

## Background

Autism affects approximately 2.3% to 3.4% of children in the United States (Grosvenor et al. 2024, Yan et al. 2024) with prevalence increasing substantially over the past two decades (Hirota et al, 2023). Despite that autism can be reliably diagnosed as early as 18 months of age, most children are diagnosed after three years of age (Sheldrick et al. 2017). This diagnostic delay is particularly problematic given that early intervention is associated with improved developmental outcomes and reduced symptom severity (Lai et al. 2020). Multiple barriers contribute to delayed diagnosis, including limited specialist workforce capacity, lengthy waitlists for evaluations, and inadequate training of primary care providers (PCPs) in autism diagnosis (Hamp et al. 2023). PCPs are uniquely positioned to address these challenges as they may be the only healthcare professional families interact with during early childhood and provide developmental surveillance and screening. However, PCPs frequently report low confidence in their ability to diagnose autism leading to diagnostic delays (Hamp et al. 2023) along with other barriers including time constraints and reimbursement challenges.

## Methods

### Search Strategy

Two electronic databases: PubMed and Embase (2016-2026, English language only)

### PubMed Search Terms:

(autism diagnosis) AND (primary care OR pediatrician OR nurse practitioner OR physician assistant OR community based) AND (ECHO OR extension community healthcare outcomes OR training OR course)

### Embase Search Terms:

(autism) AND (diagnosis) AND ('primary care' OR 'pediatrician' OR 'nurse practitioner' OR 'physician assistant' OR 'community based') AND (echo OR community healthcare OR 'extension for outcomes' OR 'training program')

