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Low vaccination coverage for seasonal influenza and pneumococcal disease among adults at-risk and health care workers in Ireland, 2013: The key role of GPs in recommending vaccination

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ABSTRACT

The World Health Organization (WHO), and European Agencies recommend influenza vaccination for individuals at-risk due to age (≥65 years), underlying diseases, pregnancy and for health care workers (HCWs) in Europe. Pneumococcal vaccine is recommended for those at-risk of pneumococcal disease. In Ireland, vaccination uptake among at-risk adults is not routinely available. In 2013, we conducted a national survey among Irish residents ≥18 years of age, to estimate size and vaccination coverage of at-risk groups, and identify predictive factors for influenza vaccination.

We used computer assisted telephone interviews to collect self-reported information on health, vaccination status, attitudes towards vaccination. We calculated prevalence and prevalence ratios (PR) using binomial regression.

Overall, 1770 individuals participated. For influenza, among those aged 18–64 years, 22% (325/1485) [95%CI: 17%–20%] were at-risk; 28% [95%CI: 23%–33%] were vaccinated. Among those aged ≥65 years, 60% [95%CI: 54%–66%] were vaccinated. Influenza vaccine uptake among HCWs was 28% [95%CI: 21%–35%]. For pneumococcal disease, among those aged 18–64 years, 18% [95%CI: 16%–20%] were at-risk; 16% [95%CI: 12%–21%] reported ever-vaccination; among those aged ≥65 years, 36% [95%CI: 30%–42%] reported ever-vaccination. Main reasons for not receiving influenza vaccine were perceptions of not being at-risk, or not thinking of it; and among HCWs thinking that vaccination was not necessary or they were not at-risk. At-risk individuals were more likely to be vaccinated if their doctor had recommended it (PR 3.2; [95%CI: 2.4%-4.4%]) or they had access to free medical care or free vaccination services (PR 2.0; [95%CI: 1.5%-2.8%]).

Vaccination coverage for both influenza and pneumococcal vaccines in at-risk individuals aged 18–64 years was very low. Influenza vaccination coverage among individuals ≥65 years was moderate. Influenza vaccination status was associated with GP vaccination recommendation and free access to vaccination services. Doctors should identify and recommend vaccination to at-risk patients to improve uptake.

1. Introduction

Influenza is a highly infectious disease which has significant morbidity and mortality. Invasive *streptococcus pneumoniae* can cause serious disease or death, particularly for at-risk groups [1,2]. Both diseases are potentially vaccine preventable and there is good international evidence of which groups benefit from vaccination with either vaccine [1,2]. Most high and middle-income countries have vaccination recommendations together with funding mechanisms to encourage vaccination, particularly for influenza [3]. International studies have identified a wide range of factors associated with vaccine acceptance, including social and cultural beliefs, access to services, and public policies.

Despite strong international and national vaccination recommendations uptake among risk groups there has been little progress made in Ireland in recent years [3]. The European Commission (EC) recommends that all EU countries monitor seasonal influenza vaccination coverage in high risk groups. The World

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Health Organization (WHO) and the European Centre for Disease Prevention and Control (ECDC) have defined risk groups for influenza as persons at higher risk of having an adverse outcome (e.g. severe disease or death) from infection, including individuals aged ≥65 years, those with specified medical conditions (including pregnancy), and health care workers (HCWs) [4,5]. Invasive pneumococcal disease is a particular risk for the very young, the elderly and those with chronic medical conditions [6].

1.1. At-risk populations and vaccination programme in Ireland

In Ireland, the National Immunisation Advisory Committee (NIAC) makes vaccine recommendations for the population. Risk groups identified are similar to those identified internationally [2,6,7]. The Health Services Executive of Ireland (HSE) supports the influenza and pneumococcal vaccination programme for those in at-risk groups by providing free vaccines. Vaccine administration fees may apply for individuals ineligible for free access to primary care services (General Medical Service [GMS] medical card or GP visit [GPV] card) [8]. Eligibility for free primary care services is usually income dependent. HCWs are entitled to free vaccine administration (occupational health services). The HSE-National Immunization Office (HSE-NIO) procures and distributes influenza vaccine to health care facilities (hospitals, long-term care facilities, GP practices and community pharmacies). Pneumococcal vaccines are provided to GP sites. HSE-NIO promotes these vaccines using a variety of media (radio or television, leaflets, posters).

