

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



**Jennifer Sonney, PhD, APRN**  
**Assistant Professor**  
**Department of Family and Child Nursing**

# Objectives

---

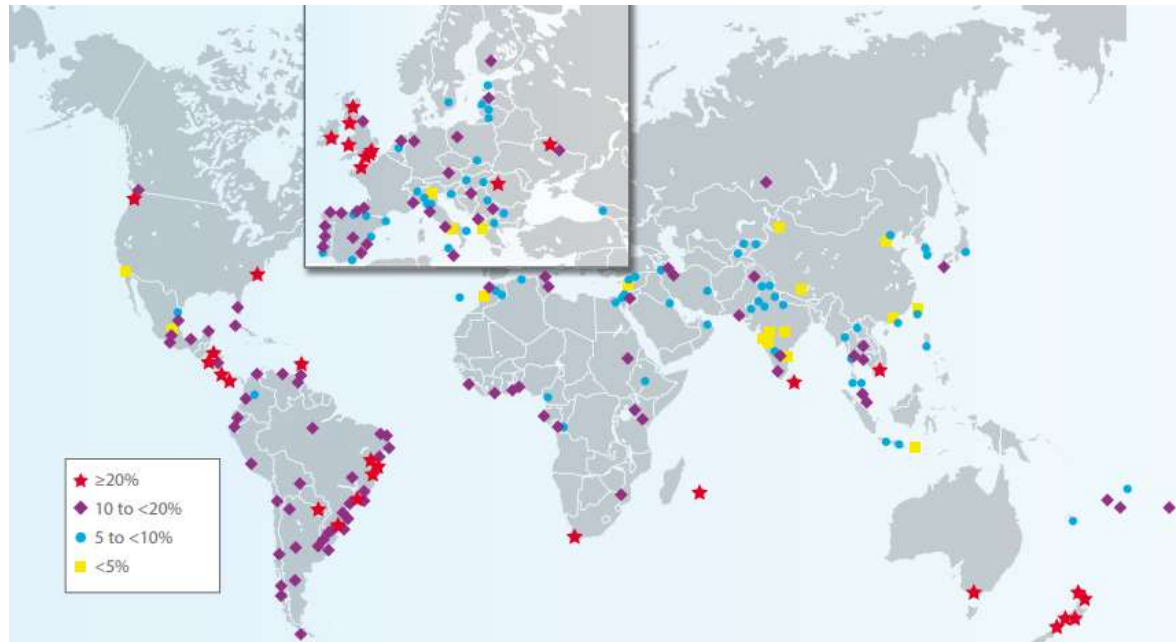
- > **Review evidence-based asthma care**
- > **Contrast precision health**
- > **Discuss application of precision health & evidence-based care**



