

Interventions delivered in secondary or tertiary medical care settings to improve routine vaccination uptake in children and young people: a scoping review protocol

Abstract

Objective: The objective of this review is to identify and collate the available evidence, and to produce an overview of interventions delivered in secondary and tertiary healthcare settings with the aim of improving vaccination uptake in children and young people.

Introduction: Vaccine hesitancy appears in the World Health Organization's Ten Threats to Global Health in 2019.¹ Time spent in secondary or tertiary healthcare settings with a child or young person may present an opportunity to deliver vaccination-focused interventions. National Institute for Health and Care Excellence guidance highlights a gap in the evidence of the effectiveness of different interventions aimed at increasing immunization uptake among children and young people.²

Inclusion criteria: Quantitative studies that describe interventions delivered in secondary and tertiary care settings will be included. Participants will include children and young people aged less than 16 years and/or their parents/carers (potentially interventions could be delivered to the child-parent/carer dyad) present in a secondary or tertiary care setting as either a patient or relative.

Methods: This scoping review will be conducted using MEDLINE, CINAHL, Cochrane Library, Embase, Web of Science, as well as gray literature. The scoping review will exclude publications not available in English and any publication older than 30 years. Two reviewers will independently select articles using the inclusion criteria, based on their title and abstract. Data will be extracted from selected full text articles using a data extraction tool based on JBI recommendations. Study findings will be presented in tabular form detailing the interventions identified in the literature.

Keywords: Intervention; scoping review; secondary/tertiary care; vaccination.

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29 Introduction

30 Vaccination has made an enormous contribution to global health. Today, however, the UK, US, and
31 many other countries with successful immunization programs are experiencing concerning outbreaks
32 of disease (particularly measles) because of declines in vaccine coverage.³ For example, Public
33 Health England describes the National Health Service (NHS) routine immunization schedule as world-
34 leading; however, reduced engagement with the program means that children may be at an increased
35 risk of vaccine-preventable diseases. In England in 2018–19, coverage declined in all of the routine
36 childhood vaccinations compared with the previous year.⁴ Additionally, since 2010, routine
37 immunization coverage of the first dose of a measles-containing vaccine (MMR) has declined in 12
38 European Union member states.⁵ In 2018, more than 80,000 people in European countries contracted
39 measles, three times the total reported in 2017.⁶ Globally, there has been a surge in measles due to
40 gaps in vaccination coverage, with an estimated 110,000 deaths related to the disease in 2017, a
41 30% increase on 2016.⁷ Recently, the World Health Organization (WHO) stated that, globally, all
42 targets for disease elimination are behind schedule, and lists vaccine hesitancy as one of the top 10
43 threats to global health in 2019.¹ Likewise, the recent 2018 Global Monitoring report from the
44 Wellcome Trust named vaccine hesitancy as one of 10 major threats to global health.⁸ The 2018
45 assessment report of the Global Vaccine Action Plan (GVAP) stressed the need to “maintain its hard-
46 won gains but also aim to do more and to do things better, which may involve doing things
47 differently.”⁹

48 The decline in vaccination uptake is likely to be underpinned by a number of factors including:

- 49 • concerns about the vaccines¹⁰
- 50 • misunderstanding around the severity of the diseases¹¹
- 51 • parents who are resentful of perceived pressure to risk their own child's safety for a public
52 health benefit¹²
- 53 • inconvenient or limited access to vaccines¹³
- 54 • mistrust of health professionals, governments, and officially endorsed vaccine research¹⁴
- 55 • reliance on media and other unofficial information sources¹⁵
- 56 • increased anxieties about the vaccine's safety as the perceived threat of that disease
57 decreases due to its absence¹²
- 58 • “hard to access” populations (e.g. looked-after children, traveler communities, etc)^{16,17}
- 59 • vaccination hesitancy¹⁸ (defined as “the reluctance or refusal to vaccinate despite the
60 availability of vaccines”)¹
- 61 • opposition to vaccination on religious grounds (e.g. Orthodox Jewish populations)¹⁹
- 62 • non-religious “anti-vaccination” (or “anti-vaxx”) sentiment.^{20,21}
- 63 •

64 Every year, millions of children and young people attend hospital (secondary or tertiary medical care)
65 as outpatients or inpatients.²² Those who attend the pediatric emergency department (PED) for
66 example, often do so with minor illnesses and injuries, which could be better managed elsewhere.

