



## TECHNICAL REPORT

# Implementation of the Council Recommendation on seasonal influenza vaccination (2009/1019/EU)

**ECDC TECHNICAL REPORT**

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This report was commissioned by the European Centre for Disease Prevention and Control (ECDC) and coordinated by Teymur Noori, expert in monitoring and evaluation of public health programmes.

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# Abbreviations

EFTA	European Free Trade Association
EU	European Union
VENICE	Vaccine European New Integrated Collaboration Effort
WHO	World Health Organization
WHO SAGE	World Health Organization Strategic Advisory Group of Experts

## Executive summary

In December 2009 the EU Council adopted a Council Recommendation on seasonal influenza vaccination<sup>i</sup>. The Recommendation asks that concerted action be taken at the level of the European Union to mitigate the impact of seasonal influenza by encouraging vaccination among risk groups and healthcare workers. The Recommendation encourages Member States to adopt and implement national, regional or local action plans or policies, as appropriate, in order to improve seasonal influenza vaccination coverage among older age groups, other risk groups such as people with chronic conditions and healthcare workers.

The specific purpose of the Recommendation is to increase vaccination coverage of older age groups, preferably to reach a target of 75% coverage by the 2014-15 winter season. It is proposed in the Recommendation that the target should, if possible, be extended to the risk group of people with chronic conditions. Member States are also encouraged to improve vaccination coverage among healthcare workers.

As directed in the Recommendation and at the request of the European Commission, ECDC has provided technical assistance to Member States on monitoring the current situation with seasonal influenza and influenza immunisation, drawing on data, analyses and actions undertaken in recent years. This included the annual surveys conducted by the VENICE (Vaccine European New Integrated Collaboration Effort) project, scientific guidance on risk populations, training, communication tool kits, surveillance for severe diseases (essential for guidance on risk groups) and developing mechanisms for monitoring vaccine effectiveness and investigating possible safety signals.

The data included in this report is drawn from two primary sources: 1) The annual survey by the VENICE project<sup>ii</sup>, which collects data from 'gatekeepers' in public health institutes, who work with their national authorities (e.g. Ministries of Health) on their country's seasonal influenza vaccination policies, practises and coverage; and 2) a Supplementary Questionnaire developed and implemented by ECDC to collect additional data especially relevant to the Council Recommendation. A separate independent scientific review of the literature funded by ECDC on barriers and drivers related to seasonal influenza vaccination is also cited in the report.

Almost all countries reported having in place national and/or regional vaccination policies or strategies for seasonal influenza. Of the four countries reporting not having these policies or strategies, two reported that the existence of national and/or regional vaccination policies or strategies would have a positive effect on vaccination efforts in the country.

Eighteen countries were able to provide vaccination coverage data for the older age groups for the 2011–2012 influenza season. Only one country (Netherlands) meets or exceeds the 75% threshold included in the Recommendation for the cohort of older age groups. The United Kingdom (England) is close to the threshold at 74%. Among the other countries reporting coverage data, the percentages range from 1.7% to 64.1%. The trend data on this population shows no discernible momentum toward increasing coverage rates in most countries. In a number of countries, there have actually been declines in coverage among this population since the 2009 pandemic.

Only five countries reported vaccination coverage data for the population of people with chronic conditions for the 2011-12 influenza season. Of these countries, only the Netherlands is close to reaching the 75% target in the Council Recommendation. The reported coverage rates ranged from 31% to 73.6%. The lack of data on coverage rates for this population in the significant majority of countries reinforces the perception that little or no progress is being made.

Only six countries reported coverage data for health care workers for the 2011-12 influenza season. The reported coverage rates ranged from 6.4% to 54.4%. Again, the lack of data on coverage rates in the significant majority of countries reinforces the perception that little or no progress is being made to improve vaccination coverage among a population highlighted in the Council Recommendation.

The Recommendation asks countries to 'analyse the reasons why some people do not wish to receive vaccinations'. Twenty-three countries reported in the Supplementary Questionnaire that there are known and/or perceived barriers in their country, which deter vaccination among key risk populations. Twenty-five countries reported known and/or perceived barriers to vaccination among healthcare workers.

<sup>i</sup> Council Recommendation of 22 December 2009 on seasonal influenza vaccination Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:348:0071:0072:EN:PDF>

<sup>ii</sup> The VENICE survey data referenced in this report is from the 2011-12 season, which is the latest available data.

Many of the specific barriers reported by countries seem to be persistent problems: low perception of risk, including the risk of infecting others, particularly in healthcare settings; fear of possible and perceived side effects from vaccination, including contracting influenza; questions about the effectiveness of the influenza vaccine; broader anti-vaccine sentiments; issues of cost, availability and convenience; misleading reports in the mainstream media; and a general lack of accurate information about influenza and vaccination.

The Council Recommendation encourages countries to foster education, training, and information exchange on seasonal influenza and vaccination. For the past 24 months, a majority of countries reported implementing significant initiatives in communication, education, training and information exchange to reduce and/or remove barriers to seasonal influenza and promote appropriate attitudes and behaviours about vaccination among key populations.

In general, countries have made only limited progress in achieving the aims outlined in the Council Recommendation on seasonal influenza vaccination. In most countries, vaccination coverage rates are either low or unreported for the key populations covered by the Recommendation. More importantly, there appears to be little movement toward strengthening vaccination programmes, overcoming barriers to vaccination and increasing coverage rates.

# Introduction

In December 2009 the EU Council adopted the Council Recommendation on seasonal influenza vaccination (2009/1019/EU).

The Recommendation asks that concerted action be taken at the level of the European Union to mitigate the impact of seasonal influenza by encouraging vaccination among risk groups and healthcare workers. The Recommendation encourages Member States to adopt and implement national, regional or local action plans or policies, as appropriate, in order to improve seasonal influenza vaccination coverage among older age groups, other risk groups such as people with chronic conditions, and healthcare workers.

The specific purpose of the Recommendation is to reach a target of 75% vaccination coverage of older age groups as early as possible and preferably by the 2014-15 winter season. It is proposed in the Recommendation that the target of 75% should, if possible, be extended to the risk group of people with chronic conditions. Member States are also encouraged to improve vaccination coverage among healthcare workers.

In the Recommendation the Member States are encouraged, in the framework of their action plans or policies, to:

- take into account the definition of "older age groups" and of "clinical risk groups" as contained in the guidance issued by ECDC;
- measure uptake in all risk groups, and to analyse the reasons why some people choose not to be vaccinated;
- foster education, training, and information exchange on seasonal influenza and vaccination by organising:
  - (i) information action for healthcare workers;
  - (ii) information action for risk groups and their families regarding the risks associated with, and the prevention of, influenza;
  - (iii) effective information action to remove obstacles to vaccination uptake.

It is stated in the Recommendation that increased vaccination rates among risk groups would also contribute to higher vaccination rates in general, including of healthcare workers. To bring about these changes, a necessary first step is that all participants of the healthcare environment, risk groups, healthcare workers, physicians, healthcare managers and policymakers are informed of the problem of seasonal influenza through public and professional awareness campaigns. Healthcare workers should be made aware of the particular danger faced by their more vulnerable patients, including possible infection from healthcare workers who have not been vaccinated. Healthcare workers should also be made aware of their responsibility to give accurate, evidence-based advice on vaccination to their patients as well as the importance of setting a good example for patients by getting the vaccination themselves.

Gathering of specific and comparable data at national level regarding the uptake rates in risk groups in order to properly assess the situation in all the Member States is highlighted as an essential component in the Recommendation.

