

The Changing Landscape of Pediatric Asthma: Implications for Scientists, Educators and Clinicians



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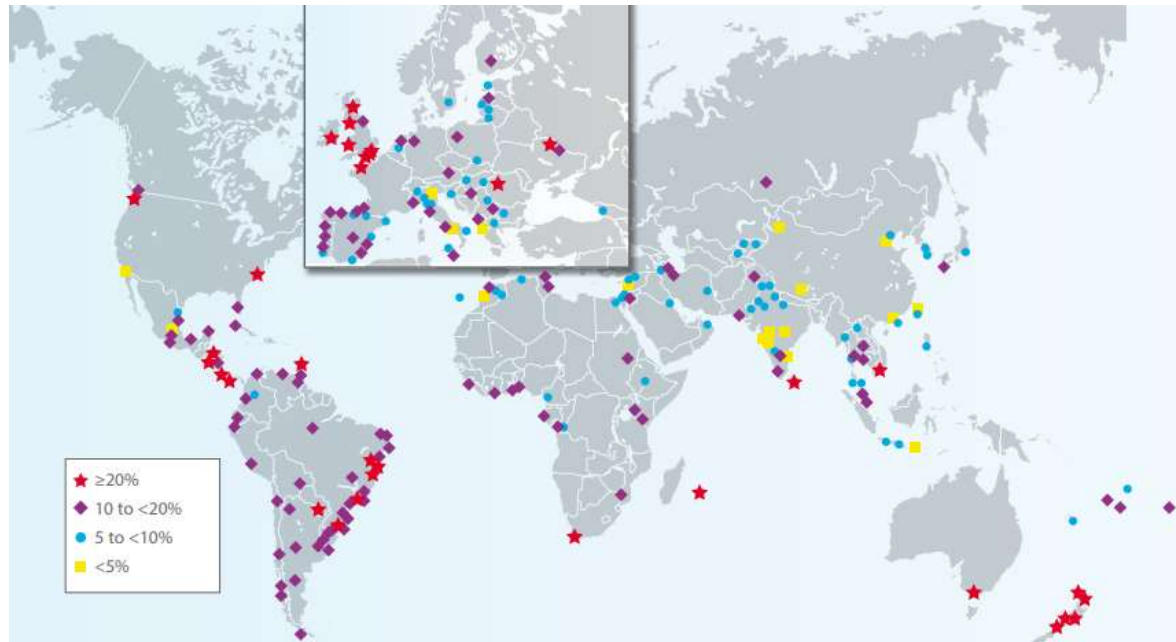
Objectives

- > **Review evidence-based asthma care**
- > **Contrast precision health**
- > **Discuss application of precision health & evidence-based care**

