Educational Implications of Preterm Birth: A National Sample of 8- to 11-Year-Old Children Born Prematurely and Their Full-Term Peers

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ABSTRACT

Introduction: Preterm birth remains a significant public health issue, with children born prematurely experiencing health and educational difficulties throughout childhood. The specific aim of this study was to evaluate the educational implications of actual or potential health risks of premature birth for children in middle childhood compared with children of the same age who were born at term.

Methods: This descriptive study is a secondary analysis of the 2011/2012 National Survey of Children's Health, specifically an 8- to 11-year-old subset, comparing children identified as being born premature and those born at term. Educational and health outcome variables were explored.

Results: Preterm birth negatively affects the educational experience of children born prematurely. Logistic modeling provides insight into predicting risk.

Discussion: Collaboration between primary care providers, educators, and families is recommended to improve care coordination and address educational need of children born premature. J Pediatr Health Care. (2016) *30*, 464-470.

KEY WORDS

Preterm, premature, middle childhood, educational outcomes

Children born prematurely represent 12% of births each year in the United States. Preterm birth remains a significant public health issue, despite advances in the care provided to women and neonates, with higher rates of significant neurodevelopmental comorbidities occurring with decreasing gestational age. Development of the central nervous system during gestation is a continuous process, with critical changes occurring through even the last 4 to 6 weeks of gestation (Baron, Litman, Ahronovich, & Baker, 2012). Children born prematurely are at risk for varying degrees of educational difficulties throughout childhood, refuting the assumption that late preterm birth and early term birth are "close enough." For this reason, the Association of Women's Health, Obstetric and Neonatal Nurses, the American College of Obstetricians and Gynecologists, the March of Dimes (MOD), and several other organizations actively support public awareness campaigns to decrease the incidence of elective preterm delivery and encourage term pregnancies (i.e., 40 weeks of gestation).

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Children who fail to master basic skills early in their development will be unsuccessful with tasks that build upon those skills. Educational support to children born prematurely represents a significant cost in the United States. Early intervention services for children younger than 3 years cost an estimated $611 million per year, with special educational services costing an additional $1.1 billion per year (MOD, 2015). Given the 12% incidence of premature birth, it is estimated that in the average size U.S. elementary school classroom, up to four children were born prematurely (Hornby & Woodward, 2009). Typically, school officials, teachers, and nurses are not provided with this information, so they do not know which children in their mainstream classrooms were born prematurely.

Baron and colleagues (2012), in a review of late preterm birth neuropsychological and medical outcome literature, reports lower intelligence scores, more attention and internalizing problems, and poor academic achievement at age 5 years, with higher socioeconomic status and maternal education being protective. Baron and colleagues (2012) further identified risk of developmental delay even in children identified as "healthy late-preterm." Charkaluk and colleagues (2011) identified children born at less than 32 weeks of gestation who, at 2 years of age, were medically determined to be without disability. However, when those children were 8 years of age, their parents and teachers were surveyed, revealing that 30% of the children had either repeated a grade, required special support in school, or were in a special educational setting (Charkaluk et al., 2011). Extremely premature infants—that is, those 25 weeks of gestation or less—who are participating in mainstream education at 6 years of age perform one standard deviation (SD) below their peers in the same school setting in visuospatial, perceptuomotor, attention-executive, and gross motor function (Marlow, Hennessy, Bracewell, Wolke, & the EPICure Study Group, 2007).

Research suggests that low-severity, high-incidence conditions such as executive-function deficits result in educational difficulties that may not present until school age or later (Marlow et al., 2007; Salt & Redshaw, 2006). Initially, children born prematurely may do well with educational pursuits; however, difficulties present as children age and academic expectations increase. Pritchard, Bora, Austin, Levin, and Woodward (2014) evaluated school readiness at 4 years of age, compared with their educational abilities at 6 and 9 years of age in children born very preterm. These children displayed an increase in educational delay over time; at 6 years, 60% of the sample had education delays, and at 9 years, 64% of premature children had educational delays. Aarnoudse-Moens, Oosterlaan, Duivenvoorden, van Goudoever, and Weisglas-Kuperus (2011) found similar patterns of increasing difficulties with linguistic performance in 4- to 6-year-old and 6- to 12-year-old very preterm children.