Member States are encouraged to report on a voluntary basis to the Commission on the implementation of this Recommendation, in particular, on the coverage achieved among risk groups.

In the Recommendation, ECDC is asked to assist the Member States in providing scientific expertise on seasonal influenza vaccination and to issue guidance on identifying risk groups for vaccination.

The Commission is invited to continue to support research on influenza through the Research Framework Programmes.

The Commission is also invited to report regularly to the Council on the implementation of this Recommendation, on the basis of the data the Member States will make available.



In 2011, at the request of the European Commission, ECDC began providing technical assistance on monitoring the current situation with seasonal influenza and influenza vaccination, drawing on data, analyses and actions undertaken in recent years. This included the annual surveys conducted by the VENICE project,<sup>i</sup> scientific guidance on risk populations, training, communication tool kits, surveillance for severe diseases (essential for guidance on risk groups) and developing mechanisms for monitoring vaccine effectiveness in the field. The data included in this report is drawn from two primary sources:

- the annual survey by the VENICE project, which collects data from public health authorities at the national level who have been formally nominated to provide information on their country's seasonal influenza vaccination policies, practices and coverage
- a Supplementary ECDC Questionnaire developed and implemented by ECDC to collect additional data relevant to the Council Recommendation..<sup>ii</sup>

A separate scientific review of the literature funded by ECDC on barriers and drivers related to seasonal influenza vaccination was carried out in 2012 and is also cited in the report.<sup>iii</sup>

The VENICE surveys referenced in this report were sent to EU Member States, plus two EFTA countries: Iceland and Norway.<sup>iv</sup> In addition to current Member States, the Supplementary ECDC Questionnaire was also sent to one acceding country (Croatia) and four EFTA countries (Iceland, Lichtenstein, Norway and Switzerland).

This Report summarises the main actions taken at Member State and European Union level.

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<sup>i</sup> The original VENICE (Vaccine European New Integrated Collaboration Effort) project ran from 2006 to 2008. All 27 EU member states and two EEA/EFTA countries (Iceland and Norway) participated in the project. During the original VENICE project, a wide range of activities were completed, including the creation of a collaborative European network of experts working in immunisation programmes; the design of tools and procedures to facilitate exchanges; the collection of relevant information on immunisation programmes, adverse events surveillance systems and vaccine coverage; and the monitoring of the introduction of two recently licensed vaccines, HPV and rotavirus vaccination. In December 2008, VENICE II was launched with the general aim to collect and share information on the national vaccination programmes through a network of professionals and to build up a knowledge base endeavouring to improve the overall performance of the immunisation systems. The project collects information on selected vaccination programmes at national and sub-national levels and provides information on the impact of newly introduced vaccinations in Member States. All 29 countries that participated to the original VENICE project are involved in the VENICE II project.

<sup>ii</sup> The ECDC Supplementary Questionnaire was developed with input from multiple stakeholders, including representatives from the VENICE II project and country representatives. It was based on the monitoring framework developed by ECDC in collaboration with the European Commission. It should be noted that 30 of the 33 countries invited to complete the questionnaire provided responses.

<sup>iii</sup> European Centre for Disease Prevention and Control. Review of the scientific literature on drivers and barriers of seasonal influenza vaccination coverage in the EU/EEA. Stockholm: ECDC; 2013.

<sup>iv</sup> The VENICE surveys for the 2009 H1N1 pandemic and 2009-10 seasonal influenza were done in collaboration with WHO and were sent to additional non-EU countries in the Europe.

# Summary of main actions at Member State level

## National, regional or local action plans or policies

The Council Recommendation specifically encourages countries 'to adopt and implement national, regional or local action plans or policies' related to seasonal influenza vaccination.

Almost all countries (26) reported having in place national and/or regional vaccination policies or strategies for seasonal influenza. Of the four countries reporting not having these policies or strategies, two (Bulgaria and Estonia) reported that the existence of national and/or regional vaccination policies or strategies would have a positive effect on vaccination efforts in the country.

Countries were also asked about the existence of costed action plans at national and/or sub-national levels (i.e. action plans that include estimated costs for activities such as targeted initiatives for key risk populations to raise awareness, improve access to vaccination and increase coverage rates). Countries with more centralised structures may prefer to have a single national-level action plan, whereas countries with decentralised structures may have multiple sub-national action plans.

Fourteen countries reported having costed action plans in place; all 14 also reported having national and/or regional policies or strategies. Ten of the 14 countries reporting the existence of a costed action plan also reported that adequate funding had been allocated for the implementation of the plan.

**Table 1. Countries reporting the existence of national and/or regional policies or strategies and the existing of costed action plans at national and/or sub-national levels**

	Number of countries	List of countries
National and/or regional policies or strategies	26	Belgium, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK
Costed action plan at national and/or sub-national levels	14	Belgium, Croatia, Czech Republic, Denmark, France, Germany, Ireland, Italy, Netherlands, Poland, Portugal, Slovakia, Spain, UK
Adequate funding allocated to implement the action plan	10	Belgium, Croatia, Denmark, France, Germany, Italy, Netherlands, Portugal, Spain, UK

Countries were asked a series of follow-up questions about topic areas covered by the policies or strategies. Table 2 lists the seven topic areas and identifies which of these are part of the policies or strategies of different countries.

Twenty-three countries reported the inclusion of all of the first three topic areas, which are particularly relevant to the Council Recommendation, in their policies or strategies. Four countries (Belgium, England, France and Ireland) reported the inclusion of all seven topic areas in their policies/strategies.

**Table 2. Countries reporting the inclusion of key topic areas in their policies or strategies on seasonal influenza vaccination**

Topic Area	Number of Countries	List of Countries
Recommended age groups for vaccination	26	Belgium, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK
Recommended occupational groups for vaccination	23	Belgium, Croatia, Cyprus, Czech Republic, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Switzerland, UK
Other populations (e.g. people with chronic conditions, pregnant women) recommended for vaccination	26	Belgium, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK
Vaccination coverage among key populations as a priority	13	Belgium, Cyprus, Czech Republic, France, Germany, Greece, Ireland, Italy, Latvia, Portugal, Slovakia, Sweden, UK
Areas of responsibility for different stakeholders involved in implementing vaccination programmes, particularly programmes focused on key populations	14	Belgium, Croatia, Cyprus, Finland, France, Germany, Hungary, Ireland, Latvia, Netherlands, Portugal, Slovakia, Switzerland, UK
Financial responsibilities related to vaccination for seasonal influenza (e.g. who funds vaccination efforts)	14	Belgium, Croatia, Cyprus, Denmark, France, Germany, Iceland, Ireland, Latvia, Lithuania, Netherlands, Portugal, Slovenia, UK
Financial incentives related to vaccination for seasonal influenza (e.g. incentives for general practitioners, free/subsidised vaccinations)	8	Belgium, Croatia, Denmark, France, Iceland, Ireland, Netherlands, UK

## Vaccination uptake in all target groups

The Council Recommendation includes a target of 75% vaccination coverage rate among older age groups and among other risk groups with definitions of both groups taking account of guidance issued by ECDC. In addition, the Recommendation encourages countries to improve vaccination coverage rates among healthcare workers

Surveillance of people with laboratory-confirmed influenza requiring hospitalisation supports the inclusion of older age groups and people with chronic medical conditions in the Council Recommendation. For example, the surveillance consistently shows that people  $\geq 65$  years and people with chronic medical conditions are over-represented among those needing higher-level care (i.e. hospitalisation) and that most of these people are not immunised.

