



Case Study 3: RM

Negative for autism



canvas Dx
by cognoa

Know Now. Act Sooner. Because knowing is the earliest intervention.

Integrating Canvas Dx into practice: The following case studies are for illustrative purposes only and are not based on real patients or events. They are not intended to influence clinical decision-making or suggest any particular diagnosis or course of treatment for any particular set of symptoms. They are only intended to illustrate how Canvas Dx can be incorporated into your practice.

Clinical Case Study 3: LS

LS is a 2 year 3 month old girl being seen by her primary care pediatrician due to caregiver concerns regarding her development.

- Her father reports that she was 4 weeks premature and early motor developmental milestones were somewhat delayed. LS didn't sit independently until she was 9 months old and didn't walk until she was 20 months old.
- She was referred to Early Intervention for her physical delays and is now walking, running, and jumping appropriately.
- Her fine motor milestones are intact.
- Her speech is also delayed; her first words were at 2 yr and she currently speaks 1–2–word phrases.
- LS makes eye contact, points to objects to show her parents, and understands most commands.
- LS currently has an expressive vocabulary of 50–60 words, and strangers understand about half of these words.
- She is cooperative and is already toilet trained.
- LS has an older brother with autism and parents are concerned that she may have autism as well.



Based on reported caregiver concerns, observed behavior and history of a brother with autism the pediatrician prescribes Canvas Dx.

Canvas Dx returns a **NEGATIVE for autism** output for LS

The pediatrician uses this output, in conjunction with her observations of LS, and the family's report of LS's developmental delays to determine that LS does not meet DSM-5 criteria for autism. She discusses the findings and next steps with LS's family.

Given the nature of her delays the pediatrician decides that LS would benefit from Speech and Language Therapy. She would also benefit from an early childhood special education program and will need an Individualized Education Plan (IEP) once she is three years old.

The pediatrician schedules a future meeting with LS and her caregivers in 6 weeks time to discuss progress and any arising concerns.

[Read LS's Detailed Report on the next page >](#)

Detailed Report

NAME Lea Singh	DATE OF ASSESSMENT 2023-10-03	SEX Female	DOB 2021-01-01
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Autism Specific Testing

Canvas Dx was completed on 2023-05-14 when Lea Singh was 2 years, 5 months old.

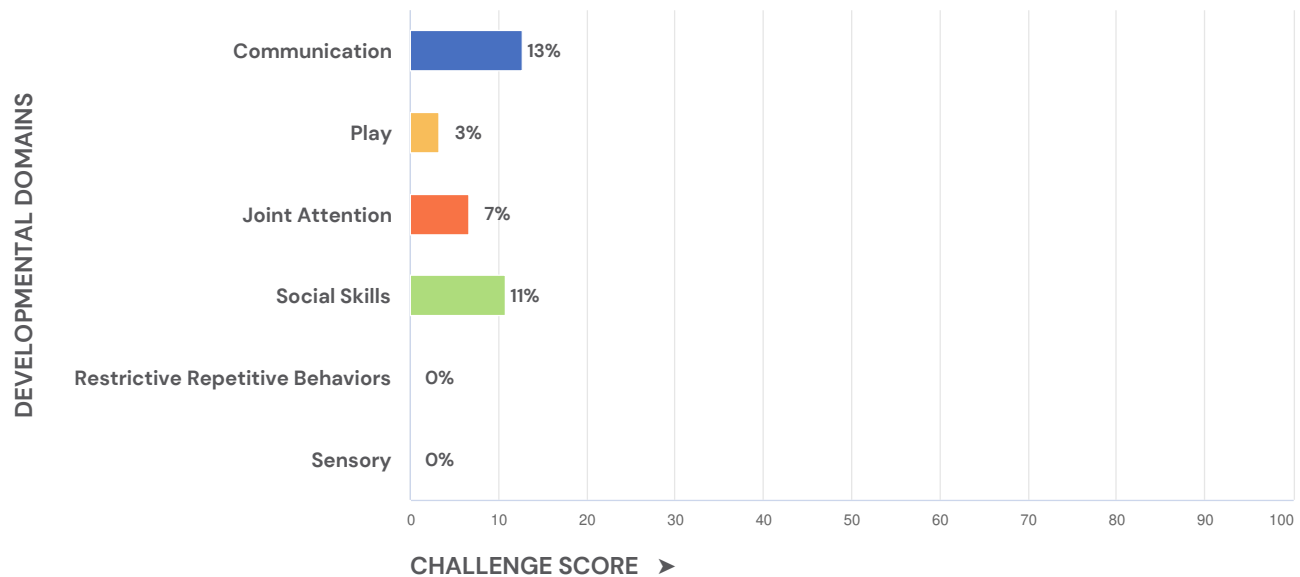
Canvas Dx is an FDA authorized Diagnostic device for autism that has been clinically validated for use in children with developmental delay concerns, aged 18 through 72 months. Canvas Dx captures input from a parent/caregiver questionnaire, a healthcare provider questionnaire, and behavioral observations of the child (made by trained video analysts who view home videos of the child that are uploaded by the parent/caregiver). Inputs are combined in a trained machine learning algorithm to produce an output of 'Positive for autism', 'Negative for autism' or 'Indeterminate'.

