

# BMJ Open

## Educating professionals to deliver supported self-management to people with asthma or diabetes: protocol for a systematic review and scoping exercise

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2016-011937
Article Type:	Protocol
Date Submitted by the Author:	16-Mar-2016
Complete List of Authors:	McCleary, Nicola; University of Edinburgh, Asthma UK Centre for Applied Research Andrews, Amanda; Education for Health Morrow, Susan; University of Edinburgh Wiener-Ogilvie, Sharon; NHS Education for Scotland Fletcher, Monica; Education for Health Steed, Liz; Queen Mary University of London Taylor, Stephanie; Queen Mary University of London Pinnock, Hilary; University of Edinburgh
<b>Primary Subject Heading</b>:	Medical education and training
Secondary Subject Heading:	Respiratory medicine, Diabetes and endocrinology, Health services research, General practice / Family practice
Keywords:	Asthma < THORACIC MEDICINE, Diabetes Mellitus (Types 1 and 2), Professional education, Self-management, Systematic review, Implementation

SCHOLARONE™  
Manuscripts

1  
2  
3 **1 Educating professionals to deliver supported self-management to people with asthma**  
4 **2 or diabetes: protocol for a systematic review and scoping exercise**

5  
6 3 Nicola McCleary,<sup>1</sup> Amanda Andrews,<sup>2</sup> Susan Morrow,<sup>1</sup> Sharon Wiener-Ogilvie,<sup>3</sup> Monica  
7 4 Fletcher,<sup>2</sup> Liz Steed,<sup>4</sup> Stephanie JC Taylor,<sup>4</sup> and Hilary Pinnock<sup>1</sup> on behalf of the IMP<sup>2</sup>ART  
8 5 team

9  
10 6 <sup>1</sup>Asthma UK Centre for Applied Research, Usher Institute of Population Health Sciences and  
11 7 Informatics, University of Edinburgh, Edinburgh, UK

12 8 <sup>2</sup>Education for Health, Warwick, UK

13  
14 9 <sup>3</sup>NHS Education for Scotland, Edinburgh, UK

15  
16 10 <sup>4</sup>Blizard Institute, Queen Mary University of London, London, UK

17  
18  
19  
20 12 Correspondence to:

21 13 Nicola McCleary

22 14 Asthma UK Centre for Applied Research

23 15 Usher Institute of Population Health Sciences and Informatics

24 16 University of Edinburgh

25 17 Doorway 3, Old Medical School

26 18 Teviot Place

27 19 Edinburgh EH8 9AG

28 20 Email: [nicola.mccleary@ed.ac.uk](mailto:nicola.mccleary@ed.ac.uk)

29 21 Tel: 0131 650 2682

30  
31  
32  
33 23 **Keywords**

34 24 Asthma, Diabetes Mellitus (Types 1 and 2), professional education, self-management,  
35 25 systematic review, implementation

36  
37  
38  
39 27 **Word count**

40 28 Abstract: 292

41 29 Main text: 2622

42  
43  
44  
45  
46 31 **Running head:** professional education for supported self-management in asthma and  
47 32 diabetes

1  
2  
3 33 **ABSTRACT**

4  
5 34 **Introduction**

6  
7  
8 35 Supported self-management for asthma helps people adjust their treatment in response to  
9  
10 36 symptom changes. This improves day-to-day control, and reduces the risk of asthma attacks  
11  
12 37 and the need for emergency healthcare. However, implementation remains poor in routine  
13  
14 38 clinical practice. This systematic review is part of a programme of work developing an  
15  
16 39 intervention to help primary care practice teams embed self-management into routine  
17  
18 40 asthma care. The aim of the review is to synthesise the evidence regarding the effectiveness  
19  
20 41 of educational interventions for professionals delivering supported self-management to  
21  
22 42 people with asthma or diabetes (Type 1 and Type 2). These two conditions have the most  
23  
24 43 robust evidence base for the effectiveness of implementing supported self-management.  
25  
26

27 44 **Methods and analysis**

28  
29  
30 45 Electronic searches will be conducted in CENTRAL, MEDLINE, EMBASE, ISI Web of  
31  
32 46 Science, CINAHL, PsycINFO, AMED, Global Health, WHO Global Health Library, ERIC,  
33  
34 47 BNI, RDRB/CME, and Google Scholar. Eligible studies are randomised controlled trials or  
35  
36 48 controlled clinical trials published between 1990 and 2016 which evaluated professional  
37  
38 49 education interventions facilitating asthma or diabetes supported self-management. Further  
39  
40 50 relevant work will be identified from trial registries, citation searching, and through contact  
41  
42 51 with authors of included studies. This will be supplemented by scoping potentially relevant  
43  
44 52 educational packages described in English language policy literature or health service  
45  
46 53 websites. Screening, data extraction, and risk of bias assessment (using the Cochrane Risk  
47  
48 54 of Bias Tool) will be completed by two independent reviewers, with a third reviewer  
49  
50 55 arbitrating where necessary. We plan a theoretically-informed narrative synthesis of the  
51  
52 56 aggregated data as heterogeneity is likely to preclude meta-analysis.  
53  
54

55 57 **Ethics and dissemination**  
56  
57  
58  
59  
60

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62

58 Ethical approval is not required for this systematic review. The results will be described in a  
59 paper submitted for peer-reviewed publication, and will inform the development of an  
60 implementation intervention.

61 **Registration details**

62 PROSPERO (2016:CRD42016032922)

For peer review only

## 63 STRENGTHS AND LIMITATIONS OF THIS STUDY

- 64 • Comprehensiveness of the synthesis will be ensured through searching a wide range  
65 of databases, performing both prospective and retrospective citation tracking,  
66 checking trial registries, and contacting authors of included studies
- 67 • The systematic review will be supplemented with a scoping exercise of health service  
68 websites and related resources to ensure that initiatives introduced by healthcare  
69 services that are not in the published literature are incorporated into the synthesis
- 70 • The review is limited by the high likelihood of heterogeneity precluding quantitative  
71 synthesis
- 72 • Findings related to effective educational strategies will inform a whole systems  
73 intervention aiming to facilitate primary care practice teams to embed supported self-  
74 management into routine asthma care

## 75 INTRODUCTION

76 Asthma is common (affecting an estimated 5.4 million people in the UK) and responsible for  
77 unscheduled consultations, hospital admissions and approximately 1,000 deaths a year in  
78 the UK.[1] Much of this morbidity is preventable with appropriate, timely self-management.[2-  
79 3] Regular structured review between the patient and a health care professional contributes  
80 to assisting the individual to effectively control their asthma,[4] a concept described as  
81 'supported self-management'. [2-3] Though widely-accepted definitions include supporting  
82 patients to "deal with the medical, role and emotional management of their conditions", [5]  
83 supported self-management in asthma as recommended by guidelines, [2-3] focuses  
84 narrowly on adherence to medication/monitoring and the early recognition/remediation of  
85 exacerbations, summarised in (written) personal asthma action plans (PAAPs). [4, 6-9]

86 The Practical Systematic Review of Self-Management Support for long-term conditions  
87 (PRISMS) project provided a comprehensive overview of the evidence base for supported  
88 self-management in 14 long-term conditions (LTCs). [10] In the context of asthma, the  
89 quantitative meta-review identified 23 systematic reviews synthesising data from 261 unique

1  
2  
3 90 RCTs encompassing a broad range of demographic, clinical and healthcare contexts, and  
4  
5 91 concluded that supported self-management reduces exacerbations and improves control  
6  
7 92 and quality of life.[10] The qualitative meta-review identified one review which highlighted  
8  
9 93 that patients want a medically focussed PAAP set within the broader concept of 'living with  
10  
11 94 asthma'. [11]

12  
13  
14 95 Implementation of supported self-management, however, remains poor in routine clinical  
15  
16 96 practice. An Asthma UK survey estimated that only 24% of people with asthma currently  
17  
18 97 have a PAAP.[12] The National Review of Asthma Deaths identified lack of PAAPs as a key  
19  
20 98 preventable factor in the deaths that they investigated.[13] Identified barriers to implementing  
21  
22 99 asthma self-management support are practical (e.g., time, no available paper-based PAAPs  
23  
24 100 [14]); conceptual (e.g., mismatch between professionals' focus on clinical action plans and  
25  
26 101 the advice patients want about 'living with asthma'[11]); and organisational (e.g. professional  
27  
28 102 communication between nurses who provide self-management education and general  
29  
30 103 practitioners (GPs) who treat exacerbations [15]). The systematic review of implementation  
31  
32 104 studies conducted as part of PRISMS concluded that integration into routine practice  
33  
34 105 required a whole systems approach in which motivated, skilled professionals support  
35  
36 106 activated, informed patients within an organisation that values, promotes and monitors the  
37  
38 107 delivery of supported self-management.[16]

39  
40  
41 108 We are undertaking preliminary work to develop, refine and evaluate the clinical and cost-  
42  
43 109 effectiveness of a practice-based intervention to implement self-management support for  
44  
45 110 asthma in routine clinical practice in a UK-wide cluster RCT. An educational package for  
46  
47 111 professionals who support people with asthma to self-manage will form a key component of  
48  
49 112 the whole systems approach. Professional education is a pre-requisite for effective  
50  
51 113 implementation of supported self-management and will not only need to address the skills  
52  
53 114 required by the professionals delivering self-management education (typically asthma-  
54  
55 115 trained general practice nurses in the UK) but also other members of the primary healthcare  
56  
57  
58  
59  
60

1  
2  
3 116 team providing services for people with asthma (including GPs, reception staff, prescribing  
4  
5 117 clerks, and community pharmacists).[10]  
6  
7  
8 118 The aim of this systematic review is therefore to inform the development of the educational  
9  
10 119 package by synthesising the evidence regarding the effectiveness of educational  
11  
12 120 interventions for professionals involved in delivering supported self-management. The  
13  
14 121 review will focus on diabetes as well as asthma in order to go beyond existing interventions  
15  
16 122 in asthma and learn from professional education approaches in another condition where self-  
17  
18 123 management support is well evidenced and fundamental to care. These two conditions have  
19  
20 124 the most robust evidence base for the effectiveness of implementing supported self-  
21  
22 125 management,[10]  
23

## 24 126 **METHODS AND ANALYSIS**

25  
26  
27 127 We will follow systematic review procedures described in the Cochrane Handbook for  
28  
29 128 Systematic Reviews of Interventions.[17] The Preferred Reporting Items for Systematic  
30  
31 129 review and Meta-Analysis Protocols (PRISMA-P) checklist has been used to guide the  
32  
33 130 reporting of this protocol.[18] If amendments to the protocol are made, the description of  
34  
35 131 each amendment will be reported along with the amendment number and date. The review  
36  
37 132 commenced on 2<sup>nd</sup> November 2015 and will be completed by 30<sup>th</sup> September 2016.  
38  
39

### 40 133 **Eligibility criteria**

#### 41 134 *Participants*

42  
43  
44  
45 135 The target population is professionals delivering care to people with asthma or Type 1 or  
46  
47 136 Type 2 Diabetes Mellitus. This includes doctors, nurses, or health educators, but primary  
48  
49 137 care practice teams (including clinicians and administrative staff) are of particular interest. In  
50  
51 138 this context, a primary care practice team is a team of professionals working within a  
52  
53 139 practice to deliver patient care. Others who may deliver supported self-management in this  
54  
55 140 context (such as pharmacists or lay/peer educators) will be included if their role is integrated  
56  
57 141 within a practice team.  
58  
59  
60

1  
2  
3 142 *Interventions*

4  
5 143 Interventions of interest are educational packages designed to train professionals and/or  
6  
7 144 practice teams to deliver education or supported self-management to people with asthma or  
8  
9 145 diabetes. In this context, self-management support is defined as a service intervention that  
10  
11 146 aims to empower patients to be active decision makers who deal with the emotional, social  
12  
13 147 and medical management of their illness and improve their independence and quality of life.  
14  
15 148 [5] These can comprise 14 components (information about condition/management;  
16  
17 149 information about resources; plan/medication provision; regular review; monitoring and  
18  
19 150 feedback; adherence support; equipment provision; access to advice/support;  
20  
21 151 training/rehearsal for: communication with health-care professionals, everyday activities,  
22  
23 152 practical self-management activities, psychological strategies; social support; and lifestyle  
24  
25 153 advice and support).[19]

26  
27  
28  
29 154 *Comparators*

30  
31 155 In most trials of educational interventions, the comparator will be 'no education', though  
32  
33 156 some may compare components of an educational package (for example, different modes of  
34  
35 157 delivery, such as online vs. face-to-face). The nature of the control service will be noted and  
36  
37 158 accommodated within the analysis.