For the purposes of monitoring implementation of this Council Recommendation, the coverage for the 2008–09 influenza season was chosen as the baseline for comparison. This was because the coverage of the season of 2009–10 was distorted by the 2009 influenza A (H1N1) pandemic and the awareness that a pandemic vaccine was going to be available.

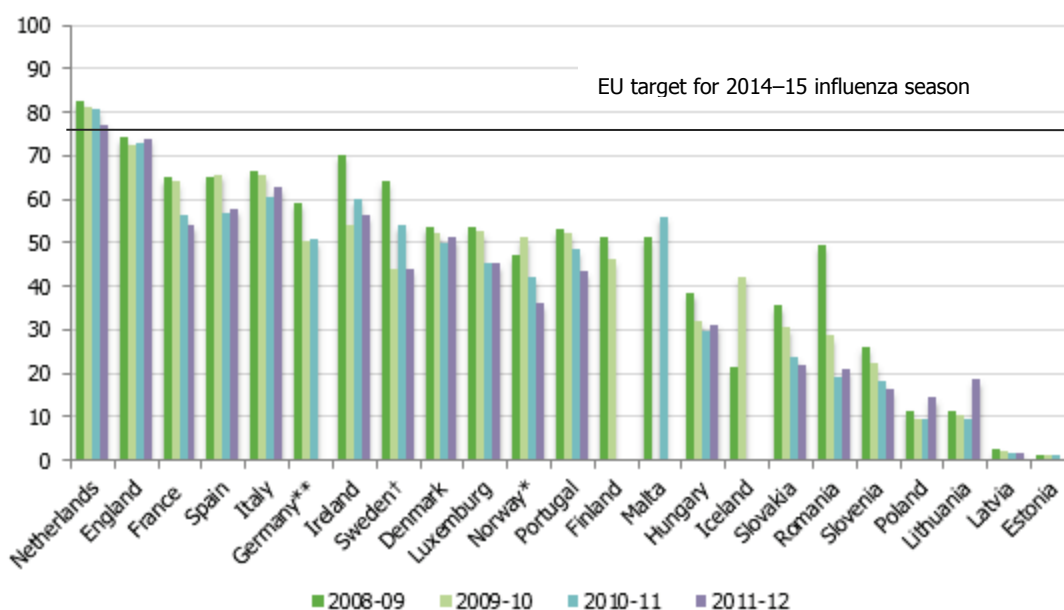
## Older age groups, usually 65 years and older

ECDC guidance on older age groups places the most emphasis on the cohort of people ≥65 years of age but does not exclude the option of including younger age groups. Countries currently use a number of different definitions of older age groups, including >50, ≥55, 59+, ≥60 and ≥65 years. However, a majority of countries (20) use the ≥65 definition.<sup>i</sup>

According to coverage data collected by the VENICE II Consortium on the 2011–12 influenza season (Figure 1), only one country (Netherlands) meets or exceeds the 75% threshold included in the Recommendation for this cohort. The United Kingdom<sup>ii</sup> (England) is close to the threshold at 74%. Among the other countries reporting coverage data, the percentage ranges from 1.7% to 64.1%. (Additional information on coverage rates is available in Annex 1.)

The trend data on this population does not show increasing coverage rates in most countries.

**Figure 1. Reported seasonal influenza vaccination coverage rates in 'older age groups' (2008–09, 2009–10, 2010–11 and 2011–12 influenza seasons), by percentage**



† Sweden: Reports were received for only around 60% of the population for the 2009-10 influenza season.

\*Norway: Coverage results calculated for those >65 and clinical risk groups together.

\*\*Germany: Data not available at time of analysis.

<sup>i</sup> The fact that different countries use different definitions for older age groups – as well as for other risk groups – is a reflection of policy and programme differences, many of which have cost implications for countries. The existing similarity between definitions is important common ground, which should be leveraged to move closer to universal agreement on definitions applicable for the region.

<sup>ii</sup> For the purposes of this report, data from England is used as a proxy for the United Kingdom.

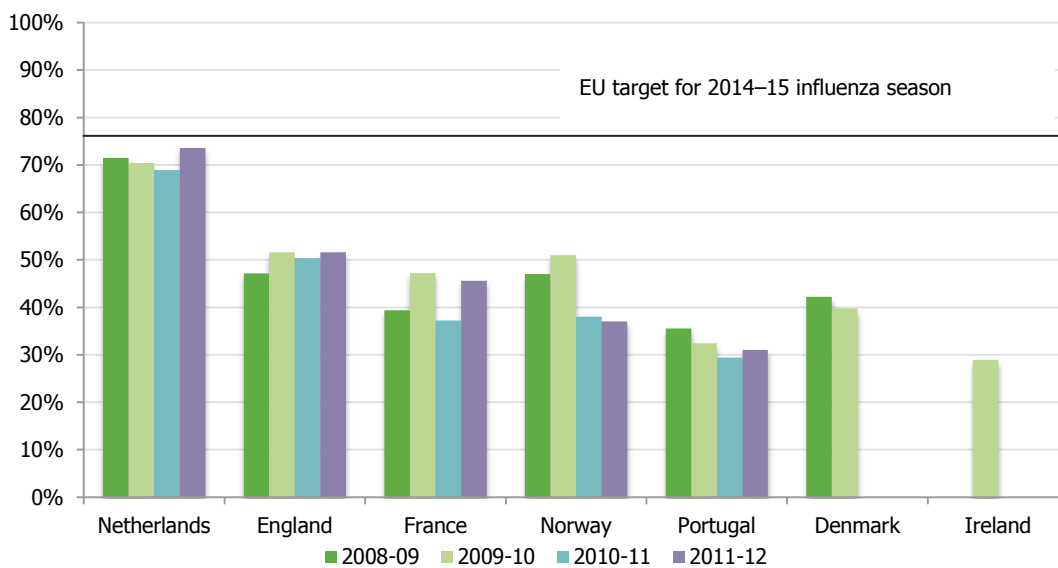
## People with chronic medical conditions

Evidence-based ECDC guidance identifies the following groups of conditions to be chronic medical conditions<sup>i</sup> in the context of seasonal influenza: chronic respiratory diseases; chronic cardiovascular diseases; chronic metabolic disorders; chronic renal and hepatic diseases; chronic neurological conditions; deficient immunity (congenital or acquired); long-term salicylate therapy among young people; and other conditions which compromise respiratory function.

Despite the large number of countries having clear definitions for people with chronic conditions, 25 countries reported not measuring vaccination coverage among this population.<sup>ii</sup> Only five countries reported vaccination coverage data for this population to VENICE<sup>iii</sup> for the 2011–12 influenza season. Of these countries, only the Netherlands came close to reaching the 75% target in the Council Recommendation. For 2011–12, the reported coverage rates ranged from 31% to 73.6% (Figure 2).

The lack of data on coverage rates for this population in the majority of countries makes it difficult to assess progress. However, the trend data on this population is encouraging in the five countries reporting data for the 2011–12 season; three of the five (France, Netherlands and United Kingdom) show some improvement in recent years, demonstrating what can be accomplished with targeted approaches.

**Figure 2. Vaccination coverage rates among clinical risk groups as measured by administrative or survey methods (2008-09, 2009-10, 2010-11 and 2011-12 influenza seasons) by percentage**



<sup>i</sup> Nicoll A, Ciancio BC, Tsolova S, Blank PR, Yilmaz C. The scientific basis for offering seasonal influenza immunisation to risk groups in Europe. *Euro Surveill.* 2008;13(43):pii=19018. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19018>

<sup>ii</sup> Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

<sup>iii</sup> The VENICE data collection instrument uses the term 'clinical risk groups' as an equivalent to 'people with chronic medical conditions'.

