

New York Deaf-Blind Collaborative

# A Tool for Identifying Vision and Hearing Loss in Children with Multiple Disabilities

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Queens College  
Powdermaker Hall 200  
65-30 Kissena Blvd.  
Flushing, NY 11367-1597  
[www.qc.cuny.edu/nydbc](http://www.qc.cuny.edu/nydbc)  
[nydbc@qc.cuny.edu](mailto:nydbc@qc.cuny.edu)

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## PURPOSE

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This tool was created to assist classroom teachers, therapists, school nurses, and parents in identifying sensory impairments in children with multiple disabilities.

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## INTRODUCTION

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Children with sensory impairments and multiple disabilities are a population that is challenging to educate and serve. Most learning comes through visual and auditory channels and when these avenues are impaired incidental and direct learning is reduced. While the impact of the sensory impairment may not always be the primary impediment to learning it is a factor that has significant impact on a child's ability to learn by affecting their access to the physical, social, and instructional environment. Use of appropriate modifications and instructional strategies can significantly increase access and, ultimately, development and achievement. A number of studies demonstrate that sensory impairments (hearing and vision losses) are significantly under-identified in children with multiple disabilities as well as in populations of people with developmental and intellectual disabilities.

A recent study from 2009 of adults with intellectual disabilities in an institutionalized population documents the percentage of those with sensory impairments as follows:

Hearing Impairment	46.0%
Vision Impairment	38.4%
Deafblindness	21.4%

(J. Fellingner, D. Holzinger, A. Dirmhirn, J. van Dijk, & D. Goldberg . 2009)

Based on national statistics of students with combined hearing and vision loss, the incidence of concomitant disabilities is also quite common. Some estimates of the occurrence of additional disabilities in children with hearing impairments are as high as 35% and vary between 40% and 70% for those with vision impairments alone (Chen, D. 2000). The complexities within this population make identification of sensory impairments, and, most notably dual sensory impairment (deaf-blindness), particularly challenging.

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## INSTRUCTIONS

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This identification tool relies on three sources of data in determining if referral for a medical evaluation for hearing and/or vision loss is necessary:

- A. Observation
- B. Available medical information
- C. Parent Interview

A transdisciplinary team approach and inclusion of the parent in the process to the greatest extent possible are other critical features of this tool. The process is divided into 6 steps each with instructions on how they should be completed. The result of the tool is not a score but instead a **set of facts** about the child which assists you in making decisions that will affect the educational programming and overall service delivery for the child.

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## STEP 1: OBSERVE VISUAL AND AUDITORY BEHAVIORS

### Behaviors that suggest Vision or Hearing Loss

If you suspect that your student has vision or hearing loss you should document those behaviors that lead you to believe that this is true. Below is a list of behaviors or characteristics typical of children who have vision and hearing loss. Check off those behaviors that are suspect, describe them if you think further explanation is needed and add any information you think pertinent to their sensory functioning and behaviors.

<b>A. Vision</b>		<b>Yes</b>	<b>No</b>
<b>Appearance of the Eyes</b>			
1.	Atypical appearance of the eyes including eye alignment(crossed or turned eye)		
2.	Unusual eye movements (nystagmus)		
3.	Visible irregularities (sagging eye lids, shape, size, structure)		
4.	Tearing, redness of eye or eyelid		
5.	Absence of a clear black pupil, or pupil that is excessively large or small		
<b>Behaviors of the Student</b>		<b>Yes</b>	<b>No</b>
1.	Unusual eye gaze or head position		
2.	Absence of visually directed behaviors that are expected for developmental level		
3.	Lacks interest in visual materials		
4.	Poor reaching behaviors with under or over shooting of target		
5.	Squinting, tearing, frequently closes eyes		
6.	Turning away from light (photophobia)		
7.	Difficulty adapting to changes in lighting		
8.	Does not see as well in dim light		
9.	Does not look at faces		
10.	Pokes , presses or rubs eyes frequently		
11.	Holds visual materials close to face or at an atypical angle		
12.	Does not track moving objects		
13.	Does not visually inspects item being held		