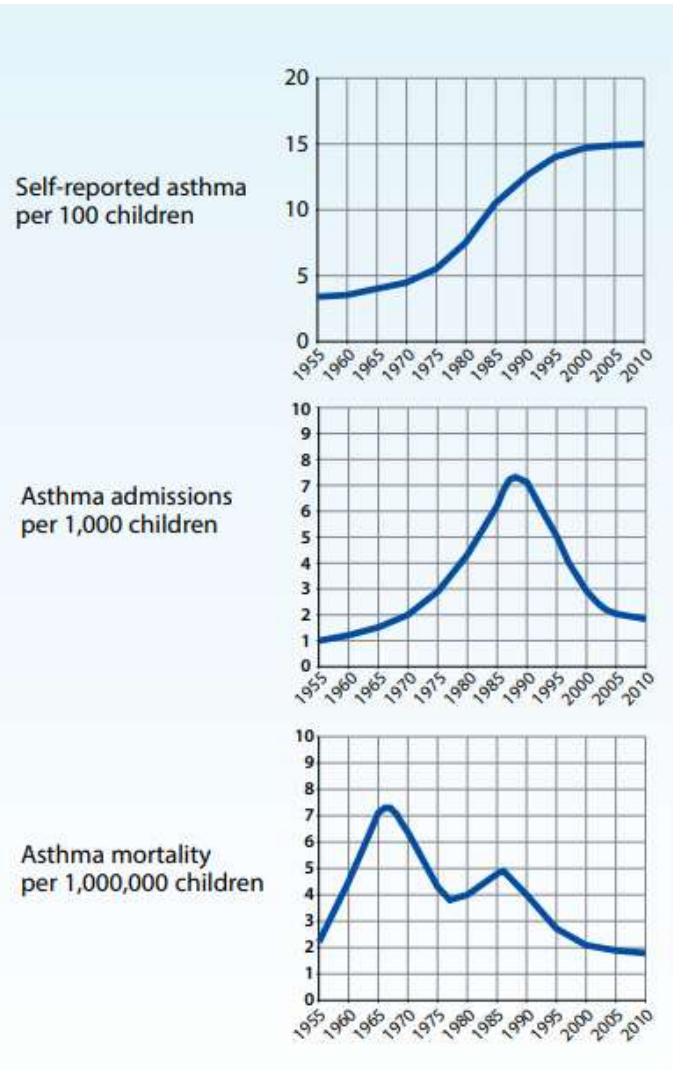
# Asthma Prevalence

---

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

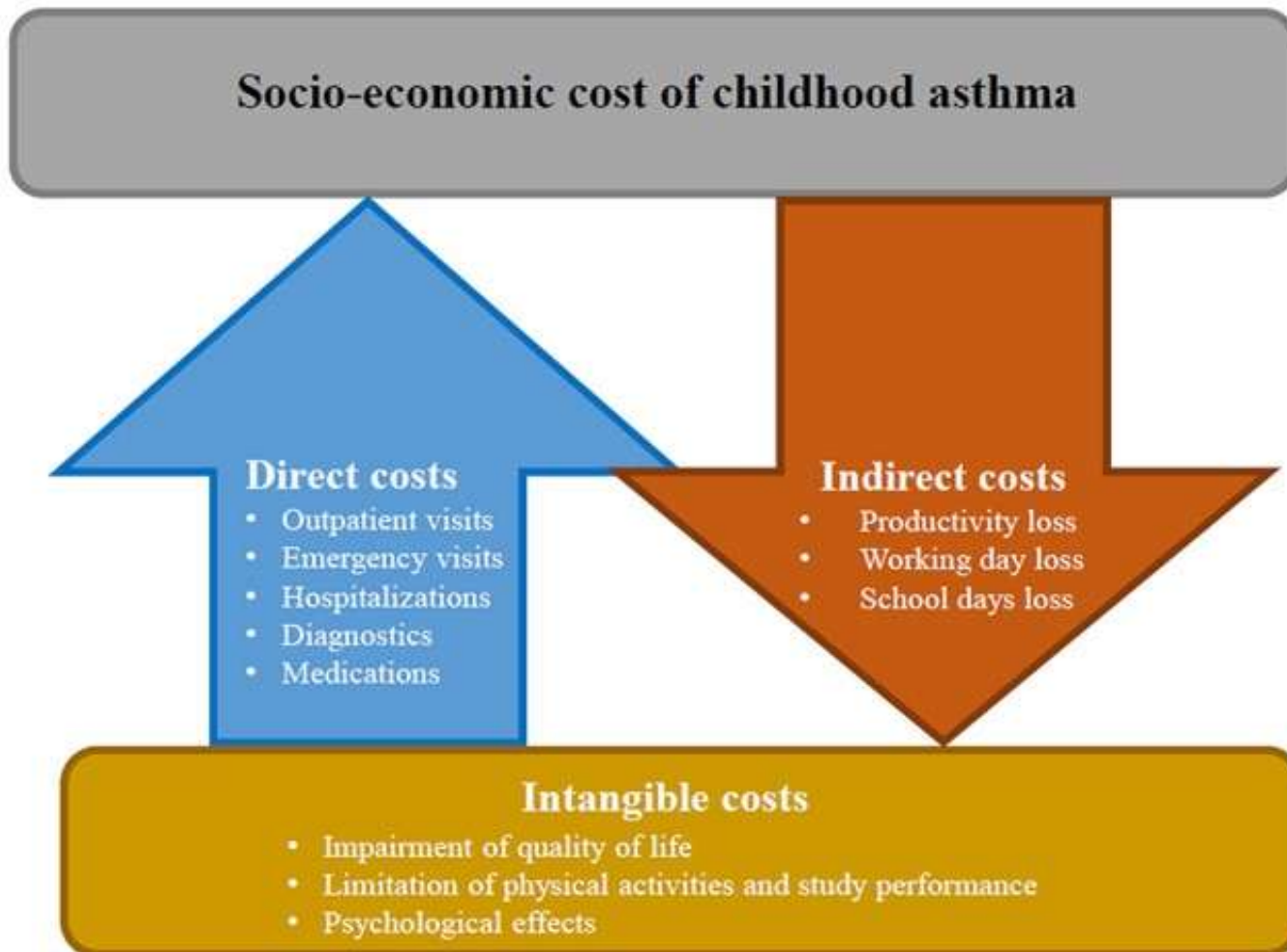


# Asthma Prevalence Trends



# The Cost of Asthma

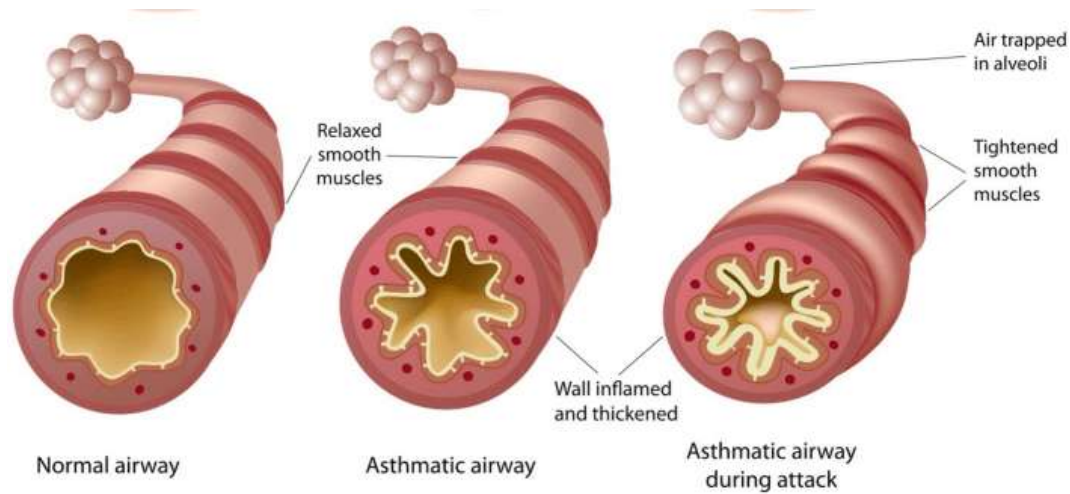
---