38  
39  
40 159 *Outcomes*

41  
42 160 As this is a review of implementation-level interventions (i.e. interventions aimed at changing  
43  
44 161 health outcomes through changes in clinical practice), the primary outcomes of interest are  
45  
46 162 categorised into two levels: process-level outcomes, and health outcomes. Process-level  
47  
48 163 outcomes reflect professional behaviour change. The primary process-level outcomes are  
49  
50 164 the proportion of people with asthma receiving PAAPs, and the proportion of people with  
51  
52 165 diabetes receiving structured education.

53  
54  
55 166 The ATS/ERS Task Force report on asthma outcome assessment recommended that health  
56  
57 167 outcomes in trials should reflect measures of both current control and future risk.[20] To



1  
2  
3 168 maintain consistency, we have applied this recommendation to the selection of primary  
4  
5 169 health outcomes for both asthma and diabetes in this review. The primary outcomes  
6  
7 170 representing current control are markers of asthma control (asthma control questionnaire or  
8  
9 171 similar validated questionnaire), and HbA1c level for diabetes. The primary outcomes  
10  
11 172 representing future risk are the proportion of people with an unscheduled consultation for  
12  
13 173 acute asthma deterioration (e.g. out-of-hours/ GP consultation/ A&E/ admission), and acute  
14  
15 174 events related to diabetic control and necessitating urgent action (e.g. hypoglycemia/  
16  
17 175 hyperglycemia/ diabetic ketoacidosis).

18  
19  
20 176 Secondary outcomes comprise behavioural/cognitive measures related to both professionals  
21  
22 177 (e.g. improvement in communication skills, confidence, competence) and patients (e.g. self-  
23  
24 178 efficacy, empowerment, and activation) and other measures of control (e.g. symptom free  
25  
26 179 days) or future risk (e.g. exacerbations/ steroid courses). When extracting secondary  
27  
28 180 outcome data, outcomes assessed using validated tools will be prioritised.

### 30 181 *Study design*

32  
33 182 Randomised controlled trials and controlled clinical trials will be included, since educational  
34  
35 183 interventions may not always be evaluated in randomised controlled trials.

### 37 184 *Setting*

38  
39  
40 185 Any healthcare setting is of interest, though trials implemented within primary care teams will  
41  
42 186 be of particular interest.

### 44 187 *Years considered*

45  
46  
47  
48 188 Studies published from 1990 onwards will be included, as evolving professional educational  
49  
50 189 approaches mean that earlier literature is unlikely to be relevant.

### 51 190 *Language*

52  
53  
54  
55 191 There will be no language restrictions for included studies: literature will be translated where  
56  
57 192 possible, and any literature that we are unable to translate will be reported.

## 193 Information sources

194 Electronic searches will be conducted in CENTRAL, MEDLINE, EMBASE, ISI Web of  
195 Science, CINAHL, PsycINFO, AMED, Global Health, WHO Global Health Library, ERIC,  
196 BNI, RDRB/CME, and Google Scholar for studies published from 1990 until 2016. For all  
197 included studies, reference lists will be scrutinised and prospective citation tracking will be  
198 performed to identify additional relevant studies. We are not aware of any specific journals  
199 specialising in this literature which may require hand-searching: however, if such journals  
200 become apparent after gathering relevant studies, these will be hand-searched.

201 To identify relevant unpublished and in-progress studies, key internet-based relevant  
202 databases will be searched (UK Clinical Research Network Study Portfolio; the meta  
203 Register of Controlled Trials, [www.clinicaltrials.gov](http://www.clinicaltrials.gov); and [www.controlled-trials.com](http://www.controlled-trials.com)).  
204 Relevant qualitative studies which inform educational interventions (e.g., published  
205 alongside trials)[21] will be retrieved. Authors of included studies will be contacted to i)  
206 source further published or unpublished results and/or training manuals related to their study  
207 if available; ii) source other relevant published, unpublished or ongoing studies including any  
208 related qualitative studies.

209 We will supplement the published literature review by undertaking a scoping exercise of  
210 existing potentially relevant packages in asthma and diabetes through: i) searching English  
211 language policy literature and health service websites for information about improvement  
212 initiatives involving up-skilling practices/clinical teams to improve self-management; and ii)  
213 contacting the initiative leads for information about the packages.

## 214 Search strategy

215 A sensitive search strategy has been developed following advice from a senior librarian  
216 (Marshall Dozier, University of Edinburgh) using the Ovid interface for MEDLINE  
217 (Supplementary File). This will be adapted for searches in other databases.

## 218 Data management

1  
2  
3 219 Literature search results will be exported to EndNote Library, which will be used for de-  
4  
5 220 duplication, study screening, and overall management of the retrieved records. Microsoft  
6  
7 221 Word will be used to develop a data extraction form, which will be piloted and refined before  
8  
9 222 use. Data will be extracted and stored electronically. Multiple reports from the same study  
10  
11 223 will be treated as a single study, but we will draw on and make reference to all relevant  
12  
13 224 publications.

### 14 15 16 225 **Selection process**

17  
18 226 One reviewer (NM) will undertake an initial filter of duplicates and clearly irrelevant titles.  
19  
20 227 Two reviewers (NM and AA) and the joint project leads (HP and ST) will independently  
21  
22 228 screen a sample of 100 titles and abstracts from the searches for inclusion according to the  
23  
24 229 review criteria. Any disagreements will be resolved by discussion and consultation with the  
25  
26 230 project team, if required. This process will be repeated on further samples of 100 titles and  
27  
28 231 abstracts until the level of agreement between all reviewers is deemed satisfactory. The two  
29  
30 232 reviewers will then independently screen all titles and abstracts, selecting potentially eligible  
31  
32 233 papers for full text screening. The full texts of all potentially eligible studies will be retrieved  
33  
34 234 and independently screened by the two reviewers. Disagreements at both stages will be  
35  
36 235 resolved by discussion, or arbitration by a third reviewer (HP or ST) if necessary. If after the  
37  
38 236 full text assessment it is still unclear whether a study fulfils the inclusion criteria, the study  
39  
40 237 authors will be contacted by email for clarification: if this fails, the respective study will be  
41  
42 238 listed as a 'potentially relevant study'. The searching and screening processes will be  
43  
44 239 summarised using a PRISMA flow diagram.[22]

### 45 46 47 240 **Data collection process**

48  
49 241 The two reviewers (NM and AA) will extract the main findings from each study onto the data  
50  
51 242 extraction form. The form will be piloted on a sub-sample of included studies to ensure it is  
52  
53 243 easily and consistently interpreted and captures all relevant information. Data extraction  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 244 disagreements will be resolved by discussion, or arbitration by a third reviewer (HP or ST) if  
4  
5 245 necessary.

6  
7  
8 246 **Data items**

9  
10 247 Data will be extracted relating to general study characteristics, participant characteristics,  
11  
12 248 details of the intervention and control conditions, the relevant outcomes assessed and  
13  
14 249 corresponding results, and information for assessment of the risk of bias.

15  
16  
17 250 **Risk of bias in individual studies**

18  
19  
20 251 The two reviewers (NM and AA) will conduct independent assessments of methodological  
21  
22 252 quality and risk of bias using the Cochrane Risk of Bias Tool.[23] Disagreements will be  
23  
24 253 resolved by discussion or, if necessary, arbitration by a third reviewer (HP or ST). The  
25  
26 254 resulting risk of bias in included studies will be used to evaluate the robustness of the  
27  
28 255 findings.

29  
30 256 **Data synthesis**

31  
32  
33 257 Descriptive tables will be used to summarise the characteristics of included studies.  
34  
35 258 Frameworks such as TIDieR (a template for reporting interventions)[24] and/or the  
36  
37 259 Theoretical Domains Framework (a validated framework that identifies domains of  
38  
39 260 theoretical approaches to behaviour change interventions which has been applied  
40  
41 261 retrospectively to published interventions)[25-27] will be used to describe the interventions.  
42  
43 262 On a practical level, in order to inform the development of the educational component for our  
44  
45 263 proposed implementation intervention, we will also take into account any frameworks used  
46  
47 264 by Education for Health in the development of their courses.

48  
49  
50 265 A detailed descriptive summary of studies will be compiled, including data under the  
51  
52 266 headings of: setting (primary/secondary care); at whom the intervention is directed  
53  
54 267 (individual professional, groups, practice teams); mode of delivery (group, individual, face-to-  
55  
56 268 face, on-line); components (lectures, workshops, assignments, practical skills, mentorship);  
57  
58  
59  
60

1  
2  
3 269 duration and intensity of education/mentoring, generic/disease focused, outcomes assessed,  
4  
5 270 information about uptake and any information about fidelity. We may undertake some short  
6  
7 271 telephone interviews with authors in order to enhance our understanding of the interventions.  
8

9  
10 272 Based on preliminary scoping work, it is anticipated that there will be substantial  
11  
12 273 heterogeneity so that meta-analysis will not be appropriate. A narrative synthesis of the  
13  
14 274 aggregate data will therefore be undertaken. This will be achieved by developing a matrix of  
15  
16 275 what has been shown to be effective/ineffective and the elements of the educational  
17  
18 276 package (including content, mode of delivery, duration, intensity). Depending on the  
19  
20 277 available data, graphical techniques (e.g. Harvest plots [28]) may be used to illustrate key  
21  
22 278 outcomes and their relationship to these elements. Qualitative data will be used to enhance  
23  
24 279 our understanding of participants' perceptions of the impact of participating in the  
25  
26 280 educational intervention on their professional practice. Data from qualitative studies will be  
27  
28 281 synthesised thematically.[29]

29  
30 282 An overarching narrative synthesis of quantitative and qualitative findings will be  
31  
32 283 undertaken.[30] Depending on the extent of the literature available in the different disease  
33  
34 284 areas, sub-group analyses may be undertaken according to the targeted professionals  
35  
36 285 (doctor, nurse, practice team) and/or setting (primary/secondary care). The findings of the  
37  
38 286 scoping exercise of existing potentially relevant packages in asthma and diabetes will be  
39  
40 287 used to supplement those of the systematic review.

41  
42  
43 288 The multidisciplinary research team, the wider project team and the steering group will meet  
44  
45 289 regularly to discuss the emerging findings and aid interpretation. The PRISMA checklist will  
46  
47 290 be used to guide reporting of the review.[22]

## 48 49 50 291 **REGISTRATION**

51  
52  
53 292 The protocol for this review has been registered with the International Prospective Register  
54  
55 293 of Systematic Reviews (PROSPERO; 2016:CRD42016032922).