67 Despite numerous initiatives to re-direct these children and young people, PED attendances continue
68 to increase year-on-year.²³ In addition to their primary reason for attendance, children in hospital may
69 have lower than average levels of health generally.²⁴ The increased use of hospitals has led to
70 increases in waiting times over the past few years (the median waiting time in the emergency
71 department (ED) in 2017 was 2 hours and 28 minutes, up from 2 hours and 9 minutes in 2013).²⁵
72 Whilst many children and young people may have to wait whilst in hospital to see a healthcare
73 professional, little has been done to use this waiting time to improve their health. Hospital settings,
74 where patients have available time, may offer opportunities to deliver novel interventions to improve
75 routine childhood vaccination uptake – this might include: motivational interviewing, referral to
76 vaccination services, or immediate catch-up vaccination, amongst others. The concept of delivering
77 an intervention based, for example, in the ED is not novel. In recent years, several studies have
78 explored the effectiveness of a range of ED-based interventions (alcohol cessation, smoking
79 cessation, improved follow-up care for asthma, mental health). However, the literature is weighted
80 heavily towards interventions for adults. For example, D’Onofrio and Degutis performed a systematic
81 review of the medical literature to evaluate screening and brief intervention programs for alcohol-
82 related problems in the ED. The study populations included in the review were diverse, with
83 participants from inpatient and outpatients, and ages ranging from 12 to 70 years. They
84 recommended that these be incorporated into routine clinical practice.²⁶

85

86 The routine vaccination schedule in the UK is offered in primary/community care, and the majority of
87 interventions to improve vaccination uptake have been implemented in this setting.²⁷ Changes in the
88 way patients engage with healthcare services indicates that alternative settings, such as
89 secondary/tertiary care may also offer appropriate settings for the delivery of interventions such as
90 routine vaccination. However, before we can explore the potential for hospitals to be used as settings
91 for interventions – such as screening, brief intervention and referral to treatment – to increase
92 vaccination, we need to first understand the existing evidence base. National Institute for Health and
93 Care Excellence (NICE) guidance recommends that research should explore the most effective ways
94 of modifying services to increase vaccination among children and young people.²⁸ The same NICE
95 guidance highlights gaps in the evidence including “a lack of UK evidence on the effectiveness and
96 cost-effectiveness of different interventions aimed at increasing immunization uptake among children
97 and young people aged under 19 years, particularly among those who may not have been immunized
98 or only partially immunized.”² A scoping review will provide evidence towards assessing this issue by
99 identifying novel interventions to improve routine childhood vaccination uptake delivered in secondary
100 and tertiary care settings.

101

102 A preliminary search for existing scoping reviews or systematic reviews has been conducted using the
103 *JBI Database of Systematic Reviews and Implementation Reports*, PROSPERO, and Cochrane
104 Database of Systematic Reviews. No relevant systematic or scoping reviews were found. The
105 objective of this scoping review is to identify and collate the available quantitative literature to identify
106 and describe the interventions that are delivered in secondary and tertiary healthcare settings to

107 improve vaccination uptake in children and young people. This protocol follows the JBI approach to
108 the conduct of scoping reviews^{29,30} by using the Preferred Reporting Items for Systematic reviews
109 and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist and guidelines.³¹
110

111 **Review question**

112 What are the interventions delivered in secondary or tertiary medical care settings focused on
113 improving routine vaccination uptake in children and young people?

114 **Inclusion criteria**

115 *Participants*

116 Participants will include children and young people (aged less than 16 years) and/or their
117 parents/carers (potentially interventions could be delivered to the child-parent/carer dyad) present in a
118 secondary or tertiary care setting as either an inpatient, outpatient, or visitor. In the UK, an individual
119 is legally a child until their 18th birthday;³² however, in clinical practice, most young people will
120 transition from pediatric services to adult services around the time of their 16th birthday.

121 *Concept*

122 This review will consider studies that explore interventions to improve routine vaccination uptake
123 delivered in secondary or tertiary care settings. These interventions may include: motivational
124 interviewing, referral to vaccination services, educational intervention or an immediate catch-up
125 vaccination.

126 *Context*

127 The scoping review will include studies based in secondary and tertiary healthcare settings within any
128 country.

129 *Types of sources*

130 This scoping review will consider quantitative study designs for inclusion. In addition, quantitative
131 systematic reviews and meta-analyses will be considered for inclusion in the proposed scoping
132 review. Articles published in English will be included. Articles published from 1989 to the present will
133 be included, this cut off coincides with significant changes to the NHS routine vaccination schedule
134 (the inclusion of the MMR vaccine).

