



Early Listening Function

Background Information and Scoring Examples



ELF Early Listening Function

Discovery tool for parents and caregivers of infants and toddlers

Why: Hearing is a distance sense. A child with a hearing loss will have a reduced hearing range, or a smaller **listening bubble**.

Only someone who is with the child everyday can observe how the child is using hearing in daily situations.

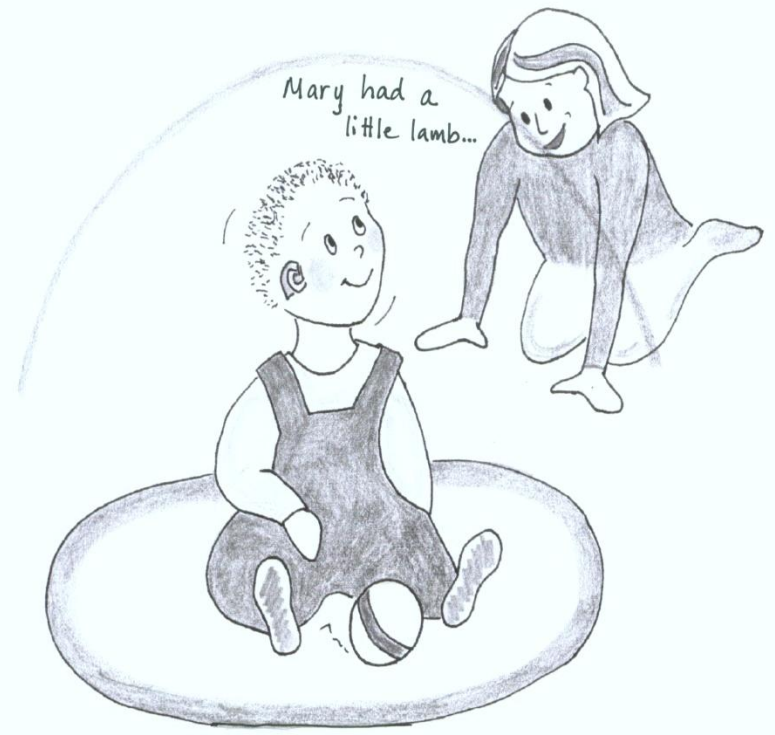
Hearing instruments will improve the size of the listening bubble. With use of amplification during all waking hours, response to sound will usually improve over time.

The Listening Bubble Effect

Get into the child's hearing range!



Not in range!



In range and listening!

Observing child behavior when presented with contrived listening activities at different distances and in quiet and noise

6 inches, 3 feet, 6 feet, 10 feet, 15+ feet

12 Activities:


- **4 quiet**
- **4 typical loudness**
- **4 loud**

Loudness calibration is not critical – parent participation in typical environments is critical

Quiet and noise: parents develop an awareness of how having the TV always on limits the child's perception of other sounds



Based on the child's responses to sound, place Y (Yes) M (Maybe) or N (No) in the boxes below

ELF 	Listening activities at different distances							Closest distance child responded in noise
	6 ins.	3 ft.	6 ft.	10 ft.	Next room (15+ feet)	No. of Yes	No. of Maybe	
Quiet Activities								
1. Mommy saying "sh,sh" quietly								
2. Hands together, palms rubbing together briskly								
3. Quiet clucking tongue								
4. Mommy saying 'buh buh buh' quietly								
Typical loudness activities								
5. Turning water full on (kitchen sink, bathtub)								
6. Mommy singing a song (i.e., Mary had a Little Lamb)								
7. Clapping hands together in quiet applause								
8. Daddy saying 'ship ship ship' in normal voice loudness								
Loud Activities								
9. Daddy says 'shoe-buh, shoe- buh' in loud voice								
10. Loud door knock with knuckles								
11. Hold 2 spoons together back-to-back by their ends and hit them hard on your palm twice								
12. Hitting a frying pan or pot with a wooden or metal spoon								

Opportunities for parents to discover how their child responds to sounds in the environment.