# Asthma

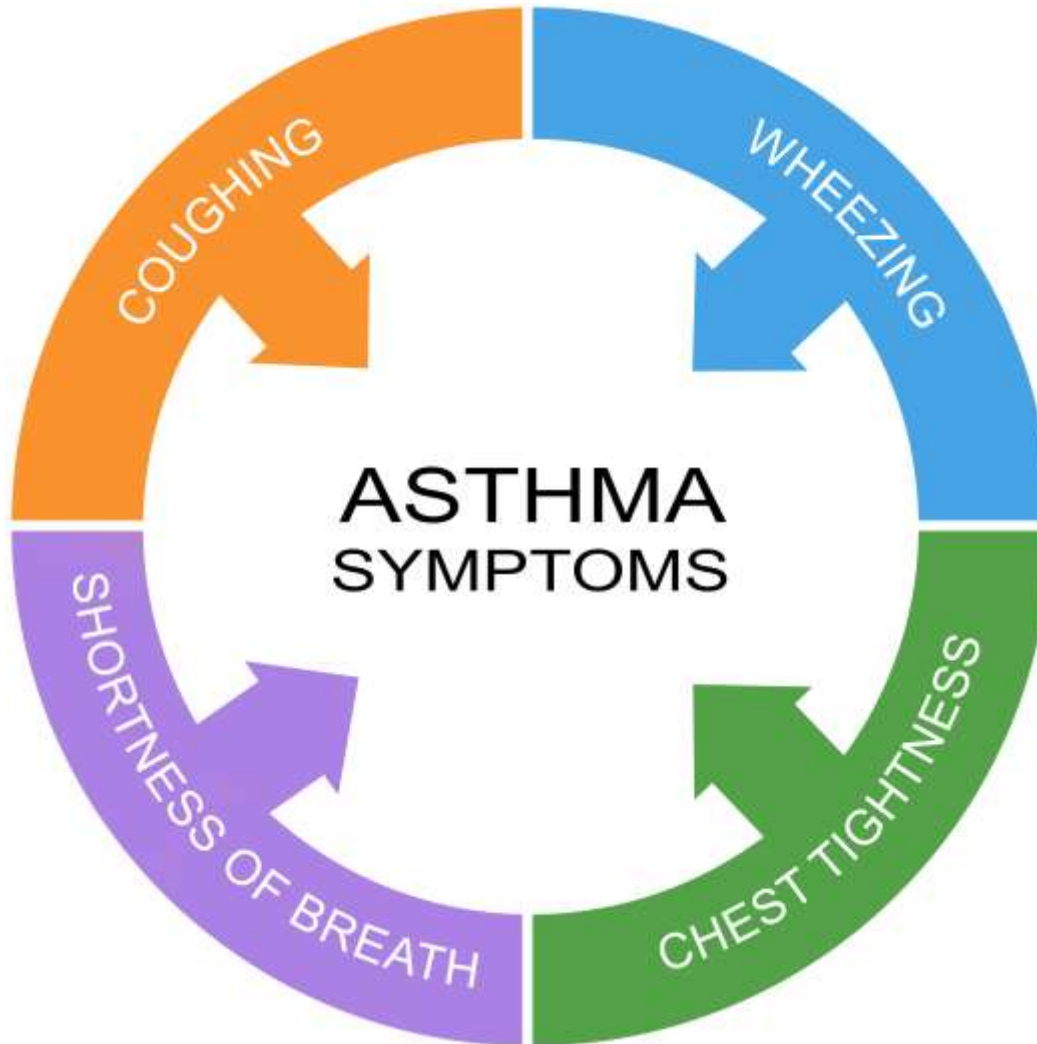
---

- > **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

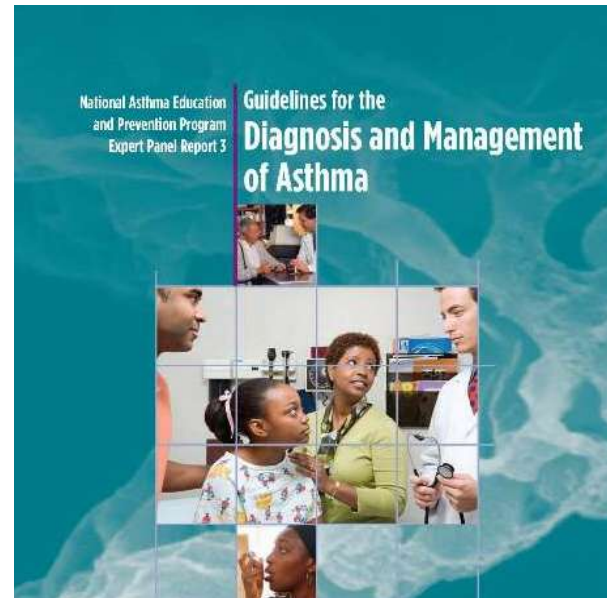




# Evidence-Based Asthma Care

---

## > Evidence-driven treatment guidelines



## The Problem

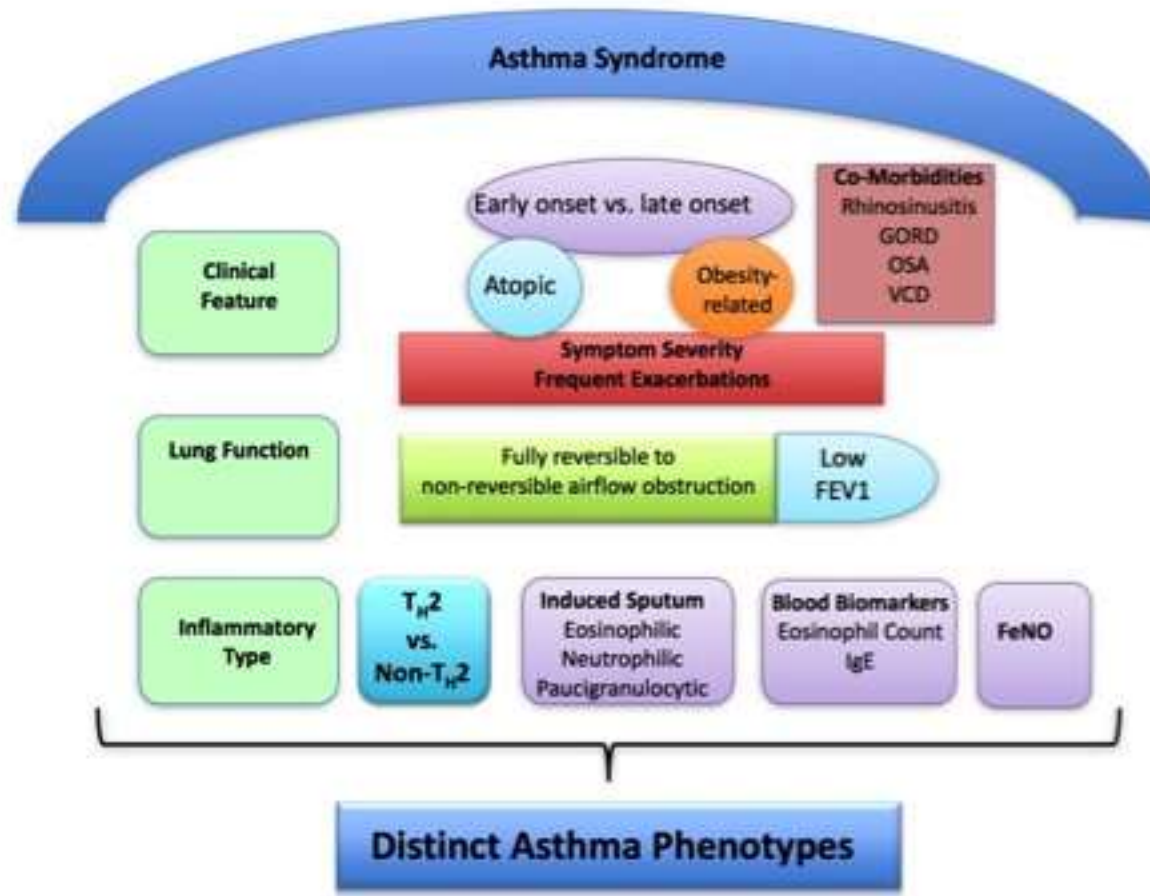
