



Interventions to Improve Health Care Providers Adherence to Guidelines: AHRQ Report

- American College of Chest Physicians
- 15th Annual ACCP Community Asthma Coalition Symposium
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- ***University of California Los Angeles***

NIH Asthma Guidelines: Expert Panel Reports



- <http://www.nhlbi.nih.gov/guidelines/asthma/>

State of Asthma Care

- Documentation of asthma severity is infrequent: 34% of charts
 - Cabana MD. Clin Pediatr 2003; 42:121–125.
- Spirometry is not commonly used in primary care settings: 21% routinely used spirometry
 - Dombkowski KJ Pediatrics 2010; 126:682–687.
- Asthma education is decreasing: 50% → 38% of visits.
 - Hersh AL, Asthma 2010; 47:21–25.
- Patients do not receive inhaler teaching: 44%
 - Ozuah PO Ambul Pediatr 2007; 7:445–448.

Minority Populations Negatively Affected by Asthma

- Worse outcomes
 - 2-3 times higher mortality, hospitalization and emergency department rates
- Less likely than Caucasians to report:
 - Inhaled corticosteroids (AN Ortega 2002)
 - Asthma action plan (JA Krishnan, 2001)

LJ Akinbami Peds 2009;123:S131-S145
JE Moorman, MMWR Jan. 14, 2011 Supp/Vol. 60

Interventions to Modify Health Care Provider Adherence to Asthma Guidelines

- **Prepared for:** Agency for Healthcare Research and Quality (U.S. Department of Health and Human Services)
- Systematic review
- Interventions targeting ambulatory health care providers

Key Questions

- In the care of pediatric or adult patients with asthma, what is the evidence that interventions designed to improve health care provider adherence to guidelines impact:
- **KQ1**: health care process outcomes (e.g., receiving appropriate treatment)?
- **KQ2**: clinical outcomes (e.g., hospitalizations, symptom control)?
- **KQ3**: health care process outcomes that then affect clinical outcomes?

Outcomes

- Based on input from key informants and public comment
- **Health care process outcomes:**
 - **Prescriptions for controller medicine**
 - Environmental control practice recommendations
 - **Self-management education and asthma action plans**
 - Documentation of level of asthma control/severity
 - Prescription of peak flow meter
 - Follow-up visits
 - Unintended consequences

• Clinical outcomes, assessed in patients:

- Symptom days
- Missed days of school and/or work
- Quality of life
- Emergency department (ED) visits/hospitalizations/urgent doctor visits
- Lung function tests
- Rescue use of short-acting β 2 agonists
- Parental/patient perceptions/ratings of care
- Side effects of drugs

• Decision support interventions are health information technology- and/or paper-based-interventions designed to support/facilitate health care provider treatment decision-making (e.g., classify asthma severity);

- **Organizational change** interventions are designed to change the way in which an organization provides asthma care (e.g., having an asthma “champion”);
- **Feedback and audit** interventions are based upon providing performance data to health care providers about their quality of asthma care;
- **Clinical pharmacy support** interventions targeting pharmacists’ delivery of asthma care;
- **Education only** interventions are focused on educating health care providers about the content of asthma clinical practice guidelines;
- **Quality improvement/pay-for-performance** interventions are focused on quality improvement initiatives or pay-for-performance as the primary intervention;
- **Information only** interventions provide only information to health care providers about asthma guideline recommendations (e.g., provide a pocket guide to asthma guidelines)

Grading Strength of Evidence

- Considered four domains: risk of bias, directness, consistency, and precision.
- (1) “**high**” confidence that the evidence reflects the true effect, and further research is very unlikely to change our confidence in the estimate of the effect;
 - (2) “**moderate**” confidence that the evidence reflects the true effect, and further research may change our confidence in the estimate of the effect and may change the estimate;
 - (3) “**low**” confidence that the evidence reflects the true effect, and further research is likely to change our confidence in the estimate of the effect and is likely to change the estimate; and
 - (4) “**insufficient**” evidence is available or does not permit a conclusion).

