

NKR asthma PICO 3 Written action plans

Characteristics of studies

Characteristics of included studies

Agrawal 2005

Methods	<p>Study design: Randomized controlled trial</p> <p>Study grouping: Parallel group</p> <p>Open Label: YES</p>
Participants	<p>Baseline Characteristics</p> <p>Individualized written home management plan (Intervention group = Group A)</p> <ul style="list-style-type: none"> ● <i>Mean age in years (SD):</i> 7.2 (2.2) ● <i>Mean duration of asthma in years (SD):</i> 4.09 (1.5) <p>No individualized written home management plan (Control group= Group B)</p> <ul style="list-style-type: none"> ● <i>Mean age in years (SD):</i> 8.5 (2.8) ● <i>Mean duration of asthma in years (SD):</i> 4.7 (2.4)
Interventions	<p>Intervention Characteristics</p> <p>Individualized written home management plan (Intervention group = Group A)</p> <p>No individualized written home management plan (Control group= Group B)</p>
Outcomes	<p><i>Continuous:</i></p> <ul style="list-style-type: none"> ● no. of acute asthma events (defined as either acute ED visits, hospital admissions or unscheduled doctor visits) ● no. of nocturnal awakenings (asthma control) lower = better ● symptom score. Lower = better ● nightly wheeze ● Daytime wheeze ● activity restriction ● puffs of bronchodilator ● missed school days ● no. of inpatient admissions

	<ul style="list-style-type: none"> ● no of emergency Unit admissions (EA/CAU)
Identification	Country: India
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Low risk	
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	High risk	
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Low risk	
Other bias	Unclear risk	Unclear

Charlton 1994

Methods	<p>Study design: Randomized controlled trial</p> <p>Study grouping: Parallel group</p>
Participants	<p>Baseline Characteristics</p> <p>Individualized written home management plan (Intervention group = Group A)</p> <ul style="list-style-type: none"> ● Mean age in years (SD): 6.8 ● Mean duration of asthma in years (SD): 4.3 <p>No individualized written home management plan (Control group= Group B)</p> <ul style="list-style-type: none"> ● Mean age in years (SD): 6.2 ● Mean duration of asthma in years (SD): 4.3 <p>Included criteria: Children aged between 3 and 16 years, who required admission for their asthma or attended the paediatric outpatients department were eligible for the study</p>

	Excluded criteria: Not specified
<p>Interventions</p>	<p>Intervention Characteristics Individualized written home management plan (Intervention group = Group A)</p> <ul style="list-style-type: none"> ● <i>Description:</i> 45 min interview and instruction, demonstration of peakflow, instruction in use of plancolor managementplan ● <i>Duration in weeks:</i> 52 ● <i>Length of follow up (weeks):</i> 0 <p>No individualized written home management plan (Control group= Group B)</p> <ul style="list-style-type: none"> ● <i>Description:</i> 15 min interview, demonstration PF, no instructionsimple managementplan ● <i>Duration in weeks:</i> 52 ● <i>Length of follow up (weeks):</i> 0
<p>Outcomes</p>	<p><i>Continuous:</i></p> <ul style="list-style-type: none"> ● no. of acute asthma events (defined as either acute ED visits, hospital admissions or unscheduled doctor visits) ● nightly wheeze ● Daytime wheeze ● activity restriction ● puffs of bronchodilator ● missed school days
<p>Identification</p>	<p>Sponsorship source: 3M Healthcare, Wessex Regional Health Authority, Wessex Medical School Trust, Astra Pharmaceuticals, Boehringer Ingelheim, Allan and Hanburys, Fison's Pharmaceuticals</p> <p>Country: Australia</p> <p>Setting: Pediatric department</p> <p>Comments: None</p> <p>Authors name: Ian Charlton</p> <p>Institution: University of Southampton, Department of Paediatrics</p> <p>Email: none</p> <p>Address: Tilba Street, Kincumber, 2251, NSW, Australia</p>

Notes	<p>Baseline characteristics: Bo Chawes No SD given</p> <p>Continuous outcomes: Bo Chawes mean = median. IQR for de enkelte rækker er: 2.3 (0-4.9) 0.15 (0.06-0.43) 0.26 (0.85-0.47) 0.06 (0.03-0.2) 1.9 (0.7-3.2) 2.1 (0-6.9) 2.0 (0.5-5.3) 0.25 (0.1-0.7) 0.22 (0.18-0.65) 0.13 (0.04-0.4) 1.7 (0.8-3.5) 4.7 (0-10)</p>
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Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	
Allocation concealment (selection bias)	Unclear risk	Unclear
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Unclear risk	Unclear
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Low risk	
Other bias	High risk	

Ducharme 2011

Methods	<p>Study design: Randomized controlled trial Study grouping: Parallel group</p>
Participants	<p>Baseline Characteristics Intervention: Written Asthma Plan with prescription (WAP-P) Control: Unformatted prescription (UP)</p>

<p>Interventions</p>	<p>Intervention Characteristics Intervention: Written Asthma Plan with prescription (WAP-P) Control: Unformatted prescription (UP)</p>
<p>Outcomes</p>	<p><i>Continuous:</i></p> <ul style="list-style-type: none"> ● Adherence to recommended Fluticasone intake 0-14 days after study start, median% (25%,75%) ● Adherence to recommended Fluticasone intake 15-28 days after study start, median (25%,75%) ● Asthma control over 28 days given as Asthma Quiz Score <2 and lower=better, no. (%) ● Asthma control over 28 days given as Subjects with albuterol use of max. 2 doses/week, no(%) ● Adherence to OCS use when prescribed, no. % ● Quality of Life Score at 28 days, all children. Higher value=better
<p>Identification</p>	<p>Country: Canada Authors name: Francine M. Ducharme Email: francine.m.ducharme@umontreal.ca</p>
<p>Notes</p>	<p>Continuous outcomes: <i>June Kehlet Marthin</i> Quality of Life:As measured by the validated 23-item Pediatric Asthma Quality of Life Questionnaire on a scale of 1 (worst) to 7 (best) (35).Note: In Table with Fluticasone adherence and CI: MEDIAN values in % are given for Fluticasone data 0-14 and 15-28 days- NOT mean. Lower CL=25% NOT 5%, upper CI 75% NOT 95%In same table given number (%) for asthma control data, OCS data and QoI data</p>

