



**TECHNICAL** REPORT

# Seasonal influenza vaccination in Europe

Overview of vaccination recommendations  
and coverage rates in the EU Member States  
for the 2012–13 influenza season

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This report by the European Centre for Disease Prevention and Control (ECDC) and the Vaccine European New Integrated Collaboration Effort III (VENICE III) was coordinated by Suzanne Cotter, Darina O’Flanagan (both Health Protection Surveillance Centre, Dublin), Svetla Tsoleva and Kari Johansen (both ECDC), and produced by Jolita Mereckiene (Health Protection Surveillance Centre, Dublin). This report is based on data from the seasonal influenza vaccination survey for 2012–13 influenza season in EU/EEA countries.

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A declaration of interest was received from Jolita Mereckiene, in accordance with ECDC’s Independence Policy and no conflict was identified.

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# Contents

Abbreviations .....	V
Summary .....	1
Introduction .....	3
Aim and objectives.....	3
Specific objectives.....	3
Methodology.....	3
Results.....	5
Response rate .....	5
Seasonal influenza vaccination recommendations .....	5
Influenza vaccination policy .....	5
Age groups recommended for influenza vaccine .....	5
Chronic medical conditions .....	6
Pregnancy-related vaccination .....	7
Occupational groups .....	8
Healthcare workers.....	8
Other occupations .....	9
Population groups in closed communities .....	10
Household contacts or carers .....	10
Vaccination coverage rates .....	11
Older age groups.....	11
Individuals with chronic medical conditions .....	12
Pregnant women .....	13
Healthcare workers.....	13
Residents of long-stay care facilities .....	14
Payment mechanisms for vaccination .....	14
Adults (older population).....	14
Children and adolescents.....	14
Chronic medical conditions .....	15
Pregnant women .....	15
Healthcare workers.....	15
Limitations .....	16
Conclusions .....	18
References .....	20
Annex 1. Availability of national action plans by countries.....	21
Annex 2. Recommendations for children, adolescents and adults by countries .....	21
Annex 3. Recommendations for those with chronic medical conditions and other occupations, by countries .....	23
Annex 4. Vaccination coverage rates and method of monitoring by countries .....	25

## Figures and maps

Figure 1. Proportion of Member States recommending seasonal influenza vaccination, by chronic medical condition, 2011–12 and 2012–13 influenza seasons .....	7
Map 1. Member States recommending seasonal influenza vaccination for pregnant women, 2012–13 influenza season .....	8
Map 2. Member States recommending seasonal influenza vaccination for healthcare workers, 2012–13 influenza season .....	9
Figure 2. Proportion of Member States recommending seasonal influenza vaccination by occupational group, 2011–12 and 2012–13 influenza seasons .....	10
Figure 3. Proportion of Member States recommending seasonal influenza vaccination for household contacts or carers of those at risk for influenza, 2011–12 and 2012–13 influenza seasons .....	11
Figure 4. Seasonal influenza vaccination coverage rates in older age groups in EU/EEA Member States, 2011–12 and 2012–13 influenza seasons (n=24 Member States) .....	11
Figure 5. Seasonal influenza vaccination coverage rates among individuals with chronic medical conditions in EU/EEA Member States, 2011–12 and 2012–13 influenza seasons (n=7 Member States) .....	12
Figure 6. Seasonal influenza vaccination coverage rates in pregnant women in EU/EEA Member States, 2011–12 and 2012–13 influenza seasons (n=7 Member States) .....	13
Figure 7. Seasonal influenza vaccination coverage rates among healthcare workers in EU/EEA Member States, 2011–12 and 2012–13 influenza seasons (n=13 Member States) .....	14
Figure 8. Payment mechanisms for vaccination in population groups targeted for seasonal influenza vaccination, 2012–13 influenza season .....	15
Figure 9. Payment mechanisms for vaccine administration for population groups targeted for seasonal influenza vaccination, 2012–13 influenza season .....	16
Map 3. Member States recommending seasonal influenza vaccination for children and adolescents, 2012–13 influenza season. National seasonal influenza vaccination survey, March 2014 .....	21
Map 4. Member States recommending seasonal influenza vaccination for older age groups, 2012–13 influenza season. National seasonal influenza vaccination survey, March 2014 .....	22

## Tables

Table 1. Member States recommending seasonal influenza vaccination for children, adolescents and adults, 2012–13 influenza season .....	5
Table 2. Availability of national action plan to improve vaccination coverage for seasonal influenza in EU/EEA in 2012–13 influenza season .....	21
Table 3. Chronic medical conditions recommended influenza vaccination by Member State, 2012–13 influenza season. National seasonal influenza vaccination survey, March 2014 .....	23
Table 4. Other occupations recommended seasonal influenza vaccination in EU/EEA Member States, 2012–13 influenza season. National seasonal influenza vaccination survey, March 2014 .....	24
Table 5. Seasonal influenza vaccination coverage rates for targeted population groups by method of monitoring, in EU/EEA Member States, 2012–13 influenza season. National seasonal influenza vaccination survey, March 2014 ..	25

## Abbreviations

HCWs	Healthcare workers
NAP	National action plan
VENICE	Vaccine European New Integrated Collaboration Effort
CINECA	Consortium at the University of Bologna, Italy
GP	General practitioners
VCR	Vaccination coverage rates
WHO	World Health Organization

## Summary

In Europe, influenza occurs in regular annual epidemics in the winter season. Annual influenza epidemics are associated with high morbidity and mortality. Severe illness and complications are more common in certain risk groups. These include those with chronic medical conditions (e.g. cardiovascular, respiratory, renal and hepatic diseases, diabetes mellitus, immunosuppression due to disease or treatment, obesity, children and teenagers on long-term aspirin therapy) and individuals 65 years of age and above. The main public health intervention to prevent influenza is vaccination. To protect vulnerable individuals and reduce transmission, vaccination is also recommended for healthcare workers (HCWs).

The aim of this survey was to provide an update on seasonal influenza immunisation policies and obtain vaccination coverage rates in European Union (EU) and European Economic Area (EEA) Member States for the 2012–13 influenza season.

A standardised questionnaire was developed and made available as an online survey. The survey was rolled out in March 2014. Experts in each Member State entered data directly online. Austria provided data at a later point in time, i.e. at the time of writing this report. The United Kingdom provided data separately for England, Northern Ireland, Scotland and Wales.

Of 31 responding Member States, all recommended seasonal influenza vaccination to older age groups. Twenty-two of them had influenza vaccine recommendations for those aged  $\geq 65$  years. Germany, Greece, Iceland and the Netherlands recommended vaccination for those aged  $\geq 60$  years; Malta and Poland recommended vaccination for those aged  $\geq 55$  years; in Austria and Ireland vaccination was recommended for those aged  $\geq 50$  years; in Slovakia vaccination was recommended for those aged  $\geq 59$  years. Eight countries recommended vaccination for different ages of children/adolescents below 18 years of age: two of them (Estonia, Poland) recommended vaccination for children and adolescents of all ages; vaccination was also recommended in Latvia and Slovenia for children aged  $\geq 6$  months to 2 years, in Finland for children  $\geq 6$  months to 3 years, in Austria for children  $\geq 6$  months to 4 years; in Malta for children  $\geq 6$  months to 5 years, and in Slovakia for children and adolescents  $\geq 6$  months to 12 years.

Of 31 responding Member States, 30 recommended influenza vaccination for HCWs; 25 of these had recommendations to vaccinate all HCWs; four recommended vaccination for only some HCWs. In the United Kingdom–Northern Ireland and United Kingdom–Scotland vaccination was offered to all HCWs; while in the United Kingdom–England and United Kingdom–Wales only some HCWs were recommended vaccination.

In all Member States people with immunosuppression due to diseases or treatment, metabolic disorders, chronic pulmonary, cardiovascular and renal diseases were recommended influenza vaccination. Twenty-eight Member States recommended vaccination of individuals with hepatic disease and HIV/AIDS. Fifteen Member States recommended vaccination for those on long-term aspirin use (children  $< 18$  years old). Fifteen Member States had recommendations to vaccinate those with morbid obesity.

Of 31 responding Member States, 28 recommended vaccination of pregnant women. Twenty-six Member States recommended vaccination of all pregnant women; two Member States recommended vaccination only for those pregnant women with chronic medical conditions. Nineteen Member States recommended influenza vaccination for pregnant women in any trimester of pregnancy.

Vaccination coverage rates, which were measured by analysis of administrative returns or estimated by survey methods, were known in 24 Member States for older target populations and ranged from 1.0% to 77.4% (median 44.7%) in 2012–13. The coverage among healthcare workers was known in 13 Member States, ranging from 9.5% to 75% (median 28.6%). The coverage for chronic medical conditions was provided by seven Member States and ranged from 28% to 80.2% (median 45.6%) in 2012–13. The coverage for pregnant women was known in seven Member States, ranging from 0.2% to 64.6% (median 25.5%) in 2012–13. Three Member States were able to report vaccination coverage rates for residents of long-stay care facilities (73% in Ireland, 71.1% in Slovakia, and 89% in Portugal).

The predominant payment mechanism reported by Member States for the vaccine and the administration of the vaccine was through the national health services for those population groups for whom seasonal influenza vaccination was recommended (children and adolescents, adults, people with chronic medical conditions, pregnant women, HCWs and members of closed communities).

In conclusion, the results of the survey indicate that recommendations for influenza vaccination exist in most of the Member States for all population groups targeted for seasonal influenza vaccination – those with chronic medical conditions, pregnant women, older age groups and HCWs. However, there was a notable discrepancy between having recommendations and the ability to monitor, and report on, vaccination coverage among those with chronic medical conditions and pregnant women. Data on vaccination for these groups was only available for less than 25%

of the Member States. With regard to HCWs, less than half of the Member States were able to report on vaccination coverage in this group.

Although there has been widespread consensus for many years that the older age groups should be vaccinated, the EU target of 75% was reached in only two Member States in the 2012–13 season. It is unlikely that the EU target of 75% vaccination coverage will be met in the 2014–15 influenza season.

The ability to monitor vaccination coverage is a key component of any vaccination programme. In order to identify gaps and weaknesses, all Member States may need to reconsider their approach in order to collect more comprehensive and accurate information on vaccination coverage for all of those population groups that are targeted for seasonal influenza vaccination. Member States which do not monitor vaccination coverage among older age groups are encouraged to implement age-group specific coverage-monitoring systems, according to national recommendations, in order to enable public health organisations to track their progress and identify obstacles to achieving national and EU targets.



## Introduction

Influenza is a contagious viral respiratory infection, which typically occurs as epidemics during the winter months in the northern hemisphere. Although the illness caused by influenza is usually self-limiting, it can have considerable impact on an individual's daily life. At a population level, large numbers of cases with mild to moderate illness increase the demand on health services and decrease productivity in the workforce, with associated economic cost and social disruption [1-3]. The number of people affected varies from year to year among countries, making it hard to predict the annual number of deaths or economic impact.