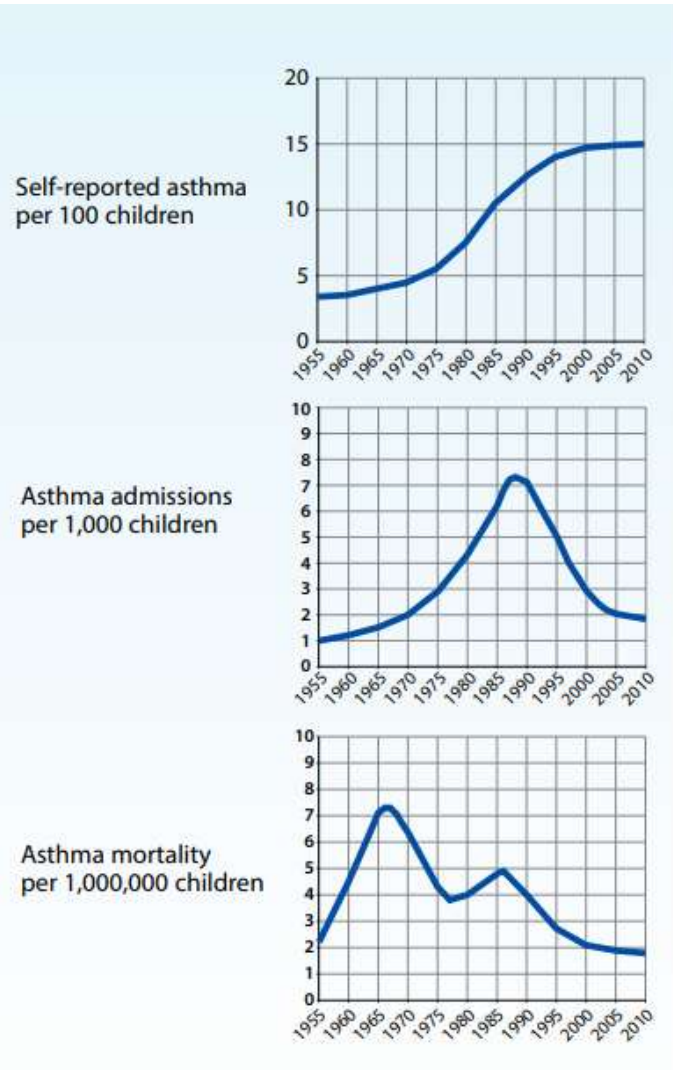


Asthma Prevalence

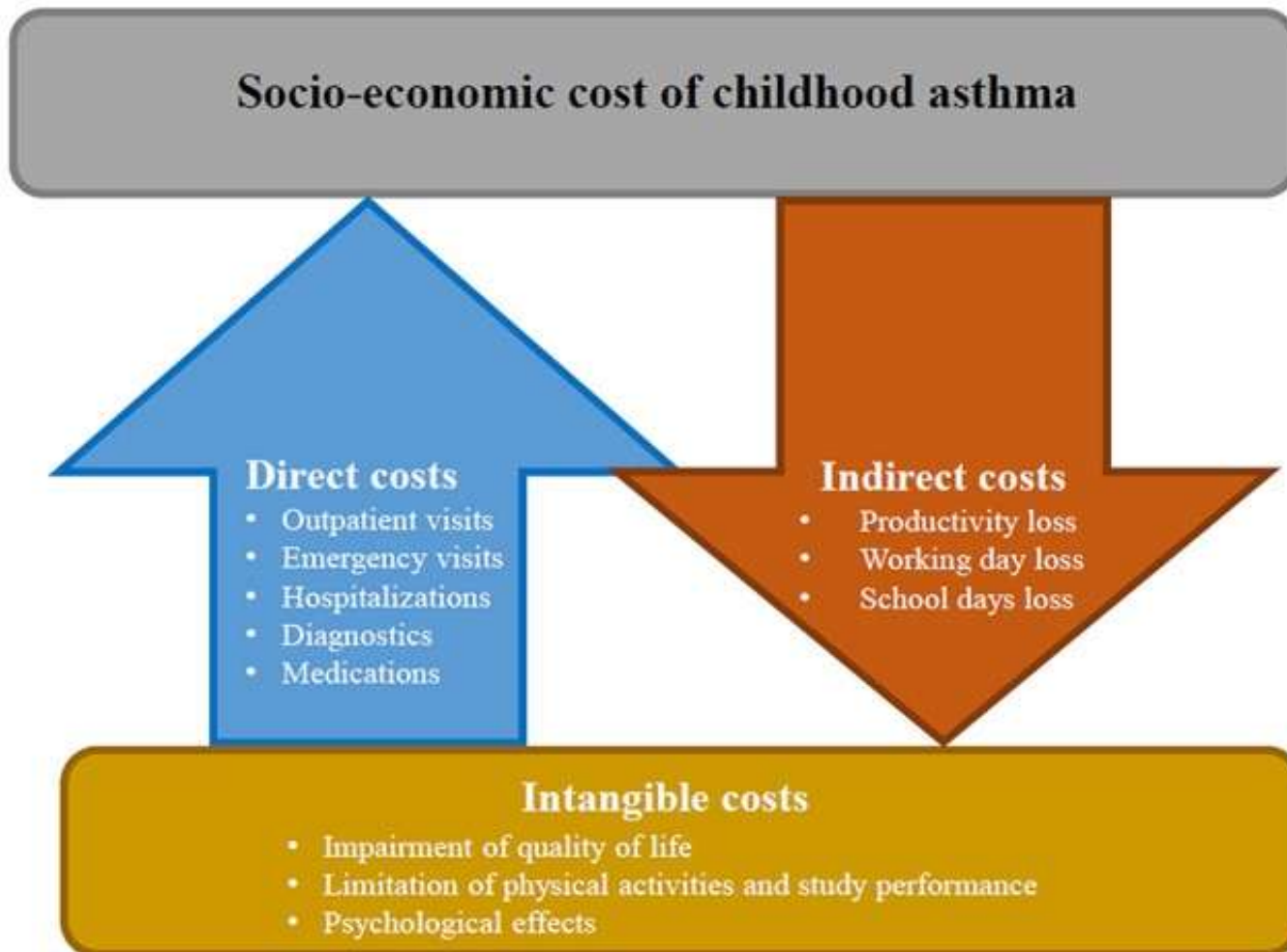
- > **339 million people worldwide**
- > **Approximately 15% of children**