The Canvas Dx output was: **Negative for autism.**

This detailed report was generated using Canvas Dx item-level inputs for this child.

Summary of Domain Specific Challenges:

Higher scores indicate increased challenge



0% challenge score = maximally neurotypical score. A score of 0% challenge is achieved if the maximally neurotypical response is selected for each relevant question in this domain.

100% challenge score = maximally atypical score. A score of 100% challenge is achieved if the maximally atypical response is selected for each relevant question in this domain.

This graph combines item-level data from the three Canvas Dx inputs. In cases where a behavior was recorded as "not observed" (rather than present or absent) the response was excluded from the count.

NAME: Lea Singh	DOB: 2021/01/01	PAGE 1 of 6
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Developmental Domains Overview

Domain	Description	Evidence based therapies ¹
Communication	Includes aspects of nonverbal communication, receptive and expressive language as they relate to autism. For example, gestures, ability to understand spoken language or to communicate needs.	<ul style="list-style-type: none"> • Speech/language therapy • Social skills training • Early intensive behavioral intervention (e.g. ABA, NDBI) • Developmental therapy
Play	Includes aspects of play such as imaginative play, imitation, interest and engagement with other people.	<ul style="list-style-type: none"> • Social skills training • Early Intensive Behavioral Intervention (e.g. ABA, NDBI) • Developmental therapy
Joint attention	Ability to share focus on an object or area with another person (e.g. a parent points to a plane in the sky and says "look, a plane" and child looks at parents and then sky to share the experience)	<ul style="list-style-type: none"> • Social skills training • Early Intensive Behavioral Intervention (e.g. ABA, NDBI) • Developmental therapy
Social skills	Ability to use tools to communicate, interact, and build healthy relationships (e.g. the child's ability to engage in group play)	<ul style="list-style-type: none"> • Speech/language therapy • Social skills training • Early Intensive Behavioral Intervention (e.g. ABA, NDBI) • Developmental therapy
Restricted & Repetitive Behaviors and Interests	Highly restrictive or repetitive behaviors fixated on an interest (e.g. a child spends a lot of time lining up his toys)	<ul style="list-style-type: none"> • Behavioral intervention
Sensory	Related to processing information from the senses, like sight, smell and sound (e.g. a child has hypersensitivity to the tags in clothing)	<ul style="list-style-type: none"> • Occupational therapy*

1. Hyman, S. L., Levy, S. E., & Myers, S. M. (2020). Identification, evaluation, and management of children with autism spectrum disorder. *Pediatrics*, 145(1).

*Emerging literature/evidence base for sensory integration treatments.

Strength Identification

Healthcare provider reported:

- The healthcare provider reports that the child often uses hand signals to convey a message: The child spontaneously uses a variety of hand signals or gestures to get what they want.
 - The healthcare provider reports that the child consistently looks back and forth during conversations.
 - The healthcare provider reports the child smiles often with a variety of people.
 - The healthcare provider reports the child does not have any sensory issues.
 - The healthcare provider reports the child imitates actions of caregivers, e.g. vacuuming, household tasks and incorporates it into own play.
 - The healthcare provider reports the child has no sensory interests.
 - The healthcare provider reports that child consistently shakes head "no" when asked a question or a request is made. The child consistently shakes head "no" when he or she means "no".
 - The healthcare provider reports that the child points to communicate things of interest from a distance. The child both points at things and looks at others to get their attention.
 - The healthcare provider reports no abnormal playing with toys or objects. The child shows little or no repetitive use of objects.
 - The healthcare provider reports that the child does not engage in repetitive whole-body movements.
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Caregiver reported:

- The caregiver reports that the child usually starts playing on their own with toys, crafts, games, or other activities without the caregiver's help.
- The caregiver reports that the child understands the words and phrases that the caregiver says to them very well: The child is able to understand more than 50 words even when said in a new way, like "put your socks on your hands".
- The caregiver reports that the child usually looks people in the eye during conversations or other social interactions: The child uses appropriate eye contact.
- The caregiver reports that the child usually responds, looks up, or pays attention to the caregiver when the caregiver starts talking to them.
- The caregiver reports that the child usually shows things, like toys, to the caregiver or other people to share their interest and not just for getting help.
- The caregiver reports that, when smiled at, typically, the child usually smiles back.
- The caregiver reports that the child usually plays back-and-forth social games like "patty-cake" or "Simon says". The caregiver reports that the child enjoys social games like this.
- The caregiver reports that the child rarely or never predictably gets upset by certain common noises, smells, sights, textures, flavors, or movements.
- The caregiver reports that the child often copies or imitates the way they do things around the house. The child will act out or copy a wide range of things that they see.
- The caregiver reports that the child usually uses a variety of expressions that are appropriate to the mood or

NAME: Lea Singh	DOB: 2021/01/01	PAGE 3 of 6
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situation.

- The caregiver reports that the child rarely or never seeks out, or becomes distracted with, sensations like touching, smelling, looking at, or listening.
- The caregiver reports that, when playing alone or with toys, the child usually pretends or makes up stories and characters.
- The caregiver reports that, when communicating, the child usually naturally shakes their head to mean "No" and nods their head to mean "Yes" without being told to.
- The caregiver reports that the child usually points to show something the child is interested in that is far away, such as an airplane in the sky, or a toy across the room and checks back to make sure you are paying attention.
- The caregiver reports that the child usually tends to share their excitement or happiness with the caregiver and other people: The child shares their enjoyment in different ways, and with multiple people.

Observed / reported behaviors and history of concern

SOCIAL COMMUNICATION AND SOCIAL INTERACTION	
DSM-5 COMPATIBLE DOMAINS	IDENTIFIED DOMAIN SPECIFIC CHALLENGES FOR THIS CHILD
Social-emotional reciprocity	<ul style="list-style-type: none"> • The healthcare provider reports the child sometimes offers comfort without prompting and only in certain situations.
	<ul style="list-style-type: none"> • The caregiver reports that the child only sometimes tends to show concern or try to comfort others when they are upset, sick, or hurt.
Nonverbal communication	<ul style="list-style-type: none"> • The healthcare provider reports the child will sometimes socially pick up or show objects to connect with others but is limited in frequency. • The healthcare provider reports the child sometimes offers comfort without prompting and only in certain situations.
	<ul style="list-style-type: none"> • The caregiver reports that, when communicating, the child sometimes uses gestures such as waving "hello" or "good bye", clapping, giving a thumbs-up, or other similar hand signals: The child uses a few gestures.
Developing, maintaining, and understanding relationships	<ul style="list-style-type: none"> • The healthcare provider reports the child will sometimes socially pick up or show objects to connect with others but is limited in frequency. • The healthcare provider reports the child sometimes offers comfort without prompting and only in certain situations.
	<ul style="list-style-type: none"> • The caregiver reports that the child only sometimes tends to show concern or try to comfort others when they are upset, sick, or hurt.

RESTRICTIVE OR REPETITIVE BEHAVIORS	
DSM-5 COMPATIBLE DOMAINS	IDENTIFIED DOMAIN SPECIFIC CHALLENGES FOR THIS CHILD
Stereotypic or repetitive behaviors	
Ritualized or inflexible behaviors	
Highly restricted, fixated interests	
Hyper- or hyporeactivity or unusual interest in sensory input	

To meet DSM-5 diagnostic criteria for autism a child must have persistent deficits in each of the three social communication and interaction domains PLUS at least two of the four restricted, repetitive behavior domains

Developmental history:

- In relation to the child’s development, the caregiver reports that the child has had a few mild delays in development.
- The healthcare provider reports some developmental delay is suspected before age 3.

Assessment summary prepared by Dr. Light Beacon MD

Lea Singh is a 2 years, 5 months old who was assessed due to developmental concern.

ICD-10 CODES

F80.89 Other developmental disorders of speech and language

RECOMMENDATIONS

Speech & Language Therapy

PROVIDER NAME Dr. Light Beacon MD	
SIGNATURE Dr. Light Beacon MD	DATE 2023-10-03 04:34PM UTC

Signature Line

Electronically Signed by Dr. Light Beacon MD at 2023-10-03 04:34PM UTC. This note is a complete document once electronically signed.

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