Magnitude of Effect

- Studies addressing each outcome was described as:
 - **Small**: less than 10% change or difference
 - **Moderate**: 10–30% change or difference
 - **Large**: more than 30% change or difference

- Databases Searched

- Medline
- Embase
- Cochrane CENTRAL Register of Controlled Trials
- Cumulative Index to Nursing and Allied Health Literature
- Educational Resources Information Center
- PsycINFO
- Research and Development Resource Base in Continuing Medical Education

- Articles published through July 2012

- 4,217 unique citations → 73 eligible articles → 16 articles focused on AA/Latino populations

Intervention Classifications

(#of studies/#minority-patient focused)

- Decision support (24/8)
- Organizational change (12/2)
- Feedback and audit (12/1)
- Clinical pharmacy support (4/0)
- Education only (16/3)
- QI and pay-for-performance (3/2)
- Information only (2/0)
- Multi-component (8/0)

Results of Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
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ℓ-pre-post study design € = randomized, controlled trial *p<0.05

- **Decision support** interventions are health information technology- and/or paper-based-interventions designed to support/facilitate health care provider treatment decision-making (e.g., classify asthma severity);

Decision Support Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
K Rance; 2011 [‡] (Virginia Beach, VA; 4 clinicians)	90% AA; 60% Medicaid (source pop.) (n = 24)	Decision support	Multi-colored Simplified Asthma Guideline Reminder (MSAGR)	*24% [‡] in ICS Rx' s

‡-pre-post study design € = randomized, controlled trial *p<0.05

Multi-colored Simplified Asthma Guidelines Reminder 12 Years of Age & Adults (MSAGR-TA) © Revised May 2008

Name: _____ Age: _____ M F Date _____

Symptoms & Assessment

Symptoms	<input type="checkbox"/> Cough	<input type="checkbox"/> Wheezing	<input type="checkbox"/> Chest tightness	<input type="checkbox"/> SOB
Triggers	<input type="checkbox"/> Sputum	<input type="checkbox"/> Nocturnal Cough	<input type="checkbox"/> Tobacco Smoke	<input type="checkbox"/> Laughing
	<input type="checkbox"/> URI	<input type="checkbox"/> Rhino-Sinusitis	<input type="checkbox"/> Dog	<input type="checkbox"/> Bird
	<input type="checkbox"/> Crying	<input type="checkbox"/> Cat	<input type="checkbox"/> Changes in Weather	<input type="checkbox"/> Mold
	<input type="checkbox"/> Cockroaches	<input type="checkbox"/> Exercise	<input type="checkbox"/> House Dust Mites	<input type="checkbox"/> Dust Storm
	<input type="checkbox"/> Pollution	<input type="checkbox"/> Cold Air	<input type="checkbox"/> Fireplace/Woodstove	<input type="checkbox"/> GERD
Pattern	<input type="checkbox"/> Windy Day	<input type="checkbox"/> Forest Fire	<input type="checkbox"/> Emotion/Stress	<input type="checkbox"/> Beta-Blocker
	<input type="checkbox"/> ASA	<input type="checkbox"/> NSAID	<input type="checkbox"/> Other	
	<input type="checkbox"/> ACE-Inhibitor	<input type="checkbox"/> Menses	<input type="checkbox"/> Perennial with Seasonal Exacerbation	
Assessment	Alternative Diagnoses are excluded		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Frequency on the usage of short-acting inhaled beta ₂ -agonist		<input type="checkbox"/> < 2 days / week <input type="checkbox"/> >2 /week but <1X /day		
<input type="checkbox"/> Once/daily <input type="checkbox"/> 2-4 times/day		<input type="checkbox"/> Other medications: (Dosages/Frequency/Duration)		

Components of Severity Risk Stepwise Approach Based on Asthma Severity

	Day Symptoms	FEV1 FEV1/FVC	Exacerbation requiring oral steroids	Controller Agents	Exacerbation of any severity can occur in any severity category ↑ Rescue SABA pm for symptoms relief ↓ Short burst Oral steroid may be needed
	Night Symptoms Interference with Normal Activity				
Intermittent	≤ 2 days/wk ≤ 2x/month None	> 80% Normal	0-1/yr	Step 1 SABA pm. If patient uses >2x/day (excludes usage for EIB) Initiate Step 2	
Mild Persistent	>2x/not daily 3-4x/month Minor	> 80% Normal	≥ 2/yr	Step 2 PT: Low dose -ICS AT: Cromolyn, LTRA, Nedocromil or Theophylline	
Moderate Persistent	Daily > 1x/wk not nightly Some	60% - 80% Reduced 5%	≥ 2/yr	Step 3 PT: Low dose -ICS + LABA or Medium dose -ICS AT: Low dose -ICS + either LTRA, Theophylline, or Zileuton Step 4 PT: Medium dose -ICS + LABA AT: Medium dose -ICS + either LTRA, Theophylline, or Zileuton	
Severe Persistent	Throughout the day Often 7x/wk	< 60% Reduced 5%	≥ 2/yr	Step 5 PT: High dose -ICS + LABA & Consider Anti-IgE	
	Extremely			Step 6 PT: High dose -ICS + LABA + Oral steroid & Consider Anti-IgE	

