



**Health
Information
and Quality
Authority**

An tÚdarás Um Fhaisnéis
agus Cáilíocht Sláinte

Factors influencing, and measures to improve, vaccination uptake: rapid evidence summary protocol:

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Purpose and aim

The purpose of this protocol is to outline the process by which the Health Information and Quality Authority (HIQA) will synthesise evidence to inform advice from HIQA to the National Public Health Emergency Team (NPHE). The advice will take account of expert interpretation of the evidence by HIQA's COVID-19 Expert Advisory Group. This evidence synthesis was requested by NPHE to address the following policy areas:

- a) the factors, both demographic and psychological, which are predictors of intentions and uptake of vaccination
- b) evidence for interventions and communication strategies to effectively tackle barriers to, and increase informed uptake of, vaccination.

Given the limited time available to conduct this rapid evidence synthesis, the fact that a COVID-19 vaccine is not currently available, and in light of some similarities between influenza and COVID-19 in terms of the populations who may be prioritised for vaccination, the possibility of annual vaccination and evidence of possible waning immunity etc., influenza vaccination (including seasonal and pandemic influenza) was considered an appropriate surrogate for COVID-19 for the purpose of the current evidence summary.

The following two review questions (RQs) were formulated to inform the policy areas:

RQ1: What are the barriers and facilitators to an individual's uptake of vaccination against influenza?

RQ2: What population-based intervention measures increase influenza vaccination uptake rates?"

1. Process outline

A standardised approach to the process has been developed and documented to allow for transparency and to aid in project management. Five distinct steps have been identified in the process for completion. These are listed below and described in more detail in Sections 2.1-2.5.

- 1.** Identify document types of interest.
- 2.** Search relevant databases and websites of relevant national and international agencies.
- 3.** Screen identified documents.
- 4.** Data extraction and quality appraisal of included documents.
- 5.** Summarise findings.

2. Review process

2.1 Identify document types of interest

A scoping review of the literature was carried out in preparation for this project and a large body of evidence regarding the uptake of influenza vaccination was identified. This included multiple reviews and systematic reviews of varying quality and scope that evaluated a range of measures aimed at increasing uptake. Based on the volume of literature available and project timelines, an overview of reviews was considered to be the most efficient method to assess the measures and factors that increase vaccination coverage.

The evidence underpinning the above review questions will be identified from the following document categories:

- Systematic reviews of qualitative, quantitative or mixed-methods evidence, that are deemed to be of higher quality. This judgement on quality will be based upon the application of the seven critical domains of AMSTAR-2 for quantitative reviews (Table 1), and a modification of AMSTAR-2 for qualitative reviews.

Table 1: AMSTAR-2 critical domains

Protocol registered before commencement of the review
Adequacy of the literature search
Justification for excluding individual studies
Risk of bias from individual studies being included in the review
Appropriateness of meta-analytical me
Consideration of risk of bias when interpreting the results of the review
Assessment of presence and likely impact of publication bias

2.2 Search relevant databases

The search process will aim to identify the best available evidence to determine the factors influencing influenza vaccination uptake and the measures used to improve it. A number of databases will be searched to identify evidence relating to the above review questions. The search strategy is presented in Appendix 1. A single search will be undertaken for both review questions.

The following databases will be searched using the search strategy defined in Appendix 1:

- PubMed
- Embase
- PsycINFO

This will be supplemented by a grey literature search of select international public health agencies.

- World Health Organization (WHO)

- European Centre for Disease Prevention and Control (ECDC)
- Effective Communication in Outbreak Management (ECOM)
- Health Service Executive (HSE)
- National Immunisation Advisory Committee (NIAC)
- National Institute for Health and Care Excellence (NICE).

2.3 Screen identified documents

All potentially eligible documents identified in the search strategy will be exported to Covidence systematic review software (available at www.covidence.org) and single screened against both Population, Exposure, Outcome and Study design (PEOS) frameworks with any uncertainty checked by a second reviewer. The PEOS frameworks specifying the inclusion and exclusion criteria, are detailed in Table 2 and Table 3 below for RQ1 and RQ2, respectively.

