What is ACCORDS?
Adult and Child Center for Outcomes Research and Delivery Science

ACCORDS is a ‘one-stop shop’ for pragmatic research:
• A multi-disciplinary, collaborative research environment to catalyze innovative and impactful research
• Strong methodological cores and programs, led by national experts
• Consultations & team-building for grant proposals
• Mentorship, training & support for junior faculty
• Extensive educational offerings, both locally and nationally

medschool.cuanschutz.edu/ACCORDS | @AccordsResearch
## ACCORDS Upcoming Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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</table>
| December 19, 2022     | **Methods and Challenges in Conducting Health Equity Research**     | Basketball, Bloodlines, Bourbon, and Burley: Community-Engaged Research to Change the Lung Cancer Landscape in Kentucky  
*Presented by: Jamie Studts, PhD (CU Anschutz)* |
| 12:00-1:00 PM MT      |                                                                      |                                                                                                   |
| Beginning spring 2023 | **Hot Topics in Mixed Methods and Qualitative Research**            | A mini series running from January - May                                                          |
| 1st Wednesdays each   |                                                                      |                                                                                                   |
| month                 |                                                                      |                                                                                                   |
| June 5-7, 2023        | **COPRH Con 2023**                                                  | Save the date! More info coming soon!                                                             |
| 10:00 -3:00 PM MT     |                                                                      |                                                                                                   |
Leveraging Community Engagement and Implementation Science Methods to Reduce Pediatric Asthma Disparities

Presented by:

Amy Huebschmann, MD, MSc
Andrea Jimenez-Zambrano, PhD, MPH
Leveraging community engagement and implementation science methods to reduce pediatric asthma disparities

Amy Huebschmann, MD, MSc and Andrea Jimenez-Zambrano, PhD, MPH

ACCORDS Health Equity seminar series
November 14, 2022
Disclosures

No relevant conflicts of interest to disclose

“It takes a village” – we owe much credit to many:

• Stop Asthma Attacks research team (MPIs: Szefler, Cicutto, Huebschmann)
• Our advisors: 5 Community Advisory Boards, State Advisory Board, Scientific Advisory Committee
• DECIPHeR coordinating center advisors and NHLBI Technical Advisory panel
• ACCORDS Primary Care research fellowship for Dr. Jimenez-Zambrano (T32HP42016)
• ACCORDS Implementation Science program and Qualitative/Mixed Method core
Objectives

• Identify ways that implementation science methods may be used to tailor evidence-based programs to the local context across socio-ecological levels

• Learn an approach to develop consensus on local community priorities for an evidence-based program

• Recognize qualitative approaches to explore differences in needs for an evidence-based program among Latinx and non-Latinx families
Presentation Overview

1. Project Overview and implementation science methods to promote equity
2. Community engagement methods to promote equity
   • Priority outcomes for Stop Asthma Attacks
   • Understanding patient/family context
3. Next steps and discussion
Implementation Science and Impact

Marketing Existentialism

If I write content and nobody reads it, is it really marketing?

brandmanagecamp.com
Factors to promote external validity through a health equity lens*

Pre-Implementation (Design/Plan)
- Who should be considered as invested partners? – represent across levels of the socio-ecological model
- Address high-priority problems with acceptable interventions and strategies – vet with partners
- Design for relevance
- What is success? – ask partners to identify
- Equity considerations – identify inequities in the context to address
- Plan to Adapt: adapt form of the intervention function to fit context

Implementation
- Set up sites for success
- Monitor progress towards partner-identified outcomes of success
- Monitor for inequities in outcomes – create feedback channels to identify and act on any emerging inequities (e.g., unequal reach)
- Researcher accountability – checks & balances on decision-making
- Monitor adaptations – why/how they are needed and what works

Evaluation/Sustainment
- Evaluate partner-identified outcomes of success: understand drivers of inequities
- Disseminate findings, including adaptations and context-dependent effects
- Is it worth sustaining? Evaluate the return on investment – clinician/system impact and benefits to end-users/patients
- If value is acceptable to invested partners, develop a business plan for sustaining the program
- Set up equity-promoting assessment as part of sustainment

Factors to promote external validity through a health equity lens:

↑Representation of invested partners across all 3 phases leads to: ↑Equity/↑Representativeness of outcomes

PURPOSE: Develop and test implementation research strategies for optimally and sustainably delivering two or more proven-effective, evidence-based multi-level interventions to reduce or eliminate heart and/or lung disease disparities.

