



THE CENTER
FOR MANAGING
CHRONIC DISEASE

Putting People at the Center of Solutions

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Using outcomes of interest to plan asthma programs

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Goals of Asthma Health Outcomes Project (AHOP)

- Identify characteristics of successful asthma programs that include an environmental component
- Codify success characteristics
- Inform ongoing asthma efforts
- Guide future funding and research
- Facilitate information-sharing and outcome achievement in the asthma community



Asthma Health Outcome Project

- Partnership with the Indoor Environments Division of the US Environmental Protection Agency
- Research team at Center for Managing Chronic Disease, University of Michigan:

Noreen M. Clark, PhD

Shelley Coe Stoll, MPH

Amy R. Friedman Milanovich, MPH

Daniel F Awad, MA

Laurie L. Lachance, PhD, MPH



Expert Panel

Guided by a panel of individuals with expertise in asthma interventions:

Peyton Eggleston, MD

Children's Center for
Environmental Health
The Johns Hopkins University

David Evans, PhD

Mailman School of Public Health
Columbia University

Christine Joseph, PhD

Henry Ford Hospital

James Krieger, MD, MPH

Seattle-King County Public Health
Department

Toby Lewis, MD

Department of Pediatrics/ School of
Public Health
University of Michigan

Amy Murphy, MPH

Milwaukee Health Department

Edith A. Parker, DrPH, MPH

Michigan Center for the Environment
and Children's Health (MCECH)
University of Michigan School of
Public Health

Melissa Valerio, PhD

University of Michigan School of
Public Health



Project Phases

- Phase I: Program Identification
 - Retrieve articles published in peer-reviewed literature describing interventions and their outcomes
 - Solicit nominations of programs from over 2500 key informants around the world



Program Inclusion Criteria

- Focus on asthma
- Include an environmental component
 - e.g., education about asthma triggers, trigger remediation, system or policy change
- Measure health outcomes
 - e.g., asthma symptoms, ED visits, hospitalizations



Project Phases

Phase II: Data Collection

- Review literature and program documents for all eligible programs (n=427)
- Collect data for those reporting success (n=223)
- In depth interviews with available programs (n=169)

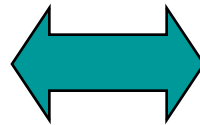
Data Analysis

1. Bivariate analysis to identify programmatic factors associated with positive health and environmental outcomes using published programs only (n=111)
 - χ^2 statistics using Fisher's exact test at .05 significance level
2. Bivariate analysis among published RCT only programs (n=65) to confirm findings among all published programs



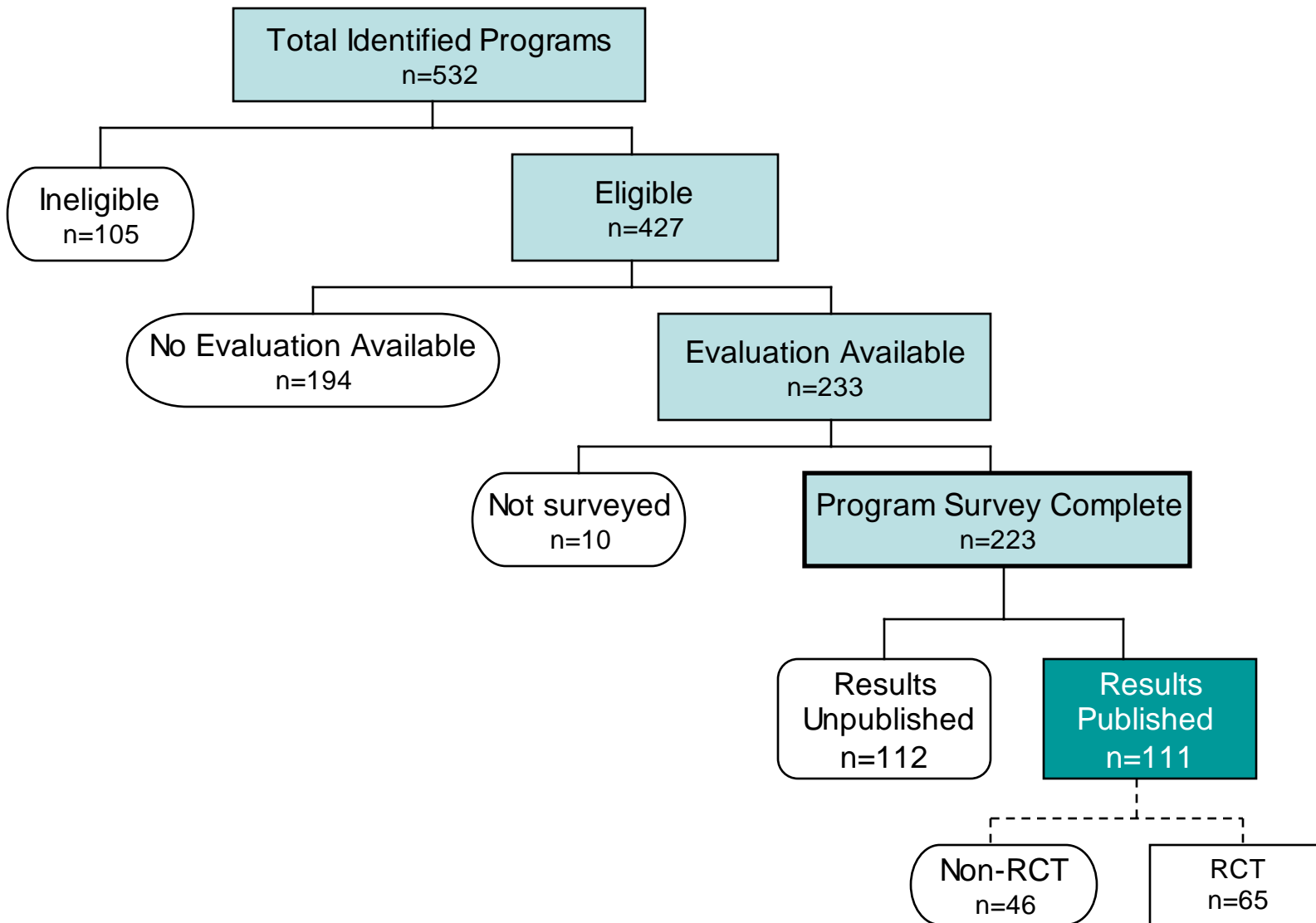
Bivariate Analysis among 111 Published Programs