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Low risk	
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Low risk	

Incomplete outcome data (attrition bias)	Low risk
Selective reporting (reporting bias)	Low risk
Other bias	High risk

Khan 2014

Methods	<p>Study design: Randomized controlled trial</p> <p>Study grouping: Parallel group</p> <p>Open Label: YES</p>
Participants	<p>Baseline Characteristics</p> <p>Intervention: Written Asthma Action Plan (WAAP) +standard care including education</p> <ul style="list-style-type: none"> ● Mean age in years (SD): 5.67(2.82) ● Mean duration of asthma in years (SD): 4.35(2.19) ● Gender, male(female): 24:21 <p>Control: No WAAP. Only standard care including education</p> <ul style="list-style-type: none"> ● Mean age in years (SD): 6.35(2.88) ● Mean duration of asthma in years (SD): 4.58(2.86) ● Gender, male(female): 27:19 <p>Included criteria: Children with partly controlled asthma and a history of presenting to the ER within past 6 months for acute treatment of bronchospasm.Ability of child/parent to follow written directions</p> <p>Excluded criteria: uncontrolled astmatiscsco-morbid respiratory illnesschild/parents not able to follow written directionschild already in possession of WAAPchild treated outside Chaguanaprevious enrollment in asthma education programme</p>
Interventions	<p>Intervention Characteristics</p> <p>Intervention: Written Asthma Action Plan (WAAP) +standard care including education</p> <ul style="list-style-type: none"> ● Description: Patients followed up by telephone calls every month for 6 months plus 2 x 3-monthly clinic visitsAt each contact the following parameters were recorded for the interval since preceding contact:1) no. of ER visits2) no. of asthmatic attacks3) no. of unscheduled doctor visits4) no. of night time awakenings5) no. of school days missedPEF rate performed and recorded at clinic visits ● Duration in weeks: 26

	<ul style="list-style-type: none"> ● <i>Length of follow up (weeks): 0</i> (intervention ends after 26 weeks without further FU) <p>Control: No WAAP. Only standard care including education</p> <ul style="list-style-type: none"> ● <i>Description: no</i> ● <i>Duration in weeks: 26</i> ● <i>Length of follow up (weeks): 0</i>
Outcomes	<p><i>Continuous:</i></p> <ul style="list-style-type: none"> ● night time awakenings (asthma control) ● no. of ER visits ● no. of acute asthma attacks (exacerbations)
Identification	<p>Sponsorship source: self funded Country: Trinidad, West Indies Setting: Faculty of Medical sciences Comments: none Authors name: Raveed Khan Institution: Faculty of Medical sciences. Dept of public health and primary care Email: raveed01@hotmail.com Address: University of the West Indies, St. Augustine, Trinidad</p>
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	High risk	
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Low risk	
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Low risk	

Other bias	Low risk
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Stevens 2002

Methods	<p>Study design: Randomized controlled trial Study grouping: Parallel group Open Label: YES</p>
Participants	<p>Baseline Characteristics Individualized written home management plan (Intervention group = Group A)</p> <ul style="list-style-type: none"> ● <i>Median age (range):</i> 32 (18-61) <p>No individualized written home management plan (Control group= Group B)</p> <ul style="list-style-type: none"> ● <i>Median age (range):</i> 32 (14-61) <p>Included criteria: Children eligible for inclusion in the study were aged 18 months to 5 years inclusive at the time of admission to a children's ward or attendance at either an accident and emergency (A&E) department or the children's (emergency) assessment unit (CAU at LRI) with a primary diagnosis of acute severe asthma or wheezing Excluded criteria: Not all eligible children admitted as inpatients during the study period were included as recruitment did not take place over weekends or when a specialist respiratory nurse was not available</p>
Interventions	<p>Intervention Characteristics Individualized written home management plan (Intervention group = Group A)</p> <ul style="list-style-type: none"> ● <i>Description:</i> the intervention group received: (1) a pre-school asthma booklet; (2) a written guided self-management plan; and (3) two 20 minute structured educational sessions between a specialist respiratory nurse and the parent(s) and child ● <i>Duration in weeks:</i> 52 ● <i>Length of follow up (weeks):</i> 0 <p>No individualized written home management plan (Control group= Group B)</p> <ul style="list-style-type: none"> ● <i>Description:</i> the control group received usual care ● <i>Duration in weeks:</i> 52 ● <i>Length of follow up (weeks):</i> 0

<p>Outcomes</p>	<p><i>Continuous:</i></p> <ul style="list-style-type: none"> ● no. of acute asthma events (defined as either acute ED visits, hospital admissions or unscheduled doctor visits) <p><i>Dichotomous:</i></p> <ul style="list-style-type: none"> ● inpatient admission ● A&E/CAU attendances ● daytime symptoms (n=median) ● nocturnal symptoms (n=median)
<p>Identification</p>	<p>Sponsorship source: NHS Executive Mother and Child Health Programme (MCH 16-15) Country: UK Setting: Pediatric asthma clinic Comments: none Authors name: C A Stevens Institution: Leicester Children's Asthma Centre, University of Leicester Email: ms70@le.ac.uk Address: eicester Children's Asthma Centre, University of Leicester, Leicester LE2 7LX, UK</p>
<p>Notes</p>	<p>Baseline characteristics: <i>Bo Chawes</i> median age (range) in months</p> <p>Intervention characteristics: <i>Bo Chawes</i> follow-up 3, 6 and 12mo. But no follow-up after the intervention was finalized.</p> <p>Dichotomous outcomes: <i>Bo Chawes</i> n = median. For de fire række er range:3 (0-16)3 (0-12)3 (0-16)2 (0-12)</p>

