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Flu-related absence, a small proportion of all-cause sickness absence

Editor – The recent paper by Pereira *et al* on potential for improved sickness absence following influenza vaccination in healthcare workers is interesting.¹ We wonder whether the authors conclusions are valid based on the data in their study.

Annual population influenza infection rates are reported at between 5–20%.² On average each flu case takes 3 days absence.² Not all of influenza cases result in absence from work.³ In an average influenza season the expected contribution from influenza on total sickness absence may be 0.1–0.3%.

The vaccine is ineffective against other influenza-like illness (ILI) that are not caused by influenza. Generally the vaccine does not exactly match circulating seasonal flu strains, and other factors affect vaccine response,⁴ which is at best about 60% effective.⁵ Therefore, the impact of the vaccine on improvement of sickness absence can only be between 0.05 to 0.15% (average 0.1%).

The data analysis in this paper does correspond with the effect modelling outlined above. The authors' conclusion that 'A 10% increase in vaccination would be associated with a 10% fall in sickness absence rate' seems misleading based on the proportion of total sickness absence that is due to flu. In an average flu season the total proportion of influenza-related sickness absence rate is likely to be of the order of only a proportion (0.1%) of the all-cause absence rate of 4.5%. It may be that the authors intended to say that a 10% increase in vaccination would lead to a 10% fall in sickness absence in relation to influenza, but not total absence.

It may be time to review the efficacy of healthcare worker influenza vaccination against the desired objectives of public health policy. To aim to vaccinate 100% of a mostly healthy population, of whom at most about 20% may become infected, with an imperfect vaccine to improve sickness absence by 0.1% in the average flu season, seems of marginal benefit. ■

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Response

We thank the authors for their interest in our paper.¹ We analysed data from 223 healthcare trusts covered ~800,000 staff in each of four influenza seasons from 2011. Higher influenza vaccination rates were associated with reduced total sickness absence rates ($\beta = -0.425$ [95% CI $-0.658, -0.192$], $p < 0.001$). From this, an increase of 10% in influenza vaccine uptake, such as the one observed between the 2012–13 and 2013–14 influenza seasons, would be associated with a decrease in approximately 0.43 percentage points in the absolute sickness absence rate. Considering the average sickness absence rate was 4.5% across the four influenza seasons. This reduction of 0.43 percentage points translates into a 10% relative decrease in the sickness rate, which suggests that increasing vaccine uptake can have a significant practical impact.

The most likely explanation for this is a direct effect of vaccination. A causal effect of vaccination is supported by the observation that the association between vaccination and sickness absence was only present during the flu season. In addition, the association was independent of staff satisfaction, so the explanation that a 'happy' workplace might lead independently both to higher vaccination rates and lower sickness absence cannot explain it.

Around 40% of NHS staff sickness absence is related to respiratory illness² and rates of healthcare worker (HCW) influenza infection are higher³ than the range modelled in a general population.⁴ Median duration of HCW sickness absence with flu is 4 days.³ A significant proportion of HCWs have subclinical, but potentially transmissible, illness. The latter point means that the effect of vaccination will extend considerably beyond the individuals vaccinated, being multiplied by the reduction in transmission rates within the hospital environment and at home – vaccinated healthcare staff are therefore protecting their fellow workers as well as their patients,^{5–9} their families and themselves.