Parents may believe that their children have "outgrown" the premature birth diagnosis, that they are no longer "sick babies," or that they have special health care needs that are no longer attributed to their premature birth. Health care providers may inadvertently reinforce this idea by failing to ask questions about premature birth in new patient encounters with toddlers and school-aged children. Children born premature may be represented in studies of children with learning disabilities, behavioral challenges, or medical conditions (e.g., asthma), but they are not analyzed as children born prematurely. By dropping the categorical or diagnostic label of premature birth, health care providers and researchers miss the opportunity to address the health care and educational needs of these children.

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The specific aim of this study was to evaluate the educational implications of actual or potential health risks of premature birth on children in middle childhood compared with children of the same age born at term.

NATIONAL SURVEY OF CHILDREN'S HEALTH

The 2011/2012 National Survey of Children's Health (NSCH) from the Maternal and Child Health Bureau is a nationally representative dataset consisting of 95,677 completed surveys of children 0 to 17 years of age, with a subset of children 8 to 11 years of age (N = 20,965; term, N = 18,258; premature, N = 2,442) (National Center for Health Statistics [NCHS], 2013). Respondents were parents or caregivers with knowledge of health of the sample child; 68.8% were mothers, 24.2% were fathers, and 7.2% were other caregivers (Centers for Disease Control and Prevention [CDC], NCHS, & State and Local Area Integrated Telephone Survey [SLAITS], 2013). The 2011/2012 NSCH survey was professionally translated into Spanish, Mandarin, Cantonese, Vietnamese, and Korean; 4,905 of the surveys were complete using a Spanish-language interpreter, and 229 were completed using an Asian-language interpreter (CDC et al., 2013).

The stated aims of the NSCH are to estimate national and state-level prevalence of physical, emotional, and behavioral child health indicators and to obtain information on the children's family context and neighborhood environment to help guide policy makers, advocates, and researchers (www.childhealthdata.

org). Data were obtained on more than 500 childhood health indicators as reported by parents or caregivers.

Unique to the 2011/2012 NSCH dataset is the inclusion of premature birth and birth weight as health variables. Respondents were asked, "Was your child born prematurely, that is, more than 3 weeks before his/her due date?" The inclusion of this question presents a unique opportunity to understand health characteristics of a large representative national sample of children born prematurely in comparison with children born at term. Because no further estimation of gestational age was collected in this survey, stratification of the sample by gestational age is not possible. Children included in the subset of 8- to 11-year-olds were born between 2003-2006, when the U.S. preterm birth rate was 12.35% to 12.8%, with 9% of those born preterm being born late preterm (Martin, Hamilton, Osterman, Curtin, & Matthews, 2015). These trends suggest that a similar distribution would be found in the 2011/2012 NSCH sample.

Birth weight, an objective and easily attainable measure, is routinely used as a proxy for prematurity. The 2011/2012 NSCH dataset categorically recoded parent report of birth weight to normal birth weight (>2500 g), low birth weight (<2500 g), and very low birth weight (<1500 g). The survey data allowed for grouping based on preterm birth status, so birth weight was not used as a proxy measure in this research study; however, it was used as a variable in the logistical regression model.

METHODS

Design

This descriptive study is a secondary analysis of the 2011/2012 NSCH, a publicly available, de-identified, nationally representative data set. The 2011/2012 NSCH was a cross-sectional telephone survey of U.S. households with at least one child aged 0 to 17 years. Data collection occurred between February 2011 and June 2012, utilizing the SLAITS method, a list-assisted, random-digit-dial sample of both landline telephone and cell-phone numbers (CDC et al., 2013). Complex survey design with stratification by state and sample type was used, with the resulting full data set, utilizing survey weights, representative of all noninstitutionalized children aged 0 to 17 years.

The full sampling design, data collection procedures, and a full listing of questionnaire content are available at http://childhealthdata.org/learn/NSCH. Informed consent for the 2011/2012 NSCH was obtained during the initial phone contact; the publicly available dataset has no identifying data. The current study was approved by Villanova University's Institutional Review Board.

