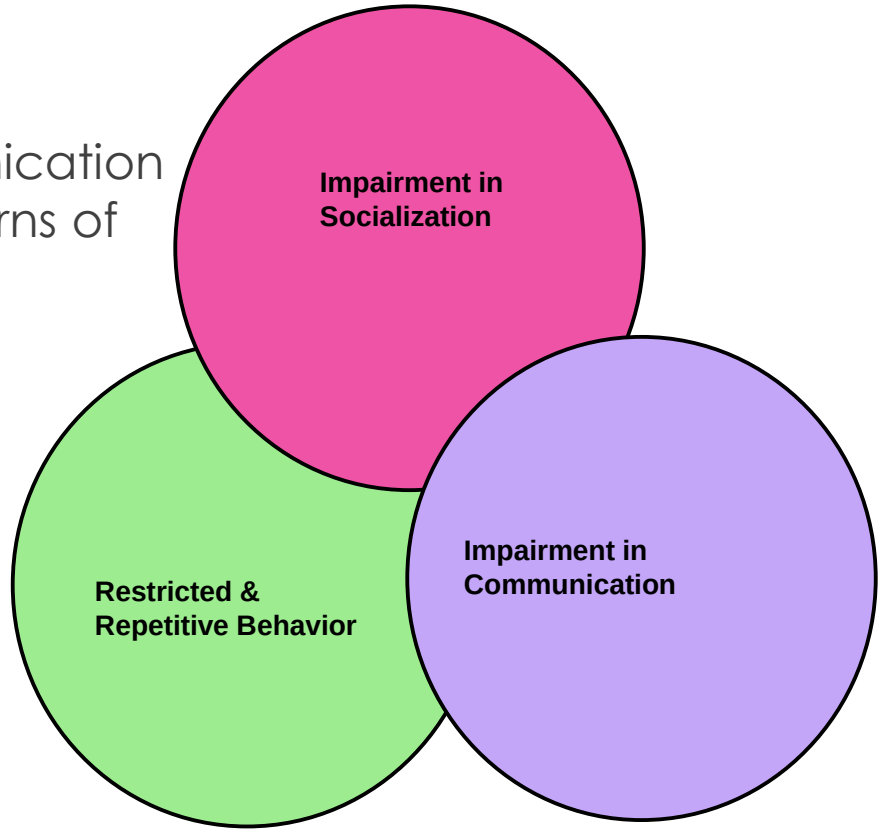
# Autism Screening App

BILAL & KEVAN

UNIVERSITY AT ALBANY,SUNY

# Autism

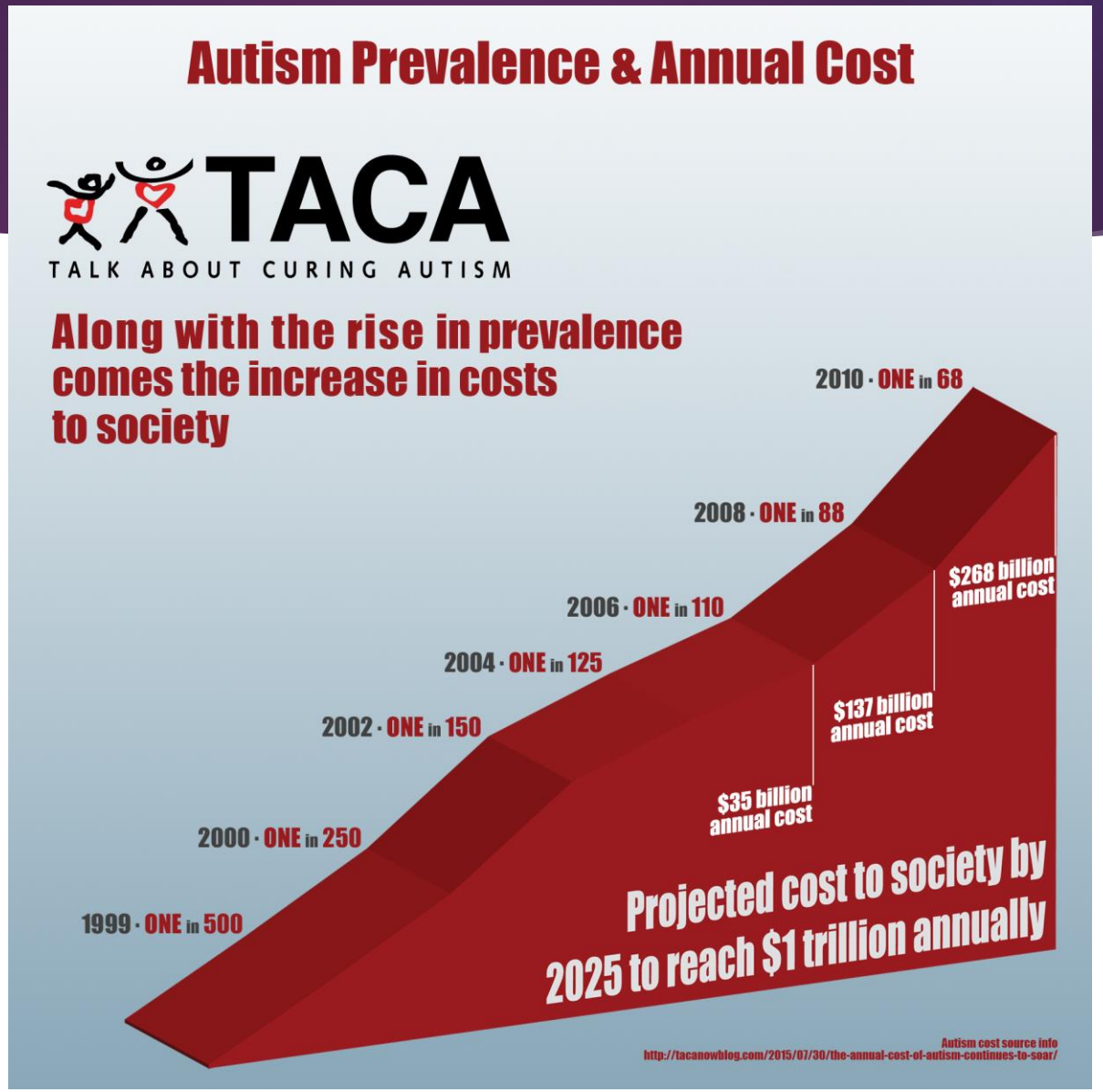
- Autism spectrum disorders (ASD)
- A range of complex neurodevelopmental disorders
- Disorders are characterized by social impairments, communication difficulties, and restricted, repetitive, and stereotyped patterns of behavior