Consult **allergy specialist** for allergen immunotherapy for patients who have allergic asthma at steps **2** through **4**

Consult with **asthma specialist** if step **4** care or higher is required

Consider consultations with **asthma specialist**

(A) At step **3** care

(B) Any patient required more than **2** burst of oral steroid for asthma exacerbation during the past **year**

(C) If you are not sure with the diagnosis of asthma

Visit website: www.ttuhschool.edu/elpaso/som/asthma
For Free Download (English and Spanish)

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A Shapiro; 2011 [‡] (Bronx, NY; 25 clinicians)	26%/42% AA 68%/42% Latino (n = 1, 246)	Decision support	Asthma Toolbox	*70% ↑ documentation of severity, ED visits, hosp.

‡-pre-post study design € = randomized, controlled trial *p<0.05

Asthma Toolbox

FRONT

Pediatric WCC 4 mo-4 yr

Asthma History No Asthma Deferred

In last 12 months, due to asthma:

_____ # ER visits

_____ # Hospitalizations

_____ # School/daycare days missed

Household tobacco exposure: Y N

Prescribed controller: Y N

Using controller: Y N

Exercise/activity limitation: None
 Minor limitation
 Some limitation
 Extremely limited

In last 4 wk, SABA use _____ x /Day, Week, Month (not for EIB)
_____ # times on oral steroids in last 12 months (Risk)

Severity Classification: (sx last 4 wk)

- Intermittent (≤ 2 days/wk, 0 nights/mo)
- Mild Persistent (> 2 days/wk, 1-2 nights/mo)
- Mod Persistent (daily, 3-4 nights/mo)
- Severe Persistent (throughout day, > 1 x/wk)

OR

FU Control Classification: (sx last 4 wk)

- Well Controlled (≤ 2 days/wk, ≤ 1 night/mo)
- Not Well Controlled (> 2 days/wk, > 1 night/mo)
- Poorly Controlled (throughout day, > 1 night/wk)

BACK

Asthma Assessment/Plan:

- Reclassification: Not Indicated
 Intermittent Mild Persistent
 Mod Persistent Severe Persistent

Controller: Not indicated Already on controller
 New controller prescribed today

- Referrals: Allergy Testing: Onsite Referred Done
 Pulmonary Spirometry
 Smoking Cessation: Parent
 Other _____

Decision Support Interventions

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A Shapiro; 2011 [‡] (Bronx, NY; 25 clinicians)	26%/42% AA 68%/42% Latino (n = 1, 246)	Decision support	Asthma Toolbox	*70%↑ documentation of severity, ED visits, hosp.
M Kattan;2006 [€] (Boston; Bronx; Chicago; Dallas; New York;Tucson; Seattle/ Tacoma; 435 clinicians)	40% AA; 40% Latino (n = 937)	Decision support;	Letter to PCP re: child' s sx' s & treatment recs (e.g., step-up)	*10% ↑ in stepping-up meds by PCP (*22%↓sx; *38%↓ missed school days) *24%↓ ED visits

‡-pre-post study design € = randomized, controlled trial *p<0.05

Decision Support Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
MM Cloutier; 2005 [‡] (Hartford, CT; 151 clinicians)	22% AA; 67% Latino (n = 3, 748)	Decision support	Easy Breathing Program (Dx, Provider Assess., Tx Guide, Tx Plan)	*58%↑ICS Rx' s 35% ↓ Hosp. 27% ↓ED visits

‡-pre-post study design € = randomized, controlled trial *p<0.05

Decision Support Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
JS Halterman; 2006 [€] (Rochester, NY; 79 clinicians)	63% AA; 27% Latino (n = 246)	Decision support	Office-based clinician prompt re: asthma severity	*26% ↑ use of asthma action plans *18%↑ scheduling asthma-specific visit *12%↑ discussion of asthma

‡-pre-post study design € = randomized, controlled trial *p<0.05

Sample clinician prompt

Asthma Report and Action Recommendations for Today's Visit

Child's Name: _____

Below are parent-reported asthma symptoms for your patient. These symptoms were reported today through a brief survey while the patient was waiting to be seen.

