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Autism spectrum disorder (ASD)

The aim of this document is to educate the community on three aspects:

1. Helping the early diagnosis of children with red flags
2. Helping parents already aware of the diagnosis towards the appropriate intervention
3. Helping parents to understand and be hopeful about the future

Autism spectrum disorder (ASD) is reported in 3% of the population.

“Spectrum” in ASD indicates that - each individual is affected in different ways, with mild-to-severe symptoms often with overlapping comorbidities.

Definition:

Autism spectrum disorder is a biologically based neurodevelopmental disorder with core deficits in two domains: Social communication/interaction and restrictive, repetitive patterns of behavior.
Symptoms appear before 3 years of age but may be obvious over time when social demands exceed limited capacities

**Symptoms:**

- Poor response to name call by 1 year of age
- No meaningful words by 18 months of age
- Does not play with toys appropriately
- Fixed patterns of interest/activities
- Decreased interaction with peers/friends
- Has odd movement patterns and/or very repetitive behaviors
- Demonstrates echolalia (repeats words)
- Is hyperactive
- Toe walking

**Differential Diagnosis:**

Hearing loss: The child has normal social interaction and nonverbal communication, lacking only verbal communication.

Selective mutism: The child is completely mute only in the presence of strangers.

Global developmental delay/intellectual disability: Development is globally affected. Social communication is affected on par with the other domains.

ADHD: Social communication domain is not significantly affected. Hyperactivity is usually meaningful. Intelligence is not affected.

**Diagnosis**

No single test/tool is appropriate for all children; hence, a comprehensive evaluation by a team led by a developmental behavioral pediatrician is necessary for proper diagnosis. This includes a combination of:

- History and physical examination

**Tools such as:**
• Measures relying on parent report: The Autism Behavior Checklist (ABC), Gilliam Autism Rating Scale, 3rd edition (GARS-3), and the Autism Diagnostic Interview-Revised (ADI-R)
• Measures using direct observation: The Childhood Autism Rating Scale (CARS-2) and the Autism Diagnostic Observation Schedule-Generic (ADOS-2)

Developmental/intelligence testing with separate estimates for verbal and nonverbal skills; assessment of adaptive skills to document the presence of associated intellectual disability.

Complete blood count (CBC), and thyroid function test are recommended.

Routine metabolic testing, biomarkers, and environmental toxins are not recommended for regular use; lead levels are indicated only with definite history of exposure. These tests are not recommended.

Investigations:

**Hearing and vision are recommended in all children with ASD.**

**Neuroimaging:** Not indicated for children with ASD. Only Indications: ASD with:
• Abnormal neurologic examination
• Seizures
• Headache

**Electroencephalogram**—sleep-deprived electroencephalogram (EEG): Not indicated for children with ASD – Only Indicated when:
• History of unusual spells or behaviors frankly suggestive of seizures
• History of significant regression in language skills: Landau–Kleffner syndrome (acquired epileptic aphasia)

- **Genetic evaluation:**
- Recommended especially in the presence of dysmorphic features or intellectual disability.
No specific mutation has been identified that is specific for ASD.

- Recommended to test for fragile X syndrome for all children with ASD, especially for boys and children with a suggestive family history of male members with intellectual disability.

**Genetic counseling**: The risk of ASD in the next pregnancy is 10% greater with one child and about 34% with two or more previous children with idiopathic ASD.

**Management:**

1. At least a provisional diagnosis is essential to enable appropriate intervention.
2. Assessment of comorbidities and ruling out differential diagnosis is key to a good outcome.
3. No single therapy has proven to be especially effective; robust evidence for treatment programs in children younger than 2 years and in adolescents is still emerging.
4. Intervention should target core features of autism, i.e., deficits in social communication and interaction, and restricted repetitive patterns of behavior, activities, and/or interests.
5. **DO NOT TARGET** symptoms such as “delayed speech” and “hyperactivity.” Symptomatic therapies are not the final answer.
6. Intervention should have a larger component of home and community-based interventions rather than merely clinic-based. Environmental modifications at home in form of limiting screen time (no screen time till < 2 years of age as per IAP recommendations) and increasing play time with caregivers are crucial.
7. Management of co-morbidities such as intellectual disability, ADHD, anxiety, and depression is critical to effectiveness of treatment.
8. Pharmacotherapy may be offered to children only under the guidance of the Pediatrician.
9. Pharmacologic management of seizures and gastrointestinal disorders in children with ASD are like that in children without ASD.
10. Treatment programs should be monitored to ensure appropriate response to therapy. The program should be reviewed and modified, as the child’s abilities and needs change over time.

