screening based on the travellers' symptom states alone only slightly improves the escape probability (e.g. it increases Tonga's escape probability from 32 to 46% for the R 0 = 1.5 scenario with 99% travel reduction) if all symptomatic travellers are prevented from infecting anybody.

These results suggest that relatively few island nations could successfully rely on intensive travel volume restrictions alone to avoid the arrival of pandemic influenza.

Therefore most island nations will need to plan for multiple additional interventions (e.g., screening and quarantine) to raise the probability of remaining pandemic free.

Conclusion

These results suggest that relatively few island nations could successfully rely on intensive travel volume restrictions alone to avoid the arrival of pandemic influenza. Therefore most island nations will need to plan for multiple additional interventions (e.g., screening and quarantine) to raise the probability of remaining pandemic free.