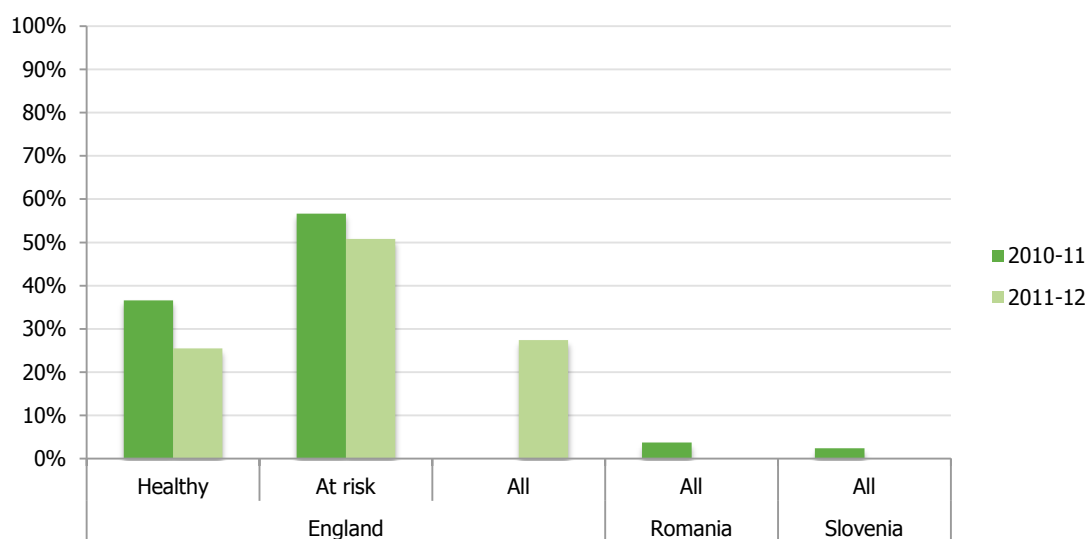
## Pregnant women

For 2011–12, 23 countries reported that the influenza vaccination was recommended for pregnant women. Twenty-two countries recommended vaccination of all pregnant women; one country recommended it for pregnant women with an additional clinical indication. Thirteen countries recommended vaccination at any stage of pregnancy; ten countries recommended vaccination in either the 2nd or 3rd trimester. Five countries reported that vaccination was not recommended for this population.

The expert review by an ECDC scientific panel in 2012 noted a lack of European data for burden of seasonal influenza in this group.<sup>i</sup> The WHO Strategic Advisory Group of Experts (SAGE) has made pregnant women a high priority at a global level following the additional burden observed for the 2009 pandemic influenza and benefits seen in protecting the newborn child as well as women themselves.<sup>ii</sup> However, the WHO recommendation focuses on less-developed countries and there is general agreement on the need for regional flexibility in the European context.

For the 2011–12 influenza season, one country reported data on vaccination coverage among pregnant women (Figure 3). Twenty-three countries reported not measuring vaccination coverage among this population. For the 2010–11 season, two countries reported data on coverage. For the 2008–09 and 2009–10 seasons, no countries reported data on this population. The limited amount of data available makes it difficult to assess the current situation and/or any trends.

**Figure 3. Vaccination coverage rates among pregnant women as measured by administrative or survey methods (2010–11 and 2011–12 influenza seasons) by percentage**



<sup>i</sup> European Centre for Disease Prevention and Control. ECDC scientific advice on seasonal influenza vaccination of children and pregnant women. Stockholm: ECDC; 2012.

<sup>ii</sup>WHO Vaccines against influenza WHO position paper – November 2012 WER 2012, 87, 461–476. <http://www.who.int/wer/2012/wer8747.pdf>.

## Children (below age 2 or below age 5)

In 2012, the majority of countries (21) reported that seasonal influenza vaccination was not recommended for healthy children of any age. In the context of general guidance from ECDC – vaccination for children below age 2 or below age 5 was recommended by three countries: Latvia and Slovenia for children  $\geq 6$  months–2 years and Finland for children  $\geq 6$  months–3 years. For the 2011–12 influenza season, four countries reported data on vaccination coverage among children below age 5 (Table 4).

**Table 4. All countries reporting vaccination coverage rates among children (below age 2 or below age 5) as measured by administrative or survey methods (2008–09, 2009–10, 2010–11 and 2011–12 influenza seasons)**

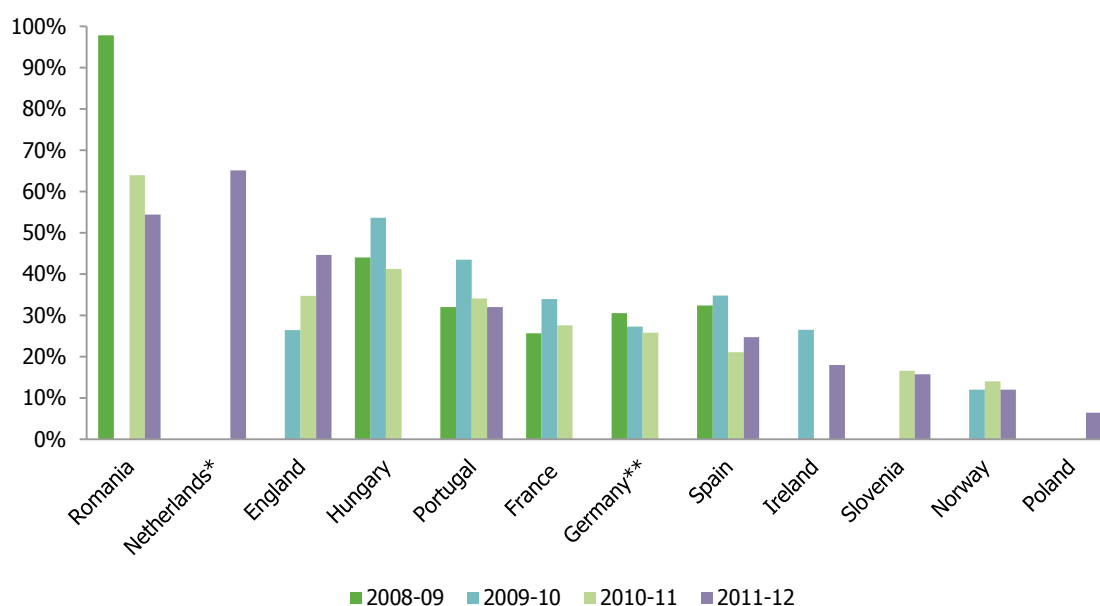
Countries	Coverage Rates			
	2008–09	2009–10	2010–11	2011–12
Estonia	1% ( $\geq 6$ months – $\leq 5$ years)	1% ( $\geq 6$ months – $\leq 5$ years)	--	--
Finland	--	32% ( $\geq 6$ months– $\leq 3$ years)	--	--
France	--	9.9% ( $\geq 6$ months–4 years)	--	--
Italy	--	6.1% ( $\geq 6$ months– $\leq 5$ years)	--	2.2% ( $\geq 6$ –23 months) 4.2% (2–4 years)
Latvia	0.3% ( $\geq 6$ –23 months)	0.1% ( $\geq 6$ –23 months)	0.1% ( $\geq 6$ –23 months)	0.1% ( $\geq 6$ –23 months)
Poland	2% ( $\geq 6$ months– $\leq 5$ years)	1% ( $\geq 6$ months– $\leq 5$ years)	1.1% ( $\geq 6$ months–4 years)	1.4% ( $\geq 6$ months–4 years)
Slovenia	0.7% ( $\geq 6$ months– $\leq 5$ years)	0.8% ( $\geq 6$ months– $\leq 5$ years)	0.5% ( $\geq 6$ months– $\leq 5$ years)	0.14% ( $\geq 6$ –23 months) 0.38% (2–4 years)

## Healthcare workers

For 2011–12, a majority of countries (21) reported having a clear definition for healthcare workers in the context of seasonal influenza. Twenty countries reported that vaccination was recommended for this population but that coverage was not measured. Only six countries reported coverage data for this population for the 2011–12 influenza season. The reported coverage rates for 2011–12 ranged from 6.4% to 54.4%.

