

A combined approach maximises vaccination rates in older people – health education, centralised reminders and onsite vaccination

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Key points:

- Editorial to accompany *Strategies to increase the coverage of influenza and pneumonia vaccination in older adults: a systematic review and network meta-analysis*.
- Uptake of vaccines is highly variable across countries, causing a large and avoidable burden of disease and deaths
- A combined strategy of education, centralised reminders and onsite vaccination improves vaccine uptake
- Digital technologies may improve vaccination programme promotion and uptake

The critical importance of an effective vaccination programme was dramatically played out during the recent COVID-19 pandemic. Whole populations went into isolation in an attempt to minimise casualties from a pathogenic airborne virus. Some semblance of normality returned only once population immunity rates were high, largely due to a successful vaccination programme roll-out [1]. However, the pandemic in the era of social media also brought into sharp focus the concepts of vaccine hesitancy and later vaccine fatigue [2]. It is more important

than ever to understand how best to maximise vaccination rates against avoidable, potentially fatal communicable diseases.

In a first-of-its-kind systemic review and network meta-analysis, Du et al. [3], evaluated strategies to improve vaccination rates against influenza and pneumococcal infection among older people. They established that, compared to routine notification, interventions such as health education, centralised reminders, health education with onsite vaccination, and a combined approach of health education, centralised reminders, and onsite vaccination all significantly improved vaccination rates among older adults. However, they graded the evidence quality as low or very low due to study heterogeneity. This means that, while the combined strategy appears especially promising and cost-effective, there remains a possibility that their study's estimate of effectiveness might be markedly different from the true effect. Moreover, the effectiveness of the vaccine programmes themselves was not examined in this study, only the vaccination rates. Nevertheless, the negative impact of these diseases on the elderly population is so great that it is important healthcare providers take note of these new findings.

Pneumonia and influenza are common respiratory infections with a substantial burden of mortality and morbidity throughout the world [4]. Between 2010 and 2018, it is estimated that influenza contributed to an annual range of 4.3 to 23 million medical visits, 140,000 to 960,000 hospitalizations, and 12,000 to 79,000 deaths in the United States alone [5]. There were 18,000 to 96,000 influenza-related admissions to intensive care units during the same period [6]. Globally, it is approximated that each year there are between 291,000 and 646,000 deaths (mortality rates ranging from 4.0 to 8.9 per 100,000 individuals) associated with respiratory complications linked to seasonal influenza. The annual mean rates of influenza-associated respiratory mortality vary, ranging from 0.1 to 6.4 per 100,000 individuals for those under 65 years, 2.9 to 44.0 per 100,000 for individuals aged 65 to 74, and 17.9 to 223.5 per 100,000 for those aged 75 and older. The highest mortality rates are observed among individuals aged 75 years or older, with estimates ranging from 51.3 to 99.4 per 100,000 individuals [7].

In order to prevent influenza infection, it is advisable for all individuals above the age of six months to receive influenza vaccination, with particular emphasis on those aged 65 years and older. The World Health Organization's Strategic Advisory Group of Experts on Immunization (WHO SAGE) has recognized individuals in this age group as one of the primary priority categories for influenza vaccination [8]. Influenza vaccines demonstrate a commendable safety profile and are tolerated well by recipients across all age groups, including individuals with pre-existing health conditions [9-10]. Systematic reviews and meta-analyses conducted on influenza vaccines among older people, including residents of nursing homes, consistently reveal a substantial reduction in the risk of influenza infection, hospitalization related to influenza, and mortality [11-17]. In randomized clinical trials, the trivalent influenza vaccine showed a 17% decrease in infection rates [18]. The pooled vaccine effectiveness (VE) against pneumococcal pneumonia, encompassing any serotype, reached 64% (95% confidence interval (CI): 35-80%) across two clinical trials and 48% (95% CI 25-63%) based on findings from two cohort studies [19].

The adjusted effectiveness of the flu vaccine, considering age group and comorbidities, was

60.7% (95% CI 20.5-80.5%). When the analysis was further adjusted for sex, age group, and comorbidities, the vaccine demonstrated positive effects across all groups, with a 55.0% effectiveness (95% CI 2.6-79.2%) observed in individuals aged 65 years or older [20]. Throughout all seasons of influenza, the High-Dose Inactivated Influenza Vaccine (HD-IIV3) showed enhanced effectiveness in protecting against Influenza-Like Illness (ILI) compared to the Standard-Dose Inactivated Influenza Vaccine (SD-IIV), with a vaccine effectiveness (rVE) of 15.9% (95% CI: 4.1-26.3%). HD-IIV3 also demonstrated superior efficacy in preventing all-cause hospital admissions (rVE = 8.4%, 95% CI: 5.7-11.0%), as well as specifically against influenza (rVE = 11.7%, 95% CI: 7.0-16.1%), pneumonia (rVE = 27.3%, 95% CI: 15.3-37.6%), combined pneumonia and influenza (rVE = 13.4%, 95% CI: 7.3-19.2%), and cardiorespiratory events (rVE = 17.9%, 95% CI: 15.0-20.8%). Moreover, there were notable reductions in mortality related to pneumonia and influenza (rVE = 39.9%, 95% CI: 18.6-55.6%) and cardiorespiratory causes (rVE = 27.7%, 95% CI: 13.2-32.0%) [21]. A comprehensive systematic review of cost-effectiveness using quality-adjusted life years concluded unequivocally that influenza and pneumococcal vaccinations in older people provided good value for money [22].

Despite the established effectiveness of vaccines, reasons for lower than expected vaccination rates include: perceived as lower priority than specialised care for chronic disease, lack of trust in providers, inconvenient location, lack of specific information about the vaccine and its relevance to their health status, and poor access to primary health care providers [23-28]. Lack of awareness about available vaccines, not being informed by their physicians and lack of knowledge related to re-vaccination by physicians were also identified as barriers to vaccination [28].

Vaccine programmes against flu have proven benefits in reducing the number of emergency department encounters and hospitalisations because of acute respiratory illness, ultimately reducing the morbidity, mortality, and strain on healthcare resources [29]. During the last three years (2020-2023), the UK has topped the chart in flu vaccination coverage among 65 or above reaching more than 75% (above WHO target) [30] while at the same time EU countries are under-performing with some countries failing to reach even 20% vaccine coverage. Given the potential for trans-frontier infections observed during the COVID-19 pandemic, a collaborative international effort to improve vaccination rates would benefit all. It is perhaps no surprise that the UK makes use of the combined approach advocated by Du et al [3]. Countries with poor vaccination rates could learn from what has worked well here and elsewhere.

The rapid advancement of digital technologies introduces a fundamentally novel approach to enhancing public health through the utilisation of digitisation, particularly in the realms of prevention and health promotion [31]. Studies have shown that Digital Health Interventions (DHIs) involving television campaign, web-based decision aid, SMS text message, telephone, and computer-generated recall letters were cost-saving as well as cost-effective when applied to different vaccine programmes including the flu vaccine. DHIs can be used as a tool in health education to raise awareness among targeted population regarding flu vaccine and its relevance to their health which could potentially increase the willingness among people to receive vaccination [32]. Despite aiding in the widespread dissemination of 'fake news', poorly balanced vaccination scare stories and other types of anti-vaccination propaganda, use of digital technologies through DHIs could be the cornerstone to providing targeted education and reminders of the value of vaccination to a large population. Along with the provision of

accessible vaccination sites, this is the key to maximising vaccination rates and protecting our older population from devastating communicable diseases.

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