### B. HEARING

<b>Appearance of the Ears</b>		<b>Yes</b>	<b>No</b>
1.	Cleft lip or palate		
2.	Malformations of head and neck		
3.	Malformations of ears		
4.	Frequent ear aches or infection		
5.	Discharge from ears		
<b>Behaviors of the Student</b>		<b>Yes</b>	<b>No</b>
1.	Makes few or inconsistent responses to sound		
2.	Does not look at visual materials when asked to by someone		
3.	Does not startle or react to unexpected or new sounds		
4.	Does not respond to caregiver's calling name/not soothed by caregiver's voice		
5.	Shows a preference for certain types of sound (high or low frequency, louder or softer sounds)		
6.	Has limited vocalizations does not try to imitate		
7.	Has difficulty attending to auditory stimuli for a reasonable length of time		
8.	Does not turn to or localize voices or sounds		
9.	Abnormalities in voice, intonation, articulation		
10.	Pulls on or covers ears		
11.	Breathes through mouth		
12.	Angles head to one side so as to favor one ear		

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**Additional Information**

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**STEP 2: REVIEWING MEDICAL RECORDS**

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In reviewing a student’s medical and educational records you should be looking for two main sources of information, first if there is any information, regardless of how old, that pertains to vision or hearing loss. This could be in medical or educational reports or IEP’s. Secondly, look for conditions that are considered risk factors and that are associated with and have a high probability of either vision or hearing loss.

The following are known risk factors for vision and hearing loss. Look for these terms when reviewing medical records and document which ones are present:

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**RISK FACTORS FOR VISION AND HEARING IMPAIRMENT**

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**Hereditary Syndromes and disorders**

<b>Syndrome/Condition</b>	<b>Vision/Hearing</b>	<b>Date of Document</b>	<b>Type of Document</b>
1. CHARGE Syndrome/Association			
2. Down Syndrome			
3. Trisomy 13			
4. Usher Syndrome			
5. Alstrom Syndrome			
6. Goldenhar, Hurler, Norrie, Waardenburg Syndromes			
7. Other genetic syndromes or defects			

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**Prenatal History**

<b>History of maternal infection/exposure during pregnancy</b>	<b>Vision /Hearing</b>	<b>Date of Document</b>	<b>Type of Document</b>
1. Rubella			
2. CMV (cytomegalovirus)			
3. Toxoplasmosis			
4. Herpes			
5. Syphilis			
6. Prenatal infant exposure to drugs or alcohol			
7. Cleft Lip or Palate			

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### Perinatal History

<b>Prematurity/Low Apgar</b>	<b>Vision Hearing</b>	<b>Date of Document</b>	<b>Type of Document</b>
1. Birthweight < than 1500 grams (3.3lbs)			
2. Retinopathy or prematurity			
3. Preterm birth, exposed to oxygen			
4. On ventilator longer than 5 days			
5. Elevated bilirubin requiring transfusion			
6. Low Apgar scores (1-4 at 1 minute or 0-6 at 5 minutes)			

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### Post Natal History

<b>Prematurity/Low Apgar</b>	<b>Vision Hearing</b>	<b>Date of Document</b>	<b>Type of Document</b>
1. Meningitis or encephalitis			
2. Hydrocephalus/hydrocephaly			
3. Cerebral palsy or other neurological disorders			
4. Brain disorders, brain tumors or malformations of the brain such as Dandy Walker			
5. Loss of oxygen to the brain			
6. Severe head trauma			
7. Prolonged fever			
8. Child received "mycin" or other known ototoxic medications			

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### "Red" Flag Terms

<b>Medical Terms associated with Vision &amp; Hearing Loss</b>	<b>Vision Hearing</b>	<b>Date of Document</b>	<b>Type of Document</b>
1. Anoxia, asphyxia, hypoxia			
2. Atresia			
3. Cerebral hemorrhage			
4. Cerebral palsy			
5. Ischemia			
6. Meningitis			
7. Periventricular damage			
8. Fetal Alcohol Syndrome			

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**Additional Information**

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**STEP 3: INTERVIEWING THE FAMILY**

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Families who have children with multiple disabilities are usually accurate reporters of their child's use of vision and hearing. They have more opportunities to see their child as well as a more diverse set of circumstances in which to see them. They also have the history of their child over the years in which to observe change. Interviewing parents with a set of discrete and open-ended questions will give a much broader view of the child and help to identify any issues with vision and hearing.

