Review of: "Pay-it-forward to improve influenza vaccine uptake and public engagement among children and older adults in China: three-arm quasi-experimental pragmatic trial"

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Summary

The authors state that China has low seasonal Influenza vaccination coverage amongst children and adults. They describe a three-arm quasi-experimental trial design that examined the effectiveness of a pay-it-forward intervention on flu vaccination compared to standard of care (user-paid vaccination) and free vaccination strategies. They describe the pay-it-forward strategy as community-engaged social innovation in which people receive free influenza vaccine from a local group and are then asked if they would like to donate and/or create a postcard message to promote vaccination to future potential vaccinees.

They describe their methodology as consisting of three arms in three clinics, rural, suburban and urban, in Guangdong Province, a sub-tropical province in southern China, with a defined year-round prevalence of influenza. They recruited 225 children 6 months to 8 years, and 225 adults ≥60 years into the study. They allocated 75 members of each age group to each of the three study arms. They used regression modelling to compare influenza vaccine uptake and vaccine confidence between the three arms.

They report that, amongst the 450 enrolees, 55/150 (36.7%) in the standard arm, 111/150 (74.0%) in the pay-it-forward (PIF) arm and 114/150 (76.0%) in the free vaccination arm received a flu vaccine. They state that people in the PIF arm were more likely top receive vaccine compared to those in the standard arm (aOR = 7.9; 95% CI: 3.2, 19.78) among children and (aOR 6.1; 95% CI: 2.8, 13.2) in older adults. Those in the PIF arm had higher confidence in flu vaccine safety, importance and effectiveness compared to those in the standard arm. In the PIF arm, 107/111 (96.4%) donated money for subsequent vaccination sand 19 of 60 (31.7%) created postcard messages.

They conclude that PIF was effective in improving influenza vaccine uptake and engagement in children and adults, and that their data have implications for pro-social interventions to enhance influenza vaccine uptake in settings where the

vaccine requires purchase. They also argue for future randomised controlled trials to better understand this system and how to integrate it into the current health system.

General comments

The background and rationale for the study are both well defined and well documented. The authors cite their previous PIF work on STDs, thus providing proof of concept for this current study. The choice of rural, suburban and urban sites, in addition to the three trial arms, is a strength of the study design. Their three stage study design development, although described, is better documented in a separate document that is not provided. The hackathon and co-creation methods are sufficiently described to appreciate how these were done. A pilot phase was used to finalise the PIF process, but was conducted only in the rural area. The rationale for the pilot is given, but not why it was only tested in the rural site. A justified sample size for each study arm is provided, suggesting adequate power for the proposed methodology, including for the secondary analyses.

The authors describe a site-specific chronological (non-random) allocation into each study arm based upon the availability of influenza vaccine, a supply which they as idiosyncratic at specific health facilities. It is not clear how this non-random study allocation might have affected the results. For example, did the PIF arm at a specific site coincide with widespread influenza circulation, whereas the other arms occurring at periods when influenza circulation was lower? This could affect study participant behaviour. More can be said about this non-random allocation for the three sites, even if in a supplementary document, so that readers can better appreciate how the results might have been affected.

The data collection and outcomes are reasonably well described and clear, as are the data analysis and cost analysis methods.

The results appear to support free vaccination as the least expensive cost per person vaccinated, with PIF coming in second, but superior to standard of care. However, PIF would appear to increase influenza vaccine uptake, as the authors suggest. The strategy appears to be especially effective for children, more so than for adults.

Specific comments

None.