During the past 2 weeks, the child has had coughing, wheezing, or shortness of breath during the day:

- Twice a week or less
- More than 2 times a week, but not every day
- Everyday, but not all the time
- Everyday, all the time

During the past 2 weeks, the child has had coughing, wheezing, or shortness of breath during the night:

- Once every 2 weeks or less
- Once a week
- More than 1 night a week
- Frequently/every night

According to National Guidelines, this child DOES / DOES NOT have symptoms consistent with mild persistent to severe persistent asthma and preventive medications SHOULD / SHOULD NOT be considered.

Recommended Actions:

Mild Intermittent

Review use of medications, provide refills as needed

Discuss environmental triggers

Mild Persistent to Severe Persistent

Consider starting preventive medication (inhaled steroid) if child is not currently using one

If child is already using a preventive medication you may want to:

Review technique/discuss compliance

Step up therapy

Discuss environmental triggers

Provide action plan

Additionally, the parent DID / DID NOT report that the child is exposed to smoke in the home and/or car.

Recommended actions for all children with asthma:

Ask the caregiver specifically about the child's secondhand smoke exposure in various settings (home, car, or day care)

Educate the caregiver about the negative effect of smoke on asthma symptoms

Suggest ways to decrease the child's exposure to secondhand smoke, such as implementing smoking bans (no smoking in the home or car with no exceptions)

For caregivers who smoke, encourage cessation and provide resources as appropriate

Decision Support Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
JS Halterman; 2006 [€] (Rochester, NY; 79 clinicians)	63% AA; 27% Latino (n = 246)	Decision support	Office-based clinician prompt re: asthma severity	*26% ↑ use of asthma action plans *18%↑ scheduling asthma-specific visit *12%↑ discussion of asthma
JS Halterman; 2005 [€] (Rochester, NY; 72 clinicians)	56% AA; 27% Latino (n = 150)	Decision support	School-based asthma screen of sx' s & ED visits; letter sent to PCP w/ asthma guide- lines + tx recs.	3%↓ hosp. 7% ↓ ED visits No difference in care (ICS Rx' s; Environ Control Practices; specialist referrals)

‡-pre-post study design € = randomized, controlled trial *p<0.05

Decision Support Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
AM Davis; 2010 [‡] (Spartanburg, SC; 36 clinicians)	72% AA; 2% Latino (n = 180)	Decision support	EMR asthma template (sx frequency, lung fnc., exacerb., rescue β 2 agonist use)	*34% \uparrow ICS Rx' s *34% \uparrow Docum. of asthma control/severity

‡-pre-post study design € = randomized, controlled trial *p<0.05

Decision Support Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
AM Davis; 2010 [‡] (Spartanburg, SC; 36 clinicians)	72% AA; 2% Latino (n = 180)	Decision support	EMR asthma template (sx freq, lung fnc., exacer., rescue β 2agonist)	*34% \uparrow ICS Rx' s *34% \uparrow Docum. of asthma control/severity
LM Bell; 2009 [€] (Philadelphia; 8 suburb; 4 urban teaching practices)	80% AA; 3% Latino (n = 19, 450)	Decision support	EHR: asthma questionnaire + tx recs	*6% \uparrow ICS Rx' s-urban *14% \uparrow action plans –suburban *9%/6% \uparrow spirom. (urban/suburban)

[‡]-pre-post study design [€] = randomized, controlled trial *p<0.05

Asthma Control Tool

Please take time to fill out this checklist. This checklist can help doctors and nurses (and you!) to know how to best help your child manage his or her asthma.

- Children may have different *signs* of asthma.
- Signs of asthma get worse during an asthma *flare* (also known as an attack or exacerbation)

What are the signs of asthma for your child? (check all that apply)

- Coughs
- Wheezes (a whistling in the chest)
- Gets mucus in his or her chest
- Gets short of breath
- Feels chest pain or tightness
- Breathes fast

How often does your child have asthma flares?