With the exception of the United Kingdom, the four-season trend data on healthcare workers shows no improvement in the coverage rate in any of the countries reporting data. Romania, which had the highest coverage in 2008–09, has had a steep decline in recent years. The United Kingdom experience shows what can be done when there is a focus on this group<sup>i</sup>. However, the lack of data on coverage rates for this population in the significant majority of countries reinforces the perception that little or no progress is being made to improve vaccination coverage among healthcare workers.

**Figure 4. Vaccination coverage rates among healthcare workers as measured by administrative or survey methods (2010-11, 2010-09 and 2009-08 influenza seasons), by percentage**



\*Healthcare workers in GPs practice.

\*\*Data not available at time of analysis.

<sup>i</sup> Programmes in the UK that have contributed to higher coverage rates among healthcare workers include: making vaccination easy and convenient for staff (e.g. the use of 'mobile vaccination units' that tour wards to vaccinate staff in their workplace); emphasising the benefits of vaccination not just for the individual, but as an infection control measure to prevent transmission to patients, colleagues and family; and identifying local 'champions' to promote vaccination to healthcare workers, to tackle myths and misconceptions and to be personally accountable for increasing uptake.



## Analysis of the reasons why some people choose not to be vaccinated

The Recommendation asks countries to analyse the reasons why some people do not wish to receive vaccinations'. According to data submitted to ECDC using the Supplementary ECDC Questionnaire, a majority of respondents (23) reported that there are known and/or perceived barriers in their country, which deter vaccination among key risk populations. A larger number of countries (25) reported known and/or perceived barriers to vaccination among healthcare workers.

**Other risk groups.** Among other risk groups many of the specific barriers reported by countries are perennial problems: low perception of risk; fear of possible and perceived side effects from vaccination, including contracting influenza; questions about the effectiveness of the influenza vaccine<sup>i</sup>; broader anti-vaccine sentiments; issues of cost, availability and convenience; misleading reports in the mainstream media; and a general lack of accurate information about influenza and vaccination. In addition to these barriers, respondents reported a range of other factors: difficult reimbursement processes to recover the cost of vaccination; limited financial incentives for general practitioners to vaccinate for influenza; limited tax incentives for companies to vaccinate their employees; and scepticism and/or low awareness among healthcare workers.

**Healthcare workers.** Among healthcare workers, countries reported many of the same barriers: low risk perception; concerns about vaccine effectiveness; concerns about vaccine safety; and general misinformation. There were also reports of limited knowledge of the burden of the disease, including the risks of infecting patients, and a tendency to underestimate the importance of vaccination in healthcare settings. In fact, very few countries (7) reported having data on knowledge among healthcare workers about the dangers of seasonal influenza to their more vulnerable patients. A correspondingly high number of countries (25) reported that no data is available on the knowledge, responsibility and willingness of healthcare workers to give appropriate advice on vaccination to their patients, despite the Council Recommendation to provide information action.

One country reported there is 'little awareness of the fact that vaccination is not only in their self-interest but also to protect patients and colleagues.' Another country reported, 'Healthcare workers perceive the vaccination as [a] benefit for the organisation and not for the patients. They aren't willing to be vaccinated [to] benefit the organisation.'

The Supplementary ECDC Questionnaire also asked countries about drivers to help increase vaccination among key risk populations and healthcare workers. Twenty-three countries reported that there are drivers related to risk populations and 20 countries reported drivers for healthcare workers.

The most cited driver is the involvement of healthcare workers, particularly general practitioners. For example, one country stated specifically, 'Surveys among the target groups of ≥65-year-olds and people with chronic diseases show that if their general practitioner advises them to be vaccinated they would follow the recommendation.' Conversely, another country reported that in its view, 'Information campaigns *per se* will not change perception and attitudes of persons in risk groups'

A literature review on drivers and barriers funded by ECDC identified a cross-sectional survey from the United Kingdom (England) that suggests clear leadership by general practitioners is 'effective in increasing uptake in the elderly and other eligible patients.' This is consistent with the coverage data. The literature review also found that mandatory vaccination policies, when compared with other interventions, are more successful at improving vaccination coverage among healthcare workers themselves. However, the review acknowledged that mandatory vaccination policies may be ethically and legally difficult to implement in Europe.

Fourteen of the 30 countries that submitted Supplementary ECDC Questionnaires reported the existence of financial incentives to reduce barriers to vaccination among risk populations. Fewer countries (11) reported that financial incentives exist to enhance drivers supporting vaccination. However, only nine reported the existence of financial disincentives that are barriers to vaccination.

<sup>i</sup> ECDC and Member States have instituted mechanisms for regularly monitoring influenza vaccine effectiveness in Europe. (Valenciano M, Ciancio BC, on behalf of the I-MOVE study team. I-MOVE: a European network to measure the effectiveness of influenza vaccines. Euro Surveill. 012;17(39): pii=20281. Available online: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20281>). In addition, it remains the case that influenza vaccination is the most effective single way of protecting people against influenza infection and disease in Europe (Nicoll A, Sprenger M. Low effectiveness undermines promotion of seasonal influenza vaccine Lancet Infectious Diseases, Volume 13, Issue 1, Pages 7 - 9, January 2013 doi:10.1016/S1473-3099(12)70313-4 [http://www.lancet.com/journals/laninf/article/PIIS1473-3099\(12\)70313-4/fulltext](http://www.lancet.com/journals/laninf/article/PIIS1473-3099(12)70313-4/fulltext))

Only 15 of the 30 countries reported having either a political or technical commitment<sup>i</sup> to identify and address barriers and drivers related to influenza vaccination. Even fewer (12) reported having both the political and technical commitment. The limited commitment in these areas and the lack of costed action plans suggests that half of these countries have not yet begun to implement the 2009 Council Recommendation. This raises serious questions about the capacity to increase vaccination coverage by the target date of 2015 in the Recommendation. However, significant progress could be made if countries made a serious commitment to improving the situation.

## Information actions to foster education, training, and information exchange on seasonal influenza and vaccination

The Council Recommendation encourages countries to foster education, training, and information exchange on seasonal influenza and vaccination by organising information action<sup>ii</sup> for healthcare workers, for risk groups and their families regarding the risks associated with, and the prevention of, influenza; and effective information action to remove obstacles to vaccination uptake.

During the past 12 and 24 months, a majority of countries reported implementing significant initiatives in communication, education, training and information exchange to reduce and/or remove barriers to seasonal influenza and promote appropriate attitudes and behaviours about vaccination among key populations. For every key risk population, more countries reported having implemented these initiatives in the past 12 months (20 or 21 countries, depending on the risk population) than in the past 24 months (16 to 18 countries, depending on the risk population).