## 56 57 58 294 **ETHICS AND DISSEMINATION**

1  
2  
3 295 Ethical approval is not required for this study, given that it is a systematic review utilising  
4  
5 296 data already in the public domain. This review will inform the educational component of a  
6  
7 297 whole systems intervention that will help primary care practice teams embed supported self-  
8  
9 298 management into routine asthma care. A paper describing the review will be submitted for  
10  
11 299 peer-reviewed publication. The infrastructure of the Asthma UK Centre for Applied Research  
12  
13 300 (AUKCAR) will be used to support innovative approaches to dissemination (e.g. via social  
14  
15 301 media and Science Festivals).

## 17 302 **CONCLUSION**

18  
19  
20 303 Whilst patient education, professional training and organisational support are all essential  
21  
22 304 components of successful self-management support, they are rarely effective in isolation.[10]  
23  
24 305 Effective implementation is multi-faceted and multidisciplinary: it involves engaging patients  
25  
26 306 and training and motivating professionals within the context of an organisation which actively  
27  
28 307 supports self-management.[10, 16] This review will achieve clarity on educational strategies  
29  
30 308 likely to be effective in enabling professionals to implement supported self-management in  
31  
32 309 their clinical practice, and will inform one component of a whole systems intervention aiming  
33  
34 310 to facilitate primary care practice teams to embed supported self-management into routine  
35  
36 311 asthma care.

## 37 312 **REFERENCES**

- 38  
39  
40  
41  
42 313 1. Asthma UK. *Asthma facts and statistics*. Available from  
43  
44 314 <http://www.asthma.org.uk/asthma-facts-and-statistics> (accessed Feb 2016)  
45  
46 315 2. British Thoracic Society/Scottish Intercollegiate Guideline Network. British Guideline  
47  
48 316 on the Management of Asthma: 2014 update. *Thorax* 2014;69(Suppl1):1-192.  
49  
50 317 Available from <http://www.sign.ac.uk> (accessed Feb 2016)  
51  
52 318 3. Global Initiative for Asthma. *Global Strategy for Asthma Management and*  
53  
54 319 *Prevention*, 2014. Available from <http://www.ginasthma.org> (accessed Feb 2016)  
55  
56  
57  
58  
59  
60

- 1  
2  
3 320 4. Gibson PG, Powell H, Wilson A, et al. Self-management education and regular  
4 321 practitioner review for adults with asthma. *Cochrane Database of Systematic*  
5 322 *Reviews* 2002, Issue 3. Art.No:CD001117  
6  
7  
8  
9 323 5. Adams K, Greiner AC, Corrigan JM. Eds. *The 1st Annual Crossing the Quality*  
10 324 *Chasm Summit – A Focus on Communities*. Washington, DC: The National  
11 325 Academic Press 2004:57  
12  
13  
14  
15 326 6. Tapp S, Lasserson TJ, Rowe BH. Education interventions for adults who attend the  
16 327 emergency room for acute asthma. *Cochrane Database of Systematic Reviews*  
17 328 2007, Issue 3. Art.No:CD003000  
18  
19  
20  
21 329 7. Gibson PG, Powell H. Written action plans for asthma: an evidence-based review of  
22 330 the key components. *Thorax* 2004;59:94–99  
23  
24  
25 331 8. Toelle B, Ram FSF. Written individualised management plans for asthma in children  
26 332 and adults. *Cochrane Database of Systematic Reviews* 2004, Issue 1.  
27 333 Art.No:CD002171  
28  
29  
30  
31 334 9. Lefevre F, Piper M, Weiss K, et al. Do written action plans improve patient outcomes  
32 335 in asthma? An evidence-based analysis. *J Fam Prac* 2002;51:842–848  
33  
34  
35 336 10. Taylor SJC, Pinnock H, Epiphaniou E, et al. A rapid synthesis of the evidence on  
36 337 interventions supporting self-management for people with long-term conditions.  
37 338 (PRISMS Practical Systematic Review of Self-Management Support for long-term  
38 339 conditions) *Health Serv Deliv Res* 2014;2:54  
39  
40  
41  
42 340 11. Ring N, Jepson R, Hoskins G, et al. Understanding what helps or hinders asthma  
43 341 action plan use: a systematic review and synthesis of the qualitative literature. *Pat Ed*  
44 342 *Counsel* 2011;85:e131–e143  
45  
46  
47  
48 343 12. Asthma UK. *Time to take action on asthma*. Available from  
49 344 <https://www.asthma.org.uk/globalassets/campaigns/compare-your-care-2014.pdf>  
50 345 (accessed Feb 2016)  
51  
52  
53  
54  
55 346 13. Royal College of Physicians. *Why asthma still kills: the National Review of Asthma*  
56 347 *Deaths (NRAD) Confidential Enquiry report*. London: RCP 2014  
57  
58  
59  
60

- 1  
2  
3 348 14. Wiener-Ogilvie S, Pinnock H, Huby G, et al. Do practices comply with key  
4  
5 349 recommendations of the British Asthma Guideline, and if not, why not? *Prim Care*  
6  
7 350 *Resp J* 2007;16:369-377  
8  
9 351 15. Weiner-Ogilvie S, Huby G, Pinnock H, et al. Practice organisational characteristics  
10  
11 352 can impact on compliance with the BTS/SIGN asthma guideline: qualitative  
12  
13 353 comparative case study in primary care. *BMC Fam Pract* 2008;9:32  
14  
15 354 16. Pinnock H, Epiphaniou E, Pearce G, et al. Implementing supported self-management  
16  
17 355 for asthma: a systematic review of implementation studies. *BMC Med* 2015;13:127  
18  
19 356 17. Higgins JPT, Green S. Eds. *Cochrane Handbook for Systematic Reviews of*  
20  
21 357 *Interventions*. Version 5.1.0 [updated March 2011]. The Cochrane Collaboration,  
22  
23 358 2011. Available from <http://handbook.cochrane.org/> (accessed Feb 2016)  
24  
25 359 18. Shamseer L, Moher D, Clarke M, et al. Preferred reporting items for systematic  
26  
27 360 review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation.  
28  
29 361 *BMJ* 2015;349:g7647  
30  
31 362 19. Pearce G, Parke H, Pinnock H, et al. The PRISMS taxonomy of self-management  
32  
33 363 support: derivation of a novel taxonomy and initial testing of utility. *J Health Serv Res*  
34  
35 364 *Policy* 2015:1355819615602725[Epub ahead of print]  
36  
37 365 20. Reddel HK, Taylor DR, Bateman ED, et al. An Official American Thoracic  
38  
39 366 Society/European Respiratory Society statement: asthma control and exacerbations  
40  
41 367 standardizing endpoints for clinical asthma trials and clinical practice. *Am J Respir*  
42  
43 368 *Crit Care Med* 2009;180:59-99  
44  
45 369 21. Barnett-Page E, Thomas J. *Methods for Research Synthesis Node*. Evidence for  
46  
47 370 Policy and Practice Information and Co-ordinating (EPPI-)Centre, Social Science  
48  
49 371 Research Unit, Institute of Education. Available from  
50  
51 372 <http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=188> (Accessed Feb 2016)  
52  
53 373 22. Moher D, Liberate A, Tetzlaff J, et al. Preferred Reporting Items for Systematic  
54  
55 374 Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med*  
56  
57 375 2009;6(7):e1000097  
58  
59  
60



- 1  
2  
3 376 23. Higgins JPT, Altman DG, Sterne JAC, on behalf of the Cochrane Statistical Methods  
4  
5 377 Group and the Cochrane Bias Methods Group. *Chapter 8: Assessing risk of bias in*  
6  
7 378 *included studies*. Available from  
8  
9 379 [http://handbook.cochrane.org/chapter\\_8/8\\_assessing\\_risk\\_of\\_bias\\_in\\_included\\_studies.htm](http://handbook.cochrane.org/chapter_8/8_assessing_risk_of_bias_in_included_studies.htm)  
10  
11 380 [es.htm](http://handbook.cochrane.org/chapter_8/8_assessing_risk_of_bias_in_included_studies.htm) (Accessed Feb 2016)  
12  
13 381 24. Hoffmann T, Glasziou P, Boutron I, et al. Better reporting of interventions: template  
14  
15 382 for intervention description and replication (TIDieR) checklist and guide. *BMJ*  
16  
17 383 2014;348:g1687  
18  
19 384 25. Michie S, Johnston M, Abraham C, et al. Making psychological theory useful for  
20  
21 385 implementing evidence based practice: a consensus approach. *Qual Saf Health Care*  
22  
23 386 2005;14:26-33  
24  
25 387 26. Cane J, O'Connor D, Michie S. Validation of the theoretical domains framework for  
26  
27 388 use in behaviour change and implementation research. *Implement Sci* 2012;7:37  
28  
29 389 27. Little EA, Pesseau J, Eccles MP. Understanding effects in reviews of implementation  
30  
31 390 interventions using the Theoretical Domains Framework. *Implement Sci* 2015;10:90  
32  
33 391 28. Ogilvie D, Fayter D, Petticrew M, et al. The harvest plot: a method for synthesising  
34  
35 392 evidence about the differential effects of interventions. *BMC Med Res Methodol*  
36  
37 393 2008;8:8  
38  
39 394 29. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in  
40  
41 395 systematic reviews. *BMC Med Res Methodol* 2008;8:45  
42  
43 396 30. Ring N, Jepson R, Pinnock H, et al. Developing novel evidence-based interventions  
44  
45 397 to promote asthma action plan use: a cross-study synthesis of evidence from  
46  
47 398 randomised controlled trials and qualitative studies. *Trials* 2012;13:216  
48  
49

## 50 **ACKNOWLEDGEMENTS**

51  
52  
53 400 The authors thank Marshall Dozier, Senior Liaison Librarian and Liaison Director for the  
54  
55 401 College of Medicine and Veterinary Medicine at the University of Edinburgh, who assisted in  
56  
57 402 developing the search strategy.  
58  
59  
60

1  
2  
3 403 **AUTHORS' CONTRIBUTIONS**

4  
5 404 HP and ST conceived the idea for this work and are the guarantors. The protocol was  
6  
7 405 drafted by NM and was then revised after several rounds of critical comments and additional  
8  
9 406 feedback from AA, SM, SW-O, MF, LS, ST and HP. All authors will be involved in the  
10  
11 407 systematic review process.

12  
13  
14 408 The IMP<sup>2</sup>ART team also includes Aziz Sheikh, Brian McKinstry, and Luke Daines (University  
15  
16 409 of Edinburgh); Chris Griffiths and Sandra Eldridge (Queen Mary University of London);  
17  
18 410 Anne-Louise Caress (University of Manchester); Elisabeth Ehrlich (Asthma UK Centre for  
19  
20 411 Applied Research); Bethan Haskins (Canterbury and Coastal Clinical Commissioning  
21  
22 412 Group); Rob Horne (University College London); Steven Julious (University of Sheffield);  
23  
24 413 Lorna McKee (University of Aberdeen); and Ceri Phillips (University of Swansea).

25  
26  
27 414 **COMPETING INTERESTS**

28  
29  
30 415 Monica Fletcher is the Chief Executive for Education for Health, an organisation that  
31  
32 416 provides training for healthcare professionals. The authors declare no further competing  
33  
34 417 interests related to this work.