# Autism in numbers

- About 1 percent of the world population has autism spectrum disorder. (CDC, 2014)
- Prevalence in the United States is estimated at 1 in 68 births. (CDC, 2014)
- Total Population 3.5 million Americans
- Autism services cost U.S. citizens $236-262 billion annually.
- Occurs four to five times more often in boys than girls
- Cost of lifelong care can be reduced by 2/3 with early diagnosis and intervention.

# Autism Prevalence & Annual Cost



# Autism Spectrum Disorder

**Autistic Disorder**

Impaired social interaction
and

Impaired communication
and

Restricted repetitive and stereotyped patterns or behaviors, interests and activities.

**PDD-NOS**

Impaired social interaction

or

Impaired communication

or

Restricted repetitive and stereotyped patterns or behaviors, interests and activities.

**Asperger's Disorder**

Impaired social interaction
and

Normal communication/ language development.*

and
Restricted repetitive and stereotyped patterns or behaviors, interests and activities.

# Autism Characteristics

1. Social Development

    a) **Unusual social development** becomes apparent early in childhood

    b) **Show less attention** to social stimuli, smile or no eye contact,

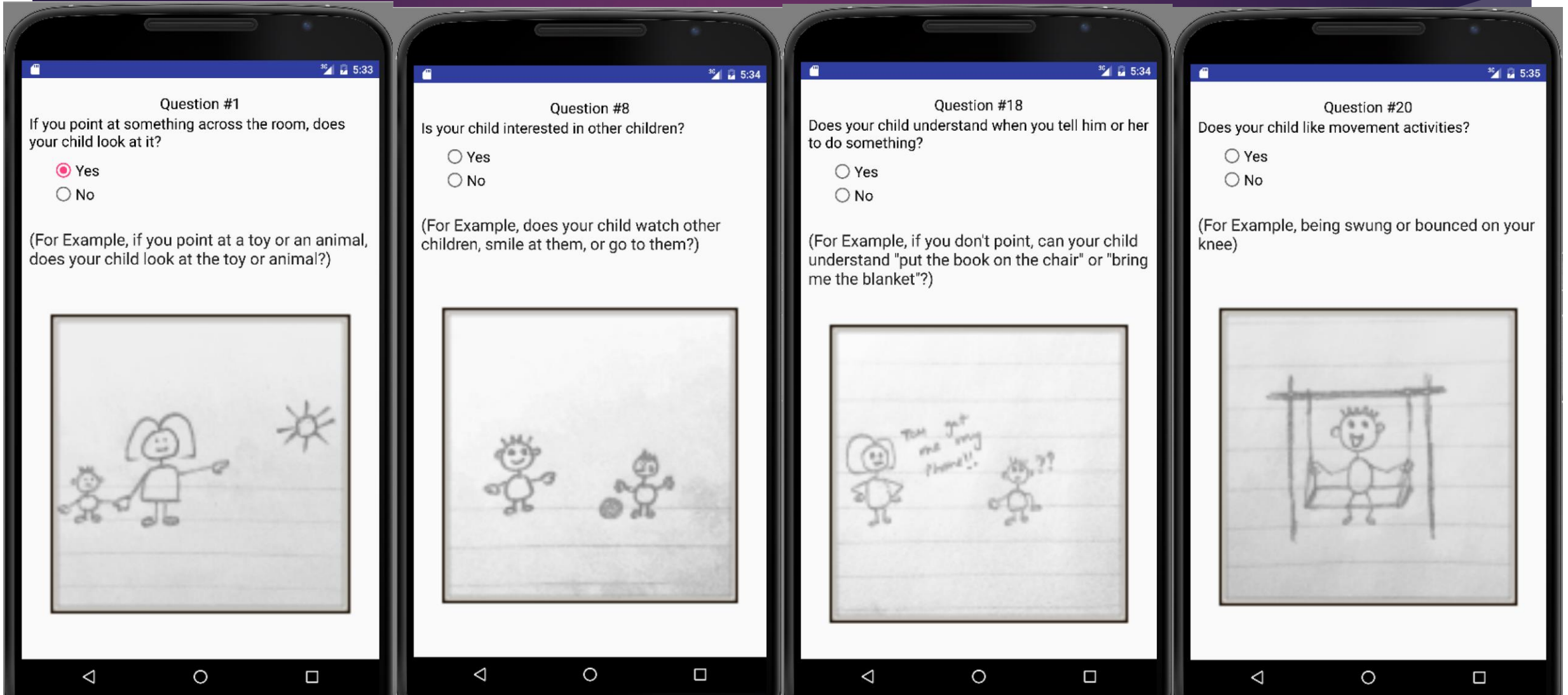
2. Communication
    a) **do not develop enough natural speech**
    b) wont **make requests or share experiences**
    c) may have **difficulty with imaginative play**

3. Repetitive Behavior
    a) **compulsive behavior patterns** like flapping of hands,spinning,licking etc.
    b) **fix or rearrange things**
    c) **Unexpected movements** (running away on the road)

# M-Chat (Modified checklist for Autism in toddlers) 2009 Diana Robins, Deborah Fein, & Marianne Barton

- Designed by Diana Robins, Deborah Fein, & Marianne Barton
- List of informative questions related to diagnosis
- Indicate if further investigation is required
- Note:
  - Sometimes doctors even dismiss these early onset signs as they are unaware of such conditions leading to delayed diagnosis.