Sample and Setting

This study utilized the subset of children between 8 and 11 years of age (N = 20,965), representing the period of middle childhood. The sample was further reduced (N = 20,700) by excluding records with "do not know" or "refuse" responses to the item asking if their child was born more than 3 weeks before his or her due date (NSCH, 2013).

Measures

Selected indicators of school functioning were informed by previous research on school functioning and engagement (Forrest, Bevans, Riley, Crespo, & Louis, 2011; Reuben & Pastor, 2013) and included special education use, grade repetition, school engagement, and missed days of school. Additional variables relative to school performance collected by the 2011/2012 NSCH, including type of school enrolled in, reading for pleasure, participation in organized activities (e.g., music, dance, language, or other arts), participation in afterschool/weekend activities, and participation in sports teams or lessons, were explored for possible relationships.

Perceived health status was assessed using parents' response to the question, "Would you say (subject's name) health in general is excellent, very good, good, fair, or poor?" The five possible responses were grouped into three categories: excellent/very good, good, and fair/poor. This single question provides a perspective of the child's overall health, because parents may include the child's physical and mental health, as well as the significance of acute or chronic conditions (Reuben & Pastor, 2013). Reuben and Pastor (2013) utilized both the Children with Special Health Care Needs (CSHCN) Screener and responses to the health status question from the 2007 NSCH to evaluate the influence of health on school functioning.

Select descriptive variables were analyzed as potential explanatory variables in the logistic regression analysis of the data. Variables considered included low birth weight, defined as birth weight less than 2500 g; emotional/developmental or behavioral condition; developmental delay; and the diagnosis of attention deficit disorder/attention deficit–hyperactivity disorder (ADD/ADHD).

Data Analysis

Separate χ^2 tests of homogeneity were used to investigate differences in educational needs between children born prematurely compared with those born at term. Odds ratios were reported in situations in which the results were statistically significant to quantify the magnitude of the difference between the groups and help with clinical interpretation. The level of statistical significance for all tests was set at $\alpha = 0.05$. Descriptive statistics were reported using means and frequencies. Logistic regression modeling was conducted with use of prematurity as the response

variable, along with several explanatory variables: low birth weight, general health, emotional/developmental or behavioral condition, developmental delay, and the diagnosis of ADD/ADHD in the model. Statistical analysis was conducted using SPSS 23 (IBM Corp, Armonk, NY).

RESULTS

In the subset of 8- to 11-year-old children, 11.6% (N = 2,442) were identified as being born prematurely, based on an affirmative response to the question of whether the child was born 3 or more weeks early. Demographic characteristics, including gender, age, language spoken in the home, poverty level, and insurance status, were not significantly different between groups (see the Table).

In comparing the children born prematurely with the children born at term, no significant difference was identified in several educational variables, including type of school enrolled in, reading for pleasure, participation in organized activities (e.g., music, dance, language, or other arts), participation in after-school/weekend activities, and participation in sports teams or lessons. These variables represent the social and extracurricular components of education and suggest that at this age, children born prematurely are on par with their peers.

Significant differences were identified between the two groups in both repeating grades and the presence of an individualized education plan (IEP). At 8 to 11 years of age, children born prematurely have a 1.7 times greater risk of having repeated a grade; 9.4% of the sample of children born prematurely had repeated a grade, compared with 5.8% of children born at term. Premature birth status also significantly increased the risk of the child having an IEP. Nineteen percent of children born prematurely had an IEP, compared with 11.2% of children born at term (p = .001, odds ratio [OR] 2.0). Current learning disability was identified in 15.5% of children born prematurely, compared with 8% of the term children (p = .000, OR 2.14; see the Figure).

Additional chronic health conditions reported were current developmental delay (8.9% in children born prematurely vs. 3.3% of the term children, OR 3.0), ADD/ADHD (16.0% in children born prematurely vs. 9.5% of the term children, OR 1.8) and current speech problems (8.5% in children born prematurely vs. 4.7% of the term children, OR 1.9). Despite these conditions, 82.7% of parents and caregivers described the general health of their children born prematurely as excellent or very good, with 13.3% describing the general health of their children as good and only 4.1% describing it as fair or poor. For term children, 87.4% were described by their parents and caregivers as having excellent or very good health, 10.2% were described as having good health, and 2.4% were described as having fair or poor health.