35  
36  
37 418 **FUNDING**

38  
39 419 This report is independent research funded by the National Institute for Health Research  
40  
41 420 (Programme Development Grants, Implementing supported asthma self-management in  
42  
43 421 routine clinical care: designing, refining, piloting and evaluating a whole systems  
44  
45 422 implementation within an MRC Phase IV programme of research, RP-DG-1213-10008). The  
46  
47 423 views expressed in this publication are those of the author(s) and not necessarily those of  
48  
49 424 the NHS, the National Institute for Health Research or the Department of Health. This work  
50  
51 425 is sponsored by the University of Edinburgh. The funder and sponsor have not had any role  
52  
53 426 in developing the protocol.  
54  
55  
56  
57  
58  
59  
60

## SUPPLEMENTARY FILE

### MEDLINE Search Strategy

1. Primary Health Care/ or Family Practice/ or General Practice/
2. (primary care or primary medical care or primary health care or primary healthcare or general practice or family practice).mp.
3. Health Personnel/ or Medical Staff/
4. ((healthcare or health care) adj3 (provider? or practitioner? or professional?)).mp.
5. Physicians/ or Physicians, Primary Care/ or Physicians, Family/ or General Practitioners/
6. (general practitioner? or medical practitioner? or physician? or clinician? or doctor? or GP?).mp.
7. Nurses/ or Nursing Staff/ or Nurse Practitioners/ or Family Nurse Practitioners/
8. (nurse? or practice nurse? or community nurse? or nurse practitioner?).mp.
9. Medical Secretaries/ or Medical Receptionists/
10. (secretar\$ or reception\$ or administrat\$).mp.
11. Pharmacists/
12. pharmacist?.mp.
13. Health Educators/
14. health educator?.mp.
15. Patient Care Team/
16. ((primary care or primary care practice or health care or healthcare or medical care or general practice or family practice) adj3 team?).mp.
17. or/1-16
18. Education/ or Health Education/
19. (educat\$ or train\$).mp.
20. (skill? adj3 develop\$).mp.
21. Education, Professional/ or Education, Continuing/
22. (professional development or CPD).mp.
23. ((interprofessional or inter professional or inter-professional) adj3 (educat\$ or train\$ or develop\$ or skill?)).mp.
24. ((team? or group?) adj3 (educat\$ or train\$ or develop\$ or skill?)).mp.
25. Education, Medical/ or Education, Medical, Continuing/
26. (continuing medical education or CME).mp.
27. Education, Nursing/ or Education, Nursing, Continuing/ or Nursing Education Research/ or Nursing Evaluation Research/
28. Education, Pharmacy/ or Education, Pharmacy, Continuing/
29. Quality Improvement/
30. (quality adj3 improv\$).mp.
31. or/18-30
32. Disease Management/
33. disease management.mp.
34. Self Care/ or Self Administration/ or Self Medication/
35. (self-manag\$ or selfmanag\$ or self-car\$ or selfcar\$ or self-help or selfhelp or self-administrat\$ or selfadministrat\$ or self-monitor\$ or selfmonitor\$ or self-medicat\$ or selfmedicat\$).mp.
36. (self adj3 (manag\$ or car\$ or help or administrat\$ or monitor\$ or medicat\$)).mp.
37. Quality of Health Care/
38. (quality adj3 (care or healthcare or health care)).mp.
39. Professional-Patient Relations/ or Physician-Patient Relations/ or Nurse-Patient Relations/

- 1
- 2
- 3 40. (patient? adj3 (relation\$ or communicat\$)).mp.
- 4 41. ((action or treat\$ or car\$ or written or manag\$ or medicat\$) adj3 plan\$).mp.
- 5 42. ((self-manag\$ or self manag\$ or selfmanag\$ or self-car\$ or self car\$ or selfcar\$ or
- 6 self-help or self help or selfhelp or self-administrat\$ or self administrat\$ or
- 7 selfadministrat\$ or self-monitor\$ or self monitor\$ or selfmonitor\$ or self-medicat\$ or
- 8 self medicat\$ or selfmedicat\$ or self-treat\$ or self treat\$ or selftreat\$) adj3 plan\$).mp.
- 9
- 10 43. (exacerbat\$ or attack?).mp.
- 11 44. asthma control test.mp.
- 12 45. Hospitalization/
- 13 46. hospitali?ation?.mp.
- 14 47. After-Hours Care/
- 15 48. (out of hours or out-of-hours or OOH).mp.
- 16 49. Office Visits/
- 17 50. ((office or hospital or emergency department or ED or A&E or A & E or "accident and
- 18 emergency") adj3 (visit\$ or refer\$ or admission\$)).mp.
- 19 51. ((care or service?) adj3 (utili?ation or use?)).mp.
- 20 52. Patient Education/
- 21 53. Blood Glucose Self Monitoring/
- 22 54. Hemoglobin A, Glycosated/
- 23 55. HbA1c.mp.
- 24 56. Hypoglycemia/ or Hyperglycemia/
- 25 57. Diabetic Ketoacidosis/ or Hyperglycemic Hyperosmolar Nonketotic Coma/
- 26 58. (hyperosmolar hyperglyc?emic nonketotic syndrome or DKA or HNNS or HONK).mp.
- 27 59. glyc?emic control.mp.
- 28 60. or/32-59
- 29 61. Asthma/
- 30 62. (asthma or wheez\$).mp.
- 31 63. (antiasthma\$ or anti-asthma\$).mp.
- 32 64. Respiratory Hypersensitivity/
- 33 65. ((bronchial\$ or respiratory or airway\$ or lung\$) adj3 (hypersensitive\$ or hyperreactiv\$
- 34 or allerg\$ or insufficiency)).mp.
- 35 66. Bronchial Spasm/
- 36 67. Bronchoconstriction/
- 37 68. (bronch\$ adj3 (constrict\$ or spas\$)).mp.
- 38 69. (bronchoconstrict\$ or bronchospas\$).mp.
- 39 70. bronchial hyperreactivity.mp.
- 40 71. respiratory sounds.mp.
- 41 72. Diabetes Mellitus/
- 42 73. diabet\$.mp.
- 43 74. Diabetes Mellitus, Type 1/
- 44 75. ((diabet\$ or dm) adj5 (typ\$ adj3 (one or "1" or I))).mp.
- 45 76. Diabetes Mellitus, Type 2/
- 46 77. ((diabet\$ or dm) adj5 (typ\$ adj3 (two or "2" or II))).mp.
- 47 78. Insulin Resistance/
- 48 79. ((insulin or noninsulin or non-insulin) adj3 (resistan\$ or depend\$)).mp.
- 49 80. (DM or DM1 or DM2 or T1D or T1DM or T2D or T2DM or NIDDM or IDDM or
- 50 MODY).mp.
- 51 81. glucose \$tolerance.mp.
- 52 82. or/61-81
- 53 83. Pragmatic Clinical Trial/ or Clinical Trial/ or Randomized Controlled Trial/ or
- 54 Controlled Clinical Trial/
- 55
- 56
- 57
- 58
- 59
- 60

84. randomi?ed controlled trial.pt.
85. controlled clinical trial.pt.
86. (randomi?ed or randomly).ti,ab.
87. trial.ti,ab.
88. group?.ti,ab.
89. or/83-88
90. 17 and 31 and 60 and 82 and 89
91. (letter or review or comment or editorial).pt.
92. 90 not 91
93. (Animals/ or Nonhuman/) not Humans/
94. 92 not 93

*Note:* a free-text term related to professional behaviour (prof\$ adj3 behav\$.mp.) was considered for inclusion in section two of the above search, which is focussed on educational interventions. However, it was not included because when added, it did not retrieve any records additional to those already retrieved.

peer review only

## PRISMA-P 2015 Checklist

This checklist has been adapted for use with protocol submissions to *Systematic Reviews* from Table 3 in Moher D et al: Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews* 2015 4:1

Section/topic	#	Checklist item	Information reported		Line number(s)
			Yes	No	
<b>ADMINISTRATIVE INFORMATION</b>					
<b>Title</b>					
Identification	1a	Identify the report as a protocol of a systematic review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	<input type="checkbox"/>	<input type="checkbox"/>	N/A
<b>Registration</b>	2	If registered, provide the name of the registry (e.g., PROSPERO) and registration number in the Abstract	<input checked="" type="checkbox"/>	<input type="checkbox"/>	62
<b>Authors</b>					
Contact	3a	Provide name, institutional affiliation, and e-mail address of all protocol authors; provide physical mailing address of corresponding author	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3-20 e-mail address provided for corresponding author only, per journal instructions
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	404-407
<b>Amendments</b>	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	130-131
<b>Support</b>					
Sources	5a	Indicate sources of financial or other support for the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	419-426
Sponsor	5b	Provide name for the review funder and/or sponsor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	419-426
Role of sponsor/funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	<input checked="" type="checkbox"/>	<input type="checkbox"/>	419-426

Section/topic	#	Checklist item	Information reported		Line number(s)
			Yes	No	
<b>INTRODUCTION</b>					
Rationale	6	Describe the rationale for the review in the context of what is already known	<input checked="" type="checkbox"/>	<input type="checkbox"/>	76-117
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	118-125
<b>METHODS</b>					
Eligibility criteria	8	Specify the study characteristics (e.g., PICO, study design, setting, time frame) and report characteristics (e.g., years considered, language, publication status) to be used as criteria for eligibility for the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	134-192
Information sources	9	Describe all intended information sources (e.g., electronic databases, contact with study authors, trial registers, or other grey literature sources) with planned dates of coverage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	194-213
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	<input checked="" type="checkbox"/>	<input type="checkbox"/>	215-217 & supplementary file
<b>STUDY RECORDS</b>					
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	219-224
Selection process	11b	State the process that will be used for selecting studies (e.g., two independent reviewers) through each phase of the review (i.e., screening, eligibility, and inclusion in meta-analysis)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	226-239
Data collection process	11c	Describe planned method of extracting data from reports (e.g., piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	241-245 205-213
Data items	12	List and define all variables for which data will be sought (e.g., PICO items, funding sources), any pre-planned data assumptions and simplifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	247-249
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	160-180
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	251-255
<b>DATA</b>					

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49

Section/topic	#	Checklist item	Information reported		Line number(s)
			Yes	No	
Synthesis	15a	Describe criteria under which study data will be quantitatively synthesized	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A 272-274
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data, and methods of combining data from studies, including any planned exploration of consistency (e.g., $I^2$ , Kendall's tau)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A
	15c	Describe any proposed additional analyses (e.g., sensitivity or subgroup analyses, meta-regression)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	283-285
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	<input checked="" type="checkbox"/>	<input type="checkbox"/>	273-290
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (e.g., publication bias across studies, selective reporting within studies)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (e.g., GRADE)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A

Review only





# BMJ Open

## Educating professionals to support self-management in people with asthma or diabetes: protocol for a systematic review and scoping exercise

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2016-011937.R1
Article Type:	Protocol
Date Submitted by the Author:	29-Jun-2016
Complete List of Authors:	McCleary, Nicola; University of Edinburgh, Asthma UK Centre for Applied Research Andrews, Amanda; Education for Health Morrow, Susan; University of Edinburgh Wiener-Ogilvie, Sharon; NHS Education for Scotland Fletcher, Monica; Education for Health Steed, Liz; Queen Mary University of London Taylor, Stephanie; Queen Mary University of London Pinnock, Hilary; University of Edinburgh
<b>Primary Subject Heading</b>:	Medical education and training
Secondary Subject Heading:	Respiratory medicine, Diabetes and endocrinology, Health services research, General practice / Family practice
Keywords:	Asthma < THORACIC MEDICINE, Diabetes Mellitus (Types 1 and 2), Professional education, Self-management, Systematic review, Implementation

SCHOLARONE™  
Manuscripts

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1 **Educating professionals to support self-management in people with asthma or**  
2 **diabetes: protocol for a systematic review and scoping exercise**

3 Nicola McCleary,<sup>1</sup> Amanda Andrews,<sup>2</sup> Susan Morrow,<sup>1</sup> Sharon Wiener-Ogilvie,<sup>3</sup> Monica  
4 Fletcher,<sup>2</sup> Liz Steed,<sup>4</sup> Stephanie JC Taylor,<sup>4</sup> and Hilary Pinnock<sup>1</sup> on behalf of the IMP<sup>2</sup>ART  
5 team