Appendix A and B are questions to ask parents about their child's vision and hearing. These questions are best asked face to face but, if not possible, then a telephone interview will suffice. These questions should not be treated as a form to send home as the impersonal nature of this approach will not yield useful information.

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**STEP 4: MEETING WITH THE FAMILY**

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If through the first three steps of the identification process it becomes likely that your student may have a vision or hearing impairment a meeting with the family should be requested to discuss the results of your observations and investigation.

There is no cut and dry threshold of determination but if both the educational team and the parent have suspicions, and the student's behavior and medical history support this, then a referral to the appropriate medical professional should be made.

The meeting to review this tool should include a discussion of your findings and thoughts as well as helping the parents find medical professionals they can access to have their child tested and, if appropriate, diagnosed. For students for whom you suspect a vision impairment, a referral to an ophthalmologist or low vision optometrist should be made. For students suspected of having a hearing loss, a referral to an Audiologist is in order (see Appendix of hearing and vision resources).

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**STEP 5: REFERRAL FOR MEDICAL FOLLOW-UP**

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Medical appointments are not always an easy experience for parents and helping them to prepare for the appointment will make it more productive for them and ultimately for the educational team, as there is a better chance of getting information that is useful in diagnosing and serving the child.

Giving the parents questions to ask the doctor can be extremely helpful in preparing the parents. Appendix C and D have questions for ophthalmologists and audiologists. These, as well as specific questions the parents or team have, should be formulated beforehand so the parent has them on hand for the medical appointment.

## **STEP 6: FOLLOW-UP MEETING TO DISCUSS MEDICAL FINDINGS**

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After the child has gone to their medical appointment for vision and/or hearing a follow-up meeting should be scheduled to assist the parents in understanding the results. If a vision or hearing impairment has been identified the next step is to make a referral for an evaluation by a teacher of the visually impaired and/or a teacher of the deaf and hard of hearing. These individuals will evaluate the child and make a recommendation for services that will be put on the IEP with appropriate goals and accommodations.

## APPENDIX A

### QUESTIONS TO ASK THE FAMILY ABOUT THEIR CHILD'S VISION

Question	Comments/Observations
1. What have you been told by medical professionals (such as the pediatrician or family care physician) about your child's vision?	
2. Is your child taking any medications? What medical issues might affect your child's ability to learn to use vision?	
3. Do your child's eyes look typical (similar to other family members)?	
4. Have you noticed if one of the child's eyes turns inward, outward, upward, or downward? If so, when does this occur?	
5. Does anyone in the family have a vision problem, such as amblyopia, or "lazy eye"; farsightedness, nearsightedness, astigmatism, or color deficiency?	
6. What is your impression of your child's vision?	
7. What does your child like to look at?	
8. What kinds of things do you think your child sees, and in what activities does he/she use their vision?	
9. Does your child seem to respond to your face or to brightly colored toys? If so, how far away, or how close and in what positions does he/she notice them?	
10. Does your child use both eyes to look at objects or at your face when close to him/her (about 4 inches away)?	
11. What does your child do when you look at him/her from about 8 – 12 inches?	
12. What toys/games does your child prefer? Toys that make sounds? Toys that are bright and colorful? Shiny toys?	
16. Does your child recognize people when they enter a room, when no auditory cue is given? How far away is the person when the child visually recognizes his/her presence?	
18. Have you noticed your child squinting when playing in bright sunlight? What is his/her reaction to an outside source of light or from lighting provided in an indoor environment?	
20. Have you noticed your child holding his/her hands near or against his/her eyes in usual ways, such as waving in front of or pressing the eyes? If so, when and how often?	
21. Does your child appear to tilt his/her head in an unusual way to look at things?	
23. Does your child watch TV or the computer? If so, where does he/she prefer to sit (distance from TV/computer, type of chair, angle of seat, etc.)?	
24. How does your child locate things on the floor if they are dropped? Does the child seem to use his/her vision to locate the items? If so, how?	
Additional Comments:	