With the logistic regression model utilizing prematurity as the response variable and low birth weight, general health, emotional/developmental or behavioral condition, developmental delay, and the diagnosis of ADD/ADHD as explanatory variables, the model was able to accurately predict 86.9% of those born prematurely compared with the model with no predictors that predicted premature birth 75.1% accurately. The Nagelkerke R square value suggests that the model is able to explain 53% of the variance in the data. This model suggests that when looked at together, as a set of risks, the explanatory variables are able to identify children born premature and those born at term.

TABLE. Demographic data: sample of 8- to 11-year-old children from the National Survey of Children's Health (N = 20,700)[a]

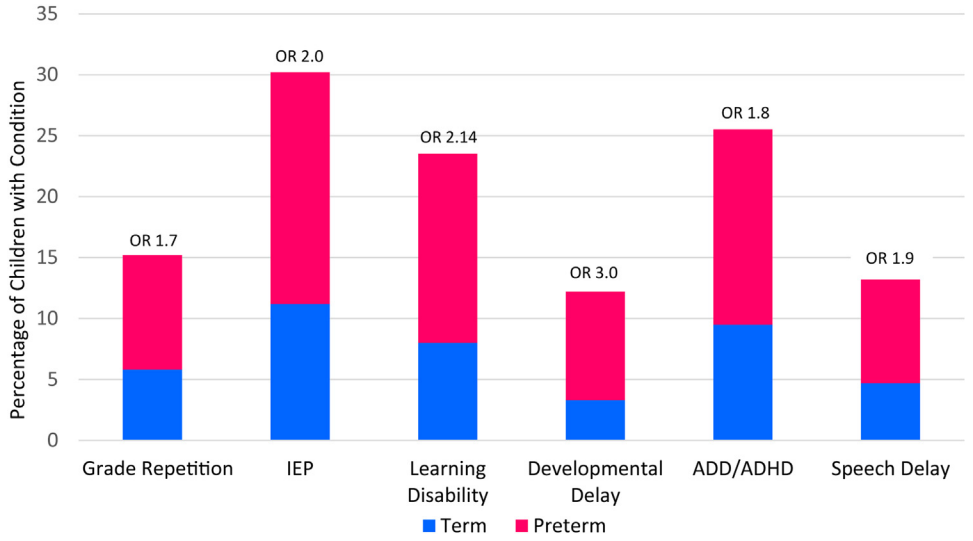
Variable	Term (%)	Premature (%)
Size of group	18,258 (87.1)	2,442 (11.6)
Gender		
Female	8,926 (48.9)	1,131 (46.3)
Male	9,305 (51.0)	1,309 (53.9)
Age of child, years		
8	4,567 (25.0)	662 (27.1)
9	4,348 (23.8)	541 (22.2)
10	4,694 (25.7)	644 (26.4)
11	4,649 (25.5)	595 (24.4)
Primary language in household		
English	16,804 (92.0)	2,282 (93.4)
Other than English	1,446 (7.9)	158 (6.5)
Poverty level based on SCHIP qualifications		
0-199% FPL	59,767 (32.7)	891 (36.5)
200%-299% FPL	3,102 (17.0)	396 (16.2)
300%-399% FPL	2,699 (14.8)	324 (13.3)
≥ 400% FPL	6,490 (35.5)	831 (34.0)
Insurance at time of survey		
Insured	17,401 (95.3)	2,322 (95.1)
Not insured	828 (4.5)	115 (4.7)

Note. *FPL, federal poverty level; SCHIP, State Children's Health Insurance Plan.*
[a]*No significant difference between groups.*

DISCUSSION

A reassuring feature of these results is that children born prematurely are typically found in mainstream education and are as likely as their peers to participate in social and extracurricular activities. Children in middle childhood spend a significant amount of time with friends and peers involved in activities outside of the academic classroom. This finding, coupled with the fact that the majority of parents estimated their child's health as being excellent/very good, suggests that in this sample, children born prematurely are not seen as sick or limited. These findings are consistent with health-related quality of life scores suggesting that children born prematurely and their parents report their health-related quality of life as similar to that of their healthy peers (Kelly, 2013).