6 <sup>1</sup>Asthma UK Centre for Applied Research, Usher Institute of Population Health Sciences and  
7 Informatics, University of Edinburgh, Edinburgh, UK

8 <sup>2</sup>Education for Health, Warwick, UK

9 <sup>3</sup>NHS Education for Scotland, Edinburgh, UK

10 <sup>4</sup>Blizard Institute, Queen Mary University of London, London, UK

11

12 Correspondence to:

13 Nicola McCleary

14 Asthma UK Centre for Applied Research

15 Usher Institute of Population Health Sciences and Informatics

16 University of Edinburgh

17 Doorway 3, Old Medical School

18 Teviot Place

19 Edinburgh EH8 9AG

20 Email: [nicola.mccleary@ed.ac.uk](mailto:nicola.mccleary@ed.ac.uk)

21 Tel: 0131 650 2682

22

23 **Keywords**

24 Asthma, Diabetes Mellitus (Types 1 and 2), professional education, self-management,  
25 systematic review, implementation

26

27 **Word count**

28 Abstract: 292

29 Main text: 2900

30

31 **Running head:** educating professionals to support self-management in asthma and  
32 diabetes

1  
2  
3 33 **ABSTRACT**

4  
5 34 **Introduction**

6  
7  
8 35 Supported self-management for asthma helps people adjust their treatment in response to  
9  
10 36 symptom changes. This improves day-to-day control, and reduces the risk of asthma attacks  
11  
12 37 and the need for emergency healthcare. However, implementation remains poor in routine  
13  
14 38 clinical practice. This systematic review is part of a programme of work developing an  
15  
16 39 intervention to help primary care practice teams embed self-management support into  
17  
18 40 routine asthma care. The aim of the review is to synthesise the evidence regarding the  
19  
20 41 effectiveness of educational interventions for professionals supporting self-management in  
21  
22 42 people with asthma or diabetes (Type 1 and Type 2). These two conditions have the most  
23  
24 43 robust evidence base for the effectiveness of implementing supported self-management.

25  
26  
27 44 **Methods and analysis**

28  
29  
30 45 Electronic searches will be conducted in CENTRAL, MEDLINE, EMBASE, ISI Web of  
31  
32 46 Science, CINAHL, PsycINFO, AMED, Global Health, WHO Global Health Library, ERIC,  
33  
34 47 BNI, RDRB/CME, and Google Scholar. Eligible studies are randomised controlled trials or  
35  
36 48 controlled clinical trials published between 1990 and 2016 which evaluated professional  
37  
38 49 education interventions facilitating asthma or diabetes supported self-management. Further  
39  
40 50 relevant work will be identified from trial registries, citation searching, and through contact  
41  
42 51 with authors of included studies. This will be supplemented by scoping potentially relevant  
43  
44 52 educational packages described in English language policy literature or health service  
45  
46 53 websites. Screening, data extraction, and risk of bias assessment (using the Cochrane Risk  
47  
48 54 of Bias Tool) will be completed by two independent reviewers, with a third reviewer  
49  
50 55 arbitrating where necessary. We plan a theoretically-informed narrative synthesis of the  
51  
52 56 aggregated data as heterogeneity is likely to preclude meta-analysis.

53  
54  
55 57 **Ethics and dissemination**

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62

58 Ethical approval is not required for this systematic review. The results will be described in a  
59 paper submitted for peer-reviewed publication, and will inform the development of an  
60 implementation intervention.

61 **Registration details**

62 PROSPERO (2016:CRD42016032922)

For peer review only

## 63 STRENGTHS AND LIMITATIONS OF THIS STUDY

- 64 • Comprehensiveness of the synthesis will be ensured through searching a wide range  
65 of databases, performing both prospective and retrospective citation tracking,  
66 checking trial registries, and contacting authors of included studies
- 67 • The systematic review will be supplemented with a scoping exercise of health service  
68 websites and related resources to ensure that initiatives introduced by healthcare  
69 services that are not in the published literature are incorporated into the synthesis
- 70 • The review is limited by the high likelihood of heterogeneity precluding quantitative  
71 synthesis
- 72 • Findings related to effective educational strategies will inform a whole systems  
73 intervention aiming to facilitate primary care practice teams to embed supported self-  
74 management into routine asthma care

## 75 INTRODUCTION

76 Asthma is common (affecting an estimated 5.4 million people in the UK) and responsible for  
77 unscheduled consultations, hospital admissions and approximately 1,000 deaths a year in  
78 the UK.[1] Much of this morbidity is preventable with appropriate, timely self-management.[2-  
79 3] Regular structured review between the patient and a health care professional contributes  
80 to assisting the individual to effectively control their asthma,[4] a concept described as  
81 'supported self-management'. [2-3] Though widely-accepted definitions include supporting  
82 patients to "deal with the medical, role and emotional management of their conditions", [5]  
83 supported self-management in asthma as recommended by guidelines, [2-3] focuses  
84 narrowly on adherence to medication/monitoring and the early recognition/remediation of  
85 exacerbations, summarised in (written) personal asthma action plans (PAAPs). [4, 6-9]

86 The Practical Systematic Review of Self-Management Support for long-term conditions  
87 (PRISMS) project provided a comprehensive overview of the evidence base for supported  
88 self-management in 14 long-term conditions (LTCs). [10] In the context of asthma, the  
89 quantitative meta-review identified 23 systematic reviews synthesising data from 261 unique

1  
2  
3 90 RCTs encompassing a broad range of demographic, clinical and healthcare contexts, and  
4  
5 91 concluded that supported self-management reduces exacerbations and improves control  
6  
7 92 and quality of life.[10] The qualitative meta-review identified one review which highlighted  
8  
9 93 that patients want a medically focussed PAAP set within the broader concept of 'living with  
10  
11 94 asthma'.[11]

12  
13  
14 95 Implementation of supported self-management, however, remains poor in routine clinical  
15  
16 96 practice. An Asthma UK survey estimated that only 24% of people with asthma currently  
17  
18 97 have a PAAP.[12] The National Review of Asthma Deaths identified lack of PAAPs as a key  
19  
20 98 preventable factor in the deaths that they investigated.[13] Identified barriers to implementing  
21  
22 99 asthma self-management support are practical (e.g., time, no available paper-based PAAPs  
23  
24 100 [14]); conceptual (e.g., mismatch between professionals' focus on clinical action plans and  
25  
26 101 the advice patients want about 'living with asthma'[11]); and organisational (e.g. professional  
27  
28 102 communication between nurses who provide self-management education and general  
29  
30 103 practitioners (GPs) who treat exacerbations [15]). The systematic review of implementation  
31  
32 104 studies conducted as part of PRISMS concluded that integration into routine practice  
33  
34 105 required a whole systems approach in which motivated, skilled professionals support  
35  
36 106 activated, informed patients within an organisation that values, promotes and monitors  
37  
38 107 supported self-management.[16]

39  
40  
41 108 We are undertaking preliminary work to develop, refine and evaluate the clinical and cost-  
42  
43 109 effectiveness of a practice-based intervention to implement self-management support for  
44  
45 110 asthma in routine clinical practice in a UK-wide cluster RCT. Self-management support is  
46  
47 111 defined as a service intervention that aims to empower patients to be active decision makers  
48  
49 112 who deal with the emotional, social and medical management of their illness and improve  
50  
51 113 their independence and quality of life. [5] An educational package for professionals who  
52  
53 114 support people with asthma to self-manage will form a key component of the whole systems  
54  
55 115 approach. Professional education is a pre-requisite for effective implementation of supported  
56  
57 116 self-management and will not only need to address the skills required by the professionals  
58  
59  
60

1  
2  
3 117 providing self-management education (typically asthma-trained general practice nurses in  
4  
5 118 the UK) but also other members of the primary healthcare team providing services for people  
6  
7 119 with asthma (including GPs, reception staff, prescribing clerks, and community  
8  
9 120 pharmacists).[10]

10  
11 121 The aim of this systematic review is therefore to inform the development of the educational  
12  
13 122 package by synthesising the evidence regarding the effectiveness of educational  
14  
15 123 interventions for professionals involved in supporting self-management. The review will  
16  
17 124 focus on diabetes as well as asthma in order to go beyond existing interventions in asthma  
18  
19 125 and learn from professional education approaches in another condition where self-  
20  
21 126 management support is well evidenced and often incentivised as fundamental to care. These  
22  
23 127 two conditions have the most robust evidence base for the effectiveness of implementing  
24  
25 128 supported self-management,[10] A comparison of self-management interventions in asthma  
26  
27 129 and type 2 diabetes found that while interventions in asthma focussed on halting  
28  
29 130 development of symptoms, studies in diabetes focussed on integrating regimens into  
30  
31 131 patients' lifestyles: self-management support interventions for type 2 diabetes therefore  
32  
33 132 tended to be broader than those for asthma.[17] Additionally, education for professionals on  
34  
35 133 how to support self-management is key for the success of type 2 diabetes self-management  
36  
37 134 support.[10] Consequently, there may be valuable lessons to learn for professional  
38  
39 135 education in asthma self-management support through comparing and contrasting the  
40  
41 136 literature for the two conditions.

## 42 43 44 45 137 **METHODS AND ANALYSIS**

46  
47 138 We will follow systematic review procedures described in the Cochrane Handbook for  
48  
49 139 Systematic Reviews of Interventions.[18] The Preferred Reporting Items for Systematic  
50  
51 140 review and Meta-Analysis Protocols (PRISMA-P) checklist has been used to guide the  
52  
53 141 reporting of this protocol.[19] If amendments to the protocol are made, the description of  
54  
55 142 each amendment will be reported along with the amendment number and date. The review  
56  
57 143 commenced on 2<sup>nd</sup> November 2015 and will be completed by 30<sup>th</sup> September 2016.