135 **Methods**

136 The proposed scoping review will be conducted in accordance with the JBI methodology for scoping
137 reviews.³⁰

138 *Search strategy*

139 The search strategy will aim to locate both published and unpublished primary studies, reviews, and
140 opinion papers. An initial limited search of MEDLINE was undertaken to identify articles on the topic.

141 The text words contained in the titles and abstracts of relevant articles, and the index terms used to
142 describe the articles were used to develop a full search strategy for MEDLINE (see Appendix I). The
143 search strategy, including all identified keywords and index terms, will be adapted for each included
144 information source. The reference lists of articles selected for full text review will be screened for
145 additional papers.

146 *Information sources*

147 Articles published since 1989 in English and indexed in MEDLINE, CINAHL, Cochrane Library,
148 Embase, and Web of Science will be searched. Gray literature will be included through searches of
149 The Healthcare Management Information Consortium (HMIC) Database (containing the UK
150 Department of Health Library and King's Fund Library), and OpenSIGLE

151 *Study selection*

152 Articles identified by the search, and considered to meet the inclusion criteria, will be collated and
153 uploaded into Endnote VX.X (Clarivate Analytics, PA, USA). Duplicates will be removed. Two
154 reviewers will independently select articles against the inclusion criteria, firstly based on their title, and
155 then abstract. Articles identified through reference list searches will also be considered for inclusion
156 based on their title. Discrepancies in reviewer selections will be resolved through discussion between
157 reviewers prior to full-text retrieval of selected articles. Reasons for excluding full text studies will be
158 documented and reported in the review. The results of the search will be reported in full in the final
159 scoping review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-
160 analyses – Scoping Review (PRISMA -ScR) flow diagram.³¹

161

162 *Data extraction*

163 Data will be extracted from papers included in the scoping review by two independent reviewers using
164 a data extraction tool developed by the reviewers. Data will be extracted using a draft data extraction
165 tool based on JBI recommendations (Appendix II). The draft data extraction tool will be modified and
166 revised as necessary during the process of extracting data from each included paper. Modifications
167 will be detailed in the full scoping review. Two reviewers will independently read all articles retrieved
168 through the search strategy, any that are found not to fit with the scoping review will be discussed and
169 if necessary removed. Any disagreements that arise between the reviewers will be resolved through
170 discussion, or with a third reviewer. Authors of papers will be contacted to request missing or
171 additional data, where required.

172

173 *Data presentation*

174 Study findings will be presented in tabular form detailing the interventions identified in the literature
175 and the corresponding outcomes. If appropriate, a diagrammatic chart will be used to describe
176 themes derived from the literature. Data will be presented alongside a narrative summary of the
177 findings. Expert methodological advice and input will be sought if necessary.

178

179

180 **Conflicts of interest**
181 The authors declare no conflict of interest.
182

183 **References**

184

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283

284 **Appendix I – Search strategy for MEDLINE**

285

286 Search date: September 2019

287

Search	Title/abstract	MeSH terms	Records retrieved
#1	vaccin* OR immuni*ation* OR shot OR inoculation OR jab	Vaccin* OR immuni*ation*	356,299
#2	intervention OR programme OR program OR strateg* OR campaign*	immunization programs OR Preventive health services OR health promotion OR Early Intervention	2,183,283
#3	secondary care OR tertiary care OR hospital* OR emergency	Secondary Care Centers OR Tertiary Care Centers OR Emergency Service, Hospital	192,456
#4	#1 AND #2 AND #3		1001
Limited to 1989, in English			

288

289

Scoping review details	
Scoping review title:	A scoping review of interventions delivered in secondary or tertiary medical care settings to improve routine vaccination uptake in children and young people.
Review objective/s:	To identify and synthesize the available quantitative evidence to produce a map of public health interventions to improve vaccination uptake in children and young people that are delivered in secondary and tertiary healthcare settings.
Review question/s:	What are the interventions delivered in secondary or tertiary medical care settings focused on improving routine vaccination uptake in children and young people?
Inclusion/exclusion criteria	
Population	Children and young people (aged less than 16 years)
Context	Interventions to improve routine vaccination uptake delivered in secondary or tertiary medical care settings.
Types of study	Quantitative
Study details and characteristics	
Study citation details (e.g. author/s, date, title, journal, volume, issue, pages)	
Study design	
Country	
Setting (e.g. secondary care, ED, inpatient ward)	
Participants (details e.g. age/sex, number)	
Population sub-group	
Vaccination target (e.g. MMR, influenza, all)	
Details/results extracted from study (in relation to the concept of the scoping review)	
Intervention	
Outcome	

Cost effectiveness/effectiveness	
Acceptability to stakeholders	
Any differential effects	

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