FIGURE. Educational characteristics of 8- to 11-year-old children from the 2011/2012 National Survey of Children's Health.



ADD/ADHD = attention deficit disorder/attention deficit hyperactivity disorder; IEP = individualized education plan; OR = odds ratio. This figure appears in color online at www.jpedhc.org.

In 2011, after a review of educational outcome literature for children born preterm, Keller-Margulis, Dempsey, and Llorens identified the need for research addressing the specific constellation of academic skill deficits of children born preterm. This research addresses this recommendation in a unique manner, in that it provides a national perspective of children born prematurely. Clearly, children born prematurely in this nationally representative sample are at risk for educational challenges, as evidenced by grade repetition, the presence of IEPs, and increased report of learning disabilities. Also evident in this sample is the increased risk for ADD/ADHD (OR, 3.0) and speech problems (OR, 1.9). The conditions identified and the services required are considered high-frequency/low-severity conditions, but they are costly and require extensive school supports to maximize children's potential.

Clearly, children born prematurely in this nationally representative sample are at risk for educational challenges, as evidenced by grade repetition, the presence of IEPs, and increased report of learning disabilities.

Forrest and colleagues (2011) reported that in middle childhood, CSHCN relative to functional limitations or behavioral health problems were at increased risk for impaired school engagement, lower academic achievement, and increased risk for behaviors that threaten social competence. Forrest and colleagues (2011) reported a 33% incidence of special health care needs in their sample of children aged 9 to 11 years. Bethell and colleagues (2012), who used the 2007 NSCH to compare children with and without special health care needs, explored factors that promote and impede school success, concluding that children with emotional, behavioral, or developmental needs face significant challenges to school success. In neither of these studies was birth status, term or preterm, identified; however, it is likely that a portion of the children identified may also have been preterm.

Wong and colleagues (2014) observed children in kindergarten classrooms in the United States and concluded that children born prematurely were more likely to require individualized instruction and were more often off task then their term peers. Preterm children were observed to have more difficulty meeting classroom instructional demands as early as kindergarten (Wong et al., 2014). This finding, taken in conjunction with the increased risk of ADD/ADHD, learning disability, and developmental and speech delay in the 8- to 11-year-old NSCH sample of children born prematurely, suggests that a directed intervention must occur early and persist through elementary and middle school. Msall (2014) recommends that providers advocate for interventions that include accessible early childhood education and comprehensive school-based interventions.

The rise in chronic conditions such as those in children in the United States requires primary care providers to be at the forefront of day-to-day management of these increasingly prevalent conditions (Perrin, Anderson, & Van Cleave, 2014).

Regionalization of care for complex, rare conditions is a good use of resources; however, the sheer volume of children with emotional, behavioral, and learning disabilities behooves primary care providers to initiate care and coordinate with developmental pediatricians, neurologists, and behavioral specialists, who may have a prolonged waiting list (Perrin et al., 2014).

Johnson, Gilmore, Gallimore, Jackel, and Wolke (2015) utilized the Preterm Birth-Knowledge Scale to explore the knowledge of preterm birth neurodevelopmental outcomes between teaching staff and educational psychologists. Teachers scored lower than psychologists; however, both groups displayed significant deficits (2 SDs below neonatal clinicians) in knowledge related to the effect of preterm birth on learning and development (Johnson et al., 2015). Teachers with additional education or training relative to preterm birth outcomes scored higher and expressed a greater comfort level in supporting preterm children in their classroom (Johnson et al., 2015). Unfortunately, teachers with additional training were in the minority. School nurses also report knowledge deficits in providing care and support to children with learning and developmental disabilities (Selekman & Calamaro, 2014; Singer, 2012). Children born prematurely represent a significant portion of children with learning and developmental disabilities in the school setting.

STRENGTHS AND LIMITATIONS

The use of a nationally representative sample with the ability to differentiate between children born preterm and those born at term is a significant strength of this study. This work adds to current body of literature linking health risks and educational implications for children born prematurely because it represents a current national sample, using premature birth as a variable.