Developing a meaningful bank of observations that make hearing loss 'real'

Contrived listening activities to build a base of parent experience

Quiet Activities

1. Mommy saying "sh,sh" quietly
2. Hands together, palms rubbing together briskly
3. Quiet clucking tongue
4. Mommy saying 'buh buh buh' quietly

Typical loudness activities

5. Turning water full on (kitchen sink, bathtub)
6. Mommy singing a song (i.e., Mary had a Little Lamb)
7. Clapping hands together in quiet applause
8. Daddy saying 'ship ship ship' in normal voice loudness

Loud Activities

9. Daddy says 'shoe-buh, shoe- buh' in loud voice
10. Loud door knock with knuckles
11. Hold 2 spoons together back-to-back by their ends and hit them hard on your palm twice
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Child responses are observed at different distances
In Quiet and Noisy settings
With and without amplification

Other benefits of the ELF

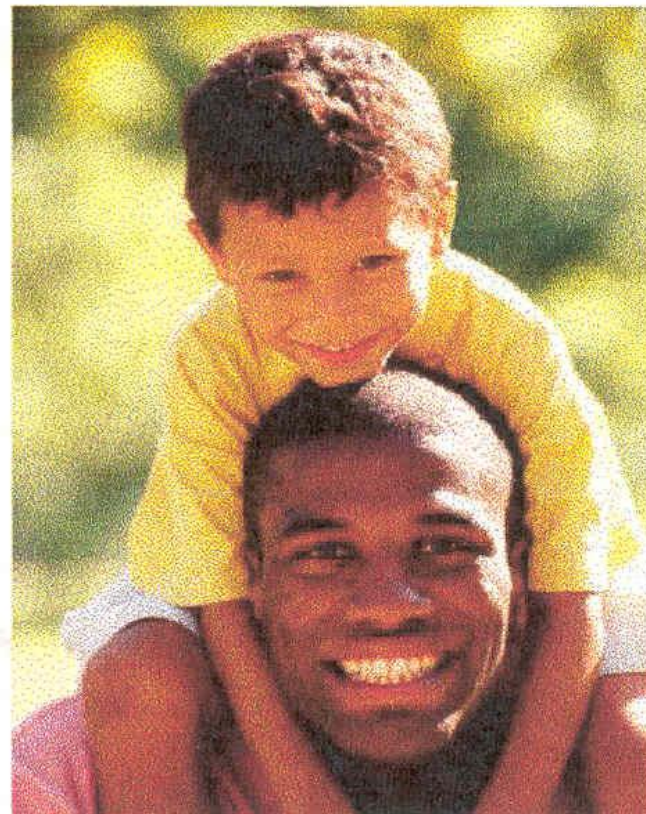
- ◆ The ELF gives the parents something “to do” to feel like they are helping their child
- ◆ The ELF can be a first activity with early intervention and/or following the diagnosis
- ◆ Results of the ELF can be a source of motivation for following through with hearing aids or earmolds
- ◆ Encourage the parents to tune into auditory development over time
- ◆ Can involve all caregivers in different environments
- ◆ The ELF also provides parents with a clear way of describing their child’s level of hearing loss

ELF as a Validation Tool

- ◆ Informally the audiologist and parent can observe improvements in the size of the listening bubble with amplification.
- ◆ Formally, the ELF can be scored with each activity having a point value (if parents are interested)
- ◆ Audiologist, parent or early interventionist can score and compare over time (involve Dads!)
- ◆ Reveals improvements in perception of quiet input or across distance
- ◆ The ELF also has a separate form for parents to complete 1-2 weeks after new amplification is fit

Infant and Young Child Amplification Use Checklist

Parents please complete this form each time your child uses new hearing aids, hearing aid settings, features, programs or other amplification devices, like FM systems or a cochlear implant map. Amplification devices are set precisely, however, some minor adjustments may be needed for optimal listening ability. Your observations can assist in determining improvements how well this amplification is meeting your child's listening needs in his or her every day environments. Complete these items approximately 4 to 10 days after your child begins to listen with the new or newly adjusted amplification. If possible, ask your child's other caregivers and the early intervention specialist that works with your family about what changes they observe. Share the completed form with the audiologist and be sure to discuss any questions you may have about the child's hearing or use of the amplification instrument.