1  
2  
3 144 **Eligibility criteria**

4  
5 145 *Participants*

6  
7  
8 146 The target population is professionals providing care to people with asthma or Type 1 or  
9  
10 147 Type 2 Diabetes Mellitus. This includes doctors, nurses, and health educators. Since the  
11  
12 148 overarching purpose of the review is to inform the development of a primary care-based  
13  
14 149 team intervention, primary care practice teams (including clinicians and administrative staff)  
15  
16 150 are of particular interest. In this context, a primary care practice team is a team of  
17  
18 151 professionals working within a community-based practice to provide patient care. Others  
19  
20 152 who may support self-management in this context (such as pharmacists or lay/peer  
21  
22 153 educators) will be included if their role is integrated within a primary care practice team, but  
23  
24 154 excluded if the intervention did not involve the primary care team.  
25

26  
27 155 *Interventions*

28  
29  
30 156 Interventions of interest are educational packages designed to train professionals and/or  
31  
32 157 practice teams to provide education to or support self-management in people with asthma or  
33  
34 158 diabetes. These can comprise 14 components (information about condition/management;  
35  
36 159 information about resources; plan/medication provision; regular review; monitoring and  
37  
38 160 feedback; adherence support; equipment provision; access to advice/support;  
39  
40 161 training/rehearsal for: communication with health-care professionals, everyday activities,  
41  
42 162 practical self-management activities, psychological strategies; social support; and lifestyle  
43  
44 163 advice and support).[20]

45  
46  
47 164 *Comparators*

48  
49 165 In most trials of educational interventions, the comparator will be 'no education', though  
50  
51 166 some may compare components of an educational package (for example, different modes of  
52  
53 167 delivery, such as online vs. face-to-face). The nature of the control service will be noted and  
54  
55 168 accommodated within the analysis.  
56  
57  
58  
59  
60



1  
2  
3 169 *Outcomes*  
4

5 170 As this is a review of implementation-level interventions (i.e. interventions aimed at changing  
6  
7 171 health outcomes through changes in clinical practice), the primary outcomes of interest are  
8  
9 172 categorised into two levels: process-level outcomes, and health outcomes. Process-level  
10  
11 173 outcomes reflect professional behaviour change. The primary process-level outcomes are  
12  
13 174 the proportion of people with asthma receiving PAAPs, and the proportion of people with  
14  
15 175 diabetes receiving structured education.  
16  
17

18 176 The ATS/ERS Task Force report on asthma outcome assessment recommended that health  
19  
20 177 outcomes in trials should reflect measures of both current control and future risk.[21] To  
21  
22 178 maintain consistency, we have applied this recommendation to the selection of primary  
23  
24 179 health outcomes for both asthma and diabetes in this review. The primary outcomes  
25  
26 180 representing current control are markers of asthma control (asthma control questionnaire or  
27  
28 181 similar validated questionnaire), and HbA1c level for diabetes. The primary outcomes  
29  
30 182 representing future risk are the proportion of people with an unscheduled consultation for  
31  
32 183 acute asthma deterioration (e.g. out-of-hours/ GP consultation/ A&E/ admission), and acute  
33  
34 184 events related to diabetic control and necessitating urgent action (e.g. hypoglycemia/  
35  
36 185 hyperglycemia/ diabetic ketoacidosis).  
37  
38

39 186 To ensure that our outcomes reflect the broad view of self-management support as  
40  
41 187 encompassing the emotional, social and medical management of illness, secondary  
42  
43 188 outcomes comprise behavioural/cognitive measures related to both professionals (e.g.  
44  
45 189 improvement in communication skills, confidence, competence) and patients (e.g. self-  
46  
47 190 efficacy, empowerment, and activation) and other measures of control (e.g. symptom free  
48  
49 191 days) or future risk (e.g. exacerbations/ steroid courses). When extracting secondary  
50  
51 192 outcome data, outcomes assessed using validated tools will be prioritised.  
52  
53

54 193 *Study design*  
55  
56  
57  
58  
59  
60

1  
2  
3 194 Randomised controlled trials and controlled clinical trials will be included, since educational  
4  
5 195 interventions many not always be evaluated in randomised controlled trials.  
6

7  
8 196 *Setting*  
9

10 197 Any healthcare setting is of interest, though trials implemented within primary care teams will  
11  
12 198 be of particular interest.  
13

14  
15 199 *Years considered*  
16

17 200 Studies published from 1990 onwards will be included, as evolving professional educational  
18  
19 201 approaches mean that earlier literature is unlikely to be relevant.  
20  
21

22 202 *Language*  
23

24  
25 203 There will be no language restrictions for included studies: literature will be translated where  
26  
27 204 possible, and any literature that we are unable to translate will be reported.  
28  
29

30 205 **Information sources**  
31

32 206 Electronic searches will be conducted in CENTRAL, MEDLINE, EMBASE, ISI Web of  
33  
34 207 Science, CINAHL, PsycINFO, AMED, Global Health, WHO Global Health Library, ERIC,  
35  
36 208 BNI, RDRB/CME, and Google Scholar for studies published from 1990 until 2016. For all  
37  
38 209 included studies, reference lists will be scrutinised and prospective citation tracking will be  
39  
40 210 performed to identify additional relevant studies, including any qualitative work associated  
41  
42 211 with included studies that may be helpful for providing further insights into our findings. We  
43  
44 212 are not aware of any specific journals specialising in this literature which may require hand-  
45  
46 213 searching: however, if such journals become apparent after gathering relevant studies, these  
47  
48 214 will be hand-searched.  
49

50  
51 215 To identify relevant unpublished and in-progress studies, key internet-based relevant  
52  
53 216 databases will be searched (UK Clinical Research Network Study Portfolio; the meta  
54  
55 217 Register of Controlled Trials, [www.clinicaltrials.gov](http://www.clinicaltrials.gov); and [www.controlled-trials.com](http://www.controlled-trials.com)).  
56  
57 218 Relevant qualitative studies which inform educational interventions (e.g., published  
58  
59  
60

219 alongside trials)[22] will be retrieved. Authors of included studies will be contacted to i)  
220 source further published or unpublished results and/or training manuals related to their study  
221 if available; ii) source other relevant published, unpublished or ongoing studies including any  
222 related qualitative work.

223 We will supplement the published literature review by undertaking a scoping exercise of  
224 existing potentially relevant packages in asthma and diabetes through: i) searching English  
225 language policy literature and health service websites for information about improvement  
226 initiatives involving up-skilling practices/clinical teams to improve self-management; and ii)  
227 contacting the initiative leads for information about the packages.

### 228 **Search strategy**

229 A sensitive search strategy has been developed following advice from a senior librarian  
230 (Marshall Dozier, University of Edinburgh) using the Ovid interface for MEDLINE  
231 (Supplementary File). This will be adapted for searches in other databases.

### 232 **Data management**

233 Literature search results will be exported to EndNote Library, which will be used for de-  
234 duplication, study screening, and overall management of the retrieved records. Microsoft  
235 Word will be used to develop a data extraction form, which will be piloted and refined before  
236 use. Data will be extracted and stored electronically. Multiple reports from the same study  
237 will be treated as a single study, but we will draw on and make reference to all relevant  
238 publications.

### 239 **Selection process**

240 One reviewer (NM) will undertake an initial filter of duplicates and clearly irrelevant titles.  
241 Before title and abstract screening begins, two reviewers (NM and AA) and the joint project  
242 leads (HP and ST) will independently screen a sample of 100 titles and abstracts from the  
243 searches for inclusion according to the review criteria in order to clarify interpretation of

1  
2  
3 244 inclusion/exclusion criteria and as a quality control check. Any disagreements will be  
4  
5 245 resolved by discussion and consultation with the project team, if required. This process will  
6  
7 246 be repeated on further samples of 100 titles and abstracts until the level of agreement  
8  
9 247 between all reviewers is deemed satisfactory ( $\geq 90\%$ ). The two reviewers will then  
10  
11 248 independently screen all titles and abstracts, selecting potentially eligible papers for full text  
12  
13 249 screening. The full texts of all potentially eligible studies will be retrieved and independently  
14  
15 250 screened by the two reviewers. Disagreements at both stages will be resolved by discussion,  
16  
17 251 or arbitration by a third reviewer (HP or ST) if necessary. If after the full text assessment it is  
18  
19 252 still unclear whether a study fulfils the inclusion criteria, the study authors will be contacted  
20  
21 253 by email for clarification: if this fails, the respective study will be listed as a 'potentially  
22  
23 254 relevant study'. The searching and screening processes will be summarised using a  
24  
25 255 PRISMA flow diagram.[23]

### 256 **Data collection process**

257 The two reviewers (NM and AA) will extract the main findings from each study onto the data  
258 extraction form. The form will be piloted on a sub-sample of included studies to ensure it is  
259 easily and consistently interpreted and captures all relevant information. Data extraction  
260 disagreements will be resolved by discussion, or arbitration by a third reviewer (HP or ST) if  
261 necessary.

### 262 **Data items**

263 Data will be extracted relating to general study characteristics, participant characteristics,  
264 details of the intervention and control conditions, the relevant outcomes assessed and  
265 corresponding results, and information for assessment of the risk of bias.

### 266 **Risk of bias in individual studies**

267 The two reviewers (NM and AA) will conduct independent assessments of methodological  
268 quality and risk of bias using the Cochrane Risk of Bias Tool.[24] Disagreements will be  
269 resolved by discussion or, if necessary, arbitration by a third reviewer (HP or ST). The

1  
2  
3 270 resulting risk of bias in included studies will be used to evaluate the robustness of the  
4  
5 271 findings.  
6

## 7 272 **Data synthesis**

8  
9  
10 273 Descriptive tables will be used to summarise the characteristics of included studies.  
11  
12 274 Frameworks such as TIDieR (a template for reporting interventions)[25] and/or the  
13  
14 275 Theoretical Domains Framework (a validated framework that identifies domains of  
15  
16 276 theoretical approaches to behaviour change interventions which has been applied  
17  
18 277 retrospectively to published interventions)[26-28] will be used to describe the interventions.  
19  
20 278 On a practical level, in order to inform the development of the educational component for our  
21  
22 279 proposed implementation intervention, we will also take into account any frameworks used  
23  
24 280 by Education for Health in the development of their courses.  
25

26  
27 281 A detailed descriptive summary of studies will be compiled, including data under the  
28  
29 282 headings of: setting (primary/secondary care); at whom the intervention is directed  
30  
31 283 (individual professional, groups, practice teams); mode of delivery (group, individual, face-to-  
32  
33 284 face, on-line); components (lectures, workshops, assignments, practical skills, mentorship);  
34  
35 285 duration and intensity of education/mentoring, generic/disease focused, outcomes assessed,  
36  
37 286 information about uptake and any information about fidelity. We may undertake some short  
38  
39 287 telephone interviews with authors in order to enhance our understanding of the interventions.  
40

41  
42 288 Based on preliminary scoping work, it is anticipated that there will be substantial  
43  
44 289 heterogeneity so that meta-analysis will not be appropriate. A narrative synthesis of the  
45  
46 290 aggregate data will therefore be undertaken. This will be achieved by developing a matrix of  
47  
48 291 what has been shown to be effective/ineffective and the elements of the educational  
49  
50 292 package (including content, mode of delivery, duration, intensity). Depending on the  
51  
52 293 available data, graphical techniques (e.g. Harvest plots [29]) may be used to illustrate key  
53  
54 294 outcomes and their relationship to these elements.  
55  
56  
57  
58  
59  
60

1  
2  
3 295 Although the overall pool of included studies are likely to be heterogeneous in nature, meta-  
4  
5 296 analyses may be appropriate for sub-sets of studies with limited heterogeneity. For example,  
6  
7 297 Cochrane reviews of professional education approaches have found that process-level  
8  
9 298 outcomes are more often evaluated than patient health outcomes:[30-31] meta-analyses of  
10  
11 299 some process-level outcomes may therefore be possible. Where appropriate, random-  
12  
13 300 effects meta-analysis models for subsets of studies will be used, to take into account  
14  
15 301 potential heterogeneity between studies.[32] Heterogeneity will be quantified using the I<sup>2</sup>  
16  
17 302 statistic.

18  
19  
20 303 Qualitative data will be used to enhance our understanding of participants' perceptions of the  
21  
22 304 impact of participating in the educational intervention on their professional practice. Data  
23  
24 305 from qualitative studies will be synthesised thematically.[33] An overarching narrative  
25  
26 306 synthesis of quantitative and qualitative findings will be undertaken.[34] Depending on the  
27  
28 307 extent of the literature available in the different disease areas, sub-group analyses may be  
29  
30 308 undertaken according to the targeted professionals (doctor, nurse, practice team) and/or  
31  
32 309 setting (primary/secondary care). The findings of the scoping exercise of existing potentially  
33  
34 310 relevant packages in asthma and diabetes will be used to supplement those of the  
35  
36 311 systematic review.

37  
38  
39 312 The multidisciplinary research team, the wider project team and the steering group will meet  
40  
41 313 regularly to discuss the emerging findings and aid interpretation. The PRISMA checklist will  
42  
43 314 be used to guide reporting of the review.[23]

#### 44 45 315 **REGISTRATION**

46  
47  
48 316 The protocol for this review has been registered with the International Prospective Register  
49  
50 317 of Systematic Reviews (PROSPERO; 2016:CRD42016032922).