Asthma Prevalence Trends

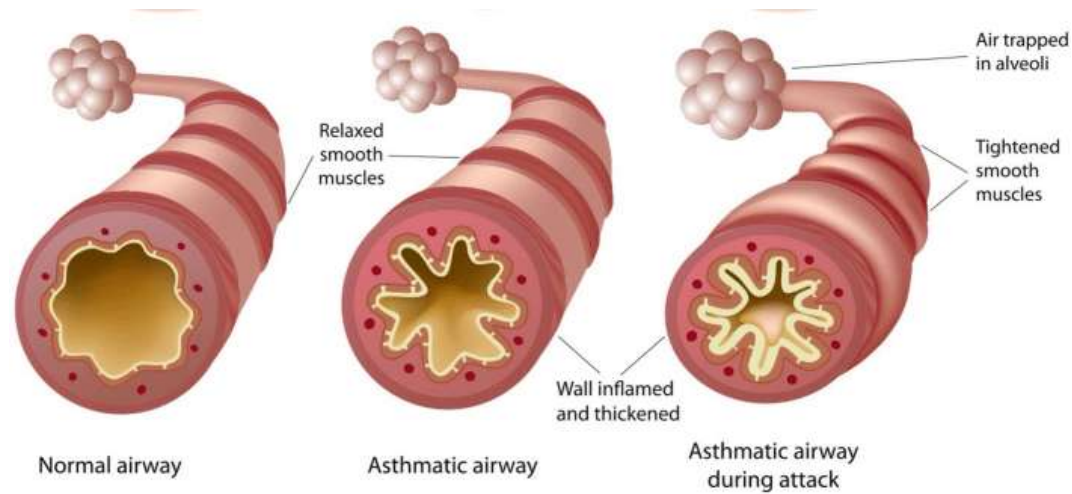


The Cost of Asthma

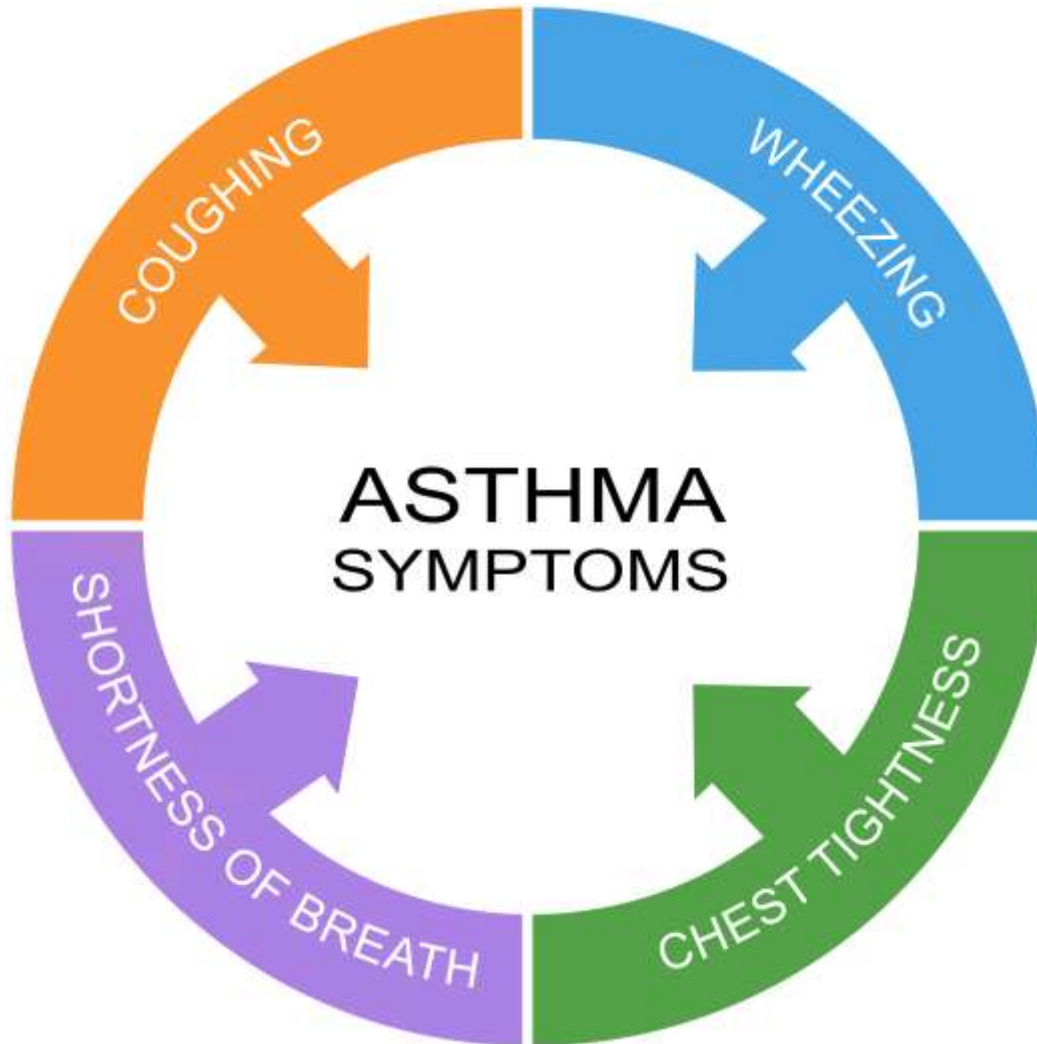


Asthma

- > **Bronchial hyperresponsiveness**
- > **Airway inflammation**
- > **Reversible airflow obstruction**