Expectations

• The implementation research strategies developed should promote/improve population health and reduce/eliminate disparities in heart and/or lung disease risk in specified high-burden communities.

• Strategies developed should facilitate sustainable uptake of proven-effective interventions into routine clinical practice and community-based settings and maximize the impact on population health & health disparities.

• Strategies should test implementation outcomes rather than efficacy/effectiveness as the primary outcomes of interest.
Asthma is a common chronic disease for children that disproportionately impacts low-income families.

Over the past 2 decades, our team has sought to address pediatric asthma disparities:

- Developed a school-based asthma program in partnership with urban, low-income schools and communities
- Active care management of asthma and social determinants of health (SDOH)
- Our program has reduced health care utilization and school absences

In 2020, we received NHLBI Disparities Elimination through Coordinated Interventions to Prevent and Control Heart and Lung Disease Risk (DECIPHeR) funding to promote health equity by scaling out this program across 5 regions of Colorado.
Visual schema: Stop Asthma Attacks Intervention

Education & Coordination to Better Control Asthma

- Child & Family
- School Nurse
- Primary Care Provider
- Asthma Navigator
- Social Determinants of Health Resources

Tele-huddles, Care Coordination, Specialty Care Access if Needed
Transportation, Food Security, Financial Constraints of Asthma Care
Core Functions: Stop Asthma Attacks (SAA) Intervention

- Identify students with asthma
- Complete asthma assessment
- Assure quick acting reliever at school
- Instruction to acquire self-management skills
- Tailored instruction by asthma navigator to support asthma case management and care coordination
- Assess and manage social determinants of health
### DECIPHeR Colorado Program: Main Health Outcomes, Study Population and Health Disparities

| **Goal:** | Broad program reach and benefits to reduce disparities in asthma attacks and symptoms among low-income students |
| **Design:** | Type II hybrid effectiveness-implementation trial; randomized by nurse, open cohort, parallel cluster randomized trial where intervention conditions are phased in over two years |
| **Population:** | 5 regions in Colorado; 300 students with uncontrolled asthma ages 5 to 12 years including rural and mid-sized urban cities with minority population |
| **Interventions:** | Stop Asthma Attacks (SAA) Program: 1. SAA program; 2. SAA program with enhanced community/school engagement |
| **Measures:** | Evaluation conducted using the reach, effectiveness, adoption, implementation, maintenance (RE-AIM) framework |
| **Primary outcomes:** | Reach (primary implementation outcome); Asthma attacks, Asthma symptoms (co-primary effectiveness outcomes) |
| **Deliverable:** | Online website/dissemination guide (a.k.a. playbook) – includes implementation resources for schools to train school nurses/community health workers, and to engage students and families |
Enhanced School/Community Engagement with Community Health Worker volunteer

Education & Coordination to Better Control Asthma

- Child & Family
- School influencers
- Parent influencers
- Community influencers and SDOH community health worker
- Tele-huddles, Care Coordination, Specialty Care Access if Needed
- Primary Care Provider
- Social Determinants of Health Resources
- Transportation, Food Security, Financial Constraints of Asthma Care
Implementation science methods leveraged to address disparities

- Implementation Science Frameworks – process, contextual determinants and implementation outcomes
- Assessment of context at multiple socio-ecological levels
- Tailoring to context
Relevant partners for Stop Asthma Attacks

Individual: CHILD with asthma
- Parent/Caregiver
- School Nurse
- Primary care provider
- Asthma Navigator

Organizational level:
- Schools/Districts
- Primary care clinics
- SDOH focused organizations

Community:
- Policy
- Norms
- Values

Preparation

Develop plans and teams

Researchers work with partners to build capacity

Community
- Train navigator
- Build SDOH partnerships

Schools
- Build capacity for school nurse to deliver core functions of SAA

Primary Care
- Identify and prepare champions for care coordination

Implementation

Implement SAA-S and SAA-E

Researchers provide support for implementation activities while conducting the RE-AIM evaluation:

Community
- navigators work with schools, nurses and families for care coordination and SDOH management activities

Schools
- school nurse asthma care, coordination and case management

Primary Care
- champions coordinate care with school nurse and navigator

Sustainment

Ongoing financial and logistical support

Researchers will engage invested partners to sustain either SAA-S or SAA-E, based on their priorities and available resources

Community
- Navigator role
- SDOH partnership

Schools
- School nurse provision of asthma care, coordination and case management

Primary Care
- Champion role for asthma care coordination

EPIS Process model guides work with community, school and primary care partners across phases

Partners engagement

Environmental scan of multi-sectoral priorities, needs and resources in partnership with regional advisory boards

Community – variable access to Social Determinants of Health (SDOH) resources

Schools – Asthma is a high priority amid many competing demands

Primary Care – Need better ways to communicate with schools on asthma care
Framework: expanded RE-AIM

(Pragmatic, Robust, Implementation and Sustainability Model (PRISM) contextual factors that predict RE-AIM outcomes of Reach, Effectiveness Adoption, Implementation, and Maintenance)

www.re-aim.org
Exploration- Key Informant Interviews and Surveys

• **What:** Key informant interviews and surveys
  - Context related to PRISM determinants of implementation success
  - Priorities
  - Needs
  - Resources/Strengths
  - Readiness for change

• **Who:** Community organizations, families living with asthma, health care professionals, schools, public health
Preparation- Plan, Develop, Build Capacity

• Co-identification with SAB/CABs of important indicators/outcomes of success to be measured in UH3 trial

• Co-development with regional CABs and schools (sites for implementation)
  • Generic implementation plan: Fall 2021
  • SDOH Resource book for state and regions/communities: Fall 2021
  • Site-specific implementation plans: Winter 2022
  • Playbook for tailored implementation: Spring 2023
    • Interactive website for implementation support, guidance and resources – a key deliverable to use with schools and to further refine in the UH3 phase
Examples of Community engagement – presented by Andrea Jimenez-Zambrano, PhD
DECIPHER Team and Community Partners
Principles guiding engagement:

- Community engaged research
- Community-based participatory research
- Effective community partnerships

- Inclusion and diversity of voices
- Collaboration and shared purpose
- Openness and learning from one another
- Transparency
- Building on strengths and resources of communities
- Focus on local relevance of issues on multiple determinants of health
- Participatory planning and preparation
- Participatory action for community impact
- Sharing and discussing results and plans
- Use of iterative systems development processes (cyclical and iterative process) for improvement
- Sustained engagement
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• Participatory action for community impact

• **Sharing and discussing results and plans**
• Use of iterative systems development processes (cyclical and iterative process) for improvement
• Sustained engagement
Engagement Model

- Quarterly meetings
- Each regional CAB has representative on State Advisory Board
- Community CAB members paid for time, unless disallowed by their position

State Community Advisory Board

- Delta/Grand Junction Regional CAB (Mid-size urban)
- Cortez/Montezuma Regional CAB (Rural)
- Lower Arkansas Valley Regional CAB (Rural)
- Greeley-Weld County Regional CAB (Mid-size urban and Rural)
- Colorado Springs Regional CAB (Larger Urban)
- Scientific Advisory Committee

Core Research Team
Composition of CAB Members

Variety of community partner roles were represented across the 5 CABs

- Health care providers
- School nurses
- Parents of child with asthma
- Local SDOH agency members
- Local public health
Priority Outcomes of Success
Key Objective in Planning Phase

- Engage regional Community Advisory Boards (CABs) to come to consensus on priority outcomes of success
  - Ranked priority outcomes of success within 4 distinct categories
    - Schools
    - Social Determinants of Health
    - Child/Family
    - Health Care Providers
Our consensus-building method

1. Generate Ideas
2. Record ideas
3. Discuss ideas
4. Preliminary vote on ideas
5. Discuss preliminary voting results
6. Final vote

Nominal Group Technique

Qualitative interviews of CAB members; CAB brainstorming sessions

CABs each came to consensus on top 2-3 priority outcomes of success in each category