#### 51 52 53 318 **ETHICS AND DISSEMINATION**

54  
55  
56 319 Ethical approval is not required for this study, given that it is a systematic review utilising  
57  
58 320 data already in the public domain. This review will inform the educational component of a  
59  
60

321 whole systems intervention that will help primary care practice teams embed supported self-  
322 management into routine asthma care. A paper describing the review will be submitted for  
323 peer-reviewed publication. The infrastructure of the Asthma UK Centre for Applied Research  
324 (AUKCAR) will be used to support innovative approaches to dissemination (e.g. via social  
325 media and Science Festivals).

## 326 CONCLUSION

327 Whilst patient education, professional training and organisational support are all essential  
328 components of successful self-management support, they are rarely effective in isolation.[10]  
329 Effective implementation is multi-faceted and multidisciplinary: it involves engaging patients  
330 and training and motivating professionals within the context of an organisation which actively  
331 supports self-management.[10, 16] This review will achieve clarity on educational strategies  
332 likely to be effective in enabling professionals to implement supported self-management in  
333 their clinical practice, and will inform the development of an educational package which will  
334 serve as one component of a whole systems intervention aiming to embed supported self-  
335 management into routine primary care asthma management.

## 336 REFERENCES

- 337 1. Asthma UK. *Asthma facts and statistics*. Available from  
338 <http://www.asthma.org.uk/asthma-facts-and-statistics> (accessed Feb 2016)
- 339 2. British Thoracic Society/Scottish Intercollegiate Guideline Network. British Guideline  
340 on the Management of Asthma: 2014 update. *Thorax* 2014;69(Suppl1):1-192.  
341 Available from <http://www.sign.ac.uk> (accessed Feb 2016)
- 342 3. Global Initiative for Asthma. *Global Strategy for Asthma Management and*  
343 *Prevention*, 2014. Available from <http://www.ginasthma.org> (accessed Feb 2016)
- 344 4. Gibson PG, Powell H, Wilson A, et al. Self-management education and regular  
345 practitioner review for adults with asthma. *Cochrane Database of Systematic*  
346 *Reviews* 2002, Issue 3. Art.No:CD001117

- 1  
2  
3 347 5. Adams K, Greiner AC, Corrigan JM. Eds. *The 1st Annual Crossing the Quality*  
4 348 *Chasm Summit – A Focus on Communities*. Washington, DC: The National  
5 349 Academic Press 2004:57  
6  
7 350 6. Tapp S, Lasserson TJ, Rowe BH. Education interventions for adults who attend the  
8 351 emergency room for acute asthma. *Cochrane Database of Systematic Reviews*  
9 352 2007, Issue 3. Art.No:CD003000  
10  
11 353 7. Gibson PG, Powell H. Written action plans for asthma: an evidence-based review of  
12 354 the key components. *Thorax* 2004;59:94–99  
13  
14 355 8. Toelle B, Ram FSF. Written individualised management plans for asthma in children  
15 356 and adults. *Cochrane Database of Systematic Reviews* 2004, Issue 1.  
16 357 Art.No:CD002171  
17  
18 358 9. Lefevre F, Piper M, Weiss K, et al. Do written action plans improve patient outcomes  
19 359 in asthma? An evidence-based analysis. *J Fam Prac* 2002;51:842–848  
20  
21 360 10. Taylor SJC, Pinnock H, Epiphaniou E, et al. A rapid synthesis of the evidence on  
22 361 interventions supporting self-management for people with long-term conditions.  
23 362 (PRISMS Practical Systematic Review of Self-Management Support for long-term  
24 363 conditions) *Health Serv Deliv Res* 2014;2:54  
25  
26 364 11. Ring N, Jepson R, Hoskins G, et al. Understanding what helps or hinders asthma  
27 365 action plan use: a systematic review and synthesis of the qualitative literature. *Pat Ed*  
28 366 *Counsel* 2011;85:e131–e143  
29  
30 367 12. Asthma UK. *Time to take action on asthma*. Available from  
31 368 <https://www.asthma.org.uk/globalassets/campaigns/compare-your-care-2014.pdf>  
32 369 (accessed Feb 2016)  
33  
34 370 13. Royal College of Physicians. *Why asthma still kills: the National Review of Asthma*  
35 371 *Deaths (NRAD) Confidential Enquiry report*. London: RCP 2014  
36  
37 372 14. Wiener-Ogilvie S, Pinnock H, Huby G, et al. Do practices comply with key  
38 373 recommendations of the British Asthma Guideline, and if not, why not? *Prim Care*  
39 374 *Resp J* 2007;16:369-377  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60



- 1  
2  
3 375 15. Weiner-Ogilvie S, Huby G, Pinnock H, et al. Practice organisational characteristics  
4 376 can impact on compliance with the BTS/SIGN asthma guideline: qualitative  
5 377 comparative case study in primary care. *BMC Fam Pract* 2008;9:32  
6  
7  
8 378 16. Pinnock H, Epiphaniou E, Pearce G, et al. Implementing supported self-management  
9 379 for asthma: a systematic review of implementation studies. *BMC Med* 2015;13:127  
10  
11 380 17. Newman S, Steed L, Mulligan K. Self-management interventions for chronic illness.  
12 381 *Lancet* 2004;364(9444):1523-1537.  
13  
14  
15 382 18. Higgins JPT, Green S. Eds. *Cochrane Handbook for Systematic Reviews of*  
16 383 *Interventions*. Version 5.1.0 [updated March 2011]. The Cochrane Collaboration,  
17 384 2011. Available from <http://handbook.cochrane.org/> (accessed Feb 2016)  
18  
19 385 19. Shamseer L, Moher D, Clarke M, et al. Preferred reporting items for systematic  
20 386 review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation.  
21 387 *BMJ* 2015;349:g7647  
22  
23 388 20. Pearce G, Parke H, Pinnock H, et al. The PRISMS taxonomy of self-management  
24 389 support: derivation of a novel taxonomy and initial testing of utility. *J Health Serv Res*  
25 390 *Policy* 2015:1355819615602725[Epub ahead of print]  
26  
27 391 21. Reddel HK, Taylor DR, Bateman ED, et al. An Official American Thoracic  
28 392 Society/European Respiratory Society statement: asthma control and exacerbations  
29 393 standardizing endpoints for clinical asthma trials and clinical practice. *Am J Respir*  
30 394 *Crit Care Med* 2009;180:59–99  
31  
32 395 22. Barnett-Page E, Thomas J. *Methods for Research Synthesis Node*. Evidence for  
33 396 Policy and Practice Information and Co-ordinating (EPPI-)Centre, Social Science  
34 397 Research Unit, Institute of Education. Available from  
35 398 <http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=188> (Accessed Feb 2016)  
36  
37 399 23. Moher D, Liberate A, Tetzlaff J, et al. Preferred Reporting Items for Systematic  
38 400 Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med*  
39 401 2009;6(7):e1000097  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3 402 24. Higgins JPT, Altman DG, Sterne JAC, on behalf of the Cochrane Statistical Methods  
4  
5 403 Group and the Cochrane Bias Methods Group. *Chapter 8: Assessing risk of bias in*  
6  
7 404 *included studies*. Available from  
8  
9 405 [http://handbook.cochrane.org/chapter\\_8/8\\_assessing\\_risk\\_of\\_bias\\_in\\_included\\_studi](http://handbook.cochrane.org/chapter_8/8_assessing_risk_of_bias_in_included_studies.htm)  
10  
11 406 [es.htm](http://handbook.cochrane.org/chapter_8/8_assessing_risk_of_bias_in_included_studies.htm) (Accessed Feb 2016)  
12  
13 407 25. Hoffmann T, Glasziou P, Boutron I, et al. Better reporting of interventions: template  
14  
15 408 for intervention description and replication (TIDieR) checklist and guide. *BMJ*  
16  
17 409 2014;348:g1687  
18  
19 410 26. Michie S, Johnston M, Abraham C, et al. Making psychological theory useful for  
20  
21 411 implementing evidence based practice: a consensus approach. *Qual Saf Health Care*  
22  
23 412 2005;14:26-33  
24  
25 413 27. Cane J, O'Connor D, Michie S. Validation of the theoretical domains framework for  
26  
27 414 use in behaviour change and implementation research. *Implement Sci* 2012;7:37  
28  
29 415 28. Little EA, Pesseau J, Eccles MP. Understanding effects in reviews of implementation  
30  
31 416 interventions using the Theoretical Domains Framework. *Implement Sci* 2015;10:90  
32  
33 417 29. Ogilvie D, Fayter D, Petticrew M, et al. The harvest plot: a method for synthesising  
34  
35 418 evidence about the differential effects of interventions. *BMC Med Res Methodol*  
36  
37 419 2008;8:8  
38  
39 420 30. Giguère A, Légaré F, Grimshaw J, et al. Printed educational materials: effects on  
40  
41 421 professional practice and healthcare outcomes. *Cochrane Database of Systematic*  
42  
43 422 *Reviews* 2012, Issue 10. Art.No:CD004398  
44  
45 423 31. O'Brien MA, Rogers S, Jamtvedt G, et al. Educational outreach visits: effects on  
46  
47 424 professional practice and health care outcomes. *Cochrane Database of Systematic*  
48  
49 425 *Reviews* 2007, Issue 4. Art.No:CD000409  
50  
51 426 32. Borenstein M, Hedges LV, Higgins JPT, et al. A basic introduction to fixed-effect and  
52  
53 427 random-effects models for meta-analysis. *Res Synth Methods* 2010;1(2):97-111  
54  
55 428 33. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in  
56  
57 429 systematic reviews. *BMC Med Res Methodol* 2008;8:45  
58  
59  
60

1  
2  
3 430 34. Ring N, Jepson R, Pinnock H, et al. Developing novel evidence-based interventions  
4  
5 431 to promote asthma action plan use: a cross-study synthesis of evidence from  
6  
7 432 randomised controlled trials and qualitative studies. *Trials* 2012;13:216  
8

9  
10 433 **ACKNOWLEDGEMENTS**

11  
12 434 The authors thank Marshall Dozier, Senior Liaison Librarian and Liaison Director for the  
13  
14 435 College of Medicine and Veterinary Medicine at the University of Edinburgh, who assisted in  
15  
16 436 developing the search strategy.  
17

18  
19  
20 437 **AUTHORS' CONTRIBUTIONS**

21  
22 438 HP and ST conceived the idea for this work and are the guarantors. The protocol was  
23  
24 439 drafted by NM and was then revised after several rounds of critical comments and additional  
25  
26 440 feedback from AA, SM, SW-O, MF, LS, ST and HP. All authors will be involved in the  
27  
28 441 systematic review process.  
29

30  
31 442 The IMP<sup>2</sup>ART team also includes Aziz Sheikh, Brian McKinstry, and Luke Daines (University  
32  
33 443 of Edinburgh); Chris Griffiths and Sandra Eldridge (Queen Mary University of London);  
34  
35 444 Anne-Louise Caress (University of Manchester); Elisabeth Ehrlich (Asthma UK Centre for  
36  
37 445 Applied Research); Bethan Haskins (Canterbury and Coastal Clinical Commissioning  
38  
39 446 Group); Rob Horne (University College London); Steven Julious (University of Sheffield);  
40  
41 447 Lorna McKee (University of Aberdeen); and Ceri Phillips (University of Swansea).  
42

43  
44 448 **COMPETING INTERESTS**

45  
46 449 Monica Fletcher is the Chief Executive for Education for Health, an organisation that  
47  
48 450 provides training for healthcare professionals. The authors declare no further competing  
49  
50 451 interests related to this work.  
51

