

Contents lists available at [ScienceDirect](#)

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

Increasing influenza vaccine uptake in children: A randomised controlled trial

Karene Hoi Ting Yeung^a, Marie Tarrant^b, Kate Ching Ching Chan^a, Wing Hung Tam^c,
E. Anthony S. Nelson^{a,*}

^a Department of Paediatrics, The Chinese University of Hong Kong, Hong Kong Special Administrative Region

^b School of Nursing, The University of Hong Kong, Hong Kong Special Administrative Region

^c Department of Obstetrics and Gynaecology, The Chinese University of Hong Kong, Hong Kong Special Administrative Region

ARTICLE INFO

Article history:

Received 22 March 2018

Received in revised form 19 July 2018

Accepted 24 July 2018

Available online xxx

Keywords:

Influenza vaccine

Randomised controlled trial

Intervention

Reminder

Hong Kong

Paediatrics

ABSTRACT

Background: Influenza vaccine is not included in the Hong Kong Government's universal Childhood Immunisation Programme but eligible children can receive subsidised vaccine through the private sector using the Vaccination Subsidy Scheme (VSS). This study examined whether a simple intervention package can increase influenza vaccine uptake in Hong Kong children.

Methods: Two study samples were enrolled: families of children who had participated in a previous knowledge, attitudes and practices study; and mother-infant pairs recruited from postnatal wards. Control groups received publicly available leaflets about VSS. Intervention groups additionally received: (1) a concise information sheet about influenza and its vaccine; (2) semi-completed forms to utilise the subsidy; (3) contacts of VSS clinics that did not charge above the subsidy; and (4) text message reminders for vaccination. Enrolled mothers were contacted when children were approximately 1 and 2 years old to determine influenza vaccination status of the families and their plan to vaccinate their children. Mothers' attitudes towards influenza vaccine were assessed at enrolment and at the end of the study.

Results: A total of 833 eligible mother-infant pairs were enrolled from the two samples. The intervention package improved influenza vaccine uptake by 22% at one year and 25% at two years of age. Maternal influenza vaccine uptake in intervention group was higher during this two-year period in those who had never been previously vaccinated. Mothers' self-efficacy regarding the use of influenza vaccine in her child i.e. belief and confidence in her own ability to make a good decision, was also improved with the intervention.

Conclusions: A four-component intervention package could improve influenza vaccine uptake in Hong Kong children and their mothers during the first two years of life and depending on vaccine effectiveness could potentially reduce influenza-associated hospital admissions in children below 2 years old by 13–24%.

© 2018 Published by Elsevier Ltd.

1. Introduction

Respiratory-associated illness accounts for over one-third of all general paediatric admissions in Hong Kong children [1]. Influenza

is an important contributor to these admissions and influenza hospitalisation incidence rates for children below 5 years of age were estimated to range from 1295 to 2906 per 100,000 person-years during the period 2005 to 2011 [2]. There are two influenza peaks in Hong Kong each year, a larger winter peak and a small summer peak [3]. The Northern Hemisphere seasonal influenza vaccine is typically used prior to the winter peak. Influenza vaccine effectiveness against hospitalisation in Hong Kong was 62% during 2009 to 2013 in children in all age groups [4] and 64–68% during 2015 to 2016 in children aged below 6 years [5].

Influenza vaccine is not included in the Hong Kong Government's universal Childhood Immunisation Programme (CIP). In

Abbreviations: CHP, Centre for Health Protection; CIP, Childhood Immunisation Programme; MCHC, Maternal and Child Health Centre; RCT, randomised controlled trial; UCN, United Christian Nethersole Community Health Service; VSS, Vaccination Subsidy Scheme.

* Corresponding author at: Department of Paediatrics, The Chinese University of Hong Kong, 6/F, Lui Che Woo Clinical Sciences Building, Prince of Wales Hospital, Shatin, Hong Kong Special Administrative Region.

E-mail address: tony-nelson@cuhk.edu.hk (E.A.S. Nelson).

<https://doi.org/10.1016/j.vaccine.2018.07.066>

0264-410X/© 2018 Published by Elsevier Ltd.

2008, the Centre for Health Protection (CHP) introduced the Influenza Vaccination Subsidy Scheme, which was renamed as the Vaccination Subsidy Scheme (VSS) in 2016/2017. The scheme encourages children aged from 6 months to below 12 years to receive seasonal influenza vaccination. Private doctors are required to register under the VSS to be eligible to receive the Government subsidy and can optionally charge a fee above the subsidy. Thus parents of eligible children who receive influenza vaccine from a VSS registered practitioner, may or may not be required to pay an additional fee above the subsidy. Despite the CHP recommendation for universal vaccination of young children and the availability of this subsidy since 2008, the coverage of seasonal influenza vaccination was only 17.9% in children aged from 2 to below 5 years in 2015 (personal communication with the CHP) and 14.7% in children aged from 6 months to below 2 years in 2013 [6]. These low uptake rates compare to immunisation coverage rates of over 95% for vaccines included in the universal CIP [7].