- An asthma flare is an increase in signs of asthma for more than a day
- Your child may need more albuterol or other quick relief medicines

Think about the past 3 months:

	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5 or more</u>
1. How many asthma flares did your child have?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. How many times did your child have an asthma flare that lasted a week or more?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. How many times did your child start on a steroid medicine by mouth for asthma such as prednisone (Prelone, Pediapred or Orapred)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. How many times did your child make an emergency visit for asthma?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. How many times did your child stay overnight in the hospital for asthma?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. How many times did your child stay in an intensive care unit for asthma?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How is your child IN BETWEEN asthma flares?

- Think about the past 3 months
- How often did these things happen when your child was feeling his or her best and not having an asthma flare? (check one)

	Never	Once or twice a month	Once or twice a week	Every other day	Every day	More than once a day
7. Asthma symptoms while sitting quietly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Asthma symptoms with light activity such as walking up steps or laughing or crying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Asthma symptoms with running or sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Trouble keeping up with other children during activity from asthma symptoms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Asthma symptoms while asleep at night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Asthma symptoms that woke him or her from sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Asthma symptoms in the morning when he or she woke up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. He or she needed to take albuterol or another quick-relief medicine for asthma symptoms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Asthma Assistant

1. [ASTHMA CONTROL TOOL](#) was filed today

[In the last 3 months: 2 flares, 1 steroid course, and](#)

[symptoms while asleep at night EVERY OTHER DAY](#)

[INTERPRETATION: MODERATE-PERSISTENT ASTHMA, UNCONTROLLED](#) *(click to access form)*

2. [MODERATE-PERSISTENT ASTHMA: INHALED CORTICOSTEROIDS recommended](#) *(click to order)*

3. [ASTHMA CARE PLAN](#) last filed on 08/29/2007 *(click to access form)*

Asthma Resources

1. [Asthma Patient and Family Education Materials](#)

LM Bell *Pediatrics* 2010;125:e770

- **Education only** interventions are focused on educating health care providers about the content of asthma clinical practice guidelines;

Education Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
NM Clark; 1998 [€] (Ann Arbor, MI; New York, NY; n = 74)	15% AA; 15% Latino (n = 472)	Education	Interactive seminar to guide partnership-building (PACE)	*10%↑ in ICS Rx's *15%↑ in providing asthma action plans
R Brown; 2004 [€] (Ann Arbor, MI; New York, NY; n = 74)	17% AA; 8% Latino; 65% Medicaid (n = 637)	Education	2 seminars (PACE)	*7x ↓ in ED visits * >3x ↓ in hosp.
CJ Homer; 2005 [€] (Boston, MA; Detroit, MI; 43 practices)	28% AA; 22% other (n = 490)	Education + feedback	3 1-day sessions. Bi-weekly conf calls + peer & group feedback (Breakthrough QI Series)	No improvement in ICS Rx's, asthma action plans, ED visits, hosp.

ℓ-pre-post study design € = randomized, controlled trial *p<0.05

- **Organizational change** interventions are designed to change the way in which an organization provides asthma care (e.g., having an asthma “champion”);

Organizational Change Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
J Fifield (Gilmet); 2010 [‡] (4 FQHCs in CT)	58% AA; 30% Latino (n = 295)	Organizational change	Practice re-design: well asthma visits; structured visit forms, community health workers, Web-based dz reg. provider educ.	*2x [‡] in odds for guideline-appropriate medications *22% improved odds for asthma control
SM Thyne; 2007 [‡] (San Francisco, CA)	22%AA; 50% Latino	Organizational change	Case identif.; provider educ. ; patient discharge form; Community Health Worker (Yes We Can)	4% [‡] hosp. 12% [‡] ICS Rx' s

‡-pre-post study design € = randomized, controlled trial *p<0.05

- **Feedback and audit** interventions are based upon providing performance data to health care providers about their quality of asthma care;

Provider Feedback Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
CI Coleman 2003 [†] (Connecticut Medicaid program)	27% AA 36% Latino (n = 645)	Feedback	letter to prescriber & pharmacist re: specific medication use problem (e.g., high-dose beta-agonist use and/or under-utilization of long-term control medicines) + Laminated asthma guidelines	No benefit in use of controller meds or in acute health care use 5% ↑ use of spacers 16% ↑ oral steroid use

