

Background

- Current formats for a diagnostic evaluation for autism spectrum disorder (ASD) are generally single discipline with a psychologist or multi-disciplinary with a variety of providers.
- Comprehensive, but also contribute to months-long waiting lists
- Creates opportunity to examine essential features of a clinical autism diagnostic evaluation for process improvement
- At the Seattle Children's Autism Center (SCAC), we have developed an inter-disciplinary team evaluation approach involving a series of appointments with two providers on the same day
 - Allows two families to be seen in a single day and decrease the number of clinic visits.
 - May be a viable option for decreasing cost and improving wait times.

Objectives

- To explore and compare family satisfaction, provider satisfaction, and general diagnostic outcomes in team evaluations versus more traditional ASD diagnostic evaluation methods.
- To examine team members' ability and confidence in coming to a diagnostic decision.

Methods

- **Diagnostic evaluations:** Following an initial visit with a SCAC pediatric nurse practitioner, patients were triaged to one of three ASD evaluation tracks:
 1. Multi-visit evaluation with a psychologist ("Psychology")
 2. Further visit with a physician often with input from testing with a speech language pathologist ("MD Confirm")
 3. Inter-disciplinary team evaluation described above ("Team")
 - See Figure 1 for visit information about tracks and Figure 2 for Team evaluation template.
 - The Team model required, on average, 4 fewer billing hours compared to Psychology and approximately the same number of hours as MD Confirm
- Data from 346 Team, 60 MD Confirm, and 92 Psychology evaluations conducted in 2014-2015 were coded via medical record review.
- Provider Satisfaction was collected from providers doing both Team and Independent Evaluations via questionnaire ($n = 10$): nurse practitioners, psychologists, speech-language pathologists
 - Rated the following questions on scale of 1 - 5
 1. Happiness during workday
 2. Confidence in diagnosis
 3. Development of professional skills
 4. Workload burden
 5. Intensity of clinical day
- Family satisfaction from a random sample of patients seen in three tracks were collected (Rated on a scale of 1 – 10)
- Independent clinician confidence ratings in diagnosis were collected from 23% of team evaluations using the following format:

1 Definitely ASD 2 Probably ASD 3 Unsure 4 Probably Not ASD 5 Definitely Not ASD

Figure 1. SCAC Diagnostic Evaluation Flowchart

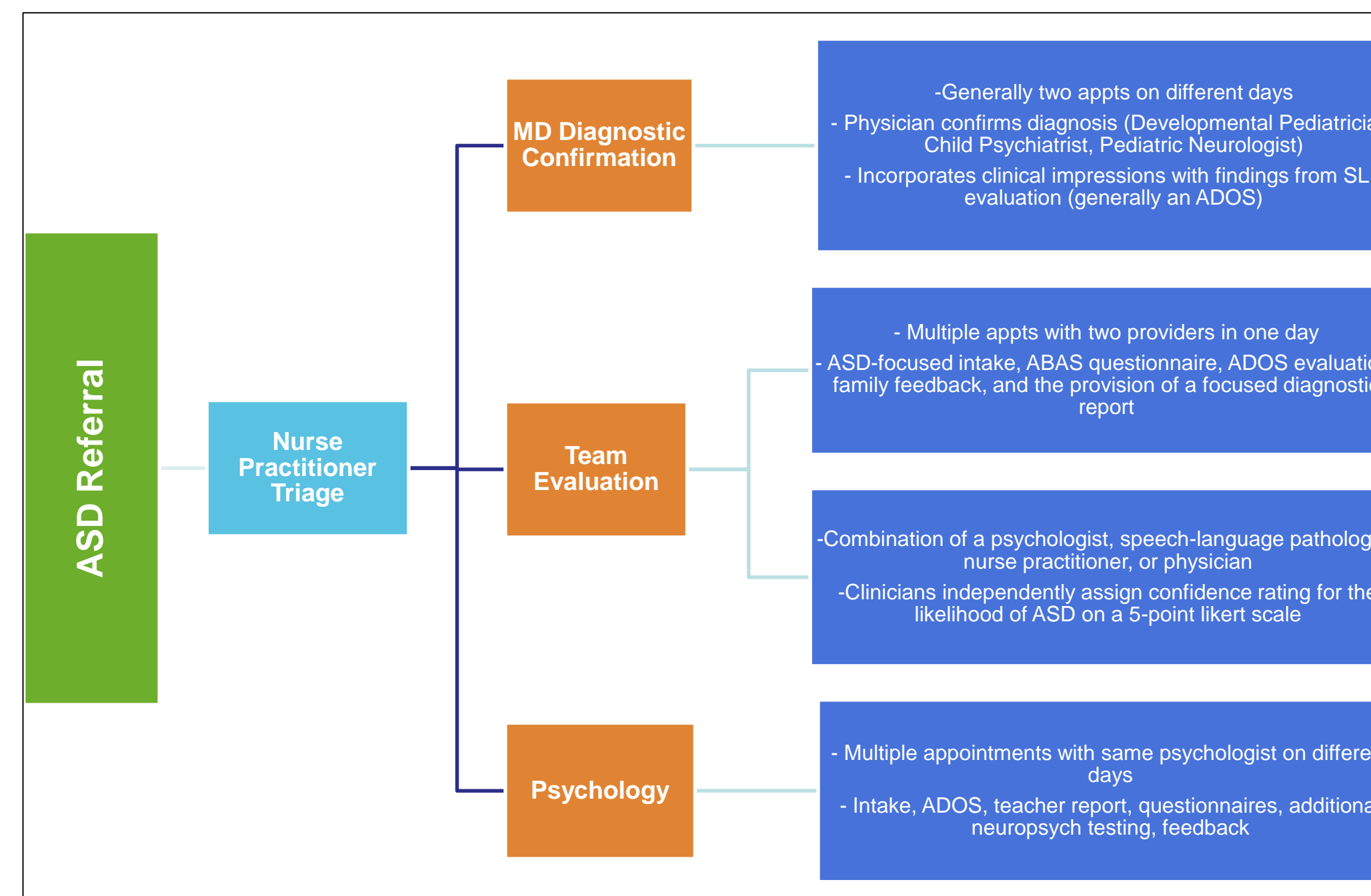


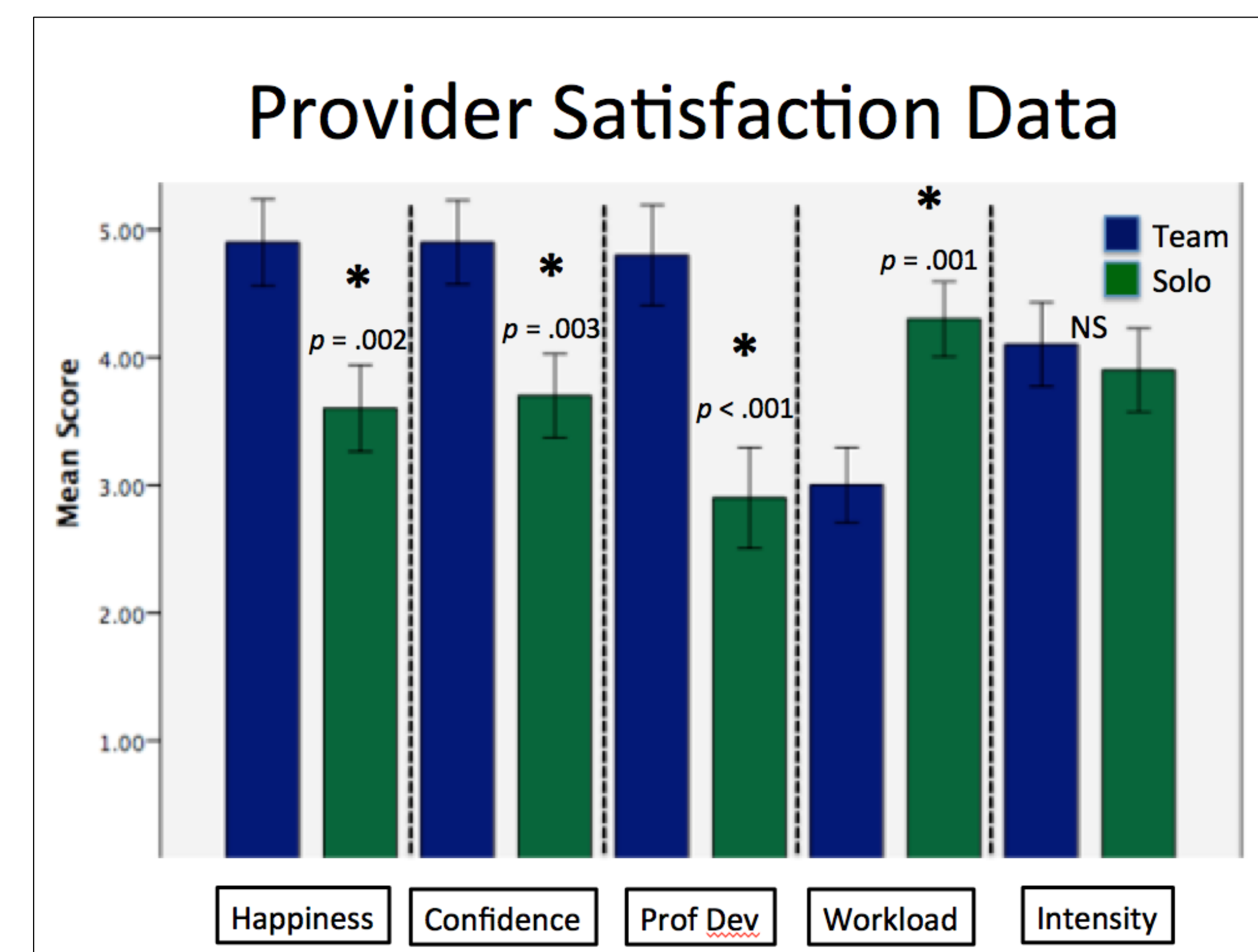
Figure 2. Team Evaluation Structure

| | Clinician A | Clinician B |
|-----------|---------------------------------|------------------------------------|
| Hour 1 | ADOS with Patient A Hand off | History with Patient B Hand off |
| Hour 2 | ADOS with Patient B | History with Patient A |
| Hours 3-4 | Rounds/write report | Rounds/write report |
| Hour 5* | Feedback with Patient A | Feedback with Patient B |

* If diagnosis is unclear, the family is asked to return for a follow-up appointment(s) with one team clinician for further evaluation and/or to gather additional information (i.e., from teacher, other professional, etc) before making the diagnosis.

Results

Figure 3. Provider Satisfaction



Results of paired sample t tests suggest significantly higher provider happiness, $t(9) = 4.33, p = .002$, increased confidence in diagnosis, $t(9) = 4.13, p = .003$, increased professional development skills, $t(9) = 5.46, p < .001$, decreased workload, $t(9) = -4.99, p = .001$, and similar impressions of clinical intensity, $t(9) = 0.69, p = .51$, in team evaluations versus independent evaluations.

Results: Continued

- **Diagnostic Outcome:**
 - In Team evaluations, 61% of cases were diagnosed with ASD, 29% were not diagnosed with ASD, and 10% required further information in order to come to a diagnostic decision
 - After excluding Team patients who required further information to come to a decision, ASD diagnostic rates were similar across evaluation models (Team: 68%, MD: 73%, Psych: 72%, $\chi^2(2) = 0.89, p = .64$)