Most Hong Kong parents are not aware of the Government's recommendation that young children should receive influenza vaccination [8], emphasising the importance of making this information concise and easily accessible to parents. In a systematic review [9], 80% of studies showed that reminder interventions improved uptake rates in children for both routine immunisations (odds ratio [OR]: 2.0; 95% confidence interval [CI]: 1.5, 2.7) and targeted influenza vaccinations (OR: 4.3; 95% CI: 2.1, 8.6). The absolute increase in the coverage of influenza vaccine in the groups receiving reminders ranged from 1% to 9% compared with those receiving no reminders [10,11].

In view of the low uptake rate of this safe and effective vaccine, the very significant disease burden in Hong Kong children, and the lack of previous local studies, we conducted a randomised controlled trial (RCT) to determine whether an intervention package could increase influenza vaccine uptake in Hong Kong children aged from 6 to 24 months.

2. Methodology

2.1. Subjects

In this prospective RCT, there were two samples: (1) mother-infant pairs enrolled in a previous Pneumonia Diarrhoea Knowledge Attitudes and Practices (PDKAP) study from two public hospitals in Hong Kong (*group 1*); and (2) newly recruited mother-infant pairs from one public hospital in Hong Kong (*group 2*). Recruitment of *group 2* was initiated due to a lower than anticipated recruitment rate in *group 1*.

Both PDKAP study and *group 2* mothers were initially recruited within 72 h of the infants' birth. At this stage *group 1* subjects were recruited for the PDKAP study and *group 2* subjects for this RCT. Inclusion criteria were: (1) mother aged older than or equal to 18 years; (2) Cantonese speaking; (3) had a plan to remain in Hong Kong with the infant after birth during the study period; (4) without mental or psychosocial problem that might affect their interpretation of the study questionnaires; (5) no serious obstetric complications; and (6) baby is full-term (≥ 37 weeks of gestation) with no congenital abnormalities. *Group 1* subjects were invited to participate in the RCT at the conclusion of the PDKAP study when the children were aged over 6 months. Children were excluded from the RCT if (1) they had already received influenza vaccination or had a plan to receive it within a few days after the invitation phone call, or (2) they were not living with the mothers in Hong Kong. If an enrolled mother had a multiple birth, only data for the elder child was included in the analyses. *Figs. 1a and 1b* show the logistic flow of these two samples. The time of recruitment were different between the two samples but the intervention and control packages delivered were the same. Children in *group 1*

were enrolled from November 2014 to June 2015 and those in *group 2* from April to July 2015. The first intervention package was delivered to *group 2* children at six months of age but from 6 to 10 months of age to *group 1*, depending on the time of recruitment into the RCT.

2.2. Randomisation

After enrolment and consenting, all participants were randomly allocated to either the control or intervention group using block randomisation [12]. The two groups had similar numbers of participants. The intervention allocation in block size of 8 was randomly generated. The block size was kept unknown to investigators and interviewers carrying out interviews. Both the investigators and the participants were blinded to group allocation. As part of the consenting process, all subjects were informed that they would be provided with information about influenza vaccine and that they would be followed up until the child reached 2 years of age to assess the influenza vaccine uptake.

2.3. Hypotheses

The uptake of influenza vaccine provided through VSS can be increased by providing

1. Mothers with concise and targeted information to enhance their knowledge and change their attitudes and practices in relation to influenza vaccine;
2. Assistance with completion of the documentation needed to take part in the Government's VSS;
3. Contact details of specific VSS registered clinics that did not charge additional fees for influenza vaccination above the Government subsidy; and
4. Text message reminders for vaccination.

2.4. Intervention and control

2.4.1. Intervention group

Subjects in the intervention group received the same standard information about the VSS as the control-subjects. Additional interventions were provided when the child was approximately 6 months old (i.e. eligible to receive influenza vaccine) and at the start of the next VSS (i.e. when influenza vaccine become available for the season and before the arrival of the influenza season). The interventions were: (1) a concise information sheet about the risks of influenza to children and the benefits of influenza vaccination (Appendix); (2) semi-completed forms required for the VSS, with highlighted guidelines of where to sign the form and a reminder to take the child's birth certificate to the clinic; and (3) the contact number and address of a specific community health centre registered under the VSS that was in reasonable proximity to their home. The United Christian Nethersole Community Health Service (UCN) is registered under the VSS and has a network of clinics that provides influenza vaccine without any additional cost above the subsidy and without the need for a prior appointment. In 2014/2015, UCN clinics provided trivalent influenza vaccine at no additional cost above the subsidy but quadrivalent influenza vaccine at a cost of HKD20 per dose above the Government's subsidy. The additional HKD20 per dose of quadrivalent influenza vaccine was compensated by the research funding in terms of supermarket or book coupons at the end of the study to ensure that cost of vaccine was not a barrier to uptake. If there was no UCN clinic near the subjects' home, a list of other nearby VSS registered clinics that did not charge additional fees was provided. This information package was delivered and explained face-to-face to *group 1* intervention-subjects after they were recruited into the RCT. For *group 2*

Download English Version:

<https://daneshyari.com/en/article/8956405>

Download Persian Version:

<https://daneshyari.com/article/8956405>

[Daneshyari.com](https://daneshyari.com)