




Timely diagnosis of hearing loss and early intervention services for families of infants and toddlers with CMV

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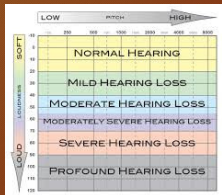


Objectives

Participants will gain an understanding of:

1. The importance of early diagnosis and ongoing management of hearing loss in children with CMV
2. The process of identifying the early signs/indicators of CMV and the referral process to early intervention
3. The need for continuous medical and developmental assessment
4. The necessity of ongoing EI and medical team collaboration
5. Maintaining a high level of respect for the family and educating the community about the risks of CMV



CMV and Hearing Loss



- SNHL is most common sequela following congenital CMV infection (Dahle, et al., 2000; Fowler & Boppana, 2006; S. Ross et al., 2006)
- Estimated to be the leading environmental cause of hearing loss
- 15-20% of all hearing loss at birth in the US caused by CMV (Morton & Nance, 2006; Grosse et al., 2008)


CMV and HL (cont)

- Approximately 50% are late onset hearing loss


Audiological Follow-up

- Children who have been diagnosed with CMV should have close audiological monitoring (Ross & Fowler, 2008)
- Fowler et al. (1999) found 2/3 of children diagnosed with SNHL at 6 yrs of age had not been identified by 12 months of age



FAIL - Audiological Follow-up

- Diagnostic Evaluation
 - Tympanometry testing
 - Otoacoustic Emissions
 - Click & Toneburst ABR (bone conduction if HL is found)
- Diagnosed with HL
 - 3 months to 18 months - every 2 months
 - 18 months and older - every 3 months



PASS - Audiological Follow-up

- 3 months - 18 months - every 2 months
- 18 months and older - every 3 months

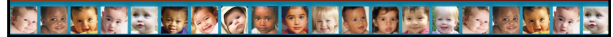


Prevalence of Congenital CMV

Prevalence of Congenital CMV

- Roughly 30,000 babies born in the U.S. each year
- The most common congenital infection found in developed countries

If you are an early intervention provider, you *will, very likely*, encounter a child with CMV



Why Screen for CMV at Birth?

- What are your thoughts?

Why Now?

“It’s all about the brain!”

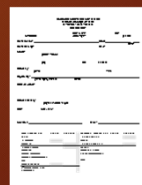
The first 3 ½ years of life is the most critical time for development of the auditory center of the brain



Carol Flexer

From Diagnosis to Referral

Referral to EI must occur within 1 week of diagnosing hearing loss



Referring a Child to Early Intervention

- Baby Watch in Utah: <http://www.utahbabywatch.org>
- Utah Schools for the Deaf and Blind: <http://www.usdb.org>



Symptoms and Diagnostic Indicators of Congenital CMV

Temporary Symptoms	Permanent Outcomes
Enlarged liver	Microcephaly
Enlarged spleen	Vision loss
Jaundice	Hearing loss
Petechia and purpura (small pink/purple spots)	Cognitive disabilities
Pneumonitis	Motor disabilities
Fetal growth retardation	Seizures
Seizures	Poor brain growth
	Cerebral palsy

(Cannon & Davis, 2005)

Medical and Developmental Monitoring

- No two children with CMV will present with the same symptoms
- Often, symptoms will develop and progress over time
- Ongoing medical monitoring is essential
- Comprehensive and continuous developmental assessments should occur on a regular basis
- Intensive early intervention must occur to assure optimal developmental outcomes



Timely Diagnosis of CMV

Medical Team

- Medical home MD (Pediatrician)
- Neurologist
- Ophthalmologist
- Audiologist
- ENT



Comprehensive Early Intervention

Early Intervention Team

- Families
- Hearing Specialist-Parent Infant Provider (PIP)
- Vision Specialist-Parent Infant Provider (PIP)
- Speech-Language Pathologist
- Occupational Therapist
- Physical Therapist
- Feeding Specialist



The Sound Beginnings Model



- Audiology
- Weekly home visits
- Tele-intervention
- Multi-disciplinary coordination
- Parent support
- Parent education
- Toddler Group
- Transition Support
- Preschool
- Preschool to Kindergarten Support




Sound Beginnings Audiology



- Audiology
 - Early detection and identification of hearing loss
 - Early amplification
 - Continuous audiological monitoring
 - Support for families seeking cochlear implantation for their child
 - Cochlear implant mapping