Limitations include the inherent response bias, which for this sample includes parent report of premature birth status and educational variables. The parent-reported prevalence of premature birth in this sample is consistent with reported national vital statistics report for those birth years (Martin et al., 2015). The inability to parse out the gestational age of the children in the study limits the ability to infer how the gestational age of the sample affects the findings.

Further, although the SLAITS methodology is robust, with use of both landline and cellular phone numbers, this sample may not represent children in institutions and children from homes without telephone access. No causal relationship between variables should be inferred from cross-sectional data.

IMPLICATIONS FOR PRACTICE

This research, in identifying the prevalence of educational and learning disabilities in children born premature, supports the need for primary care providers to acquaint themselves with these data and identify the children at risk. Early identification and remedial support, even for low-severity conditions, should be advocated by the primary care provider (Lipkind, Slopen, Pfeiffer, & McVeigh, 2012; Pritchard et al., 2014). Families may need encouragement to access these services and support to ensure that they are provided through Early Intervention. As the child reaches school age, the primary care provider should advocate for ongoing evaluation and support services as warranted to decrease off-task behaviors, increase academic engagement, and promote executive function skills (Wong et al., 2014). Conversely, the birth status of a child who is beginning to struggle with the increasing behavioral and educational challenges of the school setting should be questioned. The presence of preterm birth in the history should heighten the provider's index of suspicion and facilitate use of resources to help the child manage increased challenges without delay.

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A working knowledge of the services provided and access mechanisms in the provider's local school districts is essential. Children with conditions that impede or affect their ability to learn are guaranteed an evaluation and subsequent treatment through school districts through the Individuals with Disabilities Education Improvement Act (IDEA, 2004). Section 504 of the Rehabilitation Act of 1973 prohibits discrimination on the basis of disability and covers children who do not qualify for special education but require accommodations within the school setting (Office of Civil Rights, 2008). It is through these provisions that IEPs and "504 accommodations" are developed (IDEA, 2004). This process unfortunately may be convoluted and require persistence by the family and caregivers. Appreciating that children who were previously doing well may begin to have more academic difficulties as they age is a crucial point for primary care providers, educators, and families to appreciate.

Emerging health care models, including the health care or medical home model, include care coordination for patients. The primary care provider, or the identified case manager in the practice, may need to lend support to the IEP process and advocate for services aimed at learning and behavioral support. In light of the educational and learning ramifications of preterm birth, collaboration between health care and educational

settings is essential and may improve school success (Bethell et al., 2012; Forrest et al., 2011; Selekman & Calamaro, 2014). Understanding of provisions for sharing information in the Health Information Portability and Accountability Act (HIPAA) and its educational equivalent, Family Educational Rights and Privacy Act (FERPA), is essential to this collaboration (Selekman & Calamaro, 2014).

Children born prematurely represent 12% of births each year in the United States. An average of four children in the typical U.S. classroom were born prematurely. It is time that health care providers, educators, and families come together through educational outreach, in-service opportunities, and ongoing bidirectional support.

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REFERENCES

Aarnoudse-Moens, C. S., Oosterlaan, J., Duivenvoorden, H. J., van Goudoever, J. B., & Weisglas-Kuperus, N. (2011). Development of preschool and academic skills in children born very preterm. *Journal of Pediatrics, 158*(1), 51-56.

Baron, I. S., Litman, F. R., Ahronovich, M. D., & Baker, R. (2012). Late preterm birth: A review of medical and neuropsychological childhood outcomes. *Neuropsychology Review, 22*, 438-450.

Bethell, C., Forrest, C., Stumbo, S., Gombojav, N., Carle, A., & Irwin, C. (2012). Factors promoting or potentially impeding school success: Disparities and state variations for children with special health care needs. *Maternal & Child Health Journal, 16*(Suppl 1), S35-S43.

