

Name: _____
 MRN: _____
 Date of Birth: _____

Hammersmith Infant Neurological Examination (HINE): Score Interpretation Aid for Children Receiving Neonatal Follow-Up Care

Clinical history: _____

Brain imaging (if available): _____

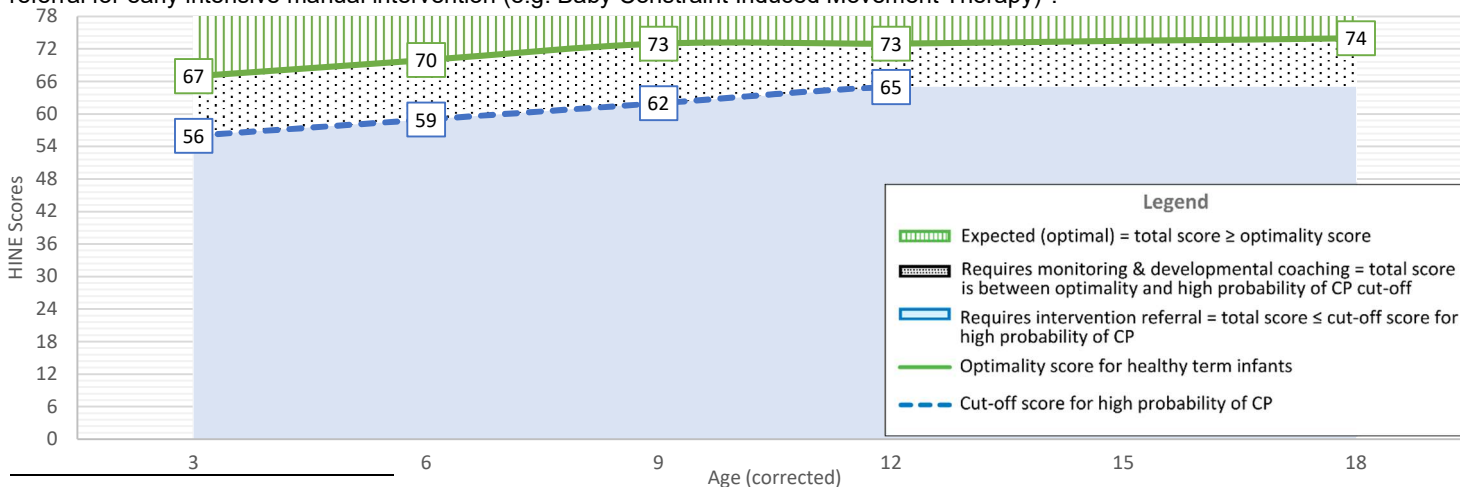
Visit	Child's Age (corrected)	Child's Total HINE Score	HINE Asymmetry Score	Corrected Age for GMA (if available)	GMA Category (if available)	Interpretation/Action	Discussed with family
1							<input type="checkbox"/>
2							<input type="checkbox"/>
3							<input type="checkbox"/>
4							<input type="checkbox"/>
5							<input type="checkbox"/>

HINE Scoring Aid Reference Information

Interpret total score by comparing to optimality score^{1,2} and high probability of CP cut-off scores³ for the child's corrected age. Optimality scores refer to HINE scores above which babies are considered to have typical neurological performance (90% of healthy, term babies score higher than this benchmark on the HINE). CP cut-off scores represent benchmarks below which babies with etiologic risk factors for CP (e.g. preterm, neonatal encephalopathy) have a high probability of developing CP. Interpret HINE score with clinical reasoning: clinical history, and if available, brain imaging and General Movements Assessment (GMA):

Child's Age (corrected)	OPTIMALITY Score (healthy term) ^{1,2}	Cut-Off Scores for High Probability of CP ³	Difference Between Lower MEDIAN Total Scores in Very Preterm (≤32 weeks) and Term Babies ⁴	Difference Between Lower MEDIAN Total Scores in Late Preterm (33-36 weeks) and Term Babies ⁴
3 months	≥ 67	≤ 56	3.5	3.5
6 months	≥ 70	≤ 59	3	3
9 months	≥ 73	≤ 62	2.5	1.5
12 months	≥ 73	≤ 65	2	1
18 months	≥ 74	A total score <40 is predictive of non-ambulant CP ⁵		The cut-off score should be lowered by the respective estimate above if the child is preterm. Note: this research presents median - 50 th percentile, rather than optimality - 10 th percentile scores.

The HINE also provides an asymmetry score. If an **asymmetry score > 5** = significant asymmetric neurologic performance – consider referral for early intensive manual intervention (e.g. Baby Constraint Induced Movement Therapy)⁶.



¹ Haataja L, et al. Optimality score for the neurologic examination of the infant at 12 and 18 months of age. J Pediatr. 1999 Aug;135(2 Pt 1):153-61. doi: 10.1016/s0022-3476(99)70016-8. PMID: 10431108.
² Haataja L, et al. Application of a scorable neurologic examination in healthy term infants aged 3 to 8 months. J Pediatr. 2003 Oct;143(4):546. doi: 10.1067/S0022-3476(03)00393-7. PMID: 14603891.
³ Romeo DM, et al. Neurological assessment in infants discharged from a neonatal intensive care unit. Eur J Paediatr Neurol. 2013 Mar;17(2):192-8. doi: 10.1016/j.ejpn.2012.09.006. PMID: 23062755.
⁴ Romeo DM, et al. Early psychomotor development of low-risk preterm infants: Influence of gestational age and gender. Eur J Paediatr Neurol. 2016 Jul;20(4):518-23. doi: 10.1016/j.ejpn.2016.04.011. Epub 2016 Apr 22. PMID: 27142353.
⁵ Romeo DM, et al. Neuromotor development in infants with cerebral palsy investigated by the Hammersmith Infant Neurological Examination during the first year of age. Eur J Paediatr Neurol. 2008 Jan;12(1):24-31. doi: 10.1016/j.ejpn.2007.05.006. Epub 2007 Jul 2. PMID: 17604195.
⁶ Hay K, et al. Hammersmith Infant Neurological Examination Asymmetry Score Distinguishes Hemiplegic Cerebral Palsy From Typical Development. Pediatr Neurol. 2018 Oct;87:70-74. doi: 10.1016/j.pediatrneurol.2018.07.002. Epub 2018 Jul 25. PMID: 30190180; PMCID: PMC6320694.