**The role of the pediatrician is in**

- Early suspicion,
- Counseling of parents,
- Appropriate referral and,
- Regular monitoring to note improvements in the child from time to time.

Blanket statements such as “your child can never be normal” should be avoided—parents end up either refusing intervention or with decades of inefficient and repetitive or complementary interventions.

Non goal-oriented, arbitrary, unending, repetitive, symptom-based interventions should be monitored for their effectivity versus their potential to harm the child as well as take up the golden early period of life which has maximal potential for improvement, and cautioned against if needed.

With appropriate intervention, most children with mild-to-moderate ASD, especially in the absence of severe comorbidities, should be steered toward normalcy and meaningful social inclusion.

**Conclusion:**

Though early intervention is the buzz word, it is equally important
- To have the correct, appropriate, and dynamic intervention,
- Based on a documented holistic program/plan responsive to
- Improvements/worsening in the child, rather than arbitrary or blanket referrals to rigid symptom-based approaches.
**Myth Vs Fact**

1. **Myth:** Vaccination causes ASD.  
**Fact:** There is clear evidence that vaccines do not cause ASD. Numerous studies have been conducted to investigate the link between vaccines and ASD, and none have found any evidence to support such a link. Vaccines are safe and effective in preventing serious diseases.

2. **Myth:** Dietary changes, such as a gluten-free, casein-free diet, can improve ASD symptoms. 
**Fact:** Gluten-free, casein-free diet is not recommended for children with ASD unless they have celiac disease or gluten sensitivity. While some parents believe that dietary changes can improve ASD symptoms, there is limited scientific evidence to support this. It is important to consult with a healthcare provider before making significant dietary changes.

3. **Myth:** Complementary and alternative therapies are effective treatments for ASD. 
**Fact:** Complementary and alternative therapies including antimicrobial agents, intravenous immunoglobulin, vitamin A, vitamin B6 and magnesium, chelation, hyperbaric oxygen, vagus nerve stimulation, and stem cell transplantation are not recommended for the treatment of ASD. These therapies are often promoted as treatments for ASD, but there is limited scientific evidence to support their effectiveness. Some of these therapies can be expensive and potentially harmful. It is important to consult with a healthcare provider before trying any alternative therapies.
Tag lines

3 A’s of Autism:
Assess regularly
Appropriate early intervention
Avoid Harm

‘PEARLS in Autism: Parents as Essential Advocates, Resources, and Loving Supports”

"Embracing Neurodiversity: Celebrating the Spectrum of Autism"
### FAQs

**1. What are the early signs I may see in my child that could be sign of worry of autism?**

- Poor response to name call, limited to and fro communication or sharing, not playing with peers or toys appropriately,
- No meaningful words for communication by 18 months of age other than repeated words (echolalia), extremes of behavior and hyperactivity. These may not necessarily suggest autism but may indicate a need for more detailed evaluation. Other causes of developmental delay and hearing and vision may need to be screened for in these children.

**2. My toddler shows early signs of Autism. What should I do?**

It is good that you have identified the red flag signs of autism early. Consult a Pediatrician with expertise in Developmental-Behavioral Pediatrics in your area. You will be guided on home stimulation and engagement with work on his social skills, play, behavior and ability to relate to people. This will set the base for his progress in these areas that are primarily deficient in children with autism.

**3. My child can speak few words and can even sing rhymes; can he still be diagnosed with Autism?**

Yes. Autism spectrum disorder is a disorder of social communication and interaction and not merely a speech delay. The child may have picked up these words/rhymes rote learnt from screen. He may be merely repeating the words/rhymes. Limited purposeful and meaningful use of age appropriate words/sentences for to and fro communication may indicate need for detailed evaluation for autism.

**4. My child has been diagnosed with autism spectrum disorder (ASD). Will he speak like other typical children?**

A child with autism though may present with delay in speaking meaningful words, but impairment of social communication is the hallmark. A child with autism and poor verbal speech with proper developmental engagement and interventions learns to communicate non-verbally first - making eye contact, attending and engaging in activities with parents, and following instructions followed by expressive communicative speech. But it may be noted there may be 30% of children with autism who may remain minimally verbal.