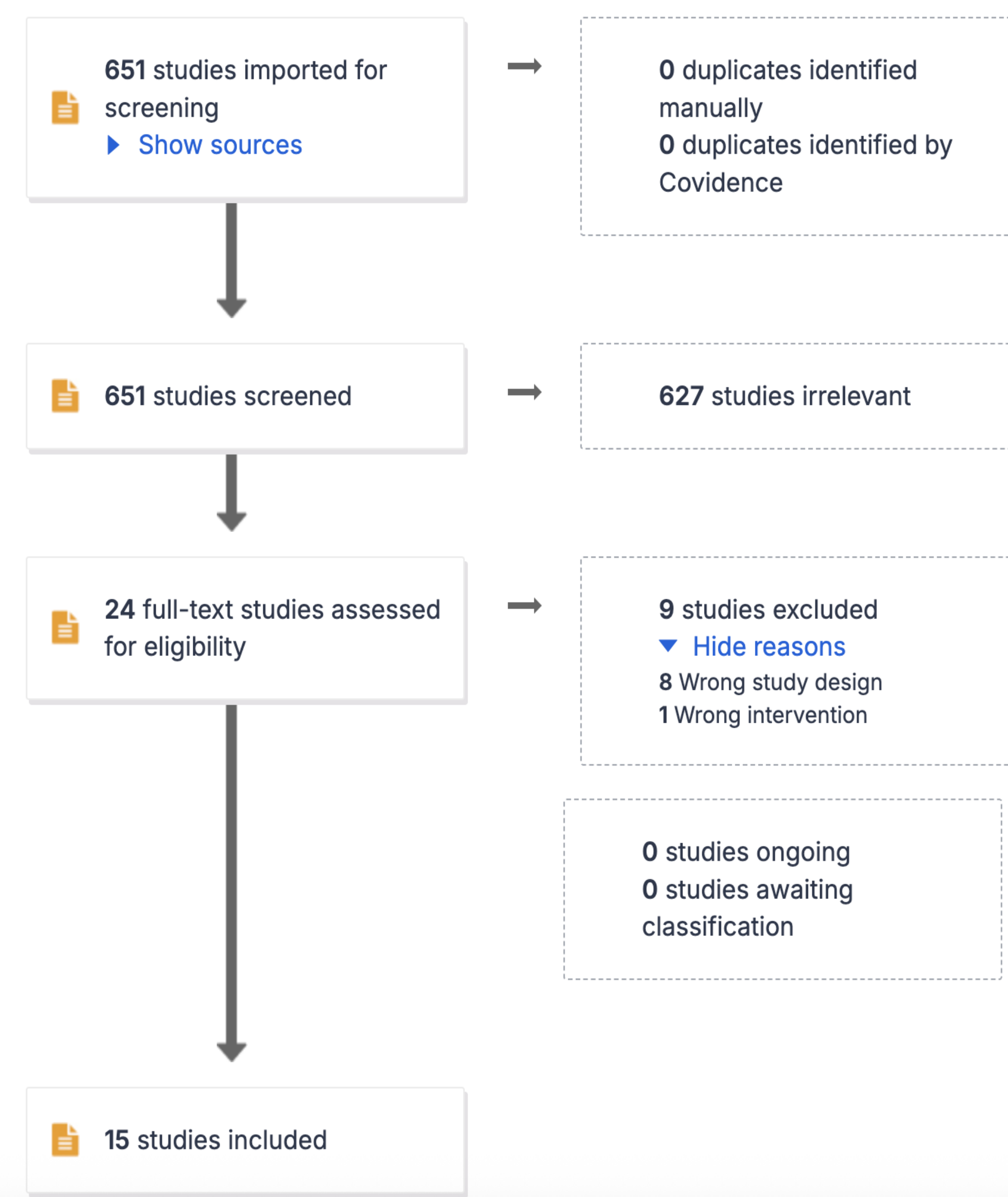
### Inclusion Criteria

- Training programs for PCPs
  - Focus on autism diagnosis in pediatric populations
- Primary research

### Exclusion Criteria

- Training for residents, medical students or non-primary care providers
- Screening-only training programs
- Adult-focused studies
- AI-based diagnostic tools without training component

## Results



### Most Common Measured Outcomes

#### - Diagnostic Accuracy

- Providers that receive specific training in autism diagnosis can achieve high diagnostic accuracy in young children
- Higher certainty was associated with increased sensitivity
- Most challenges with false negatives and overlap of global developmental delay or milder presentations

