

May 2020

Interventions to help health
professionals identify at-risk patients
with asthma

Cochrane Airways Scoping Search Report

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Introduction to the scoping search report

This scoping search report describes the methods and results of scoping activities undertaken by Cochrane Airways on interventions to help health care professionals identify at-risk patients with asthma. This topic was identified as priority by the Cochrane Airways Priority Setting Group (CAPSG) as part of the Cochrane Airways ‘whole of scope’ priority setting exercise conducted in 2019/2020.

This scoping search report does not attempt to appraise or synthesise the included studies. It provides a summary of the existing evidence on this topic.

Purpose

The purpose of this scoping search report is:

- to assess what evidence exists for this topic
- to inform the development of future Cochrane Review titles
- to provide a transparent record of scoping work undertaken by Cochrane Airways

Study inclusion criteria

Population: people with asthma who are ‘at-risk’ of experiencing adverse outcomes

Intervention: any intervention aimed at identifying this population

Comparator: any

Outcomes: any

Study design: Randomised controlled trials (RCTs), quasi-RCTs

Literature search

A limited literature search was conducted to identify relevant systematic reviews and trials. A search of the [Cochrane Airways Trials Register](#) was conducted to identify relevant RCTs and quasi-RCTs. The search strategy can be found in the [appendix](#). The search was conducted on 4th May 2020.

Assessment of search results

The database search retrieved 68 references after duplicates were removed. One member of the Cochrane Airways team (LS) screened the titles and abstracts using the Cochrane Register of Studies triage function, and checked full-text if necessary.

Included studies

The search identified 2 RCTs (1 completed; 1 trial protocol). The studies are summarised in **Table 1**. The primary reference for each study is listed in the [References](#) section.

Table 1: Summary of studies

Study ID	Trial Registration	Population	Setting	Intervention(s)	Comparator	No. participants randomized	Country
Smith 2012	ISRCTN36918958	at-risk asthma patients	Primary care	Electronic alerts to were added to identified patients' records to flag their at-risk status; practice-based training about using the alerts to improve patient access and opportunistic management	Routine care	29 practices (911 patients)	UK
Smith 2018	ISRCTN95472706	at-risk asthma patients	Primary care	Staff will complete two 45-min eLearning modules plus a 30-min webinar. At-risk patients' records will be coded so that a flag appears whenever their record is accessed. Practices will receive a phone call at 4 weeks and a reminder video at 6 weeks and 6 months	Routine care	Target=270 practices	UK

References

Randomized controlled trials

1. Smith JR, Noble MJ, Musgrave S, Murdoch J, Price GM, Barton GR, Windley J, Holland R, Harrison BD, Howe A, Price DB, Harvey I, Wilson AM. The at-risk registers in severe asthma (ARRISA) study: a cluster-randomised controlled trial examining effectiveness and costs in primary care *Thorax* **2012**: 67 (12) ; 1052-1060

Background: Patients at risk of severe exacerbations contribute disproportionately to asthma mortality, morbidity and costs. We evaluated the effectiveness and costs of using 'asthma risk registers' for these patients in primary care. Methods: In a cluster-randomised trial, 29 primary care practices identified 911 at-risk asthma patients using British asthma guideline criteria (severe asthma plus adverse psychosocial characteristics). Intervention practices added electronic alerts to identified patients' records to flag their at-risk status and received practice-based training about using the alerts to improve patient access and opportunistic management. Control practices continued routine care. Numbers of patients experiencing the primary outcome of a moderate-severe exacerbation (resulting in death, hospitalisation, accident and emergency attendance, out-of-hours contact, or a course/boost in oral prednisolone for asthma), other healthcare and medication usage, and costs over 1 year were derived from practice-based records. Results: There was no significant effect on exacerbations (control: 46.5%; intervention: 53.6%, OR,95% CI 1.30, 0.93 to 1.80). However, this composite outcome masked relative reductions in intervention patients experiencing hospitalisations (OR 0.50, 95% CI 0.26 to 0.94), accident and emergency (OR 0.74, 95% CI 0.42 to 1.31) and out-of-hours contacts (OR 0.79, 95% CI 0.45 to 1.37); and a relative increase in prednisolone prescription for exacerbations (OR 1.31, 95% CI 0.92 to 1.85). Furthermore, prescription of nebulised short-acting beta-agonists reduced and long-acting beta-agonists increased for intervention relative to control patients. The adjusted mean per patient healthcare cost was 138.21 lower ($p=0.837$) among intervention practices. Conclusion: Using asthma risk registers in primary care did not reduce treated exacerbations, but reduced hospitalisations and increased prescriptions of recommended preventative therapies without increasing costs.