Each CAB reviewed the ideas generated across all CABs in each of the 4 categories (e.g., school, SDOH)
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Nominal Group Technique

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CABs each came to consensus on top 2-3 priority outcomes of success in each category

Each CAB reviewed the ideas generated across all CABs in each of the 4 categories (e.g., school, SDOH)
Results

Schools:
A. Increased school asthma care plan on-file for students early in school year (4 out of 5 regions)
B. Increased connection between schools and health care providers (4 out of 5 regions)

Community/SDOH Agencies:
C. Address health literacy needs for parents/family (3 out of 5 regions)
D. Transportation resources (3 out of 5 regions)
E. Availability of fun, low-literacy, educational resources (e.g., how-to-use inhaler resources for children) (2 out of 5 regions)
Lessons Learned

• Nominal Group Technique approach engaged CAB members to ensure diverse community perspectives were heard and priority “successes” identified and measured.

• More regional consensus about school outcomes than SDOH outcomes – implications for tailoring to regions.

• Using this process to prioritize outcomes of success has informed:
  o Implementation strategy selection
  o Study outcomes we will track/report back to CABs

• This process may be replicated for other studies.
Child/Family Engagement
Exploring the factors to tailor SAA program for acceptability and cultural responsiveness of families living in rural and smaller metropolitan areas of Colorado
Objective

**Aim 1** - This project seeks to understand in-depth which barriers and facilitators might influence rural family’s engagement with the SAA program.

**Aim 2** - Identify possible adaptations to the program to ensure accessibility, acceptability and cultural responsiveness that would support their engagement.
Methods

- In-depth semi-structured interviews guided by PRISM and the Cooper’s Health Equity frameworks.
Methods

• In-depth semi-structured interviews guided by PRISM and the Cooper’s Health Equity frameworks.

• Participants were identified at primary care practices using ICD-10 codes:
  • SALUD Ft. Morgan
  • High Plains Community Health Center

• Inclusion criteria:
  • English or Spanish speaker
  • Reside in the LAV or in the Weld/Fort Morgan
  • At least 18 years of age
  • Parent/caregiver of a child between 5-12 years of age with asthma
Preliminary Emerging Themes- Acceptability

**Barriers**

- Theme 1: A lack of education about asthma and how to manage it impacts effective and sustained management among children.
- Theme 2: Both rural locations described similar experiences with PCPs and emergency care utilization.
- Theme 3: Financial situations influence medication access at school.

**Facilitators**

- Theme 4: General acceptability and openness among participants to take part in an asthma program at school.
Preliminary Emerging Themes- Tailoring to Fit

• Theme 1: School involvement in asthma management seems to be related to more severe asthma, more involvement from school, and increased likelihood of having ACP in place and/or inhaler at school.

• Theme 2: Language barriers negatively impact asthma management making it more difficult to understand an asthma diagnosis, access medication, and communicate with providers.
Next steps
**Current Proposed Study Design and Timeline for Colorado**

<table>
<thead>
<tr>
<th>UG3 Phase (9/2020-8/2023)</th>
<th>UH3 Phase (9/2023-8/2027)</th>
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### EPIS FRAMEWORK

**Exploration (UG3 Year 1)**
- Preparation (UG3 Year 3)
  - (Equipping schools to obtain Baseline data in Control phase)
  - Confirmation of Essential Data Elements and Operational Readiness during Baseline Data

**Preparation (UG3 Year 2)**

**UH3 Years 1-3 - Implementation of intervention**

**Sustainment (UH3 Y4)**

**Study Design:** open cohort, parallel cluster randomized trial where intervention conditions are phased in over two years.