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Low risk	
Blinding of participants and personnel (performance bias)	High risk	
Blinding of outcome assessment (detection bias)	Low risk	
Incomplete outcome data (attrition bias)	Low risk	
Selective reporting (reporting bias)	Low risk	
Other bias	High risk	

Wong 2013

<p>Methods</p> <p>Study design: Randomized controlled trial Study grouping: Parallel group Open Label: YES</p>	
<p>Participants</p> <p>Baseline Characteristics Intervention: Symptom-based Written Asthma Action Plan (WAAP) ● Mean age in years (SD): 11.87 (2.83) ● Male/female: 1:1.1 Control: No WAAP. ● Mean age in years (SD): 12.13 (2.65) ● Male/female: 1:1.17</p> <p>Included criteria: Children with confirmed asthma and on regular follow up Excluded criteria: not described</p>	
<p>Interventions</p> <p>Intervention Characteristics Intervention: Symptom-based Written Asthma Action Plan (WAAP) ● Description: Verbal counseling + WAAP with traffic light for symptoms, treatment and doctor contact. ● Duration in weeks: 36 weeks ● Length of follow up (weeks): 0</p>	

	Control: No WAAP. ● <i>Description:</i> Verbal counseling
Outcomes	<i>Continuous:</i> ● Mean ACT (SD) Higher=better ● Mean C-ACT (SD) Higher=better ● Mean QoL (SD) Higher=better
Identification	Sponsorship source: som Bo Country: Malaysia Comments: none Authors name: Su Sian Wong Institution: Dept of Pediatrics, university Malaya Medical Centre Email: psr9900@hotmail.com Address: Lembah Pantar, 59100, Kuala Lumpur, malaysia
Notes	Pretreatment: <i>Bo Chawes</i> Kun angivet deskriptivt i tabel 1 og 2 og slet ikke kommenteret eller lavet statistiske analyser. ETS er dobbelt så hyppigt i kontrol gruppen, forskellig kønsratio. Flere børn i interventions grp. som har oplevet ED besøg før studiet, hvilket kunne påvirke primary endpoint analyse.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	
Allocation concealment (selection bias)	Unclear risk	Unclear
Blinding of participants and personnel (performance bias)	High risk	

Blinding of outcome assessment (detection bias)	Unclear risk	Unclear
Incomplete outcome data (attrition bias)	High risk	
Selective reporting (reporting bias)	Low risk	
Other bias	High risk	Comment: Mange metodologiske problemer bla skævhed i astma sværhedsgrad ved baseline; køn; tobakseposure; uklart om håndtering af kliniske kontroller og analyser er blndet.

Footnotes

Characteristics of excluded studies

Bravata 2009

Reason for exclusion	Wrong comparator
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Coffman 2008

Reason for exclusion	Wrong comparator
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Cote 1997

Reason for exclusion	Adult population
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Gibson 2003

Reason for exclusion	Adult population
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Haynes 2008

Reason for exclusion	Adult population
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Lefevre 2002

Reason for exclusion	Wrong study design
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LV 2012

Reason for exclusion	Adult population
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Powell 2003

Reason for exclusion	Adult population
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Footnotes

Characteristics of studies awaiting classification

Footnotes

Characteristics of ongoing studies

Footnotes

References to studies

Included studies***Agrawal 2005***

Agrawal, S. K.; Singh, M.; Mathew, J. L.; Malhi, P.. Efficacy of an individualized written home-management plan in the control of moderate persistent asthma: A randomized, controlled trial. *Acta paediatrica* 2005;94(12):1742-1746. [DOI: P8371837N1105P11 [pii]]

Charlton 1994

Charlton, I.; Antoniou, A. G.; Atkinson, J.; Campbell, M. J.; Chapman, E.; Mackintosh, T.; Schapira, D.. Asthma at the interface: bridging the gap between general practice and a district general hospital. *Archives of Disease in Childhood* 1994;70(4):313-318. [DOI:]

Ducharme 2011

Ducharme, F. M.; Zemek, R. L.; Chalut, D.; McGillivray, D.; Noya, F. J.; Resendes, S.; Khomenko, L.; Rouleau, R.; Zhang, X.. Written action plan in pediatric emergency room improves asthma prescribing, adherence, and control.. *American Journal of Respiratory & Critical Care Medicine* 2011;183(2):195-203. [DOI: <http://dx.doi.org/10.1164/rccm.201001-0115OC>]

Khan 2014

Khan, R.; Maharaj, R.; Seerattan, N.; Babwah, F.. Effectiveness of personalized written asthma action plans in the management of children with partly controlled asthma in Trinidad: a randomized controlled trial.. *Journal of tropical pediatrics* 2014;60(1):17-26. [DOI: <http://dx.doi.org/10.1093/tropej/fmt063>]

Stevens 2002

Stevens, C. A.; Wesseldine, L. J.; Couriel, J. M.; Dyer, A. J.; Osman, L. M.; Silverman, M.. Parental education and guided self-management of asthma and wheezing in the pre-school child: a randomised controlled trial. *Thorax* 2002;57(1):39-44. [DOI:]