The Supplementary ECDC Questionnaire also asked countries if the effectiveness of communication initiatives on influenza and vaccination that were focused on key risk populations had been evaluated in the past 12 and 24 months. Very few countries reported that such evaluations had been done, including many of those reporting significant initiatives in communication, education, training and information exchange (Table 5).

When asked about best or good practices, the majority of countries identified a wide range of traditional media activities, including television and radio advertising, influenza and/or vaccination-specific websites, leaflets, press conferences, articles and posters. A few countries reported use of social media and smartphone applications. An equally small number of countries felt that campaigns and guidelines focused on getting general practitioners to talk with their patients about vaccination was an important best practice.

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<sup>i</sup> Technical commitment is defined as the necessary level of engagement and capacity to contribute to substantive work on barriers and drivers.

<sup>ii</sup> Information actions are defined as significant initiatives in communication, education, training and information exchange that are designed to reduce and/or remove barriers to seasonal influenza vaccination and promote appropriate attitudes and behaviours about vaccination among key populations.

**Table 5. Countries reporting that significant initiatives in communication, education, training and information exchange related to seasonal influenza have been implemented and evaluated in the past 12 months, by key risk population**

Key Risk Populations	Number of countries implementing initiatives in the past 12 months	Countries	Number of countries in which effectiveness of these initiatives evaluated	Countries
Among older age groups	21	Belgium, Bulgaria, Croatia, Cyprus, Denmark, Estonia, France, Germany, Greece, Iceland, Ireland, Italy, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland	6	Croatia, Denmark, France, Germany, Luxembourg, Switzerland
Among people with chronic conditions	20	Belgium, Bulgaria, Croatia, Cyprus, Denmark, Estonia, France, Germany, Greece, Iceland, Ireland, Italy, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Spain, Sweden	6	Croatia, Denmark, France, Germany, Luxembourg, Switzerland
Among other risk populations	20	Belgium, Bulgaria, Croatia, Cyprus, Denmark, Estonia, France, Germany, Iceland, Ireland, Italy, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland	4	Croatia, Denmark, Luxembourg, Switzerland
Among healthcare workers	21	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Lithuania, Malta, Norway, Poland, Portugal, Spain, Switzerland	5	Croatia, France, Germany, Luxembourg, Switzerland

## Funded research

Although the Council Recommendation only mentions research in the context of support from the Commission (see previous section), the Supplementary ECDC Questionnaire also asked respondents a brief set of questions about funded research at national level to improve vaccination rates. In general, there appears to be limited research in this area.

Nine countries reported that research is underway related to increased vaccination coverage among key populations as an effective public health strategy. For example, Belgium reports an ongoing effort focused on the prioritisation of target groups (i.e. risk groups) for seasonal influenza vaccination.

Nine countries also reported that research is underway related to improved knowledge and perceptions of seasonal vaccination among key populations contributing to an increase in the uptake of the vaccine among these populations. For example, Norway reports conducting repeated surveys to collect data on this topic.

In addition, the Supplemental Questionnaire asked if information was available on funding for biomedical (e.g. vaccine effectiveness) and/or social science (e.g. knowledge, attitudes, behaviours) research on influenza vaccination in the respondent's country. Only seven countries reported that funding information was available. Of these seven countries, only Germany reported that any significant amount of research was being conducted in either the biomedical or social science sectors.

The ECDC-funded literature review on barriers and drivers concluded that research into the socioeconomic determinants among older age groups was warranted. Specifically, it reported that 'socioeconomic characteristics of different European countries and regions, cultural differences and differing national health systems are likely to have an impact on vaccination rates'. The review also suggested that further research among people with chronic medical conditions is needed.

## Effective vaccine delivery

The Supplemental Questionnaire asked a focused set of questions about issues related to vaccine delivery, including access to vaccination by key risk populations, vaccine shortages/stockouts and vaccine availability. The data are generally positive but the fact remains that actual vaccination coverage remains low in many countries, despite there being a viable system for vaccine delivery.

A majority of respondents (21) reported that systems and processes are in place to ensure that key risk populations have easy access to vaccinations. In addition, 23 countries reported that actions have been taken to ensure key populations know where to go to receive vaccinations. But only 12 countries reported having contingency plan in place to ensure that these populations have priority access to the seasonal influenza vaccine if there are problems with availability. In addition, only 12 countries reported having monitoring systems and process in place to ensure vaccine uptake is tracked in an accurate and timely manner. Consequently, in many countries, it may take some time before declines in vaccine coverage are identified.

None of the responding countries reported any vaccine shortages and/or stockouts that affected coverage during the 2011-12 influenza season, though it is important to be aware that this is always a possibility.<sup>i</sup> Only three countries reported any issues that limited vaccine availability during the last season; one of these countries reported that reluctance among healthcare workers to inform and/or vaccinate their patients limited availability.

Only six countries reported having feedback systems and processes in place to ensure that managers and staff at vaccination sites have accurate information on their performance against vaccination targets by population. In addition, only seven countries reported that support is available to vaccination sites that are not able to meet their vaccination targets.

## Identification of gaps

Based on data provided by Member States for the annual survey by the VENICE project and their responses to the Supplementary Questionnaire developed and implemented by ECDC, a number of critical gaps in their efforts to improve vaccination coverage for seasonal influenza were identified:

- The only group for which there is much available data on vaccination coverage is the older age group. Very few countries have data on the coverage rate among people with chronic medical conditions, pregnant women, children or healthcare workers.
- Only one country (Netherlands) meets or exceeds and another one (the United Kingdom) is close to the 75% threshold for older age groups. In most countries, vaccination coverage rates among older age groups are not rising. If anything they have declined since the baseline season of 2008–09. Despite the fact that the numbers of people in these age groups are rising steadily in Europe and that the well-being of older people is a European Commission priority<sup>ii</sup>, there is little evidence to suggest that increasing vaccination coverage is a priority in many Member States. According to the VENICE survey data, increases in the coverage have been reported in Lithuania and Poland (Figure 1) although one has to take into account the low baseline coverage in these countries.
- Most countries do not monitor vaccination coverage rates among people with chronic medical conditions. However, limited data available indicate that targeting and monitoring can have a positive effect with increases in three of the five countries monitoring rates in this population. As with older age groups, there is little evidence to suggest that coverage rates are rising in the region and no indication that increased coverage is a priority.
- Vaccination coverage among other populations (e.g. pregnant women and healthy children) is essentially unknown at present in Europe with the exception of one or two countries.
- Vaccination coverage rates among healthcare workers are low. Again, there is little evidence of progress or that increased coverage is a priority. Countries that have demonstrated leadership have succeeded in increasing coverage rates.

<sup>i</sup> In the 2012-2013 season one manufacturer had a major production problem and another had a short-term difficulty of supply affecting a few countries following a seeming vaccine quality issue.

<sup>ii</sup> Communication from the Commission to the European Parliament and the Council. Taking forward the Strategic Implementation Plan of the European Innovation Partnership on Active and Healthy Ageing ([http://ec.europa.eu/health/ageing/docs/com\\_2012\\_83\\_en.pdf](http://ec.europa.eu/health/ageing/docs/com_2012_83_en.pdf)).