Describe current amplification used (new settings, etc.)

A listening check of the amplification instruments is typically performed by an adult _____ times per (day) or (week)
(e.g., battery check, listening with stethoset, watching for child responses to m, aw, oo, ee, sh, s, t sounds, checking settings, earmold fit, etc.)

Are parents/caregivers comfortable using the amplification system (very) (mostly) (somewhat) (not really) (no)

Are parents/caregivers comfortable with how to check and maintain (very) (mostly) (somewhat) (not really) (no)

On a typical day, my child wears amplification _____ hours out of approximately _____ waking hours

Infant and Young Child Amplification Use Checklist

My child appears to:	Disagree	Not Observed			Agree
			No change		
1. Be more aware of my voice	(-2)	(-1)	(0)	(1)	(2)
2. Be more aware of environmental sounds	(-2)	(-1)	(0)	(1)	(2)
3. Search more readily for the location of my voice	(-2)	(-1)	(0)	(1)	(2)
4. Have an increased amount of babbling or talking	(-2)	(-1)	(0)	(1)	(2)
5. Have more interest in communicating	(-2)	(-1)	(0)	(1)	(2)
During ELF listening activities, the size of my child's listening bubble:					
1. Has improved for quiet sounds voices	(-2)	(-1)	(0)	(1)	(2)
2. Has improved for typical sounds and voices	(-2)	(-1)	(0)	(1)	(2)
3. Has improved for loud sounds and voices	(-2)	(-1)	(0)	(1)	(2)
4. Has improved for listening in background noise	(-2)	(-1)	(0)	(1)	(2)
Describe specific situations when you noticed improvements in listening ability:					



Use of the ELF as part of standard early intervention services

- ◆ Initial discussions with parents about what having a hearing loss means (‘listening bubble vs audiogram)
- ◆ A first ‘activity’
- ◆ Assist in determining need to try an FM
- ◆ Assist in determining benefit of amplification, including FM
- ◆ Empowers parents to share valuable information with audiologists during amplification discussions
- ◆ Assists in developing advocacy skills for transition at school-age



Child's name: Tom Date: _____ Child's birthdate: age 6 m.

If desired, a child's observed responses to ELF listening activities can be converted to a numeric form and compared across time as the child develops auditory skills, experiences fluctuating hearing, or is fit with amplification instruments. Audiologist or early interventionist, count and multiply responses on the ELF parent response form to obtain weighted scores for quiet listening and bonus listening in noise points. Responses to noise should be categorized into three categories: no response (no points), responses observed at a distance of less than or equal to (\leq) or greater than ($>$) 6 feet.

ELF: Score Sheet

Quiet Listening (Y = Yes / M = Maybe)

	Quiet				Typical				Loud				TOTAL (100 possible)
	No. of Y	Multiply x 12	No. of M	Multiply x 10	No. of Y	Multiply x 8	No. of M	Multiply x 6	No. of Y	Multiply x 5	No. of M	Multiply x 3	Add multiplied numbers
6 In.	4	48			4	32			4	20			100
3 Ft.	3	36	1	10	4	32			4	20			98
6 Ft.	2	24	1	10	4	32			4	20			86
10 Ft.	1	12			2	16	2	12	3	15	1	3	60
Next room	0				0		1	6	2	10	2	6	22

Listening in Noise (Y = Yes / M = Maybe)

	Quiet		Typical		Loud		TOTAL (100 possible)
	Response noted		Response noted		Response noted		Add multiplied numbers
	> 6 feet	\leq 6 feet	> 6 feet	\leq 6 feet	> 6 feet	\leq 6 feet	
	Multiply worth = 30	Multiply worth = 25	Multiply worth = 25	Multiply worth = 15	Multiply worth = 3	Multiply worth = 2	
6 In.		2 = 50		4 = 60		4 = 8	118
3 Ft.		2 = 50		2 = 30		4 = 8	88
6 Ft.				1 = 15	2 = 6		21
10 Ft.			1 = 25		2 = 6		31
Next room							

Scoring –
they way to
some dad's
hearts!