Wong 2013

Wong SS.; Nathan AM.; de Bruyne J.; Zaki R.; Mohd Tahir SZ.. Does a written asthma action plan reduce unscheduled doctor visits in children? *Indian journal of pediatrics* 2013;80(7):590-5. [DOI: 10.1007/s12098-012-0839-0]

Excluded studies***Bravata 2009***

Bravata, D. M.; Gienger, A. L.; Holtz, J. E.; Sundaram, V.; Khazeni, N.; Wise, P. H.; McDonald, K. M.; Owens, D. K.. Quality improvement strategies for children with asthma: a systematic review. *Archives of Pediatrics & Adolescent Medicine* 2009;163(6):572-581. [DOI: 10.1001/archpediatrics.2009.63 [doi]]

Coffman 2008

Coffman, J. M.; Cabana, M. D.; Halpin, H. A.; Yelin, E. H.. Effects of asthma education on children's use of acute care services: a meta-analysis. *Pediatrics* 2008;121(3):575-586. [DOI: 10.1542/peds.2007-0113 [doi]]

Cote 1997

Cote, J.; Cartier, A.; Robichaud, P.; Boutin, H.; Malo, J. L.; Rouleau, M.; Fillion, A.; Lavallee, M.; Krusky, M.; Boulet, L. P.. Influence on asthma morbidity of asthma education programs based on self-management plans following treatment optimization. *American journal of respiratory and critical care medicine* 1997;155(5):1509-1514. [DOI: 10.1164/ajrccm.155.5.9154850 [doi]]

Gibson 2003

Gibson, P. G.; Powell, H.; Coughlan, J.; Wilson, A. J.; Abramson, M.; Haywood, P.; Bauman, A.; Hensley, E. H.. Self-management education and regular practitioner review for adults with asthma. *The Cochrane database of systematic reviews* 2003;(1)(1):CD001117. [DOI: 10.1002/14651858.CD001117 [doi]]

Haynes 2008

Haynes, R. B.; Ackloo, E.; Sahota, N.; McDonald, H. P.; Yao, X.. Interventions for enhancing medication adherence. *The Cochrane database of systematic reviews* 2008;(2):CD000011. doi(2):CD000011. [DOI: 10.1002/14651858.CD000011.pub3 [doi]]

Lefevre 2002

Lefevre, F.; Piper, M.; Weiss, K.; Mark, D.; Clark, N.; Aronson, N.. Do written action plans improve patient outcomes in asthma? An evidence-based analysis. *The Journal of family practice* 2002;51(10):842-848. [DOI: jfp_1002_00842 [pii]]

Lv 2012

Lv, Y.; Zhao, H.; Liang, Z.; Dong, H.; Liu, L.; Zhang, D.; Cai, S.. A mobile phone short message service improves perceived control of asthma: a randomized controlled trial.. *Telemedicine Journal & E-Health* 2012;18(6):420-426. [DOI: http://dx.doi.org/10.1089/tmj.2011.0218]

Powell 2003

Powell, H.; Gibson, P. G.. Options for self-management education for adults with asthma. *The Cochrane database of systematic reviews* 2003;(1)(1):CD004107. [DOI: 10.1002/14651858.CD004107 [doi]]

Data and analyses

1 Intervention: Symptom-based Written Asthma Action Plan (WAAP) vs Control: No WAAP.

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
1.1 QoL PAQLQ Higher=better	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1.2 end of study (final value)	2	185	Mean Difference (IV, Random, 95% CI)	-0.14 [-0.44, 0.16]
1.2 Asthma control (C-ACT) Higher=better	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.2.2 end of study (final value)	1	75	Mean Difference (IV, Fixed, 95% CI)	-1.37 [-2.70, -0.04]
1.3 Asthma control (mean night awakenings/month)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
1.3.1 end of study (final value)	2	151	Mean Difference (IV, Random, 95% CI)	-1.11 [-2.11, -0.12]
1.4 Percent of days of fluticasone use (0-28 days)	1		Mean Difference (IV, Fixed, 95% CI)	10.91 [3.15, 18.67]
1.5 No. with asthma control	2	273	Risk Ratio (M-H, Random, 95% CI)	1.22 [0.93, 1.60]
1.6 Asthma attacks (exacerbations)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
1.6.3 end of study (final value)	2	151	Mean Difference (IV, Random, 95% CI)	-0.41 [-0.75, -0.07]
1.7 Activity restriction	1	79	Mean Difference (IV, Fixed, 95% CI)	-0.07 [-0.16, 0.02]
1.9 Missed school days per month	2	151	Mean Difference (IV, Random, 95% CI)	-1.02 [-1.76, -0.28]
1.10 inpatient admission	1		Risk Ratio (IV, Fixed, 95% CI)	No totals
1.10.1 final value at the end	1		Risk Ratio (IV, Fixed, 95% CI)	No totals
1.11 Subjects with one or more acute care visit	3	344	Risk Ratio (M-H, Fixed, 95% CI)	0.82 [0.54, 1.25]

1.12 symptom score. Lower = better	1			Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.12.1 final value at the end of the study	1	60		Mean Difference (IV, Fixed, 95% CI)	-11.80 [-18.22, -5.38]