Typical Clinical Presentation



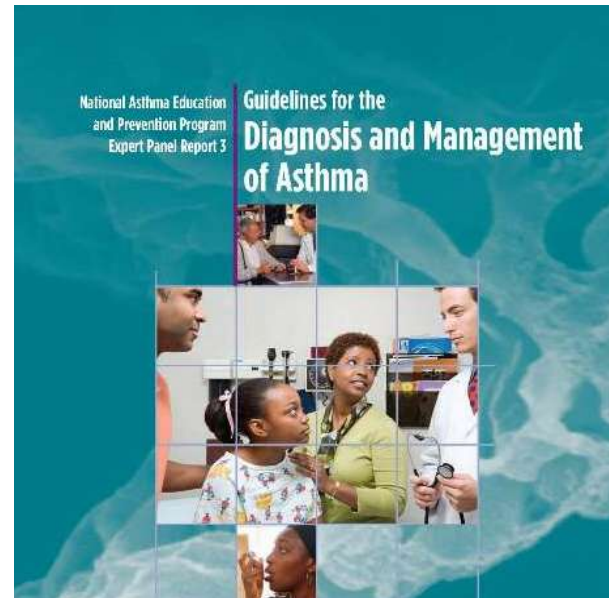
Evidence-Based Asthma Care

- > **Goal: disease control**
 - Risk reduction and trigger avoidance
 - Rescue inhaler
 - Daily controller medications