Table 2: PEOS for RQ1

Population	<p>General population of all ages.</p> <p>Subgroups:</p> <ul style="list-style-type: none"> ▪ Where information available, consider separately: <ul style="list-style-type: none"> ○ health and social care workers ○ age categories (paediatric, adult, elderly groups [60-69, 70-79, ≥80 years]) ○ clinical risk groups (for example those with underlying medical conditions) ○ women who are pregnant.
Exposure	Influenza vaccination including seasonal and pandemic influenza.
Outcome	<p>Intentions to have, or uptake of, a vaccination against influenza.</p> <p>Primary outcomes:</p> <ul style="list-style-type: none"> ▪ Barriers and facilitators towards vaccination uptake against influenza. For example, psychological barriers such as risk perception, past behaviour, knowledge, experience; physical barriers; contextual barriers such as access, interaction with healthcare system; socio-demographic barriers.
Study design	<p>Include:</p> <ul style="list-style-type: none"> ▪ Systematic reviews published from 1 January 2015 to present. <p>Exclude:</p> <ul style="list-style-type: none"> ▪ non-English language systematic reviews ▪ systematic reviews that are fully contained within a more recently published systematic review ▪ systematic reviews focussing exclusively on low or middle

	<p>income countries only</p> <ul style="list-style-type: none"> ▪ pre-print server systematic reviews ▪ systematic reviews that do not provide findings separately for influenza vaccines, if multiple vaccine types are included ▪ systematic reviews that do not provide a search strategy and date of searching.
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Table 3: PEOS for RQ2

Population	<p>General population of all ages.</p> <p>Subgroups:</p> <ul style="list-style-type: none"> ▪ Where information available, consider separately: <ul style="list-style-type: none"> ○ Health and social care workers ○ Age categories (paediatric, adult, elderly groups [60-69, 70-79, ≥80 years]) ○ Clinical risk groups (for example those with underlying medical conditions) ○ Women who are pregnant.
Exposure	<p>Any population-level intervention designed to increase vaccine uptake.</p>
Outcomes	<ul style="list-style-type: none"> ▪ Pre-intervention and post-intervention vaccine uptake rate. ▪ Relative vaccine uptake rate (post-intervention uptake rate divided by pre-intervention uptake rate).
Types of studies	<p>Include:</p> <ul style="list-style-type: none"> ▪ Systematic reviews of population-level interventions published since 1 January 2015. ▪ Systematic reviews that specified that they only included studies: <ul style="list-style-type: none"> ○ with clearly defined pre- and post-intervention periods, or randomised controlled trials ○ where the pre- and post-intervention uptake rates were obtained from comparable populations ○ that accurately reported the timing of the intervention. <p>Exclude:</p> <ul style="list-style-type: none"> ▪ non-English language systematic reviews ▪ systematic reviews that are fully contained within a

	<p>more recently published systematic review</p> <ul style="list-style-type: none">▪ systematic reviews focussing exclusively on low or middle income countries only▪ pre-print server systematic reviews▪ systematic reviews that do not provide findings separately for influenza vaccines, if multiple vaccine types are included▪ systematic reviews that do not provide a search strategy and date of searching.
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2.4 Data extraction and quality appraisal of included documents

Data extraction will be performed by one reviewer; templates are detailed in Appendix 2.

AMSTAR-2 (a measurement tool to assess systematic reviews) will be used to appraise the quality of included systematic reviews.⁽¹⁾ Studies will be scored as being of high, moderate, low, or critically low-quality, in accordance with the AMSTAR-2 tool. Where a substantial number of systematic reviews have been identified as meeting the inclusion criteria for this evidence summary, the highest quality systematic reviews will be prioritised for discussion in the narrative summary. The lower quality systematic reviews will be listed in a table.

Data collected for each document category are:

- study descriptors (author, year of publication, DOI)
- study population
- aim of systematic review
- date of literature search
- vaccine type
- number of included studies
- main findings (barriers/facilitators or effectiveness of different measures)
- certainty of the evidence (if reported)
- findings by subgroups of interest (if applicable).

As there is no quality appraisal tool specifically designed for systematic reviews of qualitative evidence (also called qualitative evidence syntheses (QES)), additional considerations will be factored into the quality appraisal process. In terms of assessing the adequacy of the literature search as per the AMSTAR-2 checklist (Table 1), consideration will be given to the fact that QES often apply sampling methods in line with underpinning qualitative methodologies. Therefore, searching is undertaken until data saturation is reached rather than an exhaustive search of the literature. Where this is undertaken and explained, a QES that adopts this approach will not be downgraded in terms of quality on this aspect.