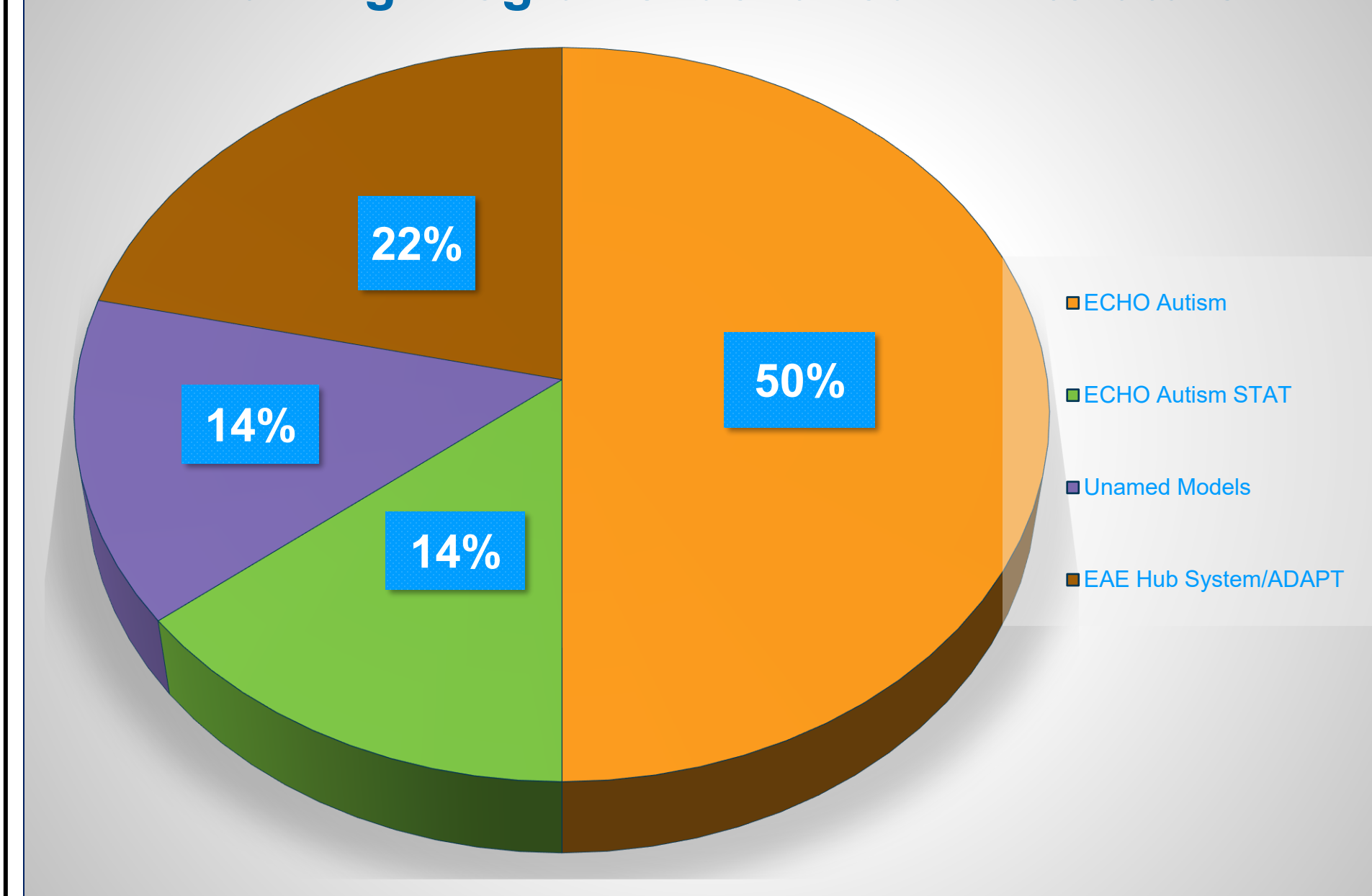
#### - Provider Knowledge and Self Efficacy

- Statistically significant self perceived increase in provider knowledge and self efficacy after participation in the individual training programs was identified in multiple studies