Evidence-Based Asthma Care

> Evidence-driven treatment guidelines



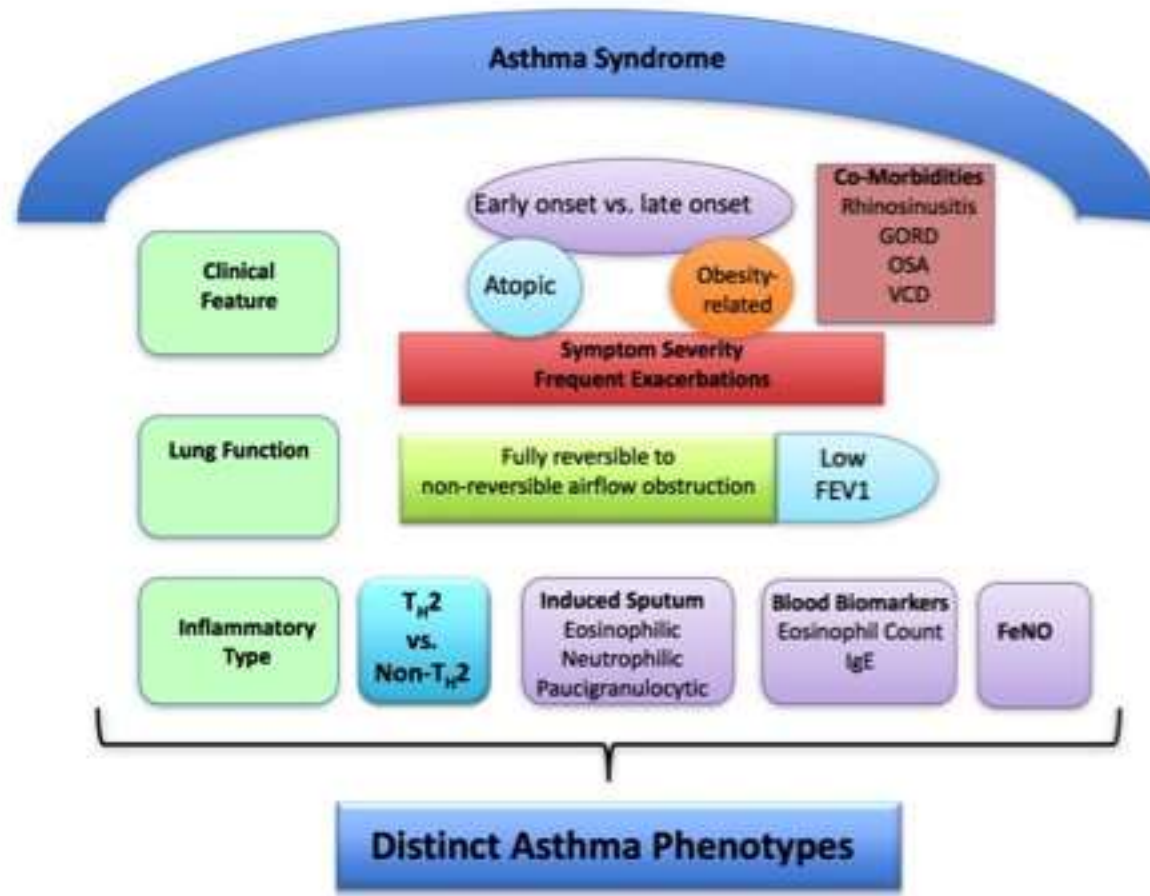
The Problem



One size does not fit all...

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The Heterogeneity of Asthma



When EBP is not enough

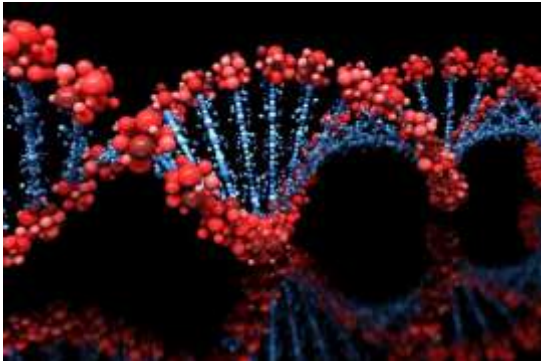


Precision Health

- > **Individualized approach to care**
- > **The right treatment for the right patient at the right time**
- > **Precision health \neq precision medicine!**
 - **Precision medicine: biomedical and curative foci**
 - **Precision health: health and wellness**



Precision Health Foci



Where Precision Health & EBP Collide

> **Pediatric asthma shared management**



The School Years

- > **Critical time in asthma management**
- > **Increasing time away from parents**
- > **Developmentally:**
 - **Concrete thinkers**
 - **Rule-driven**
 - **Know right and wrong**



Literature Gap

- > **No known studies describing child asthma beliefs**
- > **Parent (proxy)**
 - Observed & reported symptoms
- > **Discordance between parent and child**
 - Symptoms
- **Dynamic balance of responsibility**