**5. My pre-schooler child is doing well academically but social behaviours are difficult. What can I do?**

A Pediatrician trained in Developmental-Behavioral Pediatrics can help. Behavioural problems are one of the co-morbid conditions of autism. A holistic intervention plan for autism should target behavior, social skills and adaptive functioning since the early period for promoting overall development in children with ASD. Medications may be used judiciously in line with intervention for difficult behaviours.
6. My child has ASD. Can he or she attend mainstream regular school?

Many children who receive timely interventions do show good cognitive and communication abilities guiding school readiness skills and are able to adjust in mainstream inclusive schooling. A detailed school readiness assessment along with behavioral evaluation can be carried out by trained professionals before enrollment. Only 30 percent of children with autism will have Intellectual disability.

7. Why did my child develop autism, was I not a good parent?

Parenting per se is not a direct causative factor for autism. Genetic with environmental multiple factors have been implicated. Exposure to screen time in the early developmental years has been shown to be a risk factor. Thus according to IAP screen guidelines screen use for children below the age of 2 years should be avoided.

8. Should we avoid vaccination in my child since he has been diagnosed with ASD?

Vaccinations are essential to prevent life-threatening diseases. There is no evidence of an association in causing autism.

9. I have a child diagnosed with ASD. What are the chances of having my other child with ASD?

For a couple with 1 child with ASD, the recurrence in a subsequent child is approximately 10%. Autism has a genetic linkage, but all the exact genes causing it have not been established till now. Even if a sibling is at increased risk regular developmental screening, being watchful of early signs and early stimulation will help.

10. Can Autism be cured with therapies like hyperbaric oxygen, acupuncture, or stem cell transplant?

There is no evidence for complementary therapies like stem cell, acupuncture, and hyperbaric oxygen to support its use in children with autism. Some of them can do more harm than good, and one should be fully informed.
Autism: Understand and Empower

IAP sees spectrum of colors, each crafting a beautiful world!

Join us in this Awareness Campaign!

WORLD AUTISM Awareness Day!

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Know About AUTISM

Autism is a neurodevelopmental condition with core deficits in two domains:

Communicating and interacting with others
Repeating certain behaviors

ACCEPT, INCLUDE, UNDERSTAND!

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4 CHALLENGES DEMYSTIFIED

<table>
<thead>
<tr>
<th>Hearing Loss</th>
<th>Selective Mutism</th>
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<tbody>
<tr>
<td>Normal social interaction &amp; nonverbal communication, lacks verbal communication.</td>
<td>Mute only in the presence of strangers.</td>
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<tr>
<th>Global Developmental Delay/Intellectual Disability</th>
<th>ADHD</th>
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<tr>
<td>Social communication affected alongside other domains.</td>
<td>Social communication not significantly affected. Hyperactivity meaningful. Intelligence intact.</td>
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Is there an early screening tool for AUTISM?

Yes, The Modified Checklist for Autism in Toddlers (MCHAT)-R/FU a brief, two-step, parent-completed screening tool for children between 16 and 30 months is used as early screening tool for autism. If positive, please discuss with your Pediatrician.

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Together, we can make a difference
Diagnosis Matters: A Team Approach for Every Child!

There's no one-size-fits-all test for AUTISM.

That's why a comprehensive evaluation led by a Developmental Behavioral Pediatrician is key.

Together, we pave the path to accurate diagnosis and personalized care.

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RECOGNIZING AUTISM: RED FLAGS

Let's explore the common signs and symptoms together
Poor response to name call by 1 year of age

No meaningful words by 18 months of age

Does not play with toys appropriately

Fixed patterns of interest/activities

Decreased interaction with peers/friends
Indian Academy of Pediatrics

- Has odd movement patterns and/or very repetitive behaviors
- Demonstrates echolalia (repeats words)
- Is hyperactive
- Toe walking
Has odd movement patterns and/or very repetitive behaviors

Demonstrates echolalia (repeats words)

Is hyperactive

Toe walking
Vaccination causes ASD.

**MYTH**

**FACT** There is clear evidence that vaccines do not cause ASD. Numerous studies have been conducted to investigate the link between vaccines and ASD, and none have found any evidence to support such a link. Vaccines are safe and effective in preventing serious diseases.

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**MYTH**

Gluten-free, casein-free diets improve ASD symptoms.

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**FACT**

These diets are not recommended unless for celiac disease or gluten sensitivity. Consult a Pediatrician before dietary changes.
MYTH
Alternative therapies are effective for ASD.