- **Family satisfaction:** Majority of families were satisfied with their experience ($M = 8.88$ out of 10). Scores did not differ across diagnostic tracks, $F(2,62) = 0.32, p = .73$
- **Confidence Ratings:** Ratings were highly correlated with one another ($r = .83, p < .01$). 63% of ratings for cases were identical, 32% were within 1 point, 5% within 2 points
 - Of those children ultimately diagnosed with ASD, modal rating was 1 "definitely ASD" (60% of clinicians)
 - Children ultimately *not* diagnosed with ASD, there was more of a range. Modal rating was 4 "probably not ASD" (50% of clinicians)

X X X X X X
1 Definitely ASD 2 Probably ASD 3 Unsure 4 Probably Not ASD 5 Definitely Not ASD
X = ASD X = Further Info X = No ASD

Summary

- ASD Interdisciplinary Team Evaluations resulted in diagnostic determination in 90% of patients.
- Overall rates of ASD diagnosis were similar across ASD evaluation tracks (68-72%), and comparable to a previous report of a 61% ASD diagnostic rate in a different diagnostic center (Monteiro et al., 2015).
- There were not significant differences in family satisfaction ratings across diagnostic tracks
- A focused team approach to ASD clinical diagnosis appears sufficient for many patients and may decrease the number of hours required for evaluation, while maintaining consistency in diagnostic rates and without detriment to family satisfaction.
- Thus, incorporating the Team model into diagnostic centers may decrease billing costs and improve clinic wait times.

Limitations:

- Since this is pilot data, it is important to recognize that families were not randomly assigned to diagnostic tracks
- Number of diagnostic evaluations coded from medical records varied across tracks: further data from MD and Psychology evaluations would be helpful
- Additional patient demographic information was not coded and would improve understanding of patient populations