52  
53 452 **FUNDING**

54  
55  
56 453 This report is independent research funded by the National Institute for Health Research  
57  
58 454 (Programme Development Grants, Implementing supported asthma self-management in  
59  
60

1  
2  
3 455 routine clinical care: designing, refining, piloting and evaluating a whole systems  
4  
5 456 implementation within an MRC Phase IV programme of research, RP-DG-1213-10008). The  
6  
7 457 views expressed in this publication are those of the author(s) and not necessarily those of  
8  
9 458 the NHS, the National Institute for Health Research or the Department of Health. This work  
10  
11 459 is sponsored by the University of Edinburgh. The funder and sponsor have not had any role  
12  
13 460 in developing the protocol.  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

For peer review only

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

## SUPPLEMENTARY FILE

### MEDLINE Search Strategy

1. Primary Health Care/ or Family Practice/ or General Practice/
2. (primary care or primary medical care or primary health care or primary healthcare or general practice or family practice).mp.
3. Health Personnel/ or Medical Staff/
4. ((healthcare or health care) adj3 (provider? or practitioner? or professional?)).mp.
5. Physicians/ or Physicians, Primary Care/ or Physicians, Family/ or General Practitioners/
6. (general practitioner? or medical practitioner? or physician? or clinician? or doctor? or GP?).mp.
7. Nurses/ or Nursing Staff/ or Nurse Practitioners/ or Family Nurse Practitioners/
8. (nurse? or practice nurse? or community nurse? or nurse practitioner?).mp.
9. Medical Secretaries/ or Medical Receptionists/
10. (secretar\$ or reception\$ or administrat\$).mp.
11. Pharmacists/
12. pharmacist?.mp.
13. Health Educators/
14. health educator?.mp.
15. Patient Care Team/
16. ((primary care or primary care practice or health care or healthcare or medical care or general practice or family practice) adj3 team?).mp.
17. or/1-16
18. Education/ or Health Education/
19. (educat\$ or train\$).mp.
20. (skill? adj3 develop\$).mp.
21. Education, Professional/ or Education, Continuing/
22. (professional development or CPD).mp.
23. ((interprofessional or inter professional or inter-professional) adj3 (educat\$ or train\$ or develop\$ or skill?)).mp.
24. ((team? or group?) adj3 (educat\$ or train\$ or develop\$ or skill?)).mp.
25. Education, Medical/ or Education, Medical, Continuing/
26. (continuing medical education or CME).mp.
27. Education, Nursing/ or Education, Nursing, Continuing/ or Nursing Education Research/ or Nursing Evaluation Research/
28. Education, Pharmacy/ or Education, Pharmacy, Continuing/
29. Quality Improvement/
30. (quality adj3 improv\$).mp.
31. or/18-30
32. Disease Management/
33. disease management.mp.
34. Self Care/ or Self Administration/ or Self Medication/
35. (self-manag\$ or selfmanag\$ or self-car\$ or selfcar\$ or self-help or selfhelp or self-administrat\$ or selfadministrat\$ or self-monitor\$ or selfmonitor\$ or self-medicat\$ or selfmedicat\$).mp.
36. (self adj3 (manag\$ or car\$ or help or administrat\$ or monitor\$ or medicat\$)).mp.
37. Quality of Health Care/
38. (quality adj3 (care or healthcare or health care)).mp.
39. Professional-Patient Relations/ or Physician-Patient Relations/ or Nurse-Patient Relations/

- 1
- 2
- 3
- 4 40. (patient? adj3 (relation\$ or communicat\$)).mp.
- 5 41. ((action or treat\$ or car\$ or written or manag\$ or medicat\$) adj3 plan\$).mp.
- 6 42. ((self-manag\$ or self manag\$ or selfmanag\$ or self-car\$ or self car\$ or selfcar\$ or
- 7 self-help or self help or selfhelp or self-administrat\$ or self administrat\$ or
- 8 selfadministrat\$ or self-monitor\$ or self monitor\$ or selfmonitor\$ or self-medicat\$ or
- 9 self medicat\$ or selfmedicat\$ or self-treat\$ or self treat\$ or selftreat\$) adj3 plan\$).mp.
- 10 43. (exacerbat\$ or attack?).mp.
- 11 44. asthma control test.mp.
- 12 45. Hospitalization/
- 13 46. hospitali?ation?.mp.
- 14 47. After-Hours Care/
- 15 48. (out of hours or out-of-hours or OOH).mp.
- 16 49. Office Visits/
- 17 50. ((office or hospital or emergency department or ED or A&E or A & E or "accident and
- 18 emergency") adj3 (visit\$ or refer\$ or admission\$)).mp.
- 19 51. ((care or service?) adj3 (utili?ation or use?)).mp.
- 20 52. Patient Education/
- 21 53. Blood Glucose Self Monitoring/
- 22 54. Hemoglobin A, Glycosated/
- 23 55. HbA1c.mp.
- 24 56. Hypoglycemia/ or Hyperglycemia/
- 25 57. Diabetic Ketoacidosis/ or Hyperglycemic Hyperosmolar Nonketotic Coma/
- 26 58. (hyperosmolar hyperglyc?emic nonketotic syndrome or DKA or HNNS or HONK).mp.
- 27 59. glyc?emic control.mp.
- 28 60. or/32-59
- 29 61. Asthma/
- 30 62. (asthma or wheez\$).mp.
- 31 63. (antiasthma\$ or anti-asthma\$).mp.
- 32 64. Respiratory Hypersensitivity/
- 33 65. ((bronchial\$ or respiratory or airway\$ or lung\$) adj3 (hypersensitive\$ or hyperreactiv\$
- 34 or allerg\$ or insufficiency)).mp.
- 35 66. Bronchial Spasm/
- 36 67. Bronchoconstriction/
- 37 68. (bronch\$ adj3 (constrict\$ or spas\$)).mp.
- 38 69. (bronchoconstrict\$ or bronchospas\$).mp.
- 39 70. bronchial hyperreactivity.mp.
- 40 71. respiratory sounds.mp.
- 41 72. Diabetes Mellitus/
- 42 73. diabet\$.mp.
- 43 74. Diabetes Mellitus, Type 1/
- 44 75. ((diabet\$ or dm) adj5 (typ\$ adj3 (one or "1" or I))).mp.
- 45 76. Diabetes Mellitus, Type 2/
- 46 77. ((diabet\$ or dm) adj5 (typ\$ adj3 (two or "2" or II))).mp.
- 47 78. Insulin Resistance/
- 48 79. ((insulin or noninsulin or non-insulin) adj3 (resistan\$ or depend\$)).mp.
- 49 80. (DM or DM1 or DM2 or T1D or T1DM or T2D or T2DM or NIDDM or IDDM or
- 50 MODY).mp.
- 51 81. glucose \$tolerance.mp.
- 52 82. or/61-81
- 53 83. Pragmatic Clinical Trial/ or Clinical Trial/ or Randomized Controlled Trial/ or
- 54 Controlled Clinical Trial/
- 55
- 56
- 57
- 58
- 59
- 60

- 1
- 2
- 3
- 4 84. randomi?ed controlled trial.pt.
- 5 85. controlled clinical trial.pt.
- 6 86. (randomi?ed or randomly).ti,ab.
- 7 87. trial.ti,ab.
- 8 88. group?.ti,ab.
- 9 89. or/83-88
- 10 90. 17 and 31 and 60 and 82 and 89
- 11 91. (letter or review or comment or editorial).pt.
- 12 92. 90 not 91
- 13 93. (Animals/ or Nonhuman/) not Humans/
- 14 94. 92 not 93
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28
- 29
- 30
- 31
- 32
- 33
- 34
- 35
- 36
- 37
- 38
- 39
- 40
- 41
- 42
- 43
- 44
- 45
- 46
- 47
- 48
- 49
- 50
- 51
- 52
- 53
- 54
- 55
- 56
- 57
- 58
- 59
- 60

*Note:* a free-text term related to professional behaviour (prof\$ adj3 behav\$.mp.) was considered for inclusion in section two of the above search, which is focussed on educational interventions. However, it was not included because when added, it did not retrieve any records additional to those already retrieved.

## PRISMA-P 2015 Checklist

This checklist has been adapted for use with protocol submissions to *Systematic Reviews* from Table 3 in Moher D et al: Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews* 2015 4:1

Section/topic	#	Checklist item	Information reported		Line number(s)
			Yes	No	
<b>ADMINISTRATIVE INFORMATION</b>					
<b>Title</b>					
Identification	1a	Identify the report as a protocol of a systematic review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	<input type="checkbox"/>	<input type="checkbox"/>	N/A
<b>Registration</b>	2	If registered, provide the name of the registry (e.g., PROSPERO) and registration number in the Abstract	<input checked="" type="checkbox"/>	<input type="checkbox"/>	62
<b>Authors</b>					
Contact	3a	Provide name, institutional affiliation, and e-mail address of all protocol authors; provide physical mailing address of corresponding author	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3-21 e-mail address provided for corresponding author only, per journal instructions
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	438-441
<b>Amendments</b>	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	141-142
<b>Support</b>					
Sources	5a	Indicate sources of financial or other support for the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	453-460
Sponsor	5b	Provide name for the review funder and/or sponsor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	453-460
Role of sponsor/funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	<input checked="" type="checkbox"/>	<input type="checkbox"/>	453-460



Section/topic	#	Checklist item	Information reported		Line number(s)
			Yes	No	
<b>INTRODUCTION</b>					
<b>Rationale</b>	6	Describe the rationale for the review in the context of what is already known	<input checked="" type="checkbox"/>	<input type="checkbox"/>	75-136
<b>Objectives</b>	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	121-126
<b>METHODS</b>					
<b>Eligibility criteria</b>	8	Specify the study characteristics (e.g., PICO, study design, setting, time frame) and report characteristics (e.g., years considered, language, publication status) to be used as criteria for eligibility for the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	145-204
<b>Information sources</b>	9	Describe all intended information sources (e.g., electronic databases, contact with study authors, trial registers, or other grey literature sources) with planned dates of coverage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	206-227
<b>Search strategy</b>	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	<input checked="" type="checkbox"/>	<input type="checkbox"/>	229-231 & supplementary file
<b>STUDY RECORDS</b>					
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	233-238
Selection process	11b	State the process that will be used for selecting studies (e.g., two independent reviewers) through each phase of the review (i.e., screening, eligibility, and inclusion in meta-analysis)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	240-255
Data collection process	11c	Describe planned method of extracting data from reports (e.g., piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	257-261 219-227
<b>Data items</b>	12	List and define all variables for which data will be sought (e.g., PICO items, funding sources), any pre-planned data assumptions and simplifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	263-265
<b>Outcomes and prioritization</b>	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	169-192
<b>Risk of bias in individual studies</b>	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	267-271
<b>DATA</b>					

bmjopen-2016-011937 on 28 October 2016. Downloaded from <http://bmjopen.bmj.com/> on April 18, 2024 by guest. Protected by copyright.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47

Section/topic	#	Checklist item	Information reported		Line number(s)
			Yes	No	
<b>Synthesis</b>	15a	Describe criteria under which study data will be quantitatively synthesized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	288-302
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data, and methods of combining data from studies, including any planned exploration of consistency (e.g., $I^2$ , Kendall's tau)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	299-302
	15c	Describe any proposed additional analyses (e.g., sensitivity or subgroup analyses, meta-regression)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	306-309
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	<input checked="" type="checkbox"/>	<input type="checkbox"/>	289-314
<b>Meta-bias(es)</b>	16	Specify any planned assessment of meta-bias(es) (e.g., publication bias across studies, selective reporting within studies)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A
<b>Confidence in cumulative evidence</b>	17	Describe how the strength of the body of evidence will be assessed (e.g., GRADE)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A