2. Smith JR, Musgrave S, Payerne E, Noble M, Sims EJ, Clark AB, Barton G, Pinnock H, Sheikh A, Wilson AM, Ashford P-A, Butler C, Caress A-L, Griffiths C, Irvine L, Pond M, Price D, Swart AM, Stirling S, Thomas M, Walker S. At-risk registers integrated into primary care to stop asthma crises in the UK (ARRISA-UK): study protocol for a pragmatic, cluster randomised trial with nested health economic and process evaluations *Trials* **2018**: 19 (1) ; 466

BACKGROUND: Despite effective treatments and long-standing management guidelines, there are approximately 1400 hospital admissions for asthma weekly in the United Kingdom (UK), many of which could be avoided. In our previous research, a secondary analysis of the intervention (ARRISA) suggested an improvement in the management of at-risk asthma patients in primary care. ARRISA involved identifying individuals at risk of adverse asthma events, flagging their electronic health records, training practice staff to develop and implement practice-wide processes of care when alerted by the flag, plus motivational reminders. We now seek to determine the effectiveness and cost-effectiveness of ARRISA in reducing asthma-related crisis events. METHODS: We are undertaking a pragmatic, two-arm, multicentre, cluster randomised controlled trial, plus health economic and process evaluation. We will randomise 270 primary care practices from throughout the UK covering over 10,000 registered patients with 'at-risk asthma' identified according to a validated algorithm. Staff in practices randomised to the intervention will complete two 45-min eLearning modules (an individually completed module

giving background to ARRISA and a group-completed module to develop practice-wide pathways of care) plus a 30-min webinar with other practices. On completion of training at-risk patients' records will be coded so that a flag appears whenever their record is accessed. Practices will receive a phone call at 4 weeks and a reminder video at 6 weeks and 6 months. Control practices will continue to provide usual care. We will extract anonymised routine patient data from primary care records (with linkage to secondary care data) to determine the percentage of at-risk patients with an asthma-related crisis event (accident and emergency attendances, hospitalisations and deaths) after 12 months (primary outcome). We will also capture the time to crisis event, all-cause hospitalisations, asthma control and any changes in practice asthma management for at-risk and all patients with asthma. Cost-effectiveness analysis and mixed-methods process evaluations will also be conducted. DISCUSSION: This study is novel in terms of using a practice-wide intervention to target and engage with patients at risk from their asthma and is innovative in the use of routinely captured data with record linkage to obtain trial outcomes. TRIAL REGISTRATION: ISRCTN95472706 . Registered on 5 December 2014..

Appendix: Database search strategies

Cochrane Airways Register of Trials via The Cochrane Register of Studies

- 1 MESH DESCRIPTOR Asthma EXPLODE ALL AND INREGISTER
- 2 (asthma* or wheez*):ti,ab AND INREGISTER
- 3 #1 OR #2
- 4 MESH DESCRIPTOR Risk EXPLODE ALL AND INREGISTER
- 5 MESH DESCRIPTOR Risk Assessment EXPLODE ALL AND INREGISTER
- 6 MESH DESCRIPTOR Risk Factors AND INREGISTER
- 7 (at-risk or "at risk") AND INREGISTER
- 8 ((risk*) NEAR3 (adverse event* or exacerbation* or attack* or hospital* or death* or dying or mortality or emergency)):ti,ab AND INREGISTER
- 9 #4 OR #5 OR #6 OR #7 OR #8
- 10 #9 AND #3
- 11 #10
- 12 identifi* AND INREGISTER
- 13 #10 AND #12