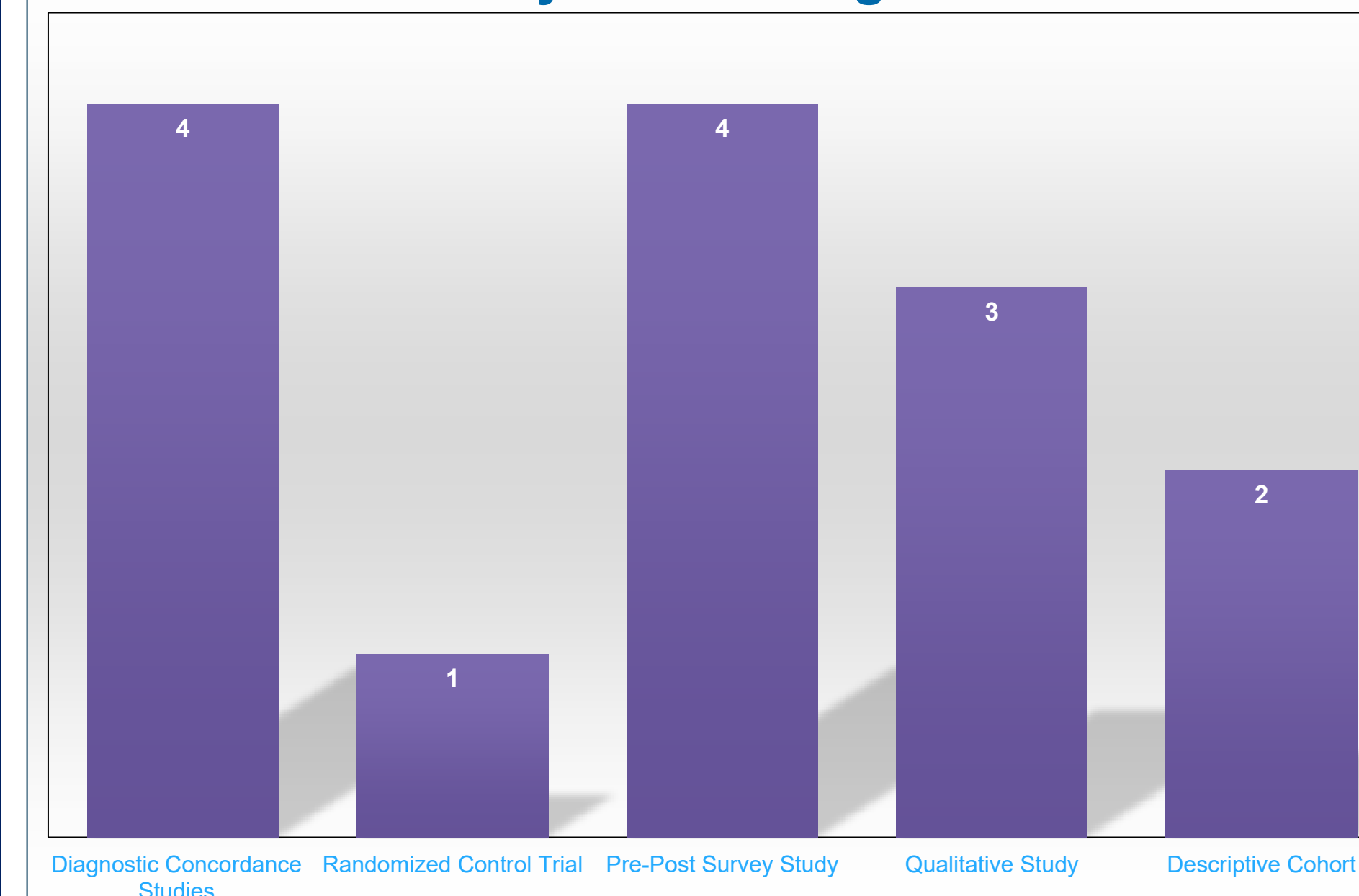
#### - Feasibility and Scalability

- EAE Hub system found to be scalable region wide and the ECHO model brought training programs to rural and underserved communities
- Overall, the models including telementoring and ongoing training were found to be feasible in building community-based diagnostic capacity and reducing reliance on specialty autism centers

### Training Programs Identified in Literature



### Study Methodologies



## Acknowledgement

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Scan for References

## Conclusions

- Training programs are effective in equipping PCPs to diagnose autism in young children with high accuracy
- Programs improve self reported provider knowledge and self confidence
- Models are feasible and scalable including rural and underserved communities
- Limitations
  - Limited outcomes assessing clinician behavior change (no changes in screening or comorbidity management after training identified)
  - Higher rate of false negatives for children with global developmental delay
  - Studies did not fully address perceived barriers from PCPs (reimbursement, appointment times)
  - Few outcomes focused on the patient population (time to diagnosis/intervention or parent satisfaction)

## Implications

- High positive predictive values across models supports the integration of trained primary care clinicians into the autistic diagnostic pathway
  - Particularly for young children with an unambiguous presentation
- Due to low negative predictive, health systems using these models need to establish clear referral pathways
  - children with co-occurring global developmental delay, milder symptom profiles, or low clinician diagnostic certainty
- Need for further discussion on reimbursement structures
  - To support the time intensity of autism evaluations
  - To incentivize participation in ongoing training and quality improvement
- Critical gap: absence of data on child developmental outcomes
- Demonstrating that earlier primary care-based diagnosis leads to earlier intervention enrollment and improved functional outcomes is needed to justify the sustained investment required to scale these models and to inform policy decisions regarding resource allocation