# Questions screenshots



# M-Chat Scoring

**M-CHAT Total Score 0-2:**

No Follow-Up necessary. If child is younger than 24 months, screen again at 24 months (or after 3 months has elapsed). Continue developmental surveillance.

**M-CHAT Total Score 3-6:**

M-CHAT/F is important to evaluate risk. If child continues to score 3 or higher, refer immediately for clinical evaluation and to determine eligibility for early intervention services. Please note, if Follow-Up score is 2 monitor carefully, since child may need referral.

**M-CHAT Total Score 7-23:**

Child is at risk for ASD or other developmental delays. It is acceptable to refer immediately without completing the M-CHAT Follow-Up.

# Cost-Benefit Estimates for Early Intensive Behavioral Intervention for young children with Autism: By John Jacobson, James A. Mulick, and Gina Green

- Research indicates that with early intensive intervention based on the principles of applied behavior analysis substantial numbers of children with Autism can attain intellectual, academic, communication, social, and daily living skills within the normal range.

- At varying rates of effectiveness and constant dollars, this model estimate that costs savings range from $187,00 to $203,000 per child for ages 3 - 22 years old and from $656, 000 to $1,082,000 per child ages 3 - 55.

# Future Work

- Looking for funding since this is the beta version.
- implement the next version (for better accuracy of the results)

# References


- http://autismmythbusters.com/general-public/famous-autistic-people/
- https://en.wikipedia.org/wiki/Autism
- https://www.autismspeaks.org/what-autism
- http://www.autism-society.org
- http://kidshealth.org/en/kids/autism.html

# Acknowledgement


- **Center for Autism and Related Disabilities**(University at Albany,State University of New York)
- Patient Data Science, LLC
- M-Chat (Modified checklist for Autism in toddlers)  2009 Diana Robins, Deborah Fein, & Marianne Barton