Centers for Disease Control and Prevention, National Center for Health Statistics, & State and Local Area Integrated Telephone Survey. (2013). *Frequently Asked Questions, 2011-2012 National Survey of Children's Health*. Retrieved from ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/slaits/nsch_2011_2012/01_Frequently_asked_questions/NSCH_2011_2012_FAQs.pdf

Charkaluk, M. L., Truffert, P., Marchand-Martin, L., Mur, S., Kaminski, M., Ancel, P. Y., & Pierrat, V., for the Epipage Study Group. (2011). Very premature children free of disability or delay at age 2: Predictors of schooling at age 8. *Early Human Development, 87*, 297-302.

Forrest, C. B., Bevans, K. B., Riley, A. W., Crespo, R., & Louis, T. A. (2011). School outcomes of children with special health care needs. *Pediatrics, 128*(2), 303-312.

Hornby, G., & Woodward, L. J. (2009). Educational needs of school-aged children born very and extremely prematurely: A review. *Educational Psychology Review, 21*, 247-266.

Individuals with Disabilities Education Improvement Act of 2004. (2004). Pub. L. No. 108-446, 118 Stat. 2647. Retrieved from http://idea.ed.gov/download/statute.html

Johnson, S. S., Gilmore, C., Gallimore, I., Jaekel, J., & Wolke, D. (2015). The long-term consequences of preterm birth: What do teachers know? *Developmental Medicine & Child Neurology, 57*, 571-577.

Kelly, M. M. (2013). Assessment of life after prematurity in 9- to 10-year old children. *MCN: The American Journal of Maternal Child Nursing, 39*(1), 26-32.

Lipkind, H. S., Slopen, M. E., Pfeiffer, M. R., & McVeigh, K. H. (2012). School-age outcomes of late preterm infants in New York City. *American Journal of Obstetrics & Gynecology, 222*, e1-e6.

March of Dimes. (2015). *The impact of premature birth on society*. Retrieved from http://www.marchofdimes.org/mission/the-economic-and-societal-costs.aspx

Marlow, N., Hennessy, E. M., Bracewell, M. A., Wolke, D. & EPICure Study Group. (2007). Motor and executive function at 6 years of age after extremely premature birth. *Pediatrics, 120*, 793-804.

Martin, J. A., Hamilton, B. E., Osterman, M. J. K., Curtin, S. C., & Mathews, M. S. (2015). Births: Final data for 2013. *National Vital Statistics Reports, 64*(1), 1-65.

Msall, M. E. (2014). Commentary on ''Kindergarten classroom functioning of extremely preterm/extremely low birth weight children''. *Early Human Development, 90*, 915-916.

National Center for Health Statistics. (2013). *The National Survey of Children's Health (NSCH) 2011/2012 public use data file and documentation*. Retrieved from http://www.cdc.gov/nchs/data_access/ftp_data.htm

Office for Civil Rights. (2008). *Interrelationship of IDEA and Section 504 of the Rehabilitation Act of 1973*. Retrieved from www2.ed.gov/about/offices/list/ocr/504faq.html#interrelationship

Perrin, J. M., Anderson, L. E., & Van Cleave, J. (2014). The rise in chronic conditions among infants, children and youth can be met with continued health system innovations. *Health Affairs, 33*(12), 2099-2105.

Pritchard, V. E., Bora, S., Austin, N. C., Levin, K. J., & Woodward, L. J. (2014). Identifying very preterm children at educational risk using a school readiness framework. *Pediatrics, 134*(3), e825.

Reuben, C. A., & Pastor, P. N. (2013). The effect of special health care needs and health status on school functioning. *Disability and Health Journal, 6*, 325-332.

Salt, A., & Redshaw, M. (2006). Neurodevelopmental follow-up after premature birth: Follow up after two years. *Early Human Development, 82*, 185-197.

Selekman, J., & Calamaro, C. J. (2014). Comprehensive pediatric care includes communication with the school nurse. *The Journal for Nurse Practitioners, 10*(1), 36-41.

Singer, B. (2012). Perceptions of school nurses in the care of students with disabilities. *Journal of School Nursing, 29*(5), 329-336.

Wong, T., Taylor, H. G., Klein, N., Espy, K. A., Anselmo, M. G., Minich, N., & Hack, M. (2014). Kindergarten classroom functioning of extremely preterm/extremely low birth weight children. *Early Human Development, 90*, 907-914.