---



**One size does not fit all...**

**W**

# The Heterogeneity of Asthma



When EBP is not enough

---



# Precision Health

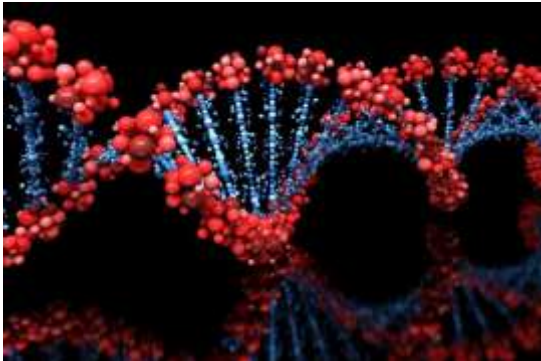
---

- > **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

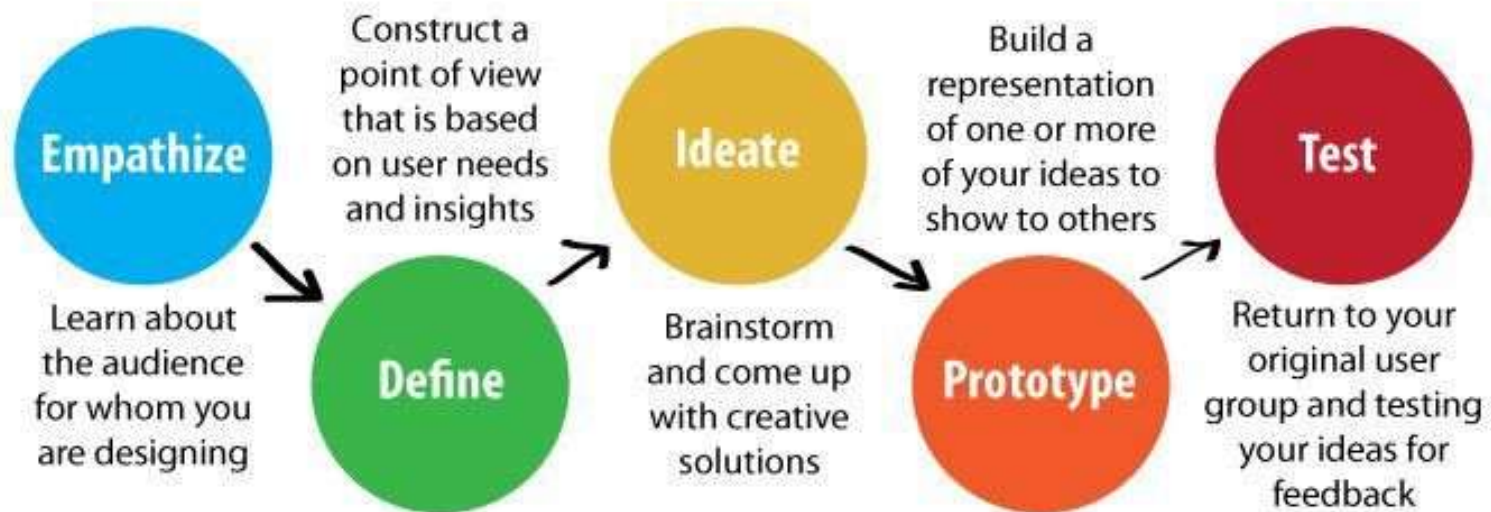
---

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



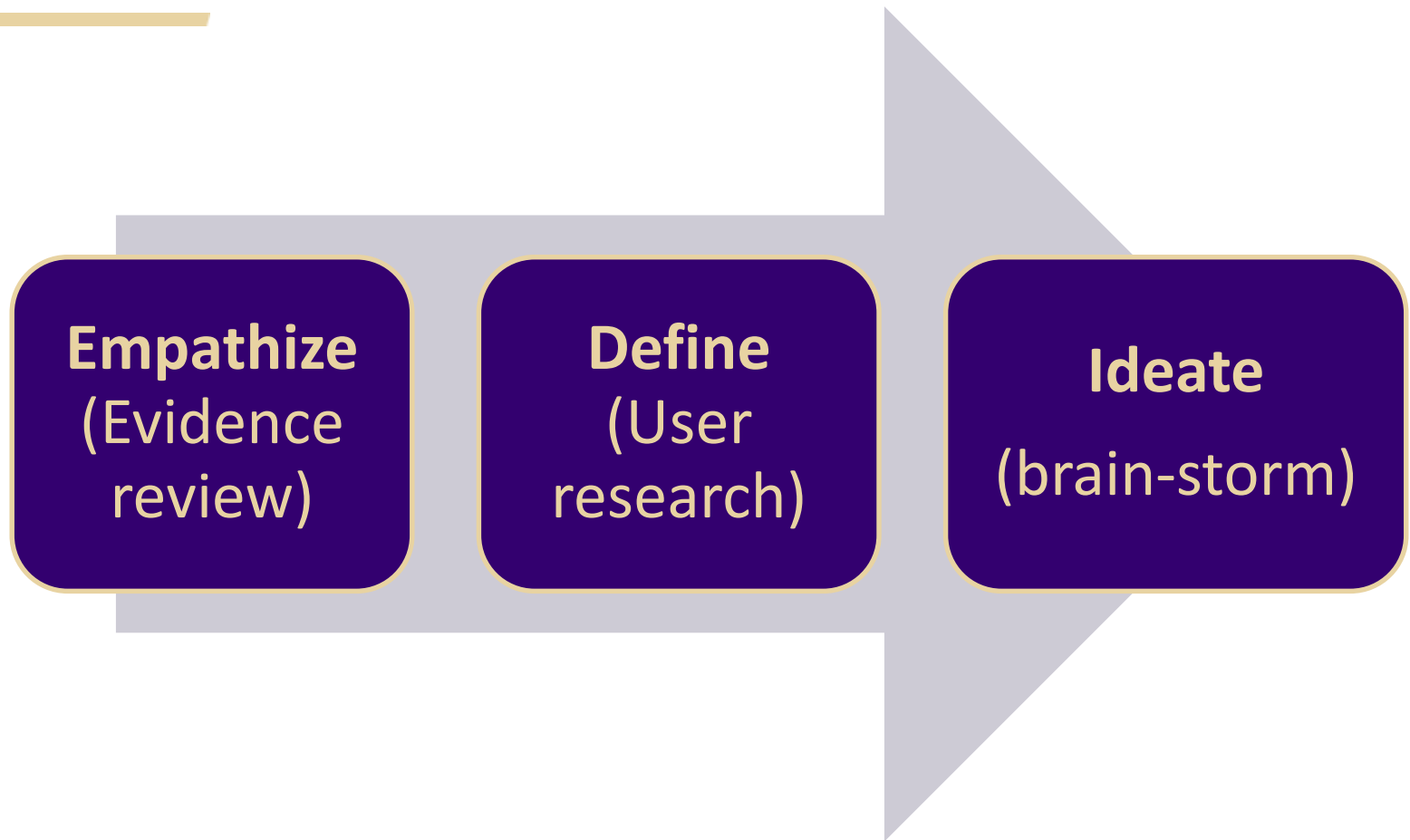
# Human Centered Design

---



## Generative phase

---





# Generative Phase Highlights

---

<b>Theme</b>	<b>Quotes</b>
<b>Roles &amp; Responsibilities</b>	<b>Child:</b> “Mom knows I can take care of myself” <b>Parent:</b> “[child] doesn’t know signs that an asthma attack is coming.”
<b>Desire for Normalcy</b>	<b>Child:</b> “The hardest part about caring for my asthma is probably staying away from cute adorable dogs.” <b>Parent:</b> “[I want my daughter to] live a ‘normal’ life. Don’t want [her asthma] to interfere with her feeling like a regular kid.”
<b>Shared Asthma Management</b>	“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**

**W**