2.5 Summarise findings

A descriptive overview of the identified evidence to date for both review questions will be compiled. Specifically, for RQ1, a framework approach to analysis will be adopted whereby the synthesised findings from each included systematic review of qualitative or mixed-methods evidence, will be categorised as a barrier or facilitator, where appropriate. For RQ2, a narrative synthesis will be adopted given the likely variation of interventions, populations and outcomes across included systematic reviews. A PRISMA flow chart will be presented where appropriate.

3. Quality assurance process

The review questions will be led by two experienced systematic reviewers. A minimum of seven team members will perform the review. This will permit confirmation that the report accurately reflects the body of literature, and will help expedite the process given the short turn around time. All reports will be further reviewed by two members of the senior management team, to ensure standard operating processes are followed and quality maintained.

4. Review and update

Given the rapidly changing environment, this protocol will be regarded as a live document and amended when required to ensure it reflects any changes made to the outlined processes.

5. Timelines

This rapid evidence synthesis will be conducted in line with the processes and timelines outlined for Phase 2 of HIQA's COVID-19 response. Work will commence on 1 December 2020 and a final draft will be completed by 8 December 2020 (six business days). Draft outputs from the rapid evidence synthesis will be circulated to the COVID-19 Expert Advisory Group for review, with a view to providing advice and recommendations to NPHET on 9 December 2020.

Appendix 1

Search strategy

PubMed		
A	vaccin* OR immunisation	1,404,678
B	Influenza OR 'flu' OR H1N1 OR 'pandemic'	208,603
C	'Decision making' OR 'psychological factors' OR uptake OR coverage OR adhering OR adheren* OR characteristics OR attitude* OR belie* OR rate* OR measure* OR perception* OR knowledge OR intention OR barrier* OR facilitat* OR qualitative OR choice OR choose OR influence OR consider* OR preference* OR view* OR aware* OR hesitancy	12,364,402
C	A AND B AND C	31,583
	Limited from 01/01/2015 to present day	13,679
	Limited to systematic reviews	317
EMBASE		
A	'immunization'/exp OR immunization OR 'vaccine'/exp OR vaccine	574,919
B	influenza OR 'flu' OR h1n1 OR 'pandemic'	235,822
C	'decision making' OR 'psychological factors' OR uptake OR coverage OR 'patient compliance' OR adhering OR adheren* OR factors OR characteristics OR 'attitude to health' OR 'belief' OR believe OR rate* OR perception* OR 'knowledge' OR intention OR barrier* OR facilitat* OR qualitative OR choice OR choose, OR influence OR consider* OR preference* OR view* OR aware OR measure* OR hesitancy	15,663,552
D	A AND B and C	33,026
E	Limited from 01/01/2015to present day	13,253
F	Limited to EMBASE	4,445
G	Limited to reviews	543
PsycINFO		
A	vaccin* OR immunisation	9,564
B	Influenza OR 'flu' OR H1N1 OR 'pandemic'	7,097
C	'Decision making' OR 'psychological factors' OR uptake OR coverage OR adhering OR adheren* OR characteristics OR attitude* OR belie* OR rate* OR measure* OR perception* OR knowledge OR intention OR barrier* OR facilitat* OR qualitative OR choice OR choose OR influence OR consider* OR preference* OR view* OR aware* OR hesitancy	3,287,667
C	A AND B AND C	1,213

	Limited from 01/01/2015 to present day	419
	Limited to systematic reviews and literature reviews	17

Appendix 2

Template data extraction

Study descriptors	Main findings
Author/organisation DOI Date of literature search Number of included studies Population Vaccine type	Barriers/facilitators Effectiveness of intervention <ul style="list-style-type: none"><li data-bbox="826 501 1161 539">▪ Finding by subgroup<li data-bbox="826 539 1161 573">▪ Certainty of findings

References

1. Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *BMJ*. 2017;358:j4008.

Published by the Health Information and Quality Authority (HIQA).

For further information please contact:

Health Information and Quality Authority

George's Court

George's Lane

Smithfield

Dublin 7

D07 E98Y

+353 (0)1 8147400

info@hiqa.ie

www.hiqa.ie

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