**Nurses will be block randomized to an intervention course by region and urban designation**

<table>
<thead>
<tr>
<th>Arm 1</th>
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**Evaluation of Effectiveness Outcomes**

- Reach
- Adoption
- Implementation
- Maintenance

**Evaluation of RE-AIM Outcomes**

- UG3 Phase (9/2020-8/2023)
- UH3 Phase (9/2023-8/2027)

- Exploration (UG3 Year 1)
  - Preparation (UG3 Year 2)
  - UH3 Years 1-3 - Implementation of intervention
  - Sustainment (UH3 Y4)

- UG3 Year 3
  - Baseline Data
- UG3 Year 4
  - Baseline Data
- UH3 Year 1
  - Baseline Data
- UH3 Year 2
  - Baseline Data
- UH3 Year 3
  - Baseline Data
- UH3 Year 4
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**Baseline Data**

Arm 1: MSAA-S or MSAA-E

Arm 2: SAA-E

Arm 3: SAA-S

Arm 4: MSAA-S or MSAA-E

**UG3 Years 1-3 - Implementation of intervention**

**Sustainment** (UH3 Y4)

**Evaluation of RE-AIM Outcomes**

- Reach
- Adoption
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**Evaluation of Eff**

- SAA-S vs. SAA-E
- SAA-S vs. Usual Care
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**Study Design**

**UG3 Phase (9/2020-8/2023)**

- **Exploration (UG3 Year 1)**
- **Preparation (UG3 Year 2)**

**UG3 Year 3**

- Arm 1: Baseline Data
- Arm 2: Baseline Data
- Arm 3: Baseline Data
- Arm 4: Baseline Data

**Preparation (UG3 Year 3)**

- Equipping schools to obtain Baseline data in Control phase
- Confirmation of Essential Data Elements and Operational Readiness during Baseline Data

**UH3 Phase (9/2023-8/2027)**

- **UH3 Years 1-3 - Implementation of intervention**
- **Sustainment (UH3 Y4)**

**Evaluation of Effectiveness Outcomes**

- Reach
- Adoption
- Implementation

**UH3 Year 1**

- Control
- SAA-S
- SAA-E

**UH3 Year 2**

- Control
- SAA-S
- SAA-E

**UH3 Year 3**

- Control
- SAA-S
- SAA-E

**UH3 Year 4**

- Control
- SAA-S
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**Current Proposed Study Design and Timeline for Colorado**

- UG3 Phase (9/2020-8/2023)
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- Reach
- Adoption
- Implementation

**Evaluation of Effectiveness Outcomes**

- SAA-S vs. SAA-E
- SAA-S vs. Usual Care
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**Timeline**

- 9/2022-8/2023 (UG3 Phase)
- 9/2023-8/2024 (UH3 Year 1)
- 9/2024-8/2025 (UH3 Year 2)
- 9/2025-8/2026 (UH3 Year 3)
- 9/2026-8/2027 (UH3 Year 4)
**Study Design:** open cohort, parallel cluster randomized trial where intervention conditions are phased in over two years.

**Baseline Data**

- Arm 1: MSAA-S or MSAA-E
- Arm 2: SAA-E
- Arm 3: SAA-S
- Arm 4: MSAA-S or MSAA-E

**UG3 Year 3 - UH3 Year 3**

- SAA-S vs. SAA-E
- SAA-S vs. Usual Care
- SAA-E vs. Usual Care

**Control for covariates and potential modifiers, examine contextual factors**

**Evaluation of Effectiveness Outcomes**

- UH3 Years 1-3 - **Implementation** of intervention
- SAA-S vs. SAA-E
- SAA-S vs. Usual Care
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**Evaluation of RE-AIM Outcomes**

- Reach
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**Evaluation of RE-AIM Outcomes**

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- Arm 4: Baseline Data

**UG3 Year 3**

- Control
- SAA-E

**UH3 Year 1**

- Control
- SAA-S

**UH3 Year 2**

- SAA-S
- SAA-E

**UH3 Year 3**

- SAA-S
- SAA-E

**UG3 Phase (9/2020-8/2023)**

- **UG3 Year 3**
- **Baseline Data**

**UH3 Phase (9/2023-8/2027)**

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Adoption
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Reach
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Implementation
Implementation
Maintenance

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UG3 Phase (9/2024-8/2025)
UG3 Phase (9/2023-8/2024)
UG3 Phase (9/2022-8/2023)

UG3 Phase (9/2020-8/2023)
Next Steps

Planning Phase Year 3 (9/2022 – 8/2023)

1. Finalize protocol for sponsor approval
2. Data Safety Monitoring Board review and approval
3. Complete school nurse recruitment
4. Hire data collectors for each region
5. Collect aggregate data from each school
6. Finalize list of participating schools for site randomization
7. Hire/train asthma navigators

Years 4-7: Program implementation 9/2023
**School Nurse Recruitment**

**Totals**

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</table>

Potential participants: 1435

**Yes and Maybe**

<table>
<thead>
<tr>
<th>Region</th>
<th>Districts</th>
<th>Nurses</th>
<th>Schools</th>
<th>Potential participants</th>
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<td>Greeley/Weld/Morgan</td>
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Key Challenges

1. Seeking sufficient finances to include all eligible and interested schools -- looking for supplemental funding options from foundations and potential future sponsors in the sustainment phase.