Preliminary Work



Parent-Child
Asthma
Beliefs &
Management
(N=34 dyads)

- > **Cross sectional convenience sample**
- > **Children with asthma ages 6-11 and one parent**
- > **Dyads independently reported:**
 - Asthma beliefs
 - Medication beliefs
 - Asthma adherence

Findings

- > **Agreement: medication beliefs**
- > **Significant discordance**
 - Asthma beliefs
 - Asthma symptom presence
 - Medication adherence
- > **Key takeaway:**
 - Parents report lower medication use and symptoms



Asthma Management Responsibility



**Parent-child
discordance in
reported asthma
management
(N=34 dyads)**

**Asthma
management
responsibility
(N=20 dyads)**



Intervention Development



**Parent-child
discordance in
reported asthma
management
(N=34 dyads)**



**Asthma
management
responsibility
(N=20 dyads)**



**Participatory
Intervention
Development
(N=20 dyads)**

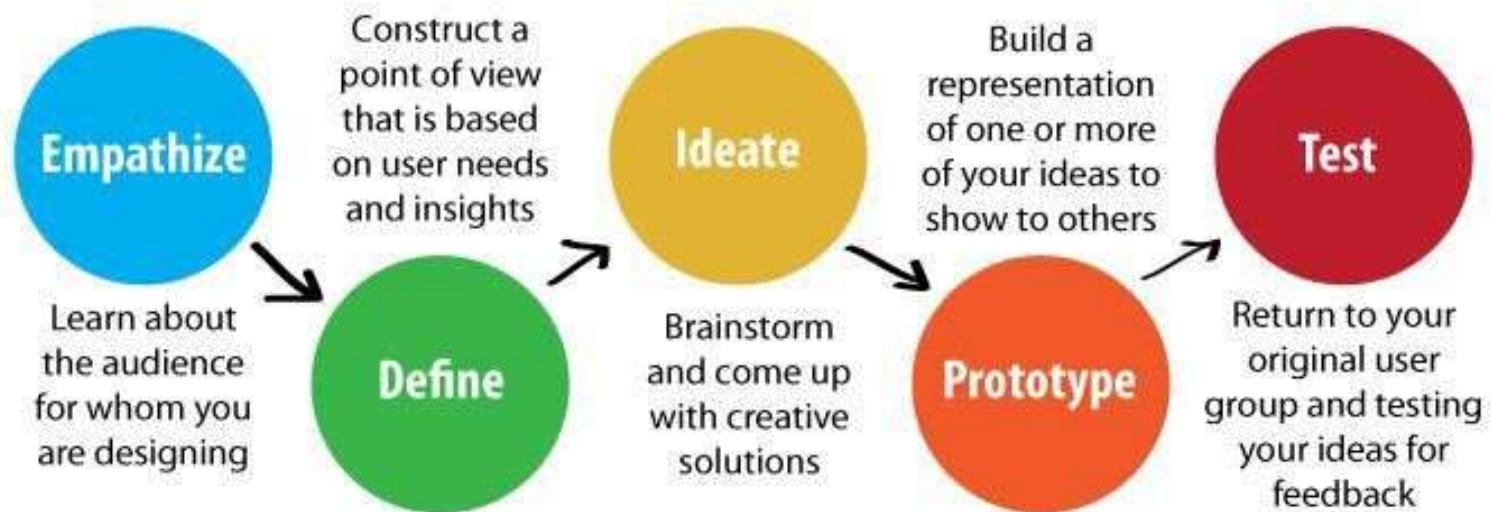


Intervention Development

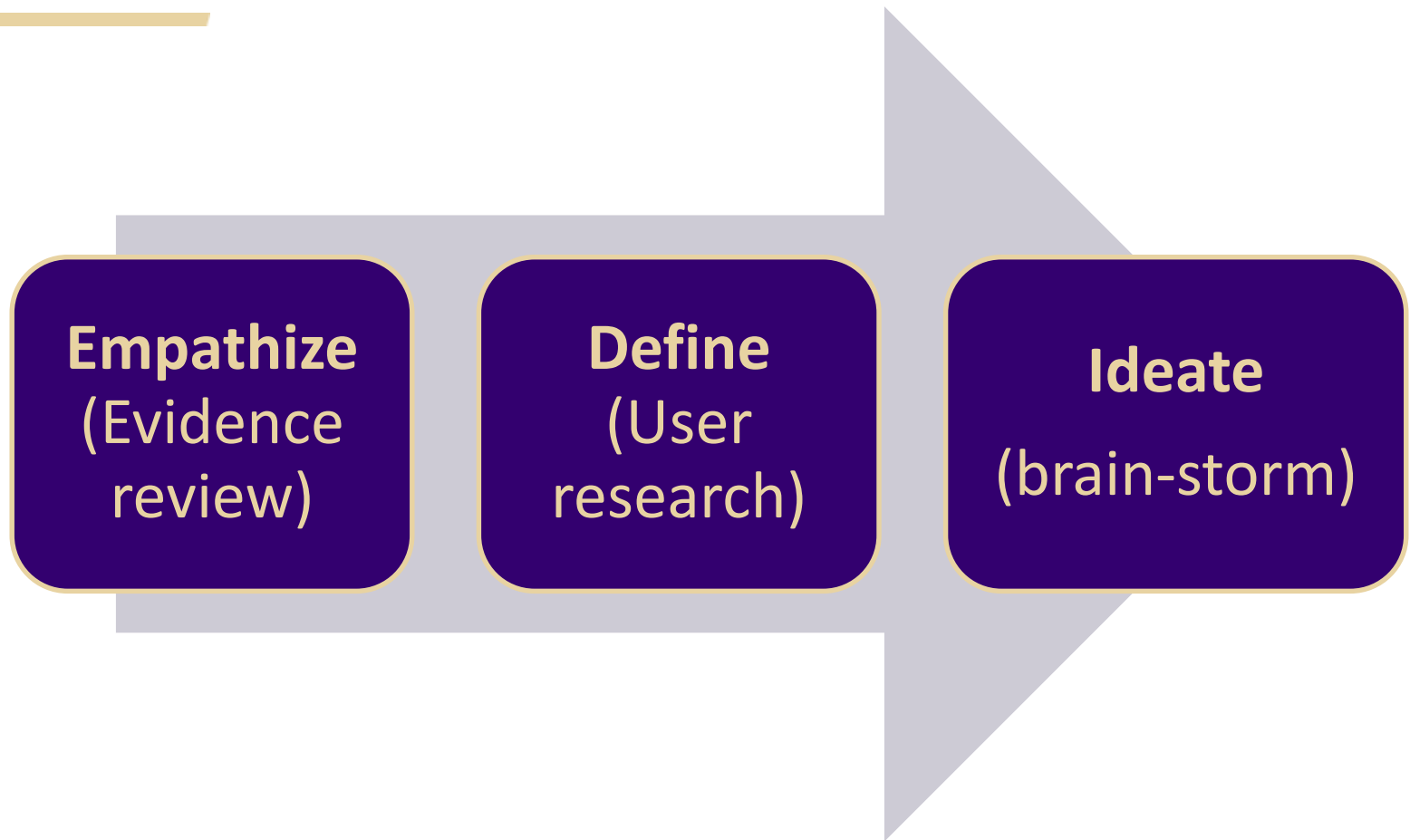
- > **Convenience Sample (n=20 dyads)**
- > **Parent-child dyads were equal participants**
- > **Aim: iteratively design an intervention to support parent-child shared asthma management**



Human Centered Design



Generative phase



Generative Phase Highlights

Theme	Quotes
Roles & Responsibilities	Child: “Mom knows I can take care of myself” Parent: “[child] doesn’t know signs that an asthma attack is coming.”
Desire for Normalcy	Child: “The hardest part about caring for my asthma is probably staying away from cute adorable dogs.” Parent: “[I want my daughter to] live a ‘normal’ life. Don’t want [her asthma] to interfere with her feeling like a regular kid.”
Shared Asthma Management	“I used to have a lot of asthma attacks growing up, but then figured out how to use medicine regularly...still helps that my mom reminds to take my meds.”

Prototyping

- > **Iteratively co-design solution with end-user**
- > **Final product: Health application**
 - Parent dashboard
 - Child reporting functionality
- > **Next steps: RCT!**



Precision Health & EBP

**Evidence-
Based
Practice**



**Precision
Health**

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