<sup>iii</sup> [http://ecdc.europa.eu/en/healthtopics/seasonal\\_influenza/communication\\_toolkit/Pages/communication\\_toolkit.aspx](http://ecdc.europa.eu/en/healthtopics/seasonal_influenza/communication_toolkit/Pages/communication_toolkit.aspx)

- Since 2009 there has been limited political and technical commitment at country-level to identify and address barriers and drivers related to seasonal influenza vaccination. The impact of the pandemic of 2009 must be acknowledged, especially the side effects of the pandemic vaccine in some countries.
- The effectiveness of information and actions to improve vaccination uptake is poorly monitored in Member States. Consequently, it is difficult to determine the impact of these actions.
- Limited efforts are underway to determine the best way to improve vaccination uptake. The experience of the small number of better performing countries has not been well documented or shared with other countries. Little or no funding is available to conduct research into the socioeconomic determinants that influence people's decisions about vaccination.

The gaps at the European Union level essentially mirror those at the Member State level.

# Summary of main actions at European Union level

## Surveillance, monitoring and evaluation

Working with Member States, ECDC conducts integrated surveillance of influenza virology and epidemiology with the latter focusing on primary care data. The 2009 influenza A(H1N1) pandemic highlighted the need to develop severe disease surveillance, improve mortality data and conduct seroepidemiology studies. A few Member States have developed surveillance capacity of laboratory confirmed cases of infection in hospitals and influenza related mortality. Although the data varies in quality, comprehensiveness and validity, this data is an essential component of the ECDC guidance on risk groups.

As an essential component of monitoring and evaluation and in addition to the VENICE programme work, ECDC has worked with Member States since 2008 to develop standard methods of monitoring influenza vaccine effectiveness in the field. This system now delivers annual updates. These updates have shown that vaccination remains the single most effective way of protecting people against influenza infection and disease in Europe.

## Communication activities

Since the Council Recommendation was published in 2009, ECDC has supported Member States in their implementation of communication activities related to seasonal influenza, including the organisation of two communications workshops:

- Tackling seasonal influenza in Europe: Success stories from European countries
- Understanding the behavioural aspects and the role of health communication in mitigating the impact of seasonal influenza.

These workshops brought together behavioural scientists, public health professionals and communication experts to discuss the role of health communication in the response to seasonal influenza, including increasing vaccination coverage rates.

In addition, ECDC has produced two practical communications toolkits for use by Member States. These contain useful and readily adaptable template materials with suggested messages for key audiences and ideas for awareness-raising activities on the prevention and control of seasonal influenza. These tools are particularly valuable for countries that have not yet developed specific health communication programmes; they are also useful as a bank of ideas for countries looking to implement additional campaigns.

The first toolkit focuses on materials for children and the general public. While this toolkit was developed in 2007, its relevance has increased since the Council Recommendation. The second toolkit focuses on materials for key risk groups and healthcare workers. The materials were tested and evaluated prior to publication on the ECDC website in 2013<sup>i</sup>.

## Training activities

Member State experts have also benefited from the ECDC training programme on 'Development of public health programmes for prevention and control of seasonal influenza, which directly supports the Council Recommendation. Curriculum and training materials were developed by ECDC through a contract with the University of Chester, UK in 2009. The programme was cross referenced against the Public Health Competencies framework from the UK and the competency framework for epidemiologists working in communicable disease surveillance and response in the European Union.

Key topics in the training programme include: human seasonal influenza programme planning; surveillance systems and epidemiological studies; laboratory issues; human seasonal influenza policy; vaccination; targeting priority groups; communication; monitoring and evaluation of public health programmes; and action planning.

The target audience is public health experts who are developing or managing a prevention and control programme for seasonal influenza, or those who intend to develop one. Preference is given to countries that already have a prevention and control programme in place and where seasonal influenza vaccination coverage is lower than 60%. ECDC requests that participants be in a position to develop an action plan to increase vaccination coverage in their respective country and if possible to focus the national training strategy in this area.

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<sup>i</sup>[http://ecdc.europa.eu/en/healthtopics/seasonal\\_influenza/communication\\_toolkit/Pages/communication\\_toolkit.aspx](http://ecdc.europa.eu/en/healthtopics/seasonal_influenza/communication_toolkit/Pages/communication_toolkit.aspx)

The programme has been offered three times since 2010 and there has been strong demand from countries to participate. The 2010 workshop drew participants from 14 countries; representatives from 12 countries participated in 2011 and from 18 countries in 2012.

The workshops have been highly rated by participants in terms of satisfaction and self-perceived learning. Some indicated their intention of organising a similar activity at national or sub-national level. At least one country, Spain, has organised a similar activity for managers of immunisation programmes in the autonomous communities. The potential cascade of this type of training programmes is of high value.

ECDC provides Member States experts access to the training materials and encourages them to use and translate them. Upon request – and if budget allows – ECDC is available to provide technical support to countries to develop similar activities at national level.

## Support for research action

Currently, there are four active projects related to seasonal influenza vaccination. The Directorate-General for Research and Innovation funds two of the projects; and the Executive Agency for Health and Consumers funds the other two. The total value of the four projects is €5,052,531. It is important to note that none of the projects focus exclusively on seasonal influenza vaccination; the issue is only one of many addressed by the projects.

- TELL ME (Transparent communication in Epidemics: Learning Lessons from experience, delivering effective Messages, providing Evidence) is a three-year project funded by the Directorate-General for Research and Innovation, which was launched in February 2012. The three-year budget is €1,900,344. The project aims to provide evidence and to develop models for improved risk communication during infectious disease crises. It also works on addressing populations that are historically resistant to vaccination. TELL ME combines public health, social sciences, behavioural sciences, political sciences, law, ethics, communication and media, in order to develop original communication strategies regarding complicated messages and advice based on uncertainties. The main outcomes of TELL ME will be an integrated communication kit for outbreak communication and simulation software. TELL ME will provide policymakers, public health agencies and communicators with a new model of crisis communication that can be used to produce messages for various sub-populations in different countries. The project will specifically develop and test strategies to support vaccine uptake with a special focus on new communication strategies for health professionals and agencies to engage with groups resistant to vaccination.
- ECOM (Effective Communication in Outbreak Management) is a three-year project funded by DG Research, which was launched in March 2012. The three-year budget is €1,999,607. The overall aim of the project is to develop an evidence-based behavioural and communication package for health professionals and agencies throughout Europe, to be used in the case of major outbreaks. The communication package will be designed to help health authorities communicate the need for large-scale measures such as vaccination and antiviral therapy, and to increase their acceptance. The project is conducting a range of activities in support of its overall aim, including: assessing the time-dependent influences of epidemiology and risk communication; using social marketing principles to analyse vaccination behaviour, audience segmentation and vaccination service delivery; analysing knowledge, attitudes, risk perception, vaccination non-response and reasons for resistance during past epidemics; applying discrete choice experiments to determine acceptance of preventive measures in the case of epidemic outbreaks; determining critical factors, groups and media to be addressed in the development of effective strategies; and testing behavioural interventions and communication strategies tailored to different target audiences.
- HProImmune (Promotion of Immunisation for Health Professionals in Europe) is a three-year project funded by EAHC, which was launched in September 2011. The three-year budget is €603,900. The project aims to promote vaccination coverage of healthcare workers for Vaccine Preventable Diseases (VPDs) in different healthcare settings. The project also plans to add to European knowledge about the effects of immunisation practices among healthcare workers on the development of successful immunisation activities in public and private healthcare sectors. In addition, it is designed to increase awareness among healthcare workers and policymakers about the importance of vaccinations against VPDs and contribute to the development of informed national strategy goals for increasing vaccination coverage among healthcare workers, especially for seasonal influenza. A key output of the project is a comprehensive toolkit for the promotion of immunisation among healthcare workers. The toolkit is designed to help increase vaccine coverage rates and improve resilience and the response capacity of the European health sector. It will also use training and knowledge provision to increase awareness among healthcare workers about protecting their health and acting as role models in their workplace and community.
- PROMOVAX (Promote Vaccination among Migrant Population in Europe) is a three-year project funded by the Executive Agency for Health and Consumers, which was launched in May 2010. The three-year budget is €548,680. The overall aim of the project is to promote immunisation among migrant populations in Europe, contributing to the elimination of VPD in the region and reducing health inequalities. The project is designed to complement EU policies on hard-to-reach populations by adding to the knowledge base on barriers among migrants to immunisations; developing recommendations for policy-makers regarding the immunisation of migrants; and developing educational material for both health professionals and migrants. The project will develop a health worker toolkit, with step-by-step guidance and tools to be used when assessing and addressing immunisation needs of migrant populations as well as educational material for migrants, which provides lay information on immunisations in order to dispel common anti-vaccination myths. In addition, the project has evaluated current practices in migrant immunisation to create an index of best practices, which is also the basis for a set of recommendations on implementing migrant immunisation programmes.