2. Not letting the cart get ahead of the horse – still studying effectiveness of the adapted program in new contexts.
Credit to our team and advisors!

- Stan Szefler, MD (MPI) – Asthma/School-based research
- Lisa Cicutto, RN, ACNP(CERT), PhD (MPI) - Rural community engagement, Asthma/School-based research
- Amy Huebschmann, MD, MSCS (MPI) - Dissemination and Implementation science
- John Brinton, PhD – Biostatistician, Design and Analysis
- Lisa DeCamp MD, MSPH – General pediatrician, health disparities research
- Melanie Gleason, PA, MS – Asthma/School-based programs – major role in implementing/training
- Arthur McFarlane – Asthma/School-based evaluation and social determinants of health outreach
- Sarah Brewer, PhD – Mixed methods and qualitative research
- Nicole Wagner, PhD – Dissemination and Implementation science
- Misha Brtnikova, PhD, MPH - Project manager
- Anowara Begum, MPH - Project Coordinator
- Julia Reedy, MA - Qualitative Analyst
- Rachel Armstrong, BA - Project Coordinator
Community partners

**Lower Arkansas Valley**
- Meagan L Hillman PA-C, MBA - Director Prowers County Public Health
- Sandy Malouff - Director, Sante Fe Trail BOCES
- Su Korbitz - Otero County Public Health Environmental Services Program Director
- Gino Figlio, MD - High Plains Community Health Center
- Jessie Wallace, RN - Otero School District
- Kirsten Bolstad, Physician Assistant - Valley-Wide Health Systems
- Haley Morales, RN - Lamar school nurse

**Greeley/Weld/Morgan**
- Debra Pettit, RN - Highland School District Nurse
- Jodi Walker - Kids at their Best
- Lori McCarty, RN - Greeley Schools nurse
- Amy Driscoll, MD - Pediatrician, University Health
- Hannah Sellnow - Physician Assistant, Sunrise Community Health
- Mechelle Beck - Health Promotion and Prevention Manager, Northeast Colorado Health Department
- Sandalyn Garcia - Director, Salud Family Health Centers
Community partners

**Mesa/Delta**
- Benjamin Hughes, MD CHCO - Pediatric Pulmonologist and Sleep Medicine physician in Grand Junction
- Andrea L Nederveld, MD – Primary Care Med-Peds physician – Director of PEACHnet, Grand Junction
- Alicia Morrill - Parent of a child with asthma
- Megan Murray - Regional school nurse, Grand Junction
- David Scott, MD - Allergy/Immunology physician
- Rachel Slogar, RN - School district nurse for Delta

**Montezuma/Cortez**
- Moriah Tarpey, MD - Pediatrician
- Imu Suko – Trailheads Regional Public Health Connector
- Kim Caruso, MD – Pediatric doctor, school health champion
- Leigh Sand – Cortez school nurse
- Jaclyn Hall, BSN, RN – Montezuma school nurse

**Pikes Peak**
- Michelle Largent - School nurse Harrison School District
- Amy Dreher - School nurse El Paso County
- Patricia Eells, NP CHCO - CHCO Pulmonary provider
- Jamie Clayton - Director of Healthcare Integration, YMCA
- Amanda Taylor - CHCO Asthma Care Coordinator
- Kat Wyns, MD - Primary Care Provider (TriCare/Military)
- Grace Houser - Healthcare Administrator (Director of Population Health, CHCO Colorado Springs)
- Crystal Joyner - mom of a Tricare Insured child
Questions?

Email us with any questions: stopasthmaattacks@ucdenver.edu