Adapted from "Essential Elements in Early Intervention: Visual Impairment and Multiple Disabilities" by Deborah Chen

## APPENDIX B

### QUESTIONS TO ASK THE FAMILY ABOUT THEIR CHILD'S HEARING

Question	Comments/Observations
1. What have you been told by medical professionals (such as the pediatrician or family care physician) about your child's hearing?	
2. Has your child had ear infections, if so how often?	
3. Is your child frequently congested? Do they have frequent colds?	
4. What is your impression of your child's hearing?	
5. What sound's get your child's attention?	
6. What does your child do when you call their name?	
7. How does your child react to sudden loud noises? (telephone, car, vacuum)	
8. What kinds of things do you think your child sees, and in what activities does he/she use their vision?	
9. Does your child seem to respond differently when the television or radio is on?	
10. Does your child appear to enjoy toys with sound/noise?	
11. Does your child enjoy you talking or singing to them?	
12. What words does your child seem to understand?	
Additional Comments:	

Adapted from "Essential Elements in Early Intervention: Visual Impairment and Multiple Disabilities" by Deborah Chen

## APPENDIX C

### QUESTIONS FOR THE FAMILY TO ASK THE OPHTHAMOLOGIST

Question	Comments/Observations
1. What vision tests were conducted?	
2. What were the results of those tests?	
3. How did the tests go? How did my child react during the tests? How confident are you in the results (reliability)?	
4. What do the results mean in terms of my child seeing clearly?	
5. Would my child benefit from glasses and, if so, what would it help him/her to see?	
6. Do you suspect that my child has a progressive loss? Will his vision be worse in the future?	
7. Is my child's vision the same in both eyes? Is there a "better eye" that will assist him/her in accessing materials or things in his/her environment?	
8. When does my child's prescription need to be rechecked?	
9. How does the information from the test results help my child's educational team?	
10. Are there other tests that my child needs?	
11. When should my child be retested?	
12. Are there other tests for a child with additional disabilities that are better?	
13. How can I prepare my child for further testing?	
Other comments:	

Adapted from "Essential Elements in Early Intervention: Visual Impairment and Multiple Disabilities" by Deborah Chen

## APPENDIX D

### QUESTIONS FOR THE FAMILY TO ASK THE AUDIOLOGIST

Question	Comments/Observations
1. What kind of hearing tests were conducted?	
2. What did the test results measure and what were the results?	
3. How did the tests go? How did my child react? How confident are you in the results (reliability)?	
4. When should my child be retested?	
5. What do the results mean for my child's ability to discriminate sounds and understand speech?	
6. Would my child benefit from amplification (hearing aids, FM unit, etc.)?	
7. What would be the best way to get more information my child's hearing? What are my next steps?	
8. Is my child's hearing equivalent in both ears? Is there a "better ear" that will assist him/her in accessing speech or environmental sounds better?	
9. Do you suspect that my child has a progressive loss? Will his hearing be worse in the future?	
10. Is it possible for us to listen to the sounds that my child hears?	
11. If my child gets hearing aids what type is recommended? Why is that style better for him/her than others?	
12. With hearing aids, when will he/she need to get new molds?	
13. Is my child a candidate for a cochlear implant? Why or why not?	
14. When should my child be retested?	
15. How does the information from the test results help my child's educational team?	
Other Comments:	

Adapted from "Essential Elements in Early Intervention: Visual Impairment and Multiple Disabilities" by Deborah Chen

## Resources for Evaluating Vision and Hearing

This list of resources is not an endorsement of the providers named; it is simply a resource that can act as a starting point for families who require evaluation of their child's vision and/or hearing.