Vaccination remains the most effective single public health intervention to mitigate and prevent seasonal influenza [4]. The European policy for influenza vaccination is protection of those at higher risk, either directly by vaccinating them, or indirectly by vaccinating those who are likely to infect them.

The primary indicators of successful vaccination programmes are high vaccination coverage rates (VCR) reported among the specific groups, i.e. the proportion of specific target populations who have been vaccinated. In December 2009, the European Council unanimously recommended that influenza vaccination coverage in all at-risk groups should reach 75% in all EU countries for the 2014–15 influenza season [5]. The selection of risk groups followed guidance from ECDC and recommendations of the World Health Organization (WHO): 'older' individuals (often defined as aged  $\geq 65$  years) and people  $\geq 6$  months of age with chronic medical conditions [6;7]. In addition, pregnant women have an increased risk of severe disease and death from influenza, and children  $< 5$  years, and particularly children  $< 2$  years of age, have a high burden of influenza. Consequently, the WHO Strategic Advisory Group of Experts on Immunisation (SAGE) also recommends influenza vaccination for these population groups [8].

The EU recommendation (Council Recommendation hereinafter) encouraged Member States to adopt and implement national, regional or local action plans or policies to improve seasonal influenza VCR (including for HCWs) and to measure coverage in all risk groups. Countries were also encouraged to report on a voluntary basis to the European Commission on the implementation of the recommendation. ECDC-supported VENICE surveys have been identified as being an effective way of doing this. These surveys are an established mechanism to monitor implementation, with several surveys already conducted before the Council Recommendation was ratified [5].

## Aim and objectives

The aim of the survey was to update data on seasonal influenza immunisation policies (collected in previous VENICE surveys) and obtain vaccination coverage rates in EU/EEA Member States for the 2012–13 influenza season in order to monitor progress – or lack thereof – towards the 2014-2015 EU target of 75% in all at-risk or targeted groups.

### Specific objectives

- To identify the scope of seasonal influenza immunisation programmes for the 2012–13 season
- To identify specific recommendations for the 2012–13 seasonal influenza vaccination in Member States for different age, risk and targeted groups
- To obtain the 2012–13 vaccination coverage rates for different age, risk and targeted groups
- To obtain information on payment mechanisms for seasonal influenza vaccination during the 2012–13 season.

## Methodology

### Study design

The survey was carried out through a web-based platform with protected access restricted to nominated experts from each EU/EEA Member States. This survey was a collaborative study between the European Centre for Disease Prevention and Control (ECDC), the Vaccine European New Integrated Collaboration Effort (VENICE) Project, and the EU/EEA Member States. Currently, 28 EU and three EEA (Iceland, Norway, and Liechtenstein) Member States participate in VENICE. Croatia and Liechtenstein participated for the first time. The survey was conducted in March 2014.

## Data collection

In this report, we summarise collected data on seasonal influenza vaccine recommendations from the EU/EEA Member States, as well as reported VCR and payment mechanisms.

A standardised questionnaire was developed using predominantly close-ended questions and completed in March 2014. The questionnaire was organised by thematic sections to facilitate completion. Each section could be completed separately. Information was sought on population groups recommended for influenza vaccination (age, occupation, chronic medical conditions, or other social situation), whether countries had mechanisms in place to monitor influenza vaccination coverage, and if so, the methods used to monitor vaccination coverage. Information was also sought on recent vaccination coverage results by population group, payment mechanism for vaccines and their administration, settings where the vaccination was typically administered, promotional activities relating to influenza vaccines and how this activity was supported. For the first time, information in the VENICE survey was also collected on antiviral agents used and recommended by Member States during the season. In the final section of the questionnaire, information was sought on planned changes in policy or operational procedures over the next couple of years.

## Pilot testing

In order to assess if questions were understandable, consistent throughout all sections, and not considered too sensitive to be shared, the questionnaire was pilot-tested by four leading VENICE project partners in January 2014. After the pilot testing, the questionnaire was reviewed and amended, taking on board comments from the partners.

## Data handling

The finalised electronic questionnaire was placed on the VENICE website in late February 2014 (<http://venice.cineca.org>). It was open for input to all participating countries. The questionnaire was completed by nominated experts from all Member States. Non-responding Member States were followed up by individual contact. Data were analysed in April 2014, and a detailed final report was completed in autumn 2014.

## Data analysis

A descriptive analysis was carried out, summarising data by calculating frequencies or proportions of responses by Member State and population group targeted for seasonal influenza vaccination. VCRs were calculated as proportions (number of vaccinated individuals (numerator) divided by number of targeted population groups by vaccine (denominator)) for all participating Member States. The collected VCRs were compared with data from previous VENICE surveys (influenza season 2011–12). Analysis of Member States information relating to payment mechanisms for different targeted population groups was complex because a majority of countries reported multiple options (payment mechanisms for the vaccine and/or administration of the vaccine varied substantially, even within countries). Therefore the data presented in this report reflect this variety of payment options.

The data for the United Kingdom were provided separately for England, Northern Ireland, Scotland and Wales. The UK was considered as one Member State when responses were the same for a given question (for data relating to similar policies or mechanisms across the UK, e.g. recommendations and payment mechanisms); if responses were different on a given question, a footnote indicates and explains the differences. Data on VCRs are presented and interpreted separately for each country in the UK.

## Data validation

Upon completion of data analysis a draft report containing preliminary data was circulated among national experts who had completed the questionnaire. Experts were asked to validate their data and make changes if needed.

# Results

## Response rate

Of 31 EU/EEA Member States invited to participate, 30 responded to the survey. Austria provided data after the deadline (at the time of writing this report).

## Seasonal influenza vaccination recommendations

### Influenza vaccination policy

All 31 Member States indicated that they had implemented national seasonal influenza vaccination recommendations (e.g. age, risk and target group recommendations and guidelines).

The Council Recommendation of the European Union encourages Member States to adopt and implement national, regional or local action plans or policies, as appropriate. At the time of the survey, three Member States indicated that a national action plan (NAP) to improve vaccination coverage for seasonal influenza vaccination, as recommended by the Council Recommendation, had been adopted; two Member States reported that a previously developed plan was updated in accordance with the Council Recommendation; 14 Member States reported that they had vaccination policies in place but no formally ratified NAP. Two Member States reported that an NAP was under development, and nine Member States indicated that no NAP was adopted. In United Kingdom–Wales, an NAP was adopted; in United Kingdom–England a previously developed plan was updated in accordance with the Council Recommendation. In United Kingdom–Northern Ireland and United Kingdom–Scotland, no plan was developed but a vaccination policy is in place (Annex 1, Table 2).

### Age groups recommended for influenza vaccine

Of 31 responding Member States, eight recommended seasonal influenza vaccination to healthy children and adolescents (Austria, Estonia, Finland, Latvia, Malta, Poland, Slovakia, Slovenia) for the 2012–13 influenza season; all Member States also had recommendations to vaccinate older age groups. However, the exact age for which children, adolescents and older individuals were recommended influenza vaccination differed between Member States. Details can be found below in Table 1 (see also Annex 2, Maps 3 and 4).

**Table 1. Member States recommending seasonal influenza vaccination for children, adolescents and adults, 2012–13 influenza season**

Country	Age group											
	Children						Adults (years)					
	≥ 6–24 months	≥ 6–36 months	≥ 6–48 months	≥ 6–59 months	≥ 6 months–12 years	≥ 6 months–<18 years	≥ 18–64	≥ 50	≥ 55	≥ 59	≥ 60	≥ 65
Austria <sup>a</sup>			R					R				R
Belgium <sup>b</sup>								R				R
Bulgaria												R
Croatia												R
Cyprus												R
Czech Republic												R
Denmark												R
Estonia <sup>c</sup>						R	R					R
Finland		R										R
France												R
Germany												R
Greece												R
Hungary												R
Iceland											R	
Ireland <sup>d</sup>								R				R
Italy												R
Latvia	R											R
Liechtenstein												R

Country	Age group											
	Children						Adults (years)					
	≥ 6–24 months	≥ 6–36 months	≥ 6–48 months	≥ 6–59 months	≥ 6 months–12 years	≥ 6 months–<18 years	≥ 18–64	≥ 50	≥ 55	≥ 59	≥ 60	≥ 65
Lithuania												R
Luxembourg												R
Malta				R					R			
The Netherlands											R	
Norway												R
Poland						R			R			
Portugal												R
Romania												R
Slovakia					R					R		
Slovenia	R											R
Spain <sup>e</sup>												R
Sweden												R
United Kingdom England												R
United Kingdom Northern Ireland												R
United Kingdom Scotland												R
United Kingdom Wales												R

Source: National seasonal influenza vaccination survey, March 2014

<sup>a</sup> Vaccination is recommended for individuals  $\geq 50$  years of age and in particular for individuals  $\geq 65$  years of age.

<sup>b</sup> The guidelines recommend vaccination for those  $\geq 65$  years of age; this age group constitutes the first priority group for receiving the influenza vaccine; the guidelines also mention explicitly that the vaccine is also useful for healthy persons aged 50 and older.

<sup>c</sup> Vaccination against seasonal influenza is recommended for the entire Estonian population aged  $\geq 6$  months.

<sup>d</sup> The National Immunisation Technical Advisory Group (NITAG) recommends vaccination for those  $\geq 50$  years but the national influenza programme specifies  $\geq 65$  years.

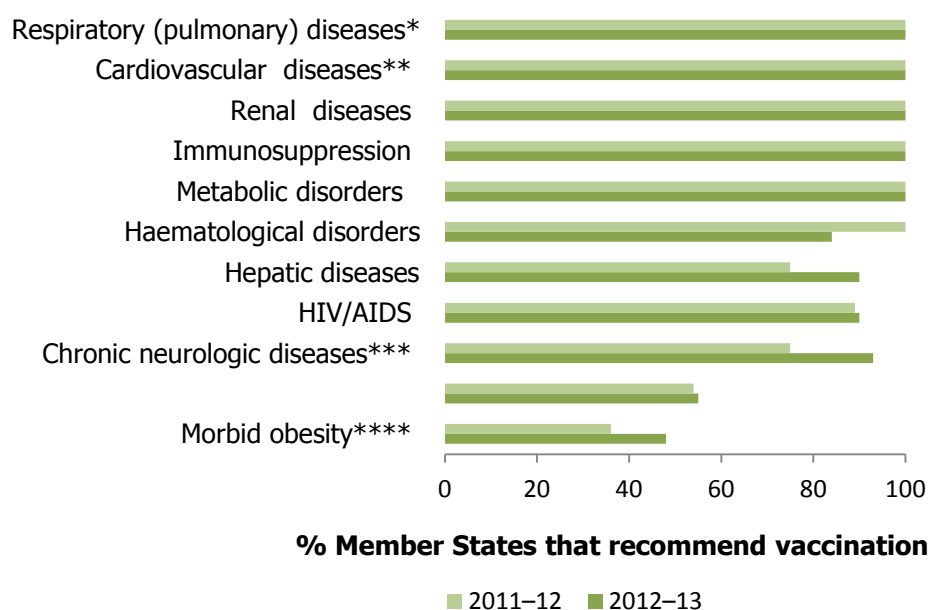
<sup>e</sup> The recommendation at the national level is for those  $\geq 65$  years of age; however, 10 out of 19 regions recommend vaccination for those  $\geq 60$  years of age.