Tom

Age 6 months

Distance	TOTAL score in quiet	TOTAL SCORE for quiet + noise Q+N	No. of Y responses for quiet sounds Q+N	No. of Y responses for typical sounds Q+N	No. of Y responses for loud sounds	TOTAL noise bonus points	Audiologist involved on date of service (initials)
6 Inches	100	218	7	8	8		
3 Feet	98	186	4	8	8		
6 Feet	86	107	2	7	8		
10 Feet	60	91	1	3	5		
Next room	22	22	0	0	0		

Hearing Status 6 weeks post initial hearing aid fitting
 * New diagnosis, new amplification, parent detected possible ear infection, check auditory development, etc.

Hearing Loss Management Considerations Discussed by audiologist/interventionist:

Date(s) _____

DNT Size of *listening bubble* (proximity for communication) in quiet needs to be at _____ distance or closer when no amplification is used.

Size of the *listening bubble* (proximity for communication) in quiet needs to be at 6 distance or closer when amplification is worn consistently.

Control of background noise needed when communicating, especially when distance between baby and speaker is beyond 3 feet.

Trial of hearing aid(s): type or special features.

Trial or continued use of hearing aid(s): type or special features.

Improvement noted due to early auditory development or progress in auditory skills.

____ Potential cochlear implant user, suggest parents contact implant team for more information.

Potential user for an FM system, due to difficulties listening in noise and to speech at a distance.

Parent or caregiver has demonstrated willingness to use FM during the child's waking hours.

____ Hours use throughout the day: _____

____ Other: _____

The Listening Bubble

The parents will develop a sense of how close they need to be to the child for a strong response to sound. The difference in listening in quiet and noise is a real eye opener! (3 vs 6 ft)

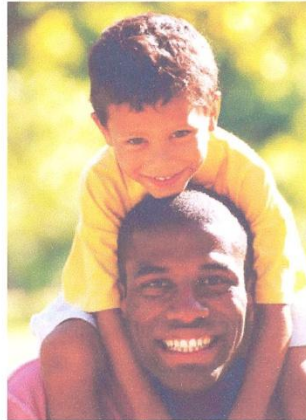


ELF Early Listening Function

Infant & Young Child Amplification Use Checklist

Child's name: Tom Child's birthdate: _____ Date completed: age 6m.

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Describe current amplification used (new settings, etc.)
After 6 wks with new aids.

A listening check of the amplification instruments is typically performed by an adult 1 times per (day) or (week) (e.g., battery check, listening with stethoset, watching for child responses to m, aw, oo, ee, sh, s, t sounds, checking settings, earmold fit, etc.)

Are parents/caregivers comfortable using the amplification system (very mostly (somewhat) (not really) (no)
Are parents/caregivers comfortable with how to check and maintain (very mostly (somewhat) (not really) (no)

On a typical day, my child wears amplification 10 hours out of approximately 11 waking hours

My child appears to:	Disagree	Not Observed			Agree	
		No change				
1. Be more aware of my voice	(-2)	(-1)	(0)	(1)	(2)	
2. Be more aware of environmental sounds	(-2)	(-1)	(0)	(1)	(2)	
3. Search more readily for the location of my voice	(-2)	(-1)	(0)	(1)	(2)	
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During ELF listening activities, the size of my child's listening bubble:						
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Describe specific situations when you noticed improvements in listening ability:
More interested in voices in quiet

Empowering parents –
validating their observations and their contribution to the hearing aid fitting process; motivating them towards consistent hearing aid wear

The ELF as a beginning

- ◆ The ELF is a good means to involve parents, especially after involving them in the diagnostic process
- ◆ The parents can continue to observe the child's listening bubble as one means to monitor the value of hearing aid use
- ◆ The ELF can be an entry point for parent interest in development of auditory skills
- ◆ Parents who have been involved with the ELF are more motivated and prepared to complete the CHILD at about age 3