Background
Planning and Design
Implementation
Administration
Program Context
Impact and Sustainability



Health Care Utilization
Quality of Life
Functional Status
School/Work Loss
Symptoms
Lung Function
Medication Use
Self-Management Skills
Use of an Asthma Action Plan
Peak Flow Meter
Change in Clinical Actions
Environmental Outcomes

AHOP Programs



Limitations and Strengths

Limitations

- Self-reported data
- Programs with no positive outcomes not included
- Some missing data for programs not interviewed (n=54)
- Did not assess effectiveness, quality, or intensity of individual programs
- Differences in program emphasis not accounted for

Strengths

- Documented programs from 30 countries and 46 US states
- Broad range of programs including community-based efforts not typically published and a wide variety of intervention strategies
- Data analysis and reporting responsive to needs in field due to iterative process with experts and field practitioners

Findings

Programmatic Factor	Associated Outcome	n	p-value	Odds Ratio [95% CI]
Had an office located within the target community	Hospitalizations	53	0.04	9.71 [1.00, 94.78]
	ED visits	44	0.04	10.18 [1.02, 101.52]
	Health care utilization	59	0.01	15.64 [1.58, 154.28]
Involved community-based organizations in program planning	Health care utilization	13	0.03	30.00 [1.47, 611.80]
Collaborated with community-based organizations	Health care utilization	16	0.04	21.00 [1.50, 293.25]
Conducted a needs assessment	School absences or work loss	22	0.02	22.09 [2.25, 216.6]
Designed program to target a particular race or ethnic group	Quality of life for parents	16	0.02	18.3 [imputed]
Assessed trigger exposure	Quality of life for adults	25	0.02	15.60 [1.48, 164.38]

Findings

Programmatic Factor	Associated Outcome	n	p-value	Odds Ratio [95% CI]
Tailored content or delivery based on individual participant's health or educational needs	Symptoms	54	0.03	4.81 [1.26, 18.31]
	Quality of life for adults	22	<0.01	121 [imputed]
	Quality of life for children, adults or parents	42	0.01	12.08 [1.88, 77.66]
Tailored intervention based on assessed trigger sensitivity	Quality of life for children	8	0.04	65 [imputed]
	Quality of life for children, adults or parents	14	<0.01	161 [imputed]
Educated health care providers (including school nurses)	School Absences	25	0.02	13.50 [1.75, 103.88]
Component took place in a physician's office or clinic	ED Visits	55	0.01	4.92 [1.48, 16.34]

Findings

Programmatic Factor	Associated Outcome	n	p-value	Odds Ratio [95% CI]
Collaborated with other agencies or institutions	Hospitalizations	43	0.02	8.75 [1.42, 53.91]
Collaborated with governmental agencies	ED Visits	29	0.04	10.00 [1.02, 95.23]
Collaborated with other agencies or institutions on technical assistance	Health care utilization	15	0.04	17.50 [1.22, 250.36]
Collaborated with other agencies or institutions on policy action	Medication use	27	0.04	10.00 [1.03, 97.50]
	School absences	18	0.01	24.56 [imputed]

Programmatic Factors, by Health Outcome



Health Care Utilization

- An office located in the target community
- Component took place in doctor's office or clinic
- Involved CBOs in program planning
- Collaborated with other agencies or institutions, especially CBOs and governmental agencies
- Collaborated on technical assistance



Quality of Life

- Tailored intervention based on an assessment of trigger sensitivity
- Tailored content based on individual's health or educational needs
- Assessed trigger exposure
- Designed program to target particular race or ethnicity



School Absences and/or Work loss

- Educated health care providers, including school nurses
- Conducted a needs or resource assessment
- Collaborated with other agencies on policy action



Asthma Symptoms

- Tailored content based on individual's health or educational needs



Medication Use

Collaborated with
other agencies
on policy action



Themes of Success



- Community-Centered
- Responsive to Need
- Collaborative
- Clinically Connected



AHOP is a project of the Center for Managing Chronic Disease at the University of Michigan, conducted under a cooperative agreement with the Indoor Environments Division of the US Environmental Protection Agency.

Products

- Complete list of all identified programs (>500) with contact information
- Comprehensive description of each surveyed program
- AHOP survey instrument
- Project Reports



available on
AlliesAgainstAsthma.net/ahop