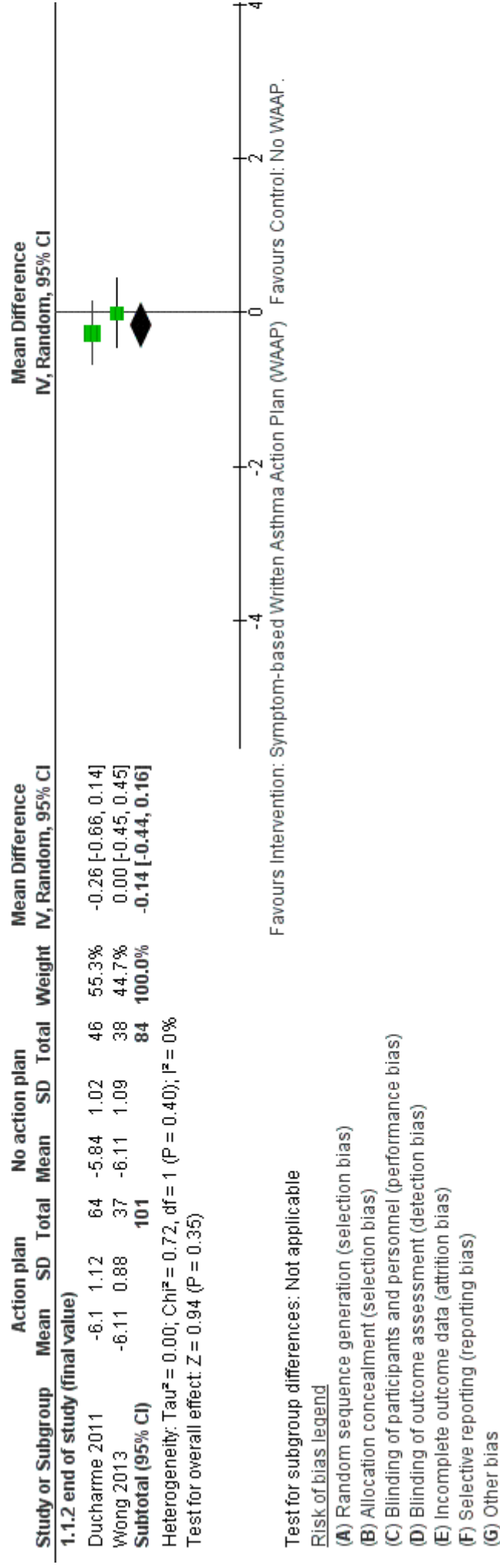
Figures

Figure 1

	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Other bias
Agrawal 2005	+	+	-	-	+	+	?
Charlton 1994	-	?	-	?	+	+	-
Ducharme 2011	+	+				+	-
Khan 2014	+	-				+	+
Stevens 2002	+	+	-	+	+	+	-
Wong 2013	+	?				+	-

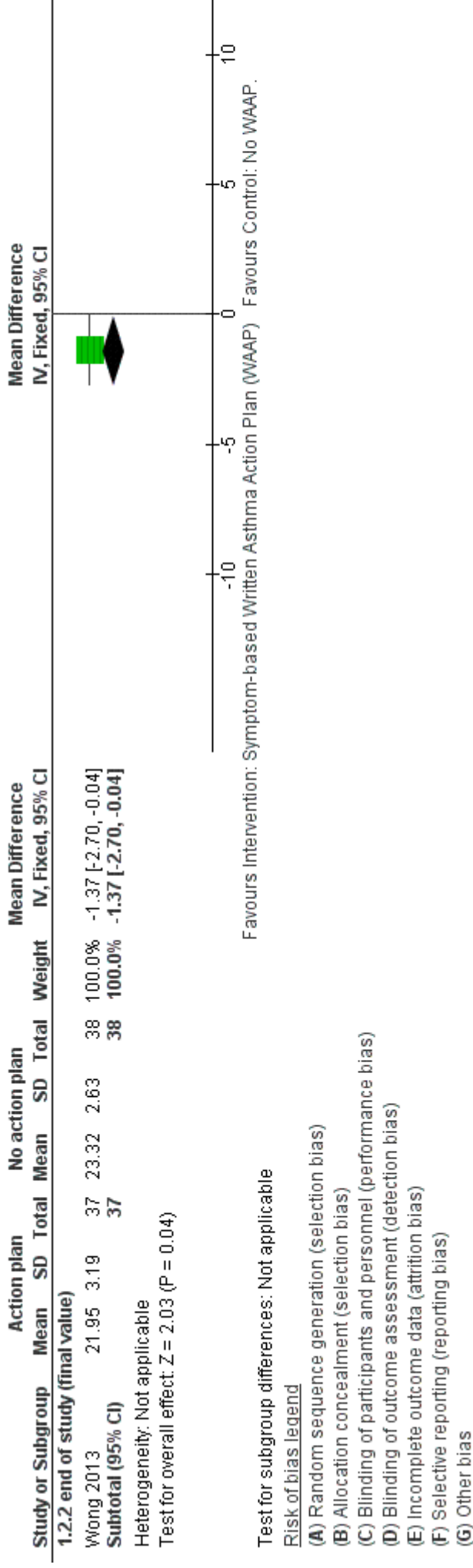
Risk of bias summary: review authors' judgements about each risk of bias item for each included study.

Figure 2 (Analysis 1.1)



Forest plot of comparison: 1 Intervention: Symptom-based Written Asthma Action Plan (WAAP) vs Control: No WAAP., outcome: 1.1 QoL PAQLQ Higher=better.

Figure 3 (Analysis 1.2)



Forest plot of comparison: 1 Intervention: Symptom-based Written Asthma Action Plan (WAAP) vs Control: No WAAP., outcome: 1.2 Asthma control (C-ACT)
 Higher=better.