R recommended. 'Recommended' is defined here as the existence of a written recommendation in the official policy document which specifies that a certain population group should receive the seasonal influenza vaccine.

## Chronic medical conditions

All 31 Member States participating in the survey reported that in the 2012–13 influenza season, the seasonal influenza vaccination was recommended for patients with immunosuppression due to disease or treatment; metabolic disorders; and chronic pulmonary, cardiovascular and renal diseases. Twenty-eight Member States recommended vaccination of individuals with hepatic disease and HIV/AIDS. In the 2012–13 influenza season, vaccination for those with morbid obesity was recommended in 15 countries. Compared with the 2011–12 season (Figure 1; Annex 3, Table 3), more countries recommended vaccination for those with morbid obesity, and chronic neurological and hepatic diseases.

**Figure 1. Proportion of Member States recommending seasonal influenza vaccination, by chronic medical condition, 2011–12 and 2012–13 influenza seasons**



Source: National seasonal influenza vaccination survey, March 2014

\* Respiratory (pulmonary) diseases e.g. as chronic obstructive pulmonary disease, cystic fibrosis, asthma.

\*\* Cardiovascular diseases e.g. such as congenital heart disease, congestive heart failure and coronary artery disease, except hypertension.

\*\*\* Chronic neurological diseases or neuromuscular conditions, e.g. disorders of the brain, spinal cord, peripheral nerve, and muscle such as cerebral palsy, epilepsy (seizure disorders), stroke, intellectual disability (mental retardation), moderate to severe developmental delay, muscular dystrophy, or spinal cord injury.

\*\*\*\* Morbid obesity is defined as a body mass index of 40kg/m<sup>2</sup> or more.

## Pregnancy-related vaccination

Twenty-eight of 31 responding Member States indicated that influenza vaccination was recommended for pregnant women in the 2012–13 influenza season. Twenty-six of them recommended vaccination for all pregnant women; two countries (Croatia and the Netherlands) recommended influenza vaccination for pregnant women with chronic medical conditions. Sweden restricted its recommendations to healthy pregnant women who had not been vaccinated with monovalent, adjuvanted pandemic vaccine (season 2009–10). Bulgaria, Malta and Slovakia do not issue recommendations concerning vaccination of pregnant women. Malta, however, encourages pregnant women to get vaccinated; vaccination is not provided free of charge (Map 1).

Nineteen Member States recommended vaccination at any stage of pregnancy (Austria, the Czech Republic, Croatia, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Malta, the Netherlands, Poland, Romania, Slovenia, Spain, the United Kingdom) and eight Member States (Belgium, Cyprus, Italy, Liechtenstein, Luxembourg, Norway, Portugal, Sweden) recommended vaccination in the second and third trimester only. In Denmark and Germany, vaccination was recommended for healthy pregnant women in the second and third trimester and to women with a chronic medical condition (first trimester and after).

In addition to vaccination during pregnancy, seven Member States indicated that they also recommend seasonal influenza vaccine for postpartum women (within six weeks after delivery) if not vaccinated during pregnancy: two of them (Estonia, Liechtenstein) recommend vaccine for all post-partum women; and in four Member States (Croatia, France, Ireland, the Netherlands), vaccination was recommended for only those post-partum women with a chronic medical condition. In the United Kingdom–Scotland the same recommendation existed, but there was no such recommendation in United Kingdom–England, United Kingdom–Northern Ireland and United Kingdom–Wales. In Finland, vaccination is recommended for post-partum women who were not vaccinated during pregnancy, as part of a cocooning strategy for infants < 6 months of age.

### Map 1. Member States recommending seasonal influenza vaccination for pregnant women, 2012–13 influenza season



Source: National seasonal influenza vaccination survey, March 2014

\* In Sweden, vaccination was recommended to healthy pregnant women who had not been vaccinated with monovalent, adjuvanted pandemic vaccine (season 2009–2010).

## Occupational groups

### Healthcare workers

Of 31 responding Member States, 30 recommend vaccination for HCWs for the 2012–13 influenza season. Twenty-five of them reported that influenza immunisation was recommended for all HCWs; four Member States recommended vaccination of some HCWs (e.g. workers in inpatient/outpatient facilities or long-term care facilities). In United Kingdom–Northern Ireland and United Kingdom–Scotland, vaccination was recommended for all HCWs; in the United Kingdom–England and United Kingdom–Wales, vaccination was recommended only for front-line HCWs or those HCWs who have direct contact with patients (Map 2). Although there is no national recommendation to vaccinate HCWs in Denmark, most regions and municipalities offer HCWs free-of-charge vaccinations. In Sweden, only staff caring for persons who are severely immunocompromised are recommended vaccination. In Slovakia, HCWs with close patient contact or close to foci of infection are recommended vaccination.

In all responding Member States, the vaccination of HCWs is voluntary. 'Voluntary', as defined in this document, is acting of one's own free will when deciding whether to receive seasonal influenza vaccination; this also implies that there is no penalty for not getting the vaccine.

## Map 2. Member States recommending seasonal influenza vaccination for healthcare workers, 2012–13 influenza season



Source: National seasonal influenza vaccination survey, March 2014

\* 'Some' refers to workers in inpatient/outpatient facilities or long-term care facilities, front-line HCWs, and HCWs who have direct contact with patients.

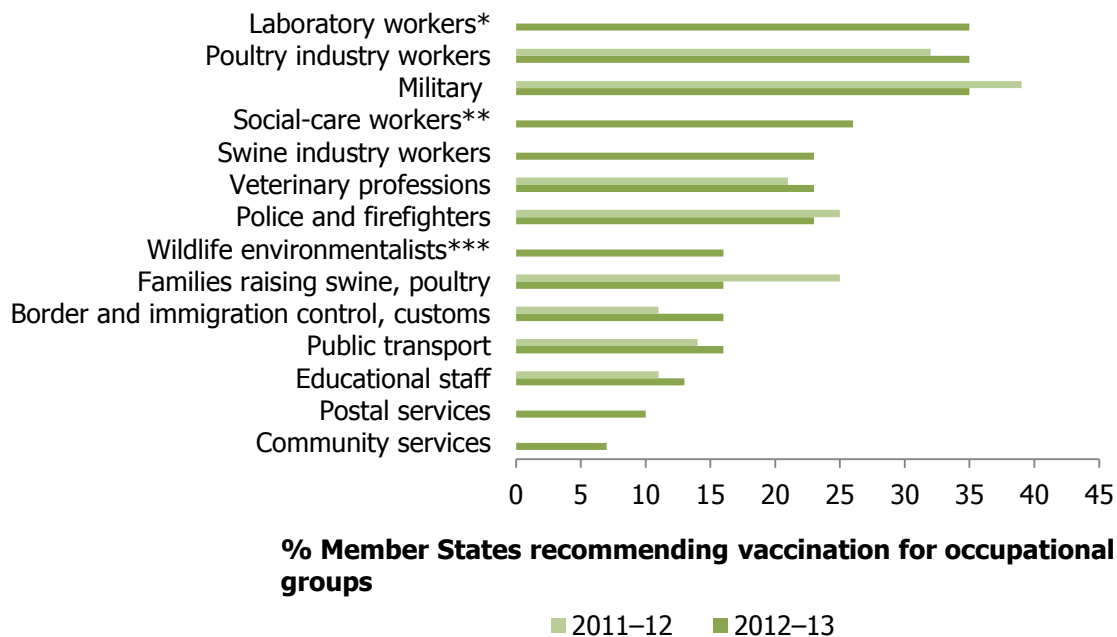
## Other occupations

Of the 31 responding Member States, 22 recommended seasonal influenza vaccination for at least one other occupational group for the 2012–13 influenza season. Vaccination in the United Kingdom–England and United Kingdom–Wales was recommended only for social-care workers, while in the United Kingdom–Northern Ireland and United Kingdom–Scotland vaccination was not recommended for this specific occupational group. Vaccination was not recommended for any occupational groups (except HCWs) in the following seven Member States: the Czech Republic, Denmark, Latvia, Lithuania, Romania, Sweden, Portugal.

Influenza vaccination was recommended for military service personnel, poultry industry workers, and staff working in laboratories<sup>1</sup> (11 Member States); for police and firefighters (eight Member States); and veterinary service workers (seven Member States). Four Member States recommended vaccination for educational staff (Figure 2; Annex 3, Table 4).

<sup>1</sup> For example lab technicians who work with avian influenza viruses in the environmental/academic sector, but not employees at medical/public health laboratories.



**Figure 2. Proportion of Member States recommending seasonal influenza vaccination by occupational group, 2011–12 and 2012–13 influenza seasons**

Source: National seasonal influenza vaccination survey, March 2014

\* Laboratory workers defined here as lab technicians who work, for example, with avian influenza viruses in the environmental/academic sector, but not employees at medical/public health laboratories.

\*\* Social-care workers were recommended vaccination in United Kingdom–England and United Kingdom–Wales only.

\*\*\* Wildlife environmentalists defined here as workers who work directly with birds, e.g. bird ringing.

Data on recommendation for the influenza season 2011–12 were not collected for the following groups: community services, postal service, wildlife environmentalists, swine industry workers, social care workers, laboratory workers.

## Population groups in closed communities

During the 2012–13 influenza season, 28 of the 31 participating Member States (all except Denmark, Latvia, and Sweden) recommended vaccination for residents of long-term care facilities; vaccination for prisoners was recommended in three Member States (Estonia, Malta, Poland); and vaccination for children in day-care centres was recommended in four Member States (Bulgaria, Estonia, Malta, Poland). Compared with the previous season (2011–12), no changes were observed regarding recommendations to vaccinate residents of long-term care facilities (of 28 responding countries, 25 recommended vaccination for the 2011–12 influenza season).

