

# Hammersmith infant neurological examination (HINE) clinical utility



## Predictive/early detection children at risk of cerebral palsy

- Moderate quality evidence of test psychometrics in high-risk populations
- HINE<57 at 3 months is 96% predictive of cerebral palsy in infants older than 5 months of age (corrected for prematurity) but less than 2 years old
- 90% predictive of cerebral palsy at 2–24 months of age

### HINE scores at 6, 9 or 12 months:

- <73 indicates high-risk of cerebral palsy
- <40 indicates abnormal outcome, usually cerebral palsy
- Meta analysis of predictive value of studies using HINE showed excellent sensitivity<sup>1</sup>.



## Early detection of motor severity and topography of cerebral palsy

- Moderate quality evidence of test psychometrics in high risk populations
- Cut-off scores predict the probable severity

### HINE scores at 3, 6, 9 or 12 months:

- 50–73 indicates likely unilateral cerebral palsy (i.e. 95–99% will walk)
- <50 indicates likely bilateral cerebral palsy

### HINE scores at 3-6 months:

- 40–60 indicates likely GMFCS I-II
- <40 indicates likely GMFCS III-V.



## Provides information on other aspects of neurological function, not just motor



## Easily performed

- Good inter-observer reliability even in inexperienced clinicians<sup>2</sup>



## Accessible to all clinicians, no certified training required

1. Romeo DM, Ricci D, Brogna C, Mecuri E. Use of the Hammersmith Infant Neurological Examination in infants with cerebral palsy: a critical review of the literature. *Dev Med Child Neurol* 2015. doi:10.1111/dmcn.12876.
2. Haataja L, Mecuri E, Guzzetta A, Rutherford M, Counsell S, Frisone M, Cioni G, Cowan F, Dubowitz L. Neurologic examination in infants with hypoxic-ischemic encephalopathy at age 9 to 14 months: Use of optimality scores and correlation with magnetic resonance image findings. *J Pediatr* 2001; 138(3): 332-7.

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