Figure 4 (Analysis 1.7)

Study or Subgroup	Experimental		Control		Total	Weight	Mean Difference IV, Fixed, 95% CI	Risk of Bias
	Mean	SD	Mean	SD				
Charlton 1994	0.06	0.27	42	0.13	0.13	100.0%	-0.07 [-0.16, 0.02]	A B C D E F G
Total (95% CI)			42		37	100.0%	-0.07 [-0.16, 0.02]	

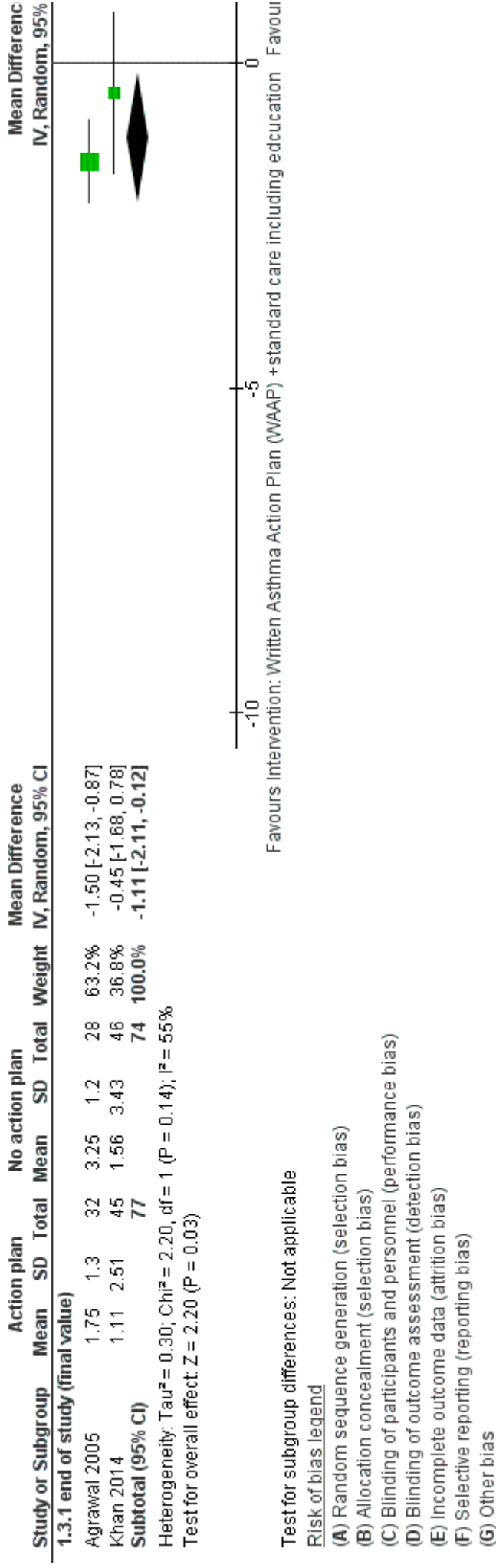
Heterogeneity: Not applicable
 Test for overall effect: Z = 1.49 (P = 0.13)



- Risk of bias legend
- (A) Random sequence generation (selection bias)
 - (B) Allocation concealment (selection bias)
 - (C) Blinding of participants and personnel (performance bias)
 - (D) Blinding of outcome assessment (detection bias)
 - (E) Incomplete outcome data (attrition bias)
 - (F) Selective reporting (reporting bias)
 - (G) Other bias

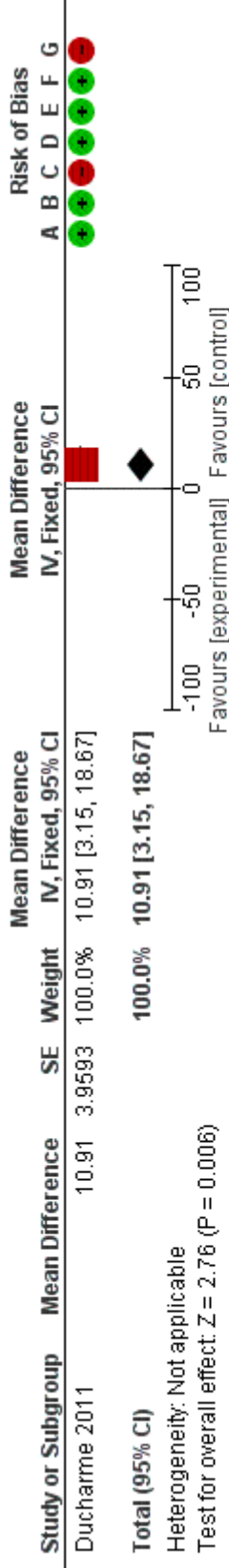
Forest plot of comparison: 1 Intervention: Symptom-based Written Asthma Action Plan (WAAP) vs Control: No WAAP., outcome: 1.7 Activity restriction.

Figure 5 (Analysis 1.3)



Forest plot of comparison: 1 Intervention: Symptom-based Written Asthma Action Plan (WAAAP) vs Control: No WAAAP., outcome: 1.3 Asthma control (mean night awakenings/month).

Figure 6 (Analysis 1.4)



Risk of bias legend

- (A) Random sequence generation (selection bias)
- (B) Allocation concealment (selection bias)
- (C) Blinding of participants and personnel (performance bias)
- (D) Blinding of outcome assessment (detection bias)
- (E) Incomplete outcome data (attrition bias)
- (F) Selective reporting (reporting bias)
- (G) Other bias

Forest plot of comparison: 1 Intervention: Symptom-based Written Asthma Action Plan (WAAP) vs Control: No WAAP., outcome: 1.4 Percent of days of fluticasone use (0-28 days).