FACT
Treatments like antimicrobial agents, vitamin supplements, and stem cell transplants aren't recommended for ASD. Consult a Pediatrician before trying alternative therapies.
Management of Autism Spectrum Disorder (ASD)

- Early Diagnosis, Timely Intervention
- Comprehensive Assessment for Effective Treatment
- Tailored Therapies for Various Age Groups
- Target Core Features: Communication and Behavior
- Holistic Approach: Comprehensive Therapy
- Home and Community-Based Interventions
- Managing Comorbidities for Better Outcomes
- Guided Pharmacotherapy for Children
- Standardized Treatment for Associated Conditions
- Ongoing Monitoring and Adaptation

For More Information

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Autism: Understand and Empower
AIM

1. Helping the early diagnosis of children with red flags
2. Helping parents already aware of the diagnosis towards the appropriate intervention
3. Helping parents to understand and be hopeful about the future
What is Autism?

“Autism spectrum disorder (ASD)” is a biologically based neurodevelopmental disorder with core deficits in two domains:

1. Social communication/interaction
2. Restrictive, repetitive patterns of behavior.

“Spectrum” in ASD indicates that - each individual is affected in different ways, with mild-to-severe symptoms often with overlapping comorbidities.

Autism spectrum disorder (ASD) is reported in 3% of the population.
RED FLAGS FOR ASD

• Poor response to name call by 1 year of age
• No meaningful words by 18 months of age
• Does not play with toys appropriately
• Fixed patterns of interest/activities
• Decreased interaction with peers/friends
• Has odd movement patterns and/or very repetitive behaviors
• Demonstrates echolalia (repeats words)
• Shy/Hyperperactive
• Toewalking
Differential Diagnosis

- **Hearing loss**: The child has normal social interaction and nonverbal communication, lacking only verbal communication.
- **Selective mutism**: The child is completely mute only in the presence of strangers.
- **Global developmental delay/intellectual disability**: Development is globally affected. Social communication is affected on par with the other domains.
- **ADHD**: Social communication domain is not significantly affected. Hyperactivity is usually meaningful. Intelligence is not affected.
Adolescents with ASD may have social difficulties based on their cognitive and communication abilities. Even the ones with good verbal abilities may face difficulty in understanding social rules of friendship and navigating relationships. They may take things literally and fail to understand sarcasm and teasing. They may get upset if rules are not followed. Adolescents with ASD may have associated ADHD and higher risk for anxiety and depression. may thus be prone to develop anxiety or depression.
Diagnosis

• Screening tests (parent report)
  • M-CHAT

• Confirmatory tests (parent report/direct observation)
  • ADOS-2, ADI-R, CARS-2, TABC, ISAA, INCLEN ASD tool
Investigations

- Hearing and vision evaluations are MUST in all children with ASD.

- Neuroimaging: NOT routinely indicated.
  - Indicated in ASD with:
    - Abnormal neurologic examination
    - Seizures
- EEG - in cases with epilepsy or regression of milestones
- Genetic evaluation: in children with dysmorphic features/ advised by pediatric geneticist.
Management

• Intervention should **target core features of autism**,
  • Deficits in social communication and interaction
  • Restricted repetitive patterns of behavior, activities, and/or interests.

• **DO NOT TARGET symptoms such as “delayed speech” and “hyperactivity.”**

• Intervention should have a larger component of home and community-based interventions rather than merely clinic-based.
• Environmental modifications at home are crucial:
  • Limiting screen time (no screen time till < 2 years
  • Increasing play time with caregivers
Management

- Management of co-morbidities such as intellectual disability, ADHD, anxiety, and depression is critical to effectiveness of treatment.
- Pharmacotherapy may be offered to children only under the guidance of the Pediatrician.
  - Pharmacologic management of seizures and gastrointestinal disorders in children with ASD are like that in children without ASD.

- **Treatment programs should be regularly monitored to ensure appropriate response to therapy.**
Role of Pediatrician

- Early suspicion and screening using M-CHAT
- Counseling of parents
- Appropriate referral to a developmental pediatrician
- Regular monitoring to note improvements in the child from time to time.
According to the National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities Act, 1999; various schemes have been made available like Niramaya (Insurance), Aspiration (Early intervention) and Gyan Prabha (scholarship). The notification issued in April 2016 by the Department of Empowerment of Persons with Disabilities under the Ministry of Social Justice and Empowerment, detailed the guidelines for evaluation of Autism and procedure for its certification. ASD should be diagnosed using the DSM-5 and INCLEN tools and certified using the ISAA. The certificate should be valid for a period of five years for individuals below 18 years of age with temporary disability; and for those who have acquired permanent disability, should receive ‘permanent’ validity on their certificates.