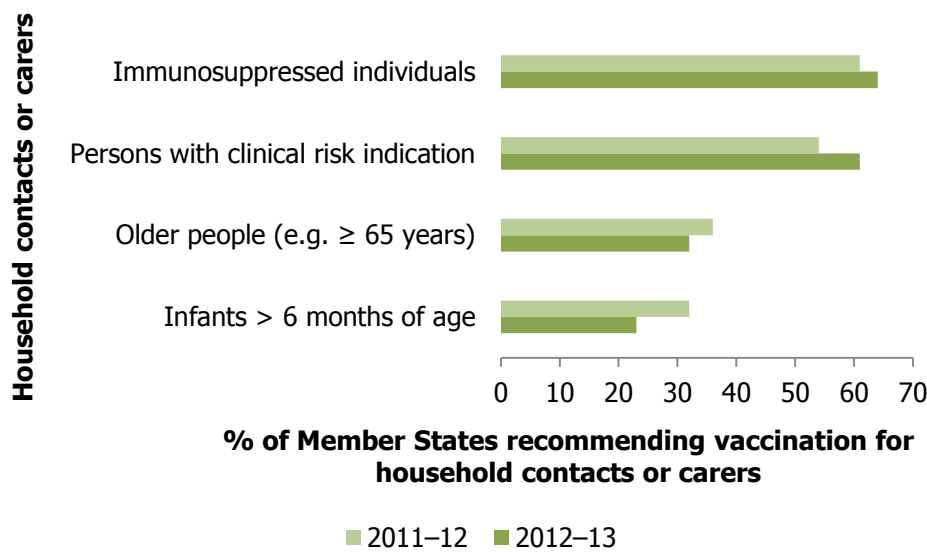
## Household contacts or carers

Household contacts of infants < 6 months of age were recommended influenza vaccination in seven Member States (Belgium, Estonia, Finland, Greece, Liechtenstein, Luxembourg, Poland) for the 2012–13 influenza season; contacts of immunosuppressed individuals were recommended vaccination in 20 Member States (Austria, Belgium, Bulgaria, Croatia, Cyprus, Denmark, Estonia, Finland, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, the Netherlands, Poland, Spain, Sweden, United Kingdom). Contacts of those with chronic medical conditions were recommended vaccination in 19 Member States (Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Finland, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, the Netherlands, Poland, Romania, Spain) and, in addition, such recommendations also existed in United Kingdom–Northern Ireland and United Kingdom–Wales. Household contacts of older population groups were recommended vaccination in 10 Member States (Austria, Bulgaria, Estonia, Finland, Greece, Iceland, Ireland, Liechtenstein, Luxembourg, Poland) and additionally in United Kingdom–Northern Ireland and United Kingdom–Wales (Figure 3).

Household contacts or carers of infants > 6 months of age with chronic medical conditions were recommended influenza vaccination in France and Portugal. In Norway, vaccination was recommended for household contacts of severely immunosuppressed individuals.



**Figure 3. Proportion of Member States recommending seasonal influenza vaccination for household contacts or carers of those at risk for influenza, 2011–12 and 2012–13 influenza seasons**



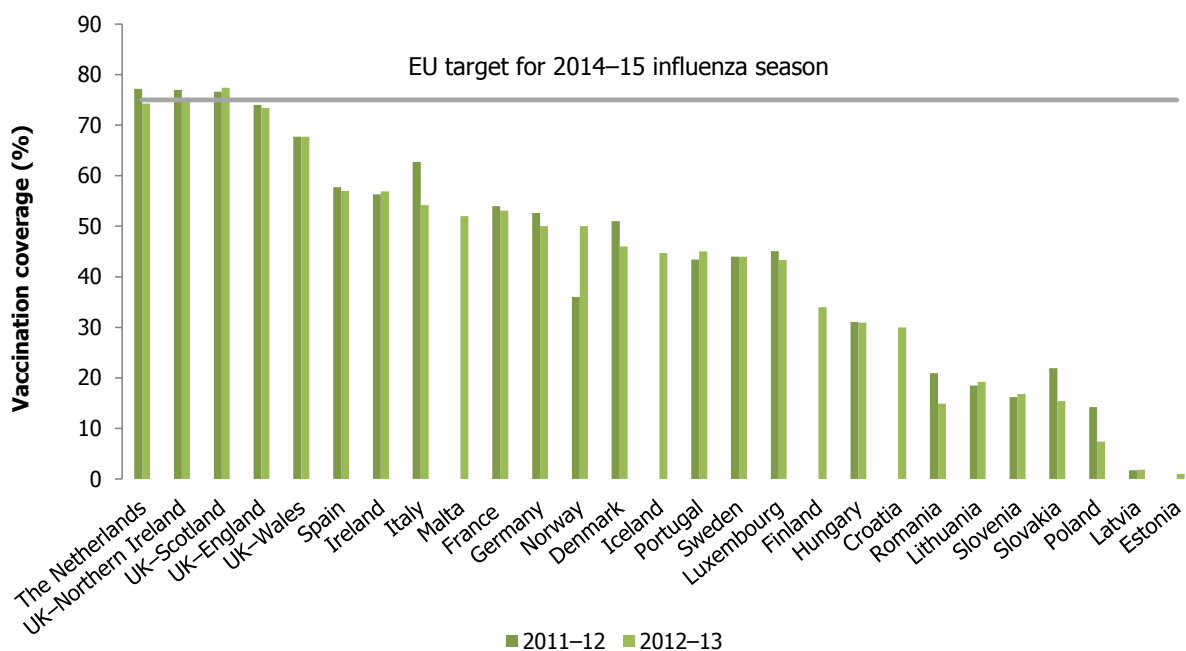
Source: National seasonal influenza vaccination survey, March 2014

## Vaccination coverage rates

### Older age groups

Influenza vaccination coverage rates (VCRs) among older age groups (as defined in accordance with Member State recommendations, e.g. ≥ 55, ≥ 59, ≥ 60, or ≥ 65 years of age) for the influenza season 2011–12 and/or 2012–13 were reported by 24 Member States (Figure 4; Annex 4, Table 5). In 2012–13, the VCR varied from 1% to 77.4%; the median VCR for the same season was 44.7%. The highest VCRs were reported by the Netherlands and the United Kingdom, which achieved, or almost achieved, the EU target of 75%. Although vaccination is recommended for older age groups in all surveyed Member States, seven Member States were not able to provide VCRs for older age groups (Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Greece, Liechtenstein).

**Figure 4. Seasonal influenza vaccination coverage rates in older age groups in EU/EEA Member States, 2011–12 and 2012–13 influenza seasons (n=24 Member States)**

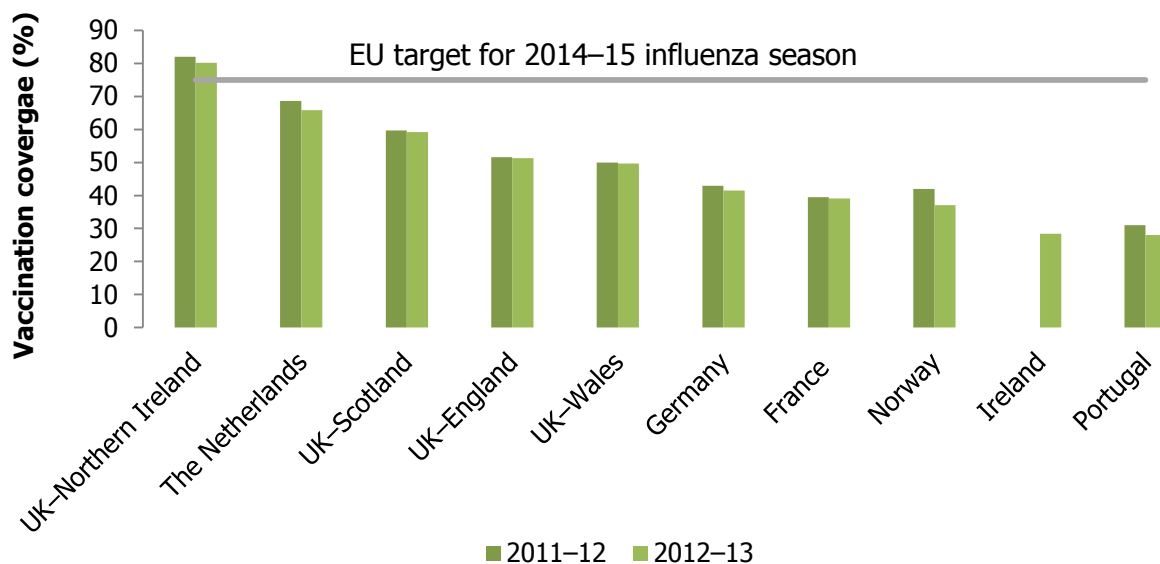


Source: National seasonal influenza vaccination survey, March 2014

## Individuals with chronic medical conditions

Influenza VCRs for 2011–12 and/or 2012–13 among individuals with chronic medical conditions were reported by only seven Member States and ranged from 28% to 80.2% in 2012–13; the median VCR for the same season was 45.6% (Figure 5; Annex 4, Table 5). Norway reported a combined vaccination coverage of 44.5% for chronic medical conditions and those aged ≥65 years. The VCR in United Kingdom–Northern Ireland was higher than the EU target of 75%, and the VCR in the Netherlands nearly reached this target, however VCR was slightly lower in 2012–13 than in the previous season. The remaining 23 surveyed Member States were not able to report VCRs for individuals with chronic medical conditions.

**Figure 5. Seasonal influenza vaccination coverage rates among individuals with chronic medical conditions in EU/EEA Member States, 2011–12 and 2012–13 influenza seasons (n=7 Member States)**

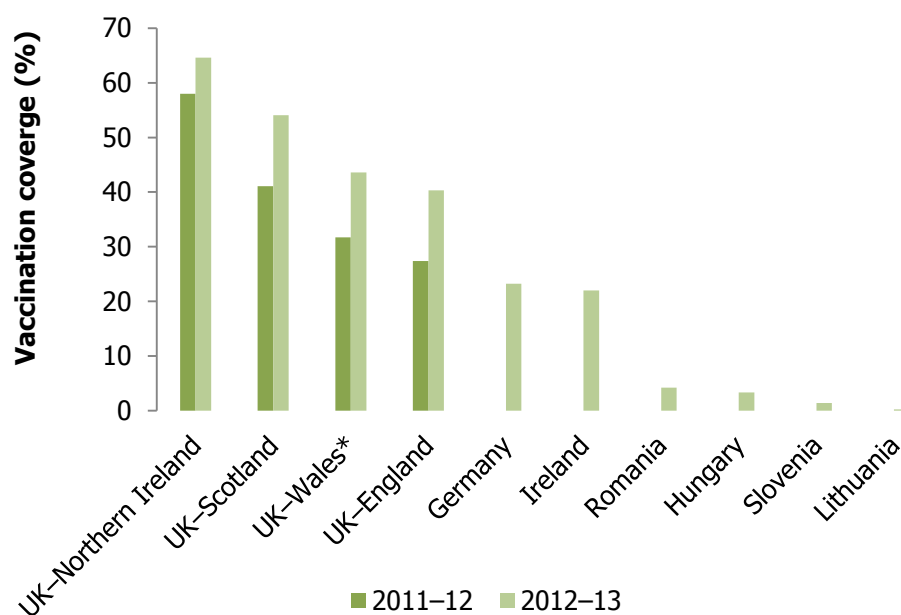


Source: National seasonal influenza vaccination survey, March 2014

## Pregnant women

Influenza VCRs for pregnant women for the 2012–13 season were reported by only seven Member States (Figure 6; Annex 4, Table 5) and ranged from 0.2% to 64.6%; the median VCR was 25.5%. Four Member States (Germany, Hungary, Ireland, and Lithuania) were able to provide VCRs for pregnant women for the 2012–13 season, which they had not been able to provide for the previous season. (Slovenia and Romania did not provide VCRs in 2011–12; however, VCRs were provided for the 2010–11 influenza season; these data are not presented in this report). The remaining 21 of 28 Member States where vaccination is recommended for this specific population group were unable to report VCRs. The highest VCRs were reported by the United Kingdom and varied from 40.3% in England to 64.6% in Northern Ireland.

