Evidence Table 6B. Studies Evaluating Association of LBW to School Performance and Learning Disabilities
Part I

Author, Year UI#	Demographics	Inclusion Criteria	Exclusion Criteria	Disease/Condition Type (N)	Study Design (Duration)
Hille 1994 8071753	Location: Netherlands Year of birth:1983 Description of group: VLBW Mean GA (range), wk: <32 weeks Mean BW (range), g: <1500 g Male: ND Race: ND Enrolled: 1338 Evaluated: 813 Number of sites: 1	Cases: Participants of the Project on Preterm and Small for Gestational Age Infants, a nationwide collaborative study 2) Perinatal data collection and follow-up until 2 years of age and assessments at 5 and 9 years 3) VLBW (very preterm) GA< 32 weeks at birth BW<1500 g.	ND	Cases: VLBW (or very preterm): 813 No control group	Prospective (single arm) cohort
Stathis 1999 99325758	Location: Australia Years of Birth: :1977-1986 Median GA (range), wk: 27.7(27.3-28.1) Mean BW (range), g: 860 (837-833) Male: 36% Race: ND Enrolled: 124 Evaluated: 87 Number of sites: 1	BW 500-999g survived to discharge Cared for in study NICU Enrolled in follow-up programs	ND	ELBW survived infants (87)	Prospective cohort (followed at 4, 8, 12, months)
Cherkes-Julkowski 1998 98262696	Location: ND Years of Birth: ND Mean GA (range), wk: ND Mean BW (range): Cases: 4.14±1.87 lbs Controls: 7.30±1.87 lbs Male: Cases: 61% Controls: 50% Race: ND SES: “middle class” Enrolled: 48 Evaluated: 28 (20 controls) Number of sites: 1	Preterm: <38 wks, BW<5 lbs, no congenital disorders, no retrolenteal fibroplasia, discharge from hospital prior to 42 wks conceptional age, mother willing to participate Controls: participats were enrolled in a longitudinal sudy before their second month of age	ND	Preterms (28) Controls: full term infants (20)	Retrospective cohort

Evidence Table 6B. Studies Evaluating Association of LBW to School Performance and Learning Disabilities
Part I

Author, Year UI#	Demographics	Inclusion Criteria	Exclusion Criteria	Disease/Condition Type (N)	Study Design (Duration)
Marlow 1993 8466264	Location: UK Years of birth:1980-1981 Description of group: VLBW Mean GA (range), wk: ND Mean BW (range), g: ≤1250 g Male: ND Race: ND Enrolled: 72 Evaluated: 51 Controls: 59 Number of sites: 1	Cases: VLBW ≤1250g at birth and without cerebral palsy at 6 years. Controls: 1) Control group (full term) matched for age, race, and sex, and school-matched.	Major disabilities (CP or major sensory impairment)	Cases: VLBW: 51 Controls: Full term/ controls: 59	Nonrandomized comparison trial

Evidence Table 6B. Studies Evaluating Association of LBW to School Performance and Learning Disabilities
Part II

Author, Year	Predictors	Predictor Measures	Outcomes	Outcome Measures
Hille 1994 8071753	General predictors: 1. BW 2. GA 3. Gender 4. Perinatal factors: congenital malformations, Apgar scores, intracranial hemorrhage, septicemia, assisted ventilation >7 days, serum bilirubin, thyroxine levels. 5. Socioeconomics 6. Performance at 5 years of age: Development, neuromotor function, speech/language, hyperactivity and school performance.	Assessment at 5 years of age: 1. Neurologic examination according to Touwen 2. Dutch test of speech and language development 3. Visual fields, acuity 4. Audiometry 5. Groningen Neurobehavioral concentration test 6. Child Behavior Checklist 7. Handedness 8. Kind of school 9. School results	At 9 years of age : School performance Special education	Questionnaire: kind of school (mainstream or special education), grade and need for extra help from teachers, remedial teaching, or speech therapy.
Stathis 1999 99325758	CNS Predictors 1) Other: head circumference category 2) Head growth velocity	Self-explanatory	**CNS:** Neurodevelopmental: Cognitive delay Behavioral disorders-ADHD School problems Learning disabilities	Academic problems--Answer questionnaires given to teacher ADHD--Dr. Paul rating scale McCarthy's scales
Cherkes-Julkowski 1998 98262696	General: GA Other: Mother perception of child competence	ND	**CNS:** Cognitive delay Neurodevelopmental School problem Neurological Impairment (NI) Attention Deficit Disorder (ADD) **Audiology:** Language	Cognitive delay, measured by Stanford-Binet School programs (school concerns = SC) Learning disabilities (LD) Neurological Impairment (NI) Attention deficit Disorder (ADD) Language impairment = LI – dx made by speech and language clinician

Evidence Table 6B. Studies Evaluating Association of LBW to School Performance and Learning Disabilities
Part II

Author, Year	Predictors	Predictor Measures	Outcomes	Outcome Measures
Marlow 1993 8466264	General predictors: VLBW	BW ≤ 1250g	At 8 years of age: School performance Behavior disorder	School performance: mathematics test (NFER Nelson), Schonell S1 graded word spelling test, Suffolk reading test, handwriting, fine motor skills. Behavior Measurements: parental questionnaire Rutter A(2), and teacher questionnaire using Rutter B(2) and Connors hyperactivity scale.

Evidence Table 6B. Studies Evaluating Association of LBW to School Performance and Learning Disabilities
Part III

Author, Year	Associations found	Potential Biases	Comments
Hille 1994 8071753	• School performance at 9 years of age is best predicted by performance at 5 years of age. • At 9 year of age, 19% were in special education and 81% in mainstream education. • At 9 years of age, only 44% of the nondisabled prematurely born children were in mainstream education at an age-appropriate level without special assistance. • GA <28 wks, BW < 1250 g, male gender and socioeconomics were significantly related to education outcome. Neonatal illnesses were not associated with school outcome at9 years of age. • Majority of children having difficulty in school at 5 years of age had difficulty in school at 9 years of age.	Children labeled as having difficulty in school early in education (i.e. at 5 years of age) may continue to be treated as such within the system. Therefore independent evaluation of these children's performance at 9 years of age may reveal more useful information.	Internal validity A According to this study, early school problems are not transient.
Stathis 1999 99325758	Head circumference category at 8 months corrected age related to learning delay greater than one year when assessed at 6 years: HC Category / n / % with delay < 3rd percentile / 23 / 61% (39, 80) 3rd to 10th / 13 / 77% (46, 95) P = 0.004 > 10th / 40 / 30% (17, 47) Head circumference category at 12 months CA did predict McCarthy General Cognitive index at six years, but head circumference category at 24 months CA did not significantly predict McCarthy CGI at 6 years. Head circumference and head growth velocity was not shown to have a relationship with attention deficit hyperactivity disorder. *Head circumference category < 10th vs. greater than 10th percentile at four and 8 months corrected age were significantly associated with McCarthy CGI at 6 years age*	One nursery High rate of patients lost to follow-up (30%) Small numbers: limited ability to detect small differences; high chances of type 2 error	Study was privately funded
Marlow 1993 8466264	• Even in the presence of normal IQ, premature children are more likely to underachieve in school compared to full-term peers. • Forty-eight percent in preterm group had difficulty in one or more subjects compared with 19% in full term group. • Both teachers and parents report behavior problems of restlessness, hyperactivity, inattention, unresponsive/apathetic, fearful/afraid of new situations. • Motor difficulties and mathematics test best correlate with later school performance problems.		Internal validity B