

15.003

Effectiveness of masks and respirators against respiratory infections in healthcare workers: A systematic review and meta-analysisV. Offeddu^{a,*}, C.-F. Yung^b, M.S.F. Low^c, C. Tam^d^a National University Singapore, School of Public Health, Singapore/SG^b Tan Tock Seng Hospital, Department of Clinical Epidemiology, Singapore/SG^c National University Singapore, Singapore/SG^d Saw Swee Hock School of Public Health, Singapore/SG

Purpose: This systematic review and meta-analysis assessed the effectiveness of personal respiratory protective equipment, such as medical masks and respirators, in protecting healthcare workers (HCWs) from respiratory infections.

Methods & Materials: The databases Pubmed, EMBASE and Web of Science were searched for relevant randomized controlled trials (RCTs) and observational studies with no language or time restrictions. We included published RCTs and observational studies assessing the effectiveness of medical masks and respirators in protecting HCWs from clinical or laboratory-confirmed respiratory outcomes. Editorials, press articles, reviews, guidelines, mathematical models, ongoing studies and non-peer-reviewed reports were excluded. Fixed- or random-effects model meta-analyses were conducted with appropriate combinations of RCTs or observational studies to calculate pooled risk ratios (RRs) or odds ratios (ORs), respectively. To facilitate an appropriate interpretation of the findings from our meta-analysis of observational studies, we calculated a range of plausible RRs for each summary OR, assuming a baseline risk of SARS-CoV infection ranging from 20% to 60%, as estimated from the available cohort studies.

Results: Six RCTs and twenty-three observational studies were included into this review. Meta-analysis of RCTs indicated a protective effect of masks and respirators against clinical respiratory illness (CRI) (RR=0.59; 95%CI: 0.46 to 0.77) and influenza-like illness (ILI) (RR=0.34; 95%CI: 0.14 to 0.82), but not laboratory-confirmed viral infection (VRI). Compared to masks, N95 respirators conferred superior protection against CRI (RR= 0.47; 95%CI= 0.36 to 0.62) and laboratory-confirmed bacterial infection (RR= 0.46; 95%CI= 0.34 to 0.62), but not ILI or VRI. In the meta-analysis of observational studies, there was fairly consistent evidence of a protective effect of both N95 respirators (OR= 0.12; 95%CI: 0.06 to 0.26) and medical masks (OR= 0.13; 95%CI: 0.03 to 0.62) against SARS. Evidence for a protective effect of masks or respirators against pandemic H1N1 influenza infection was not consistent.

Conclusion: Overall, this systematic review and meta-analysis supports the use of respiratory protection to prevent clinical symptoms of respiratory infection among HCWs when used consistently during non-epidemic scenarios. In addition, both N95 respirators and medical masks were effective against SARS, but not pandemic H1N1 influenza, although additional studies will be required to validate these findings.

<http://dx.doi.org/10.1016/j.ijid.2016.11.074>

15.004

Utility, feasibility and acceptance of an online platform for tropical diseases contact tracingP.E. Pantoja^{a,*}, J. Gomez-Junyent^b, N. Serret^a, J. Muñoz-Gutierrez^b, A. Vilella^a, A. Trilla^a^a HOSPITAL CLINIC, PREVENTIVE MEDICINE AND EPIDEMIOLOGY, Barcelona/ES^b ISGlobal, Research, Barcelona/ES

Purpose: At the outbreak control of Ebola Virus Disease (EVD), the World Health Organization has proposed a new methodology for contact tracing, including Information and Communication Technologies (ICTs).

In order to evaluate using multiple approaches using mobile platforms for monitoring contact EVD, during April 2015 and March 2016. Six centers of the CIBERESP Spain perform a prospective follow-up in four cohorts of risk with the mobile web platform for Tropical Diseases Clinical Management (TDCM).

Methods & Materials: 43 Health workers, 25 aid workers, 20 travelers and 20 immigrants, a total of 108 subjects were recruited. On the first visit, they were given a mobile phone and a digital thermometer to follow up. Monitoring was based on the use of the application, completing two tasks twice a day for 21 days, looking for symptoms of EVE. TDCM creates real-time alerts and send SMS for investigators to follow up. We evaluate the utility with iSYScore scale and feasibility with tracing data quality and adherence of the subjects. Acceptability evaluation was made with a satisfaction survey given on the second and last visit.

Results: The iSYScore (27/47) considered the application useful. We found that 50% of the alerts generated were due to adherence. The total adherence was 73%, greater in health workers (81%) and aid workers (75%) rather than immigrants (56%, ANOVA $p < 0.05$). Moreover acceptance was between 41.2% - 47.4%. Finally contact tracing acceptance decrease 9% after follow-up.

Conclusion: TDCM is a useful platform for developing better model based on self monitoring and real-time monitoring systems. Presents a better adherence in health and aid workers, both groups feels better with self monitoring. Acceptance was superior to other Android applications, with differences between groups.

<http://dx.doi.org/10.1016/j.ijid.2016.11.075>

15.005

Building specimen referral networks to support outbreak responseS.K. Lakiss^a, J. Fischer^b, C. Standley^c, R. Muhayangabo^d, W. Heegaard^{e,*}^a Gouvernement de la Republique de Guinee, Direction Nationale de la Pharmacie et du Laboratoire, Conakry/GN^b George Washington University Milken Institute of Public Health, Department of Health Policy, Washington, DC/US^c Georgetown University, Washington D.C./US^d International Medical Corps, Conakry/GN^e International Medical Corps, Los Angeles, CALIFORNIA/US

Purpose: This case study identifies lessons learned from efforts to support the Guinean Ministry of Health to refer and transport clinical samples from local-level community health centers to diagnostic laboratories during the WHO-designated Phase 3 of Ebola surveillance and recovery.