**Figure 6. Seasonal influenza vaccination coverage rates in pregnant women in EU/EEA Member States, 2011–12 and 2012–13 influenza seasons (n=7 Member States)**



Source: National seasonal influenza vaccination survey, March 2014

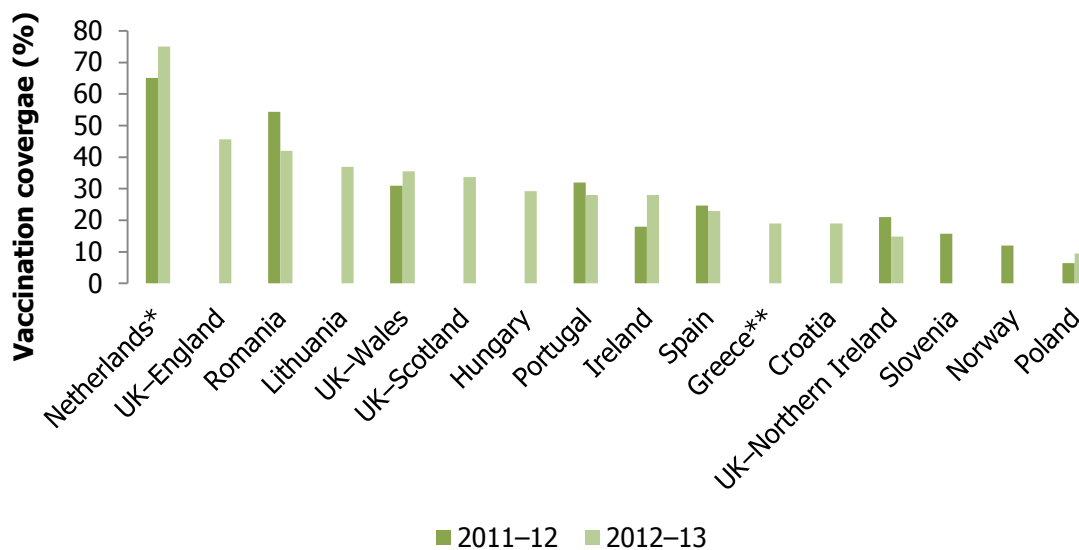
\* UK-Wales: Vaccination coverage rate for the 2011–12 influenza season applies only to healthy pregnant women. All other data refer to both healthy pregnant women and pregnant women with chronic medical conditions.

## Healthcare workers

Influenza VCRs for HCWs for the 2011–12 and 2012–13 seasons were provided by 13 Member States (Figure 7; Annex 4, Table 5). A wide range was reported (9.5% to 75%); the median VCR in 2012–13 was 28.6%. The highest VCR was reported by the United Kingdom (except Northern Ireland), Romania and Lithuania. Although the VCR for the Netherlands was also high (75%), it was only calculated for GP practices and is overestimated. Data from Croatia, Greece and Lithuania were reported for the first time for the 2012–13 season.

In addition, two Member States (Ireland and Portugal) reported VCRs among HCWs working in long-term healthcare settings (15% and 27%, respectively).

**Figure 7. Seasonal influenza vaccination coverage rates among healthcare workers in EU/EEA Member States, 2011–12 and 2012–13 influenza seasons (n=13 Member States)**



Source: National seasonal influenza vaccination survey, March 2014

\* There are no systematically collected data available on the percentage of influenza-vaccinated HCWs in the Netherlands. A small opportunistic survey among 52 of 7 893 (0.7%) GP practices found that in 2012–13, only 7.7% of practices reported that every single employee had been vaccinated; in 67.3% of these practices, only a portion of their employees had received influenza vaccination. A recently published study among hospital HCWs found a median vaccination rate of 13% (spread 2–33%) in 2012–13 [9].

\*\* Healthcare workers in GP practices/outpatient healthcare settings

## Residents of long-stay care facilities

Influenza VCRs for residents of long-stay care facilities for the 2012–13 influenza season were provided by the three following Member States: Ireland, Portugal and Slovakia. The reported VCRs were 73%, 89% and 71.1%, respectively.

## Payment mechanisms for vaccination

The predominant payment mechanism reported by Member States for the vaccine/administration of the vaccine was through the national health services for those population groups for whom seasonal influenza vaccination was recommended (children and adolescents, adults, people with chronic medical conditions, pregnant women, HCWs and members of closed communities). Approximately one-third of Member States used the national insurance schemes to fund vaccination programmes for population groups targeted for influenza vaccination. In addition, one third of the Member States reported that the vaccine and its administration was paid out of pocket by the vaccinee. For all occupational groups, including HCWs, the predominant funding mechanism was through the employer. In two Member States the vaccine and its administration was provided by regional health services (Figures 8 and 9).

### Adults (older population)

Of 31 Member States that recommend seasonal influenza vaccination for adults (older individuals aged > 50, > 55, > 59, ≥ 60 or ≥ 65 years, depending on national recommendations), vaccine costs were covered by the national health services (16 Member States) and the national insurance schemes (eight Member States). Vaccine administration was covered by the national health services/national insurance schemes in 11 and 9 Member States, respectively. In ten Member States, vaccine costs were not reimbursed, and 11 Member States reported that the vaccinee needed to also pay out of pocket for vaccine administration (Figures 8 and 9).

Overall, 23 Member States reported having one payment mechanism in place, and in eight Member States several payment mechanisms were available (e.g. national health services, out of pocket, and employers).

### Children and adolescents

Of eight Member States that recommended vaccination to children and adolescents, three Member States had the national health services cover vaccine costs; the national health services also covered the costs of vaccine

administration in two Member States. The national insurance scheme covered vaccine costs in one Member State, and vaccine administration in two Member States. Five Member States reported that the vaccinee had to pay for vaccination out of pocket (Figures 8 and 9).

### Chronic medical conditions

Overall, of 31 Member States that recommend vaccination for those with chronic medical conditions, 24 Member States reported one payment mechanism. The remaining seven Member States used a combination of several payment mechanisms for vaccination.

Vaccination for chronic medical conditions was funded by the national health services (16 countries) or the national insurance schemes (nine countries). The vaccinee had to pay for vaccination in nine Member States. In 11 Member States, vaccine administration was funded by the national health services; nine Member States made the national insurance schemes pay. Ten Member States reported that vaccinees had to pay for vaccine administration out of pocket (Figures 8 and 9).

### Pregnant women

Overall, 20 countries reported having one payment mechanism in place for pregnant women; eight Member States had several payment mechanisms.

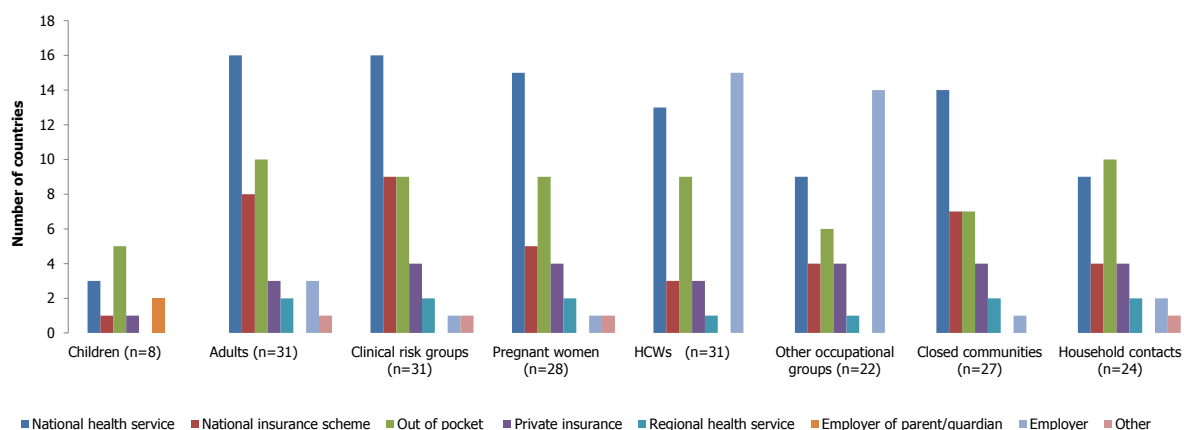
The most common mechanism for payment for the vaccine for pregnant women was the national health services (12 Member States). In eight Member States, the vaccine administration costs were covered by the national insurance schemes. In nine Member States, vaccinees had to pay for their vaccine, and in ten Member States the vaccinee was also required to pay for vaccine administration (Figures 8 and 9).

