Implementation of the M-CHAT-R/F Screening for Early Identification of Autism Spectrum Disorder in Toddlers

Megan Watkins DNP, APRN, CPNP-PC, IBCLC, CBC, RNC-MNN

PROBLEM STATEMENT

- ASD is a lifelong neurodevelopmental disorder that ranges in severity.
- Difficulties in social communication and interaction, restricted and repetitive patterns of behaviors, speech, and nonverbal communication.
- ASD effects 1 in 54 children.
- ASD can be diagnosed by 24 months of age.
- Average age of diagnosis in the US in 4.5 years old.
- Early diagnosis and intervention has shown improvements in learning, communication, social skills, adaptive behaviors, and underlying brain development.

PROJECT PURPOSE

- Implement early ASD screening with the M-CHAT-R/F to improve the percentage of children between 16 and 30-months of age who are screened and identified as at risk for ASD and subsequently referred for further evaluation.
- Determine if those identified as at risk for ASD by the M-CHAT-R/F were also identified as at risk for a developmental delay based on their concurrently completed ASQ-3.
- In toddlers, 16-30 months of age, does the implementation of early autism screening and referral of at-risk infants for further screening and diagnosis with the ASD-specific screening tool M-CHAT-R/F increase identification of those at risk for ASD by 50% and increase referrals for those identified as high risk for ASD by 70% over a 3-month period?

MODEL/NURSING THEORY

- The Model for Improvement
  - Used to determine if a practice change leads to improvement in healthcare outcomes.
- The Theory of Goal Attainment
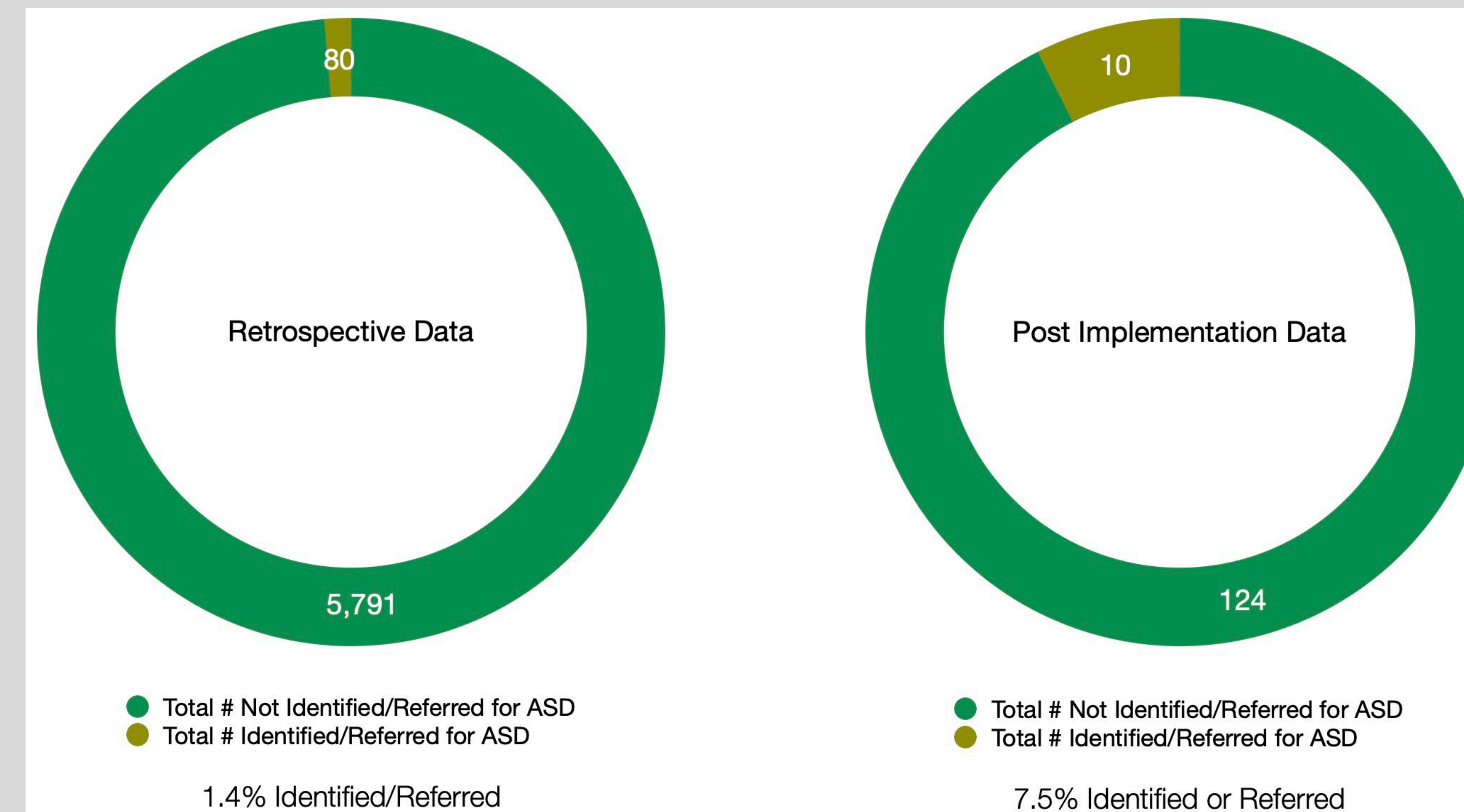 - Functional status is a vital aspect of nursing and patient care that directly relates to patient health.