Figure 7 (Analysis 1.10)

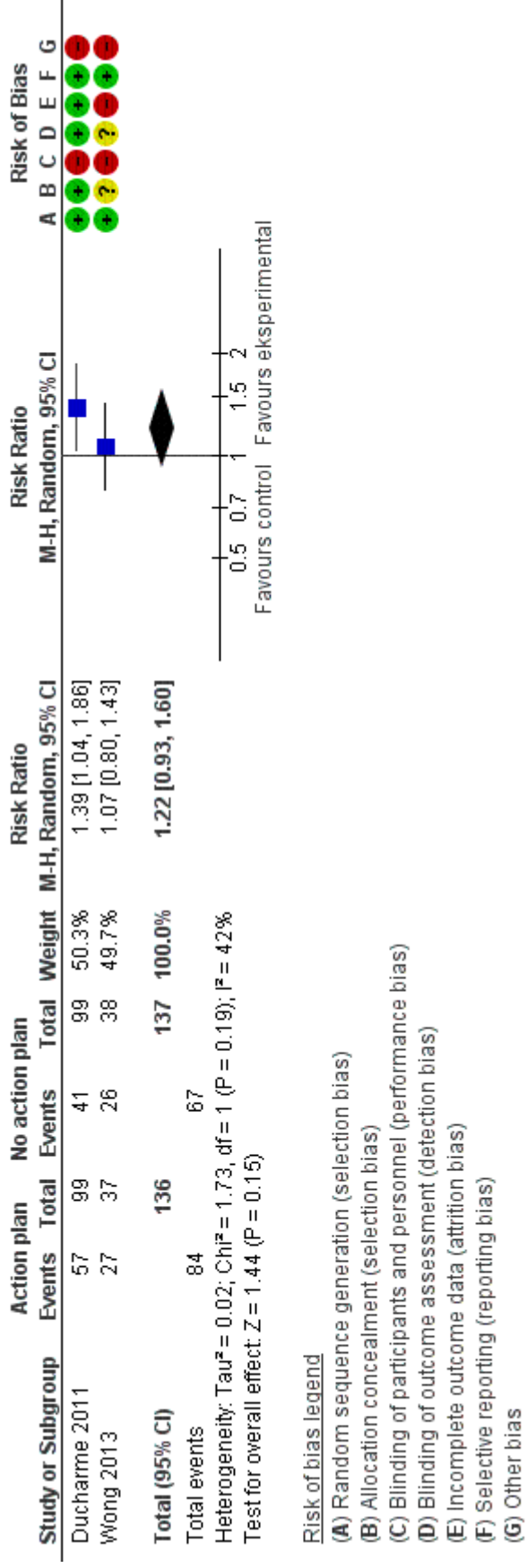


Risk of bias legend

- (A) Random sequence generation (selection bias)
- (B) Allocation concealment (selection bias)
- (C) Blinding of participants and personnel (performance bias)
- (D) Blinding of outcome assessment (detection bias)
- (E) Incomplete outcome data (attrition bias)
- (F) Selective reporting (reporting bias)
- (G) Other bias

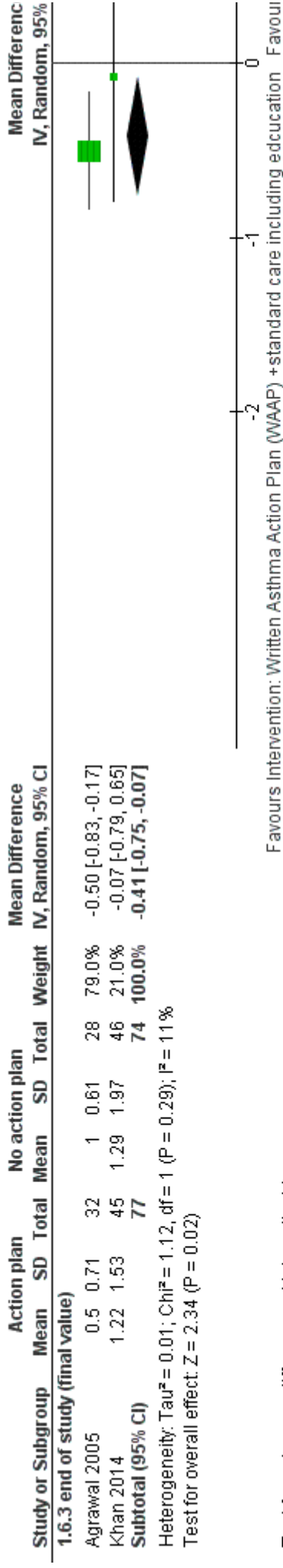
Forest plot of comparison: 1 Intervention: Symptom-based Written Asthma Action Plan (WAAP) vs Control: No WAAP., outcome: 1.10 inpatient admission.

Figure 9 (Analysis 1.5)



Forest plot of comparison: 1 Intervention: Symptom-based Written Asthma Action Plan (WAAP) vs Control: No WAAP., outcome: 1.5 No. with asthma control.

Figure 10 (Analysis 1.6)



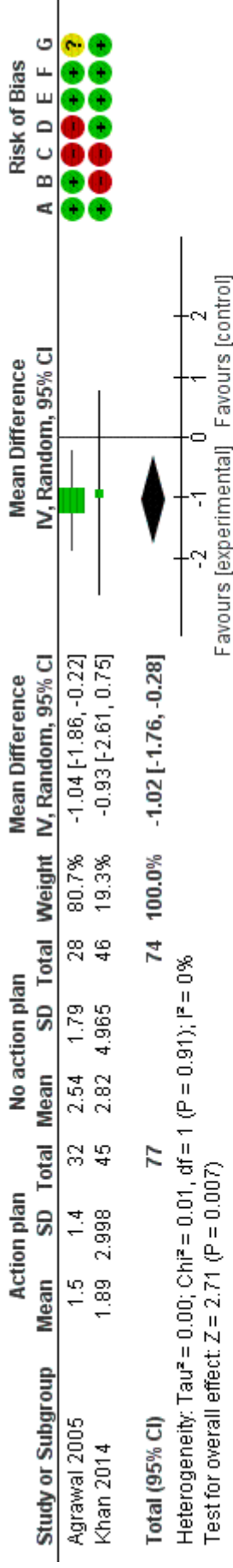
Test for subgroup differences: Not applicable

Risk of bias legend

- (A) Random sequence generation (selection bias)
- (B) Allocation concealment (selection bias)
- (C) Blinding of participants and personnel (performance bias)
- (D) Blinding of outcome assessment (detection bias)
- (E) Incomplete outcome data (attrition bias)
- (F) Selective reporting (reporting bias)
- (G) Other bias

Forest plot of comparison: 1 Intervention: Symptom-based Written Asthma Action Plan (WAAP) vs Control: No WAAP., outcome: 1.6 Asthma attacks (exacerbations).