### Healthcare workers

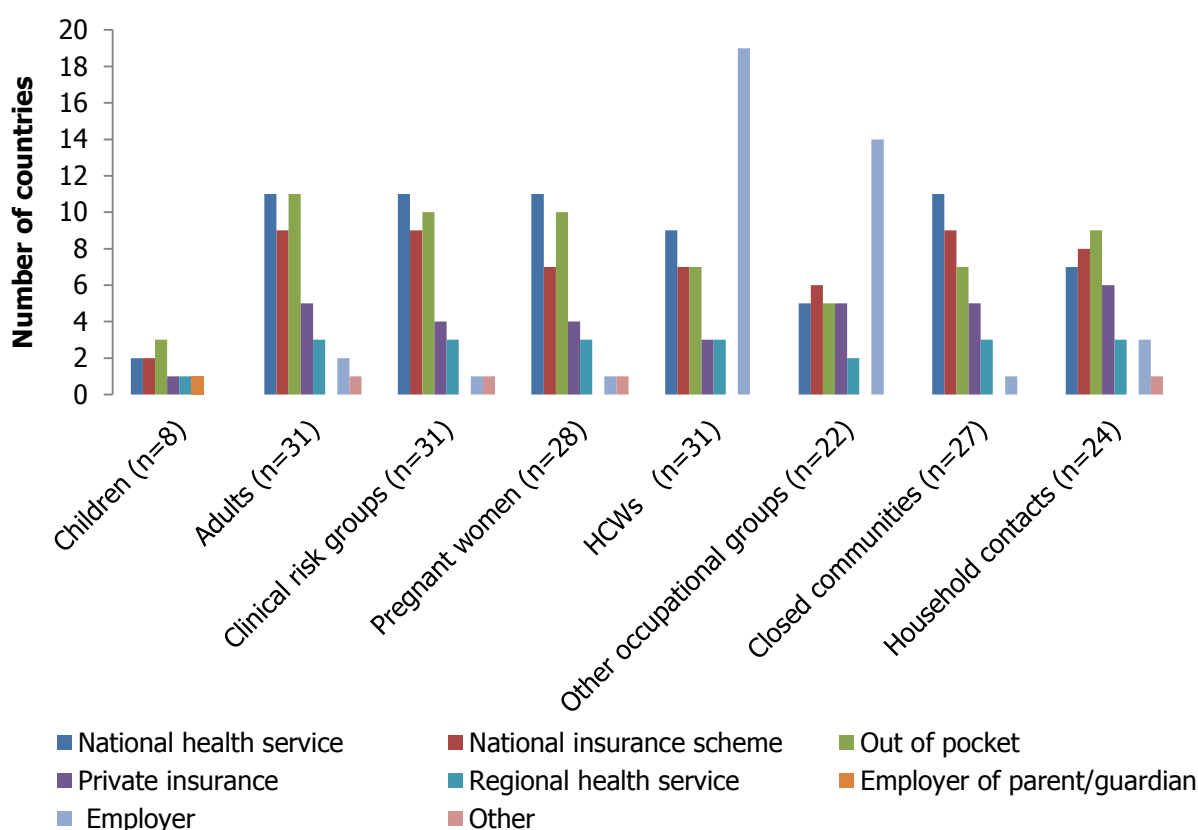
Twenty-four Member States reported having one payment mechanism in place, and seven Member States had several payment mechanisms for HCWs. Although vaccination is not recommended in Denmark, the vaccine (and its administration) is available free of charge for all HCWs and paid for by the employer.

With regard to HCWs, vaccine costs are most commonly covered by the employer (15 Member States); vaccine administration is covered by the employer in 19 Member States. Vaccination for HCWs was also funded by the national health services (13 Member States) and the national insurance schemes (three Member States) (Figures 8 and 9).

**Figure 8. Payment mechanisms for vaccination in population groups targeted for seasonal influenza vaccination, 2012–13 influenza season**



Source: National seasonal influenza vaccination survey, March 2014

**Figure 9. Payment mechanisms for vaccine administration for population groups targeted for seasonal influenza vaccination, 2012–13 influenza season**

Source: National seasonal influenza vaccination survey, March 2014

More than one answer was possible.

National (health) insurance scheme refers to a health insurance programme set up by national governments. Normally, only individuals who contribute are eligible for benefits.

National health service: a publicly funded national healthcare system, funded primarily by taxation, provides free or low-cost healthcare to all legal residents.

'Other' occupational groups (e.g. social-care workers): payment mechanisms are only presented for United Kingdom–England and United Kingdom–Wales.

Out of pocket: paid for with the vaccinee's own money rather than with money from another source.

One Member State did not indicate the payment mechanisms in place for pregnant women.

'Other' payment mechanisms: free of charge or reimbursable if administered in pharmacies

## Limitations

Comparing vaccination coverage data is difficult across European Member States because different countries use different methods to estimate vaccination coverage; even within a given Member State, response rates can differ from year to year, and methods of calculation may change, which further aggravates the problem.

How Member States enumerate denominator data (numbers eligible for vaccination) is often difficult to determine, especially with regard to groups not defined in terms of simple demographic characteristics, for example those with chronic medical conditions and HCWs.

Most EU/EEA Member States report difficulties in estimating denominator data for individuals with chronic medical conditions. This reflects a lack of information systems (disease registers) or other standardised methodologies.

The numbers of vaccinated persons (numerator data) is equally difficult to determine because countries may use either data from administrative records/immunisation registries or from surveys, both of which have their own limitations.

VCR were collected as proportions – the number of vaccinated individuals (numerator) divided by the number of individuals targeted for vaccination in each population group (denominator) – and calculated for all participating Member States. As the actual numerator and denominator data (numbers) were not collected, it is not possible to compare different influenza seasons with standardised statistical tests.

Some countries reported using population surveys to estimate the number of individuals at risk. But as a variety of methodologies were used (e.g. household surveys, mail, face-to-face interviews, telephone interviews) it is not easy to make comparisons between countries.

Perceived or actual reasons for low or high coverage across EU/EEA countries were not collected in this survey.

## Conclusions

The results of the survey show the following (2012–13 influenza season):

- Although not all Member States have a 'formal', officially endorsed national action plan to improve vaccination coverage for seasonal influenza, most of them have policies in place that comply with the Council Recommendation.
- Recommendations for seasonal influenza vaccination for targeted or at-risk groups are standard in most countries. Targeted or at-risk groups typically include the older population, pregnant women, those with a chronic medical condition, those living in long-term care facilities, and healthcare workers; these groups broadly coincide with the groups pointed out in the Council Recommendation and the WHO recommendations. A few countries also target young children as risk groups; only three countries target large populations of healthy children.
- There were no changes with regard to the number of Member States that recommended additional (or different) age groups for influenza vaccination either for children/adolescents or older population groups when compared to the previous influenza season.
- Changes in recommendations were seen in some categories (underlying conditions or targeted populations by vaccination):
  - Eight more Member States have recommended vaccination of those with hepatic diseases (21 in 2011–12 vs. 29 in 2012–13)
  - Five more Member States have recommended vaccination for those with morbid obesity (10 in 2011–12 vs. 15 in 2012–13)
  - Five more Member States recommended vaccination for pregnant women in 2012–13 compared to 2011–12 (23 in 2011–12 vs. 28 in 2012–13);
  - Four more Member States recommended vaccination of HCWs compared to the previous influenza season (26 in 2011–12 vs. 30 in 2012–13);
- Vaccination of other occupational groups (not HCWs) is not common across EU/EEA Member States, as only around one third of them recommend influenza vaccination for these population groups.

Vaccination coverage rates in 2012–13 influenza season:

- VCRs vary widely across groups targeted for vaccination within EU/EEA Member States.
- Although all surveyed countries recommend vaccination of the older population groups, and vaccination coverage was reported by 24 Member States for this group, coverage level does not meet the 75% vaccination rate target. This target was achieved only by the Netherlands, United Kingdom–Northern Ireland, and United Kingdom–Scotland; it was almost achieved by United Kingdom–England and United Kingdom–Wales.
- Compared to the previous influenza season, VCRs were lower in Poland and Italy in 2012–13. Seven Member States were not able to provide vaccination coverage data for older population groups.
- Although seasonal influenza vaccination is recommended in all EU/EEA Member States for those with chronic medical conditions (e.g. pulmonary, cardiovascular, and renal diseases; metabolic disorders and immunosuppression due to disease or treatment), VCRs for persons with chronic medical conditions were only available for approximately one-fourth of the Member States (n=7). VCR in this group were considerably lower compared with the vaccination coverage among the older population groups in most Member States. VCRs do not meet the EU target, except in the Netherlands and United Kingdom–Northern Ireland, where coverage is high.
- VCR data for HCWs was only available from approximately half (n=13) of the 29 Member States that recommend vaccination for this population group. Compared with the previous influenza season, three more Member States were able to provide vaccination coverage data for the 2012–13 season (Croatia, Greece and Lithuania). VCRs varied greatly, with a few Member States reporting moderate VCRs (Romania 42%, United Kingdom–England 46%). VCRs were high in Netherlands (75%), where coverage was estimated only for GPs and might be overestimated. In the remaining Member States, VCRs were low. Of all targeted population groups, rates for HCWs were lowest. Vaccination coverage data from staff working in long-stay care facilities were available in two Member States (Ireland, Portugal): coverage was as low as among other HCWs.
- Among residents living in long-stay care facilities, VCRs were high in those Member States that were able to provide data for this specific population group; however, coverage was only reported by three Member States.
- Although vaccination was recommended for pregnant women in 28 of the participating Member States, only 7 of 28 Member States reported vaccination coverage in this group; compared with the previous season, an additional four Member States were able to report coverage for this specific population group (Germany, Hungary, Ireland and Lithuania). VCRs were moderate (between 40% and 65%) in the United Kingdom; in the remaining Member States, VCRs were low (between 0.2% and 23.2%).



- The results of this survey have shown that it remains a considerable public health challenge to reach high VCRs for those who are at risk of developing severe complications due to influenza infection.
- Positive changes with regard to monitoring vaccination coverage in some population groups targeted for vaccination were observed for 2012–13 influenza season as more countries were able to provide vaccination coverage rates for HCWs and pregnant women.

## The way forward

- Countries that do not have a seasonal influenza vaccination action plan should be encouraged to develop a plan or policy on how to achieve higher seasonal influenza VCRs.
- In order to measure the performance of national influenza vaccination programmes, countries should consider an influenza vaccination coverage monitoring systems for those groups for whom vaccination is most commonly recommended (older populations, those with chronic medical conditions, pregnant women and HCWs). Those countries that do not monitor vaccination coverage among older population groups should consider coverage monitoring systems. Data on coverage, collected on an annual basis at the end of each influenza season, could be used to identify gaps and challenges in national vaccination programmes.
- This survey demonstrates that VCRs need to be improved in all targeted groups, e.g. the older population (except in countries that have already achieved the vaccination target of 75%), those with chronic medical conditions, pregnant women, and HCWs.
- Public health authorities should encourage healthcare workers to get vaccinated and recommend seasonal influenza vaccination to persons identified as key target groups by the national vaccination programme. Communication campaigns on influenza and influenza vaccines specifically targeted to these population groups could support higher coverage. Adequate and sustainable funding is an important factor for better vaccination coverage.
- More work is needed to explore how recommendations (at both the national and international level) can be effectively translated into higher VCRs. Research could investigate the reasons for non-vaccination in countries with low vaccination coverage rates and provide insights into the drivers for high vaccination rates.
- Comparisons of VCRs at the European level could be obtained by conducting annual population-based surveys, which use the same or similar methodologies in all participating countries.
- Annual EU/EEA surveys on seasonal influenza vaccination policies and coverage are very useful to monitor trends in vaccination policies, particularly if questionnaires are consistent over time and data are collected using similar methodologies. Data gathering and sharing could motivate Member States to learn from other Member States and further improve their vaccination programmes.
- Annual surveys implemented as part of the VENICE network have been generously supported by ECDC and participating Member States. Further surveys should improve the survey tools (i.e. by making them shorter and more concise) and improve data quality. Information provided by standardised surveys helps to monitor progress towards reaching internationally accepted goals and guidelines in seasonal influenza vaccination at the EU level.