## Conclusions

Since 2009, countries have made limited progress in achieving the aims outlined in the Council Recommendation on seasonal influenza vaccination. A few countries are more successful in getting closer to the targets set out in the Recommendation, but they are in the minority. In many countries, vaccination coverage rates are either low or unreported for the key populations covered by the Recommendation. More importantly, there appears to be insufficient effort towards strengthening vaccination programmes, overcoming barriers to vaccination and increasing coverage rates.

More specifically, as accounted for in this report:

- Almost all countries reported having in place national and/or regional vaccination policies or strategies for seasonal influenza.
- Eighteen countries were able to provide vaccination coverage data for the older age groups for the 2011–2012 influenza season. The trend data on this population shows no discernible momentum toward increasing coverage rates in most countries. In a number of countries, there have actually been declines in coverage among this population since the 2009 pandemic.
- Only five countries reported vaccination coverage data for the population of people with chronic conditions for the 2011-12 influenza season. The lack of data on coverage rates for this population in the significant majority of countries reinforces the perception that little or no progress is being made.
- Only six countries reported coverage data for health care workers for the 2011-12 influenza season. Again, the lack of data on coverage rates in the significant majority of countries reinforces the perception that little or no progress is being made to improve vaccination coverage among a population highlighted in the Council Recommendation.
- Twenty-three countries reported in the Supplementary Questionnaire that there are known and/or perceived barriers in their country, which deter vaccination among key risk populations. Twenty-five countries reported known and/or perceived barriers to vaccination among healthcare workers.

It seems unlikely that more than a handful of Member States will reach the specific targets outlined in the Council Recommendation by the 2014-15 influenza season. Despite this, a majority of them are instituting national programmes and have identified steps that could be taken to improve vaccination coverage rates in the short term and to strengthen the infrastructure to enable steady gains in coverage over the longer term.

## Annex 1

**Vaccination coverage rates among the older age group by percentage as measured by administrative or survey methods for the 2008–09, 2009–10, 2010–11 and 2011–12 influenza seasons; data drawn from the final reports of VENICE surveys<sup>i</sup>**

Countries	Age Group	Coverage Rates			
		2008-09	2009-10	2010-11	2011-12
The Netherlands	≥60	82.5%	81.1%	80.6%	77.2% <sup>ii</sup>
England (UK)	≥65	74.1%	72.4%	72.8%	74%
France	≥65	--	62.7%	61%	64.1%
Italy	≥65	66.2%	65.6%	60.2%	62.7%
Spain	≥65	--	65.7%	56.9%	57.7%
Malta	≥65	51%	--	56%	--
Ireland	≥65	70.1%	53.8%	60.1%	56.3%
Denmark	≥65	53.7%	52%	50%	51%
Germany	≥60	59.2%	50.2%	50.6%	--
Luxembourg	≥65	53.3%	52.4%	45.1%	45.1%
Finland	≥65	51%	46%	--	--
Sweden	≥65	64%	43.9%	54%	44%
Portugal	≥65	53%	52.2%	48.3%	43.4%
Iceland	≥60	21.2%	42%	--	--
Norway	≥65	47%	51%	42%	36%
Hungary	≥65 <sup>iii</sup>	38.4%	31.8%	29.7%	31.1%
Slovakia	≥59	35.5%	30.5%	23.8%	21.9%
Romania	≥65	49.4%	28.5%	19.1%	20.9%
Lithuania	≥65	11.2%	10.3%	9.23%	18.5%
Slovenia	≥65	--	22.1%	--	16.2%
Poland	≥65	11.4%	9.3%	9.28%	14.2%
Latvia	≥65	2.4%	2.1%	1.5%	1.7%
Estonia	≥65	1%	1%	1.1%	--

*\*Vaccination coverage rates by administrative method are highlighted in yellow and by survey method in grey*

**Vaccination coverage rates among clearly defined clinical risk groups as measured by administrative or survey methods for the 2008–09, 2009–10, 2010–11 and 2011–12 influenza seasons; data drawn from the final reports of VENICE surveys**

Countries	Coverage Rates			
	2008-09	2009-10	2010-11	2011-12
Netherlands	71.5%	70.4%	68.9%	73.6%
England	47.1%	51.6%	50.4%	51.6%
France	--	33.6%	46.6%	45.6%
Norway	47%	51%	38%	37%
Germany	42.2%	39.8%	41%	--
Portugal	35.5%	32.4%	29.4%	31%
Ireland	--	28.9%	--	--

*\*Vaccination coverage rates by administrative method are highlighted in yellow and by survey method in grey*

<sup>i</sup> All VENICE seasonal influenza reports can be found on the following dedicated website: <http://venice.cineca.org/reports.html>.

<sup>ii</sup> For the 2011-12 season, the Netherlands data reported for VENICE is based on the ≥65 age group, unlike the previous three seasons when it was based on ≥60. For the ≥60 age group, the coverage rate in 2011-12 is 56.2%.

<sup>iii</sup> For the 2008-09 and 2009-10 seasons, Hungary reported data based on the ≥65 age group; for the 2010-11 and 2011-12 seasons, it reported data based on the ≥60 age group.

**Vaccination coverage rates among healthcare workers as measured by administrative or survey methods for the 2008–09, 2009–10, 2010–11 and 2011–12 influenza seasons; data drawn from the final reports of VENICE surveys**

Countries	Coverage Rates			
	2008-09	2009-10	2010-11	2011-12
Romania	97.82	--	63.9%	54.4%
England	--	26.4%	34.7%	44.6%
Hungary	44%	53.6%	41.2%	--
Portugal	32%	43.5%	34.1%	32%
France	--	24.9%	27.6%	--
Germany	20.4%	27.3%	25.8%	--
Spain	32.4%	34.8%	21.1%	24.7%
Ireland	--	26.5%	--	18%
Norway	--	12%	14%	--
Poland	--	--	--	6.4%

*\*Vaccination coverage rates by administrative method are highlighted in yellow and by survey method in grey*

**Vaccination coverage rates among pregnant women as measured by administrative or survey methods for the 2008–09, 2009–10, 2010–11 and 2011–12 influenza seasons; data drawn from the final reports of VENICE surveys**

Countries	Coverage Rates			
	2008-09	2009-10	2010-11	2011-12
England	--	--	56.6% (at risk) 36.6% (healthy)	50.7% (at risk) 25.5% (healthy)
Romania	--	--	3.7%	--

*\*Vaccination coverage rates by administrative method are highlighted in yellow and by survey method in grey*