### VISION

Medical professionals who evaluate vision in children with suspected vision impairments are of two basic types, Pediatric ophthalmologists (MD) and low vision optometrists (There are also regular optometrists, but in these instances a low vision optometrist should be used.). This can be a good starting point if a child requires evaluation for a suspected visual impairment. If the low vision optometrist suspects a medical condition they may refer the child to a pediatric ophthalmologist for follow up. Most hospitals and medical centers have pediatric ophthalmologists. Listed below are resources for both

#### PEDIATRIC OPHTHAMOLOGY

##### Pediatric Ophthalmic Consultants

40 West 72nd Street, Lobby  
New York, New York 10023  
Phone: 212-981-9800  
Fax: 212-981-9818

[http://www.pedseye.com/office\\_information.htm](http://www.pedseye.com/office_information.htm)

##### Columbia Ophthalmology Consultants

Edward S. Harkness Eye Institute  
Flanzer Eye Center  
635 W. 165th Street, NYC, NY  
212-305-9535

[http://www.cumc.columbia.edu/dept/eye/doctors/doc\\_coc.html](http://www.cumc.columbia.edu/dept/eye/doctors/doc_coc.html)

##### New York Eye and Ear Infirmary

310 East 14th Street, New York, NY 10003  
Main Number: 212-979-4000

<http://www.nyee.edu/pediatric-ophthalmology-and-strabismus.html>

##### Ophthalmology and Visual Science

Montefiore Hospital  
4141 Carpenter Avenue  
Bronx, NY 10467  
Phone: 718-920-9734

<http://www.montefiore.org/services/coe/surgery/ophthalmology/>

##### Pediatric Eye Center

Maimonides Hospital  
902 49th Street  
Brooklyn, NY 11219  
(718) 283-8000

[http://www.maimonidesmed.org/Main/ClinicalServices/OphthalmologyEye\\_23.aspx](http://www.maimonidesmed.org/Main/ClinicalServices/OphthalmologyEye_23.aspx)

SUNY College of Optometry  
University Eye Center  
33 West 42nd Street, New York, NY 10036  
(212) 938-4000  
1-888-277-5666

[http://www.sunyopt.edu/uec/index.php/eyecare\\_for\\_children/low\\_vision\\_children](http://www.sunyopt.edu/uec/index.php/eyecare_for_children/low_vision_children)

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## HEARING

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If you suspect that your child has a hearing loss the first point of contact for evaluation should be an audiologist. If further medical follow up is required the audiologist will refer the child to an ENT to determine a course of treatment.

Lexington Hearing and Speech  
30th Avenue and 75th Street  
Jackson Heights, NY 11370  
718.350.3170

<http://www.lexnyc.org/hearspeech.html>

Pediatric Audiology Department  
Laurence D. and Lori Weider Fink Children's Ambulatory Care Center  
160 East 32nd Street  
(between Lexington and Third Avenues)  
New York, NY 10016  
(212) 263-7349  
Fax: (212) 263-2597

<http://ent.med.nyu.edu/patient/audiology-fink>

Division of Audiology and Speech  
Columbia University Medical Center  
3959 Broadway, BHN 5th Floor  
New York, NY 10032  
212-305-0029

<http://www.entcolumbia.org/audspdiv.html>

Communication Disorders and Children's Hearing Program  
Children's Evaluation and Rehabilitation Center  
Albert Einstein College of Medicine  
1300 Morris Park Avenue  
Bronx, NY 10461  
(718) 430-8500

Center for Hearing and Communication  
50 Broadway, 6th Floor  
New York, NY 10004  
Phone: 917-305-7700

<http://www.chchearing.org/>

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Lipkin P., (2006). Screening Implementation: Referral and Follow Up.  
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