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## Annex 1. Availability of national action plans by countries

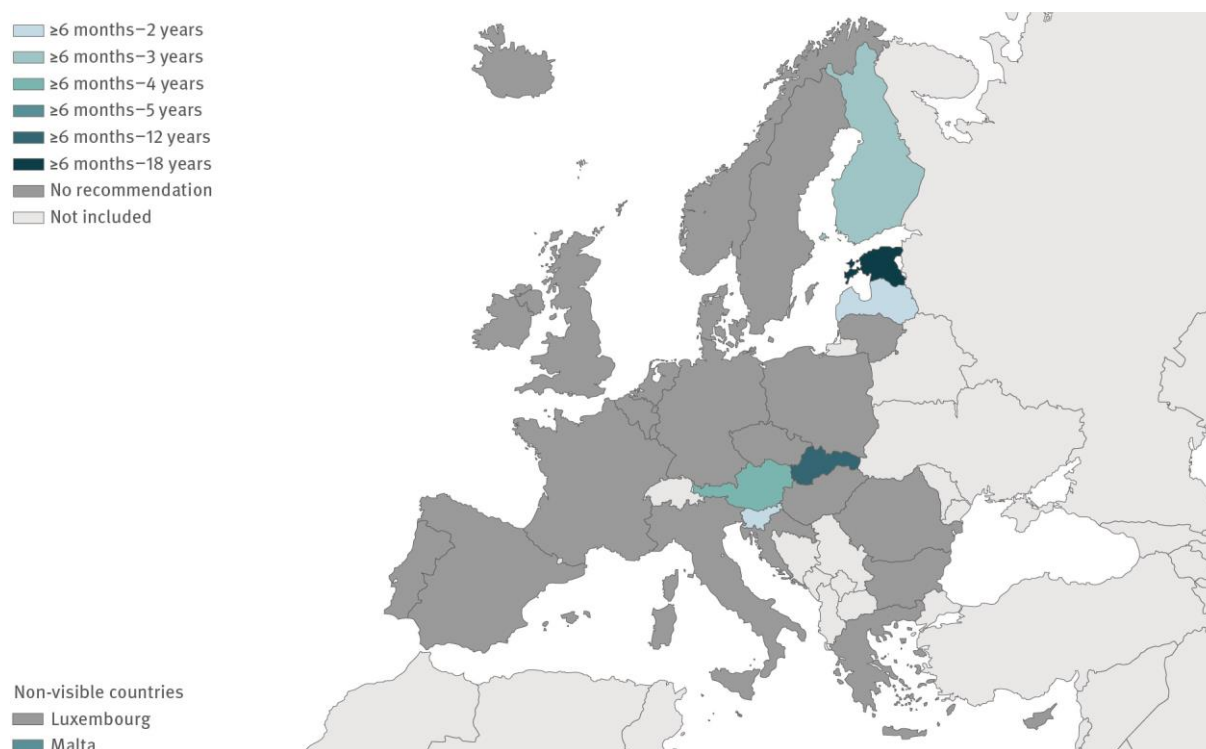
**Table 2. Availability of national action plan to improve vaccination coverage for seasonal influenza in EU/EEA in 2012–13 influenza season**

National action plan	Member States	Total
Yes, plan was adopted	Czech Republic, Ireland, the Netherlands, United Kingdom–Wales	4
Yes, plan was developed previously and updated according Council Recommendation	Iceland, Poland, United Kingdom–England	3
A plan was not developed, but a respective policy is in place	Austria, Belgium, Croatia, Denmark, Finland, France, Germany, Hungary, Latvia, Liechtenstein, Malta, Norway, Portugal, Spain, United Kingdom–Northern Ireland, United Kingdom–Scotland	16
Plan is under development	Bulgaria, Cyprus	2
Plan not adopted	Estonia, Greece, Italy, Lithuania, Luxembourg, Romania, Slovakia, Slovenia, Sweden	9

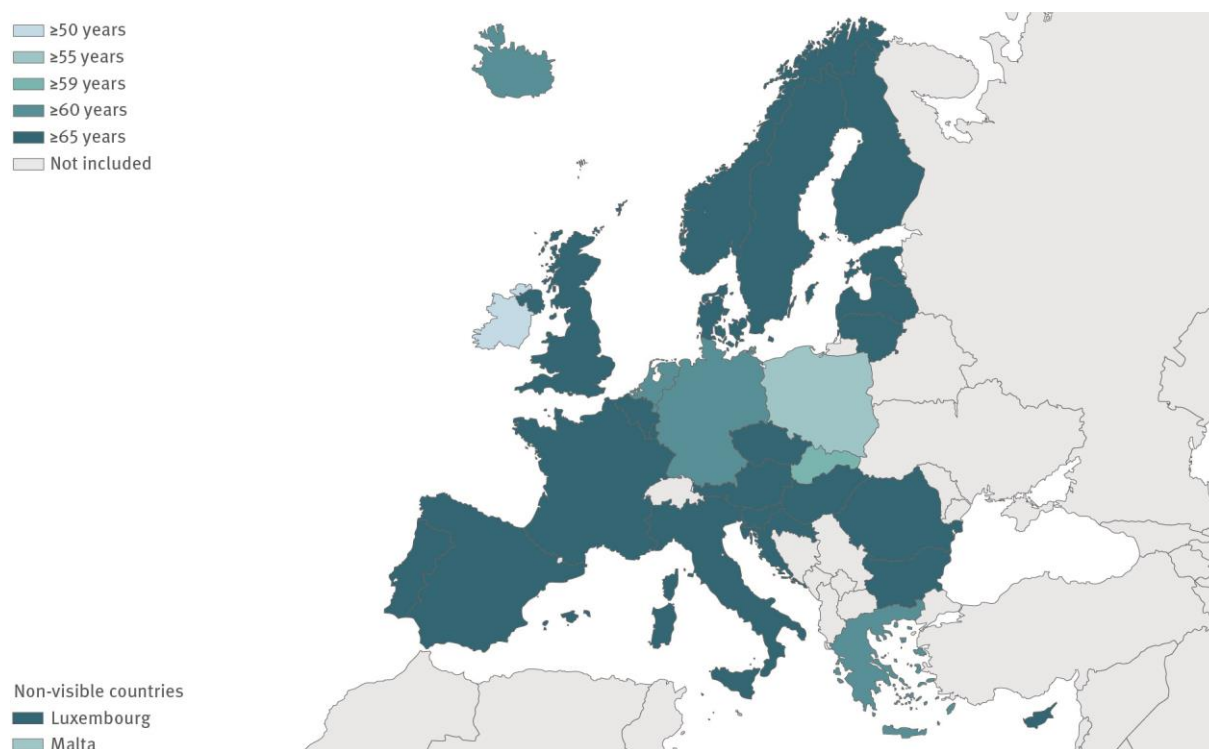
Source: National seasonal influenza vaccination survey, March 2014

## Annex 2. Recommendations for children, adolescents and adults by countries

**Map 3. Member States recommending seasonal influenza vaccination for children and adolescents, 2012–13 influenza season. National seasonal influenza vaccination survey, March 2014**



**Map 4. Member States recommending seasonal influenza vaccination for older age groups, 2012–13 influenza season. National seasonal influenza vaccination survey, March 2014**



*In Ireland, the National Immunization Technical Advisory Group (NITAG) recommends vaccination for people  $\geq 50$  years but programme focuses on people  $\geq 65$  years.*

*Belgium. The guidelines recommend vaccination for those  $\geq 65$  years of age and they belong to the first priority group for receiving the influenza vaccine; the guidelines also mention explicitly that the vaccination is also useful for healthy persons aged 50 and older.*

*Spain. The recommendation at the national level is for those  $\geq 65$  years of age; however, 10 out of 19 regions recommend vaccination for those  $\geq 60$  years of age.*

*Estonia. Vaccination against seasonal influenza is recommended for all residents  $\geq 6$  months of age.*

## Annex 3. Recommendations for those with chronic medical conditions and other occupations, by countries

**Table 3. Chronic medical conditions recommended influenza vaccination by Member State, 2012–13 influenza season**

Member States	Diseases, disorders and conditions										
	Chronic pulmonary <sup>a</sup>	Chronic neurological <sup>b</sup>	Cardiovascular <sup>c</sup>	Renal	Hepatic	Haematological <sup>d</sup>	Metabolic <sup>e</sup>	Immuno-suppression <sup>f</sup>	HIV/AIDS	Long-term aspirin use	Morbid obesity <sup>g</sup>
Austria	R	R	R	R	NR	NR	R	R	R	R	R
Belgium	R	R	R	R	R	R	R	R	R	R	NR
Bulgaria	R	NR	R	R	R	R	R	R	R	NR	NR
Croatia	R	R	R	R	R	R	R	R	R	R	R
Cyprus	R	R	R	R	R	R	R	R	R	R	R
Czech Republic	R	R	R	R	R	NR	R	R	R	NR	NR
Denmark	R	R	R	R	R	R	R	R	R	NR	R
Estonia	R	R	R	R	R	R	R	R	R	R	R
Finland	R	R	R	R	R	R	R	R	R	R	R
France	R	R	R	R	R	R	R	R	R	NR	R
Germany	R	R	R	R	R	R	R	R	R	NR	NR
Greece	R	R	R	R	NR	R	R	R	R	R	NR
Hungary	R	R	R	R	R	R	R	R	NR	R	R
Iceland	R	R	R	R	R	R	R	R	R	R	R
Ireland	R	R	R	R	R	R	R	R	R	R	R
Italy	R	R	R	R	R	R	R	R	R	R	R
Latvia	R	NR	R	R	R	NR	R	R	R	R	NR
Liechtenstein	R	R	R	R	R	R	R	R	R	NR	NR
Lithuania	R	NR	R	R	R	R	R	R	R	NR	NR
Luxembourg	R	R	R	R	R	R	R	R	R	R	NR
Malta	R	R	R	R	R	R	R	R	R	NR	NR
The Netherlands	R	NR	R	R	NR	R	R	R	R	NR	NR
Norway	R	R	R	R	R	R	R	R	R	NR	R
Poland	R	R	R	R	R	R	R	R	R	R	R
Portugal	R	R	R	R	R	R	R	R	R	R	NR
Romania	R	R	R	R	R	R	R	R	R	NR	NR
Slovakia	R	NR	R	R	R	R	R	R	NR	NR	NR
Slovenia	R	R	R	R	R	R	R	R	R	R	NR
Spain	R	R	R	R	R	R	R	R	R	R	R
Sweden	R	R	R	R	R	R	R	R	NR	NR	R
United Kingdom – England	R	R	R	R	R	R	R	R	R	NR	NR
United Kingdom – Northern Ireland	R	R	R	R	R	NR	R	R	R	NR	NR
United Kingdom – Scotland	R	R	R	R	R	R	R	R	R	NR	NR
United Kingdom – Wales	R	R	R	R	R	R	R	R	R	NR	NR

