



*National
Association of
School Nurses*

The case for school nursing:

The need: There are significantly more children in special education and more children in school with medically fragile conditions and chronic illnesses.

- The percent of students in federally supported special education program increased from 8.3% to 13.4%, from 1977 – 2008, a 62% increase (NCES, 2011a).
- From 2002 to 2008, the percentage of children in special education with health impairments due to chronic or acute health problems increased 60% (NCES, 2011a).
- Two staff categories increased more than 100 percent between 1980 and 2007—instructional aides rose 120 percent and instructional coordinators rose 244 percent. (NCES, 2011b).
- Within this group, the rates of children with autism doubled since 2002 (NCES, 2011a).
- Preterm survival has increased to more than 80% of infants born at 26 weeks, and more than 90% of infants born after 27 weeks' gestation. As rate of NICU survival rises, so do the numbers of children who enter school with moderate – severe disabilities and learning and behavior problems (Allen, Cristofalo, Kim, 2011; Roberts, Lim, Doyle, & Anderson, 2011).
- The medical complexity of hospitalized pediatric patients has increased significantly over the past 15 years (Burns, Casey, Lyle, Bird, Fussel, Robbins, 2010). In 2006, 7812 children were discharged from hospitals dependent on long term mechanical ventilation, a 55% increase from 2000, yet there are no data for the number of children who depend on ventilators in school (Benneyworth, Gebremariam, Clark, Shanley & Davis 2011; Bergren 2011),
- Each year, as these survivors enter early intervention services and Kindergarten, the need for school health services increases. Medically fragile children in school require ventilators, tube feedings, medication, and other complex nursing cares (Allen, Cristofalo, Kim, 2011).
- Problems persist through adolescence. Preterm groups who had neurological problems and were small for gestational age had the lowest academic competence scores as teens. School services needed increase with the number of health problems associated with prematurity. Continued monitoring of preterm infants through adolescence is needed to ensure appropriate school services (Barde, Yeatman, Lee, Glover, & Feldman, 2012; Winchester, Sullivan, Marks, Doyle, DePalma, & McGrath, 2009).
- From 2002–2005, 15,600 youth new diagnoses of type 1 diabetes were made each year in children and teens under age 20. During that same time period, each year 3,600 children had a new diagnosis of type 2 diabetes. About 215,000 people younger than 20 years have either type 1 or type 2 diabetes (CDC, 2011). Among the US adolescents aged 12 to 19 years old the prevalence of pre-diabetes and diabetes increased from 9% to 23% between 1999 and 2008 (May, Kuklina & Yoon, 2012).
- Eight percent of all children have a food allergy, with almost 40% having a history of a severe reaction (Gupta, et al., 2011). The prevalence of food allergy among children under the age of 18

increased 18% percent from 1997 to 2007 (Branum & Lukacs, 2008). Peanut allergy doubled in children from 1997-2002 (Sicherer et al, 2003). Fatal food anaphylaxis is most often caused by peanuts (50-62%) and tree nuts (15-30%) (Keet & Wood, 2007). In a survey of school epinephrine administration, approximately 25% of had no previous food allergy diagnosis. (McIntyre, Sheetz, Carroll, & Young, 2005).

- Seven million children have asthma, 9.4% of all children (Bloom, Cohen & ,Freeman, 2011). Poor or African American students with asthma in schools with full-time nurses missed significantly fewer days than students with asthma with part-time nurses (Telljohann, Dake, & Price, 2004).
- More than 326,000 school children through age 15 have epilepsy, and 30% of those children cannot be adequately treated. Co-morbidities include cerebral palsy (13%), mental retardation