METHODS

- **Subjects**
- Stratified convenience sample.
- All children between 16 and 30-months of age presenting for their scheduled 18 and 24-month well child visit.
- Exclusion criteria:
  - Presenting for any other clinic visit.
  - Current ASD diagnosis.
  - Parents declined to participate

- **Setting**
- Privately owned pediatric primary care practice in southwest Florida
- 2 practice locations
- 5 Pediatric MDs & 1 PNP

- **Instruments/Tools**

M-CHAT-R/F
- The Modified Checklist for Autism in Toddlers, Revised, with Follow-Up is an ASD-specific two-stage parent reported screening tool used to assess risk of autism in children 16 to 30 months of age.

- **Intervention and Data Collection**
- Parents complete M-CHAT-R/F & age specific ASQ-3
- Provider scores the screening tool
- Risk level identified as low, medium, or high risk
  - Low risk – no intervention
  - Medium risk → follow-up questions by provider
    - Follow-up score of 2 or more = high risk → refer
  - High risk → refer

Collected Measures
- Retrospective Data:
  - Total # of patients in practice
  - # with current ASD diagnosis & age of referral/diagnosis
- Prospective Data:
  - Total # of participants
  - Age at time of screening
  - Identified risk level
  - # requiring follow- up
  - # referred
  - ASQ-3 results

RESULTS

Retrospective Data — 80 / 5,791
- Total # Not Identified/Referred for ASD
- Total # Identified/Referred for ASD
1.4% Identified/Referred

Post Implementation Data — 10 / 124
- Total # Not Identified/Referred for ASD
- Total # Identified/Referred for ASD
7.5% Identified or Referred

Expected % Increase	Actual % Increase
50% Increase in Identification	448%
70% Increase in Referral	448%

Chi-Square Analysis (1)

	Retrospective	Prospective	Marginal Row Totals
Identified/Referred	80 (87.99) [0.73]	10 (2.01) [31.8]	90
Not Identified/Referred	5791 (5783.01) [0.01]	124 (131.99) [0.48]	5915
Marginal Column Totals	5871	134	6005 (Grand Total)

Chi-square statistic = 33.0218   *p*-value = < .001   Significant at *p* < .05

IMPLICATIONS FOR ADVANCE PRACTICE NURSING

- Use of the M-CHAT-R/F can make a difference in patient outcomes because early identification of risk and referral for formal ASD diagnosis allows for early intervention.
- Early initiation of appropriate interventions has been shown to result in optimal long-term outcomes and prevention of symptom progression.

DISCUSSION

- Retrospective data identified 5,871 active patients in the practice. Of those, 80 (1.4%) had a prior ASD diagnosis.
- Post implementation data totaled 134 project participants. Of those, 10 (7.5%) were identified as medium risk for ASD requiring follow-up questions.
- All 10 (7.5%) participants were identified as high risk after follow-up questions and were referred for further testing.
- **The actual increase in identification and referral of patients at risk for ASD was 448% compared to the expected increase of 50% and 70% respectively.**
- Chi square analysis of identified/referred patients based on retrospective and prospective data resulted a chi-square statistic of 33.02 with a *p*-value of < .001 showing statistical significance based on *p* < .05.

SUSTAINABILITY

- This intervention is easily sustainable due to the simplicity and availability of the M-CHAT-R/F screening tool.
- The implementation of the M-CHAT-R/F is also a benefit to this practice because quality improvement is necessary for the continued renewal of PCMH recognition.

REFERENCES

SCAN ME

The use of the ASD-specific screening tool M-CHAT-R/F does increase identification and referral of those at risk for ASD.

UNIVERSITY of SOUTH FLORIDA