Source: National seasonal influenza vaccination survey, March 2014

R – Recommended, i.e. specific written recommendation in an official policy document that this population group should receive seasonal influenza vaccine

NR – No recommendation, i.e. no specific written recommendation in an official policy document that this population group should be vaccinated

<sup>a</sup> Respiratory (pulmonary) diseases, e.g. chronic obstructive pulmonary disease, cystic fibrosis, asthma

<sup>b</sup> Chronic neurological diseases or neuromuscular conditions, e.g. disorders of the brain, spinal cord, and peripheral nerve; cerebral palsy, epilepsy (seizure disorders), stroke, intellectual disability (mental retardation), moderate to severe developmental delay, muscular dystrophy, or spinal cord injury

<sup>c</sup> Cardiovascular diseases, e.g. congenital heart disease, congestive heart failure and coronary artery disease; not hypertension

<sup>d</sup> Haematological disorders (such as sickle cell disease)

<sup>e</sup> Metabolic disorders, e.g. inherited metabolic disorders and mitochondrial disorders, including diabetes mellitus

<sup>f</sup> Immunosuppression due to disease or treatment, e.g. asplenia/splenic dysfunction, organ transplantation; not HIV/AIDS

<sup>g</sup> Morbid obesity is defined as a body mass index of 40kg/m<sup>2</sup> or more.

In Sweden, vaccination is recommended to children with certain other conditions, e.g. multiple handicaps, metabolic disorders, Down's syndrome and severe asthma (4th degree). The recommendation does not cover all metabolic disorders, only diabetes. Persons with HIV who are immunosuppressed are included in the risk group 'immunosuppression'.

**Table 4. Other occupations recommended for seasonal influenza vaccination in EU/EEA Member States, 2012–13 influenza season**

Occupation	Recommended <sup>a</sup>
Police and Firefighters	Bulgaria, Estonia, Iceland, Italy, Malta, Luxembourg <sup>b</sup> , Poland, Spain
Military	Bulgaria, Estonia, Finland, Greece, Italy, Malta, Luxembourg, Poland, Slovakia, Slovenia, Spain
Border/immigration control/ customs	Estonia, Iceland, Italy, Malta, Poland
Veterinary service workers	Cyprus, Estonia, Iceland, Ireland, Italy, Malta, Slovenia
Transportation sector employees (e.g. ground, rail, air, sea and inland waterways)	Bulgaria <sup>c</sup> , Estonia, France <sup>d</sup> , Luxembourg, Poland
Educational staff, e.g. primary/secondary schools, preschool centres, kindergartens, crèches	Estonia, Liechtenstein <sup>f</sup> , Luxembourg <sup>g</sup> , Poland <sup>e</sup>
Community services (energy, electricity, water)	Estonia, Poland
Postal service	Estonia, Luxembourg, Poland
Poultry industry workers	Belgium, Cyprus, Estonia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Liechtenstein, Slovenia
Swine industry workers	Belgium, Cyprus, Estonia, Iceland, Ireland, Italy, Liechtenstein
Families raising swine, poultry	Estonia, Iceland, Ireland, Liechtenstein, Norway
Social-care workers	Bulgaria, Estonia, Finland, Hungary, Malta, Poland, Spain, United Kingdom–England, United Kingdom–Wales
Laboratory workers (excluding medical/public health laboratories, but working with avian influenza viruses in the environmental/ academic sector)	Croatia, Estonia, Germany, Ireland, Iceland, Italy, Liechtenstein, Malta, the Netherlands, Slovakia, Slovenia
Wildlife environmentalists (workers who work with birds, e.g. bird ringing)	Estonia, Germany, Ireland, Liechtenstein, Slovakia
Other	Ireland <sup>h</sup> , Liechtenstein <sup>k</sup> , Norway <sup>i</sup> , United Kingdom–Wales <sup>j</sup>
None of the above	Czech Republic, Denmark, Latvia, Lithuania, Romania, Portugal, Sweden, United Kingdom–Northern Ireland, United Kingdom–Scotland

Source: National seasonal influenza vaccination survey, March 2014

<sup>a</sup> In Austria, vaccination is recommended for individuals with frequent exposure to crowds

<sup>b</sup> Recommendations for vaccination refer only to economic reasons; however, no occupational groups are specified

<sup>c</sup> Recommended for some

<sup>d</sup> Crew members of airlines and cruises lines; tour guides

<sup>e</sup> All teachers and administrative workers

<sup>f</sup> Day care centres and crèches

<sup>g</sup> People working in a crèche/day care care centre with children below two years of age

<sup>h</sup> Abattoir and zoo workers

<sup>i</sup> People in regular contact with live swine

<sup>j</sup> Volunteers for first-aid and relief organisations

<sup>k</sup> Whoever wishes to minimise their risk of influenza

## Annex 4. Vaccination coverage rates and method of monitoring by countries

**Table 5. Seasonal influenza vaccination coverage rates for targeted population groups by method of monitoring, EU/EEA Member States, 2012–13 influenza season**

Member States	Measured/estimated vaccination coverage rates (%)			
	Administrative method	Survey method	Combination of administrative and survey method	Immunisation registry
<b>Children and adolescents</b>				
≥ 6 months–24 months				
Latvia	0.12	-	-	-
≥ 6 months–36 months				
Finland	-	-	-	13
< 15 years				
Portugal	-	9	-	-
≥ 6 months–15 years				
Slovakia	1.6	-	-	-
≥ 6 months–18 years				
Finland	-	-	-	5
Latvia	0.02	-	-	-
Slovenia	0.4	-	-	-
<b>Adults</b>				
≥ 55 years of age				
Malta	52	-	-	-
≥ 60 years of age				
Germany		50	-	-
Iceland	44.7	-	-	44.7
The Netherlands	67.8	-	-	-
≥ 65 years of age				
Croatia	30	-	-	-
Denmark	-	-	-	46
Estonia	1	-	-	-
Finland	-	-	-	34
France	53.1	-	-	-
Hungary	30.9	-	-	-
Ireland	56.9	60	-	-
Italy	54.2	-	-	-
Latvia	1.8	-	-	-
Lithuania	19.4	-	-	-
Luxembourg	43.3	-	-	-
The Netherlands	74.3	-	-	-
Norway	-	36.2	-	-
Poland	7.4	-	-	-
Portugal	-	45	55	-
Romania	14.9	-	-	-
Slovenia	16.8	-	-	-
Spain	57	-	-	-
Sweden	-	-	44	-
United Kingdom–England	73.4	-	-	-
United Kingdom–Northern Ireland	75	-	-	-
United Kingdom–Scotland	77.4	-	-	-

Member States	Measured/estimated vaccination coverage rates (%)			
	Administrative method	Survey method	Combination of administrative and survey method	Immunisation registry
United Kingdom–Wales	67.7	-	-	-
Chronic medical conditions and ≥ 65 years together				
Norway	44.5	-	-	-
<b>Chronic medical conditions</b>				
≥ 6 months–64 years of age				
France	39.1	-	-	-
The Netherlands	54.6	-	-	-
United Kingdom–England	51.3	-	-	-
United Kingdom–Northern Ireland	80.2	-	-	-
United Kingdom–Scotland	59.2	-	-	-
United Kingdom–Wales	49.7	-	-	-
Other age groups				
Ireland	-	28.4 (age ≥ 18–64 years)	-	-
Germany	-	41.5 (≥ 18years)	-	-
The Netherlands	72.1 (≥ 18years)	-	-	-
Norway	-	37.1 (≥ 18years)	-	-
Portugal	-	28 (≥ 6 months of age)	-	-
<b>Pregnant women</b>				
Germany	-	23.2	-	-
Hungary	3.3	-	-	-
Ireland	-	27.8	-	-
Lithuania	0.2	-	-	-
Romania	4.2	-	-	-
Slovenia	1.4	-	-	-
United Kingdom–England	40.3	-	-	-
United Kingdom–Northern Ireland	64.6	-	-	-
United Kingdom–Scotland	54.1	-	-	-
United Kingdom–Wales	43.6	-	-	-
<b>Overall HCWs</b>				
Croatia	19	-	-	-
Hungary	29.2	-	-	-
Ireland	-	29.5	-	-
Poland	9.5	-	-	-
Portugal	28	-	-	-
Lithuania	36.6	-	-	-
Romania	42	-	-	-
Spain	22.9	-	-	-
United Kingdom–England	45.6	-	-	-
United Kingdom–Northern Ireland	14.8	-	-	-
United Kingdom–Scotland	33.7	-	-	-
United Kingdom–Wales	35.5	-	-	-
<b>Outpatient healthcare settings</b>				
Greece	19	-	-	-



Member States	Measured/estimated vaccination coverage rates (%)			
	Administrative method	Survey method	Combination of administrative and survey method	Immunisation registry
The Netherlands*	-	75	-	-
Portugal	45	-	-	-
United Kingdom–England	49.6	-	-	-
<b>Inpatient healthcare settings</b>				
Greece	11.5	-	-	-
Ireland	17.4	-	-	-
Portugal	24	-	-	-
United Kingdom–England	45.3	-	-	-
United Kingdom–Northern Ireland	20.4	-	-	-
<b>Long-term healthcare settings</b>				
Ireland	15	-	-	-
Portugal	27	-	-	-
<b>Military/armed forces</b>				
Finland	90	-	-	-
<b>Residents of long-term care facilities</b>				
Ireland	73	-	-	-
Portugal	89	-	-	-
Slovakia	71.1	-	-	-
<b>Household contacts or carers</b>				
United Kingdom–Wales	53.2	-	-	-

Source: National seasonal influenza vaccination survey, March 2014

\* Netherlands: Overestimation. In order to determine VCRs for healthcare workers, a sample was taken from Dutch GP practices; the resulting data are not representative of actual VCRs for HCWs in the Netherlands. In 2011–12, 8.6% of Dutch GP practices reported that all employees received influenza shots; in 56.5% of the GP practices only some employees were vaccinated. In 2012–13, 7.7% of Dutch GP practices reported that all employees received influenza shots; in 67.3% of the GP practices only some employees were vaccinated.