1.2. Influenza and pneumococcal vaccine uptake in at-risk populations

In Ireland, there is no comprehensive information system with which to estimate uptake of influenza or pneumococcal vaccines among at-risk adults. In an effort to fill this gap the Health Protection Surveillance Centre (HPSC) uses administrative data (payment claims from GP or pharmacies) to estimate uptake among elderly entitled to free vaccination. For HCWs, surveys of health care facilities have been done since 2011 [9]. Previous work done by HSE-NIO in 2011 identified potential barriers to influenza vaccination (including low risk perception, concerns about vaccine side effects and costs of vaccine administration) [10].

Between August and October 2013, we undertook a survey from a sample of the Irish adult population to: estimate the proportion of community-based adults who had risk conditions, or were HCWs, for whom influenza or pneumococcal vaccination was recommended; estimate vaccination coverage among those groups; and identify factors associated with seasonal influenza vaccination status during the influenza season 2012–2013.

2. Method

2.1. Study design and population

We conducted a national telephone survey among adults aged 18 years and over, residing in Ireland (non-institutionalised), using computer assisted telephone interviews (CATI). This survey followed similar methodology to previous national telephone surveys in 2006 [11] and in 2010 [12].

2.2. Sampling methods

We used quota sampling methods.

Quota sampling reflected the demographics based on age, sex and region of residence of the Irish population.

We estimated the sample size Open Epi, version 3 (http://www.openepi.com/v37/SampleSize/SSPropor.htm). Assuming that 11% of those with underlying conditions belong to the risk groups for influenza, [11] a sample size of 1700 persons was required for a desired precision ±1.5%.

Random digital dialling was applied for generating telephone numbers for landline and mobile phones. We excluded persons living in institutional settings and those unable to complete the telephone interview due to language or speech difficulties.

A market research company specialising in CATI carried out the survey and recruited participants.

2.3. Data collection

We developed a standardised questionnaire similar to those previously used (2006, 2010). We sought information on respondent's age, gender, residential area according to HSE administrative region; vaccination status (seasonal influenza, pneumococcal vaccines), reasons for getting/not getting influenza vaccines, medical risk conditions (diagnosed by doctor), or occupational risk. Trained interviewers administered questionnaires and entered data onto the database at time of interview. The interviews were done between August 28th and October 14th, 2013 during days and evenings. One adult person per household was interviewed. If there were two eligible adult persons who consented to being interviewed, the person who fulfilled the age group and gender quota or with the next birthday was interviewed.

2.4. Operational definitions

For the purpose of this study we defined risk groups for whom influenza vaccine was recommended as those who were aged 65 years or more; participants who reported having any underlying medical conditions which were identified by using simple questions asked to each participant if they had any of the following conditions for which influenza vaccine is indicated; asthma, any chronic lung disease, any condition of nervous system that may affect respiratory function; any chronic illness requiring medical follow up or hospitalisation (e.g. diabetes, kidney disease, inherited blood disorder, metabolic diseases or cancer); on any medication that may affect immune system; having had a heart attack or stroke; chronic heart disease; morbid obesity or being pregnant during the previous influenza season [7]. We defined individuals as being at-risk for pneumococcal disease if they were aged 65 years and over or reported a medical condition for which pneumococcal vaccination was indicated (asthma, condition of nervous system that may affect respiratory function, chronic illness requiring medical follow up or hospitalisation, chronic lung disease, being on medication that may affect immune system, or reported previous heart attack or stroke).

2.5. Data analysis

We calculated frequencies and proportions of all categorical variables. We calculated prevalence ratios (PR) and 95% confidence intervals (95%CI) using binomial regression.

2.6. Ethical issues

Oral informed consent was obtained from all respondents. Questionnaires did not have personal identification details. All information was confidential and protected by the Irish Data Protection Act 2003. Ethics approval was granted from the Royal College of Physicians of Ireland for this study.

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