Sound Beginnings Early Intervention



- Weekly home visits by a Speech-Language Pathologist or Deaf Educator.
- Optional Tele-intervention for families
- Continuous coordination with other EI providers (OT, PT, feeding specialist, vision specialist)
- Parent support in the home and in parent education groups
- Toddler Group for children 18 months to 3 years old and their parents
- Parent mentoring for new families
- Preschool transition support

Our Goals

- Confidentiality
- Sensitivity
- Promoting Awareness



Toddler Group Experience


- Child with CMV joined our group
- Expectant mother in the group
- Maintained confidentiality while bringing awareness

Education

- Bringing awareness to families in our program is our vital responsibility
 - Do so at the beginning of the year
 - Include flyers/handouts during school orientation
 - If a parent shares that she has become pregnant, discuss ways to prevent CMV again (you can't emphasize the importance of prevention enough)

Information for Preschool to Share with Families

- What is CMV
- Why should they be concerned about CMV
- How they can prevent CMV
- What happens if a pregnant woman contracts CMV
- Where they can go for more information



Utah Department of Health Resources

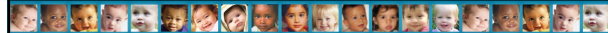
- [Utah Flyer](#)
- [CMV Core Facts](#)





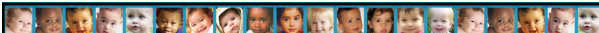
Case Study: Kayla

- Early Diagnostic indicators
 - Petechia and purpura (small pink/purple spots)
 - Small head circumference
 - Failed newborn hearing screening
- Audiology
 - Diagnosed with moderate hearing loss at 1 month
 - Fit with hearing aids at 7 months without further diagnostic testing
 - Diagnosed with profound hearing loss at 10 months



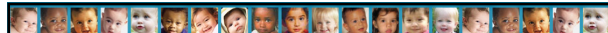
Case Study: Kayla (cont.)

- Medical developments
 - Severe cerebral palsy
 - Seizure disorder
 - Tested positive for CMV at 11 months
- Early intervention
 - Referred at 11 months
 - Received PT, OT, SLP, PIP-USDB, feeding
- Medical & developmental monitoring
 - Neurologist
 - Feeding specialist
 - EI team - Parents, SLP, OT, PT



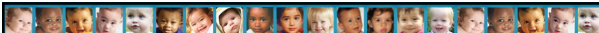
Case Study: Jade

- Early Diagnostic indicators
 - Infection at birth
 - CT scan at 2 days indicated enlarged ventricles
 - Suspected TORCH infection
 - Petechia and purpura (small pink/purple spots)
 - Failed newborn hearing screening
- Audiology
 - ABR completed at 3 weeks and Jade woke up consistently
 - Mild unilateral HL diagnosed
 - Follow-up recommended in 6 months
 - Received PE tubes at 15 months
 - ABR indicated profound HL in right ear & mild in right



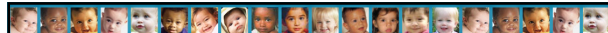
Case Study: Jade (cont.)

- Audiology Monitoring
 - Fit with hearing aids
 - Cochlear implant at 20 months
- Medical monitoring
 - ENT at 16 months noted TORCH infection in chart
 - CMV Testing at 16 months
- Early Intervention
 - Referred at 16 months upon diagnosis of HL
 - Began receiving OT, Speech and PIP services from USDB
- Respect of family
 - Suspected connection with symptoms
 - Providers not coming to house "because of CMV"



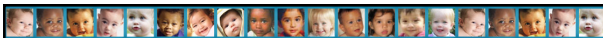
Case Study: Marc

- Early Diagnostic indicators
 - Failed newborn hearing screening
 - Blood in stools at 4 weeks
 - Enlarged spleen & liver
 - Tested positive for CMV at 4 weeks
 - Visual scarring
- Audiology
 - ABR completed at 4 weeks indicated profound bilateral HL
 - Hearing aids fitted at 6 weeks
 - Received cochlear implant at 1 year



Case Study: Marc (cont.)

- Medical monitoring
 - Treated with course of anti-viral drug
 - CMV Testing at 16 months
- Early Intervention
 - Referred at 5 weeks
 - Began receiving OT, PT and PIP services from USDB
- Respect of family



Key Points

1. Know the diagnostic indicators
2. Automatic referral for failed hearing screening
3. Refer to appropriate medical personnel
4. Refer to early intervention
5. Early intervention in eligible domains
6. Monitor medical and developmental status closely
7. Monitor hearing status closely
8. Respect the family

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Questions