Figure 11 (Analysis 1.9)

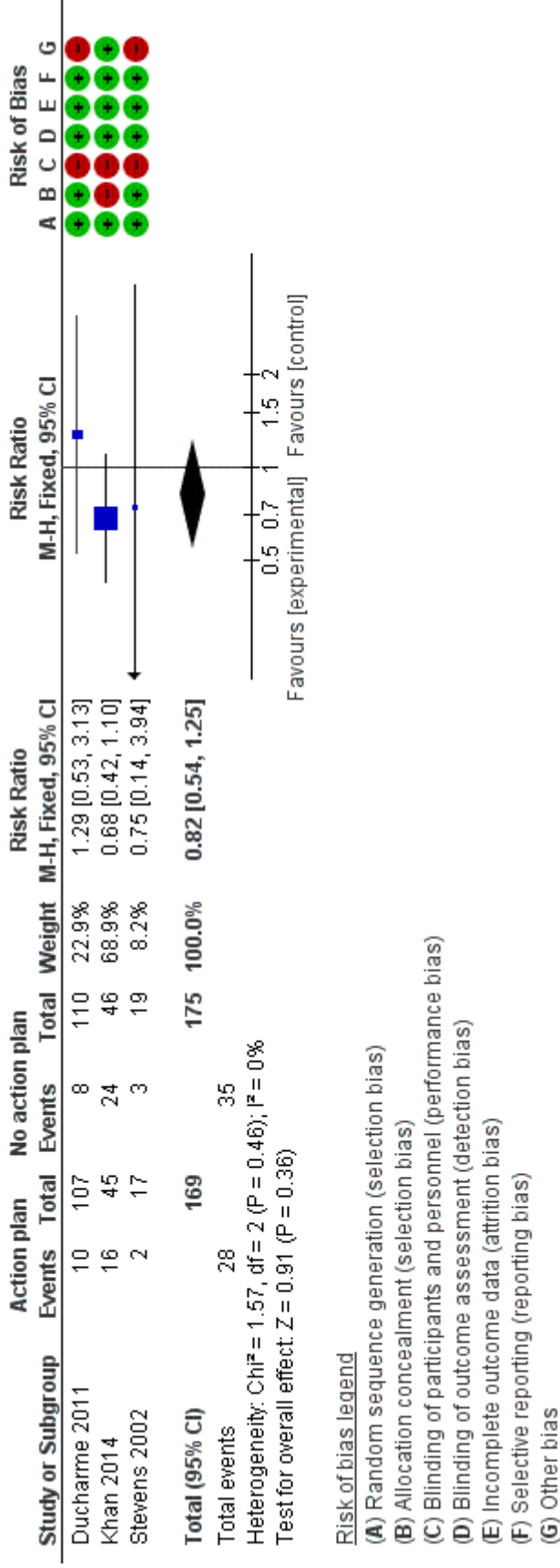


Risk of bias legend

- (A) Random sequence generation (selection bias)
- (B) Allocation concealment (selection bias)
- (C) Blinding of participants and personnel (performance bias)
- (D) Blinding of outcome assessment (detection bias)
- (E) Incomplete outcome data (attrition bias)
- (F) Selective reporting (reporting bias)
- (G) Other bias

Forest plot of comparison: 1 Intervention: Symptom-based Written Asthma Action Plan (WAAP) vs Control: No WAAP., outcome: 1.9 Missed school days per month.

Figure 13 (Analysis 1.11)



Forest plot of comparison: 1 Intervention: Symptom-based Written Asthma Action Plan (WAAP) vs Control: No WAAP., outcome: 1.11 Subjects with one or more acute care visit.

Figure 14 (Analysis 1.12)

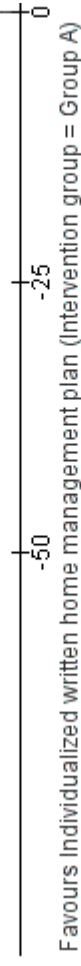
Study or Subgroup	Action plan		No action plan		Weight	Mean Difference IV, Fixed, 95% CI
	Mean	SD	Mean	SD		

1.12.1 final value at the end of the study

Agrawal 2005	21.9	14.4	32	33.7	10.9	28	100.0%	-11.80 [-18.22, -5.38]
Subtotal (95% CI)			32			28	100.0%	-11.80 [-18.22, -5.38]

Heterogeneity: Not applicable

Test for overall effect: $Z = 3.60$ ($P = 0.0003$)



Test for subgroup differences: Not applicable

Risk of bias legend

- (A) Random sequence generation (selection bias)
- (B) Allocation concealment (selection bias)
- (C) Blinding of participants and personnel (performance bias)
- (D) Blinding of outcome assessment (detection bias)
- (E) Incomplete outcome data (attrition bias)
- (F) Selective reporting (reporting bias)
- (G) Other bias

Forest plot of comparison: 1 Intervention: Symptom-based Written Asthma Action Plan (WAAP) vs Control: No WAAP., outcome: 1.12 symptom score. Lower = better.

Sources of support

Internal sources

- No sources of support provided

External sources

- No sources of support provided