- **Quality improvement/pay-for-performance** interventions are focused on quality improvement initiatives or pay-for-performance as the primary intervention;

Quality Improvement/Pay-for-Performance Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
R. Mangione-Smith; 2005 [‡] (13 sites; 11 Bureau of Primary Care community health centers in the U.S.)	30% AA; 29% Latino (n = 511)	Quality Improvement	Three 2-day educational series for quality improvement teams + 3 “action” periods over 1 year [Breakthrough Series (BTS)]	19% [‡] action plans 27% [‡] peak flow meters No difference in patient-reported use of long-term controller meds

‡-pre-post study design € = randomized, controlled trial *p<0.05

Quality Improvement/Pay-for-Performance Interventions

Study	% Minority Patients	Intervention Classification	Intervention Description	Outcome Effect
R. Mangione-Smith; 2005 [‡] (9 comm. health centers {Bureau of Primary Care} in the U.S.)	30% AA; 29% Latino (n = 511)	Quality Improvement	Three 2-day educational series for quality improvement teams + 3 “action” periods over 1 year. [Breakthrough Series (BTS)]	19%↑ action plans 27%↑ peak flow meters No difference in patient-reported use of long-term controller meds
Daniels; 2005 [€] (8 states;66 clinicians & other staff)	27% AA; 3% Latino	Quality Improvement	Flow-sheet + asthma kit + educ.	*38%↑interval sx hx *16% ↑peak flow 5% ↑action plan 10% ↑Rx for anti-inflammatory meds 17% ↑scheduled follow-up visit

[‡]-pre-post study design € = randomized, controlled trial *p<0.05

Intervention	Outcome: Prescription of controller medications	Outcome: Patient education/ asthma action plans	Outcome: ED visits/ hospitalizations	Outcome: Missed days of work/school
Decision support	Large MOE. SOE moderate.	Large MOE. SOE moderate	Mod. MOE SOE mod.	SOE inconsistent.
Organizational change	Small MOE. SOE low.	Moderate MOE SOE low.	Inconsistent. SOE low.	No benefit. SOE low.
Feedback and audit	Moderate MOE. SOE moderate.	Low MOE. SOE low.	Low MOE. SOE low.	SOE insufficient.
Clinical pharmacy support	Moderate MOE. SOE moderate.	Moderate MOE SOE moderate	SOE insufficient.	No studies. SOE insufficient.
Education only	No benefit. SOE low.	Small-mod. MOE SOE low.	Inconsistent. SOE low.	Inconsistent. Insufficient SOE.
QI and pay-for- performance	SOE Insufficient	Low MOE. SOE low.	No benefit. Low SOE	SOE insufficient.
Multi-component interventions	Moderate MOE. SOE low.	Moderate MOE SOE low.	Insufficient SOE.	SOE insufficient.
Information only	SOE Insufficient	SOE Insufficient	SOE insufficient	SOE insufficient.

Limitations/Future Directions

- Exclusion of non-English and non-peer-reviewed studies
- Exclusion of studies that targeted patients (alone or with health care providers)
- Potential mis-classification bias of interventions
- Understand potential negative consequences of intervention implementation
- Under-representation of Latino patients in many studies
- Evaluation of all intervention types in minority populations
- Standardize asthma morbidity & outcomes (health care process; clinical outcomes)

- Evidence supports use of decision support strategies to improve some elements of asthma care among minority populations

Acknowledgements

Co-Investigators

- Sande O. Okelo, M.D., Ph.D.
- Arlene M. Butz, Sc.D., R.N., C.R.N.P.
- Ritu Sharma, B.Sc.
- Gregory B. Diette, M.D., M.H.S.
- Samantha I. Pitts, M.D., M.P.H.
- Tracy M. King, M.D., M.P.H.
- Shauna T. Linn, B.A.
- Manisha Reuben, B.S.
- Yohalakshmi Chelladurai M.B.B.S., M.P.H.
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Reference

- Interventions To Modify Health Care Provider Adherence to Asthma Guidelines.
- Comparative Effectiveness Review No. 95. AHRQ Publication No. 13-EHC022-EF. Rockville, MD: Agency for Healthcare Research and Quality.
- www.effectivehealthcare.ahrq.gov/reports/final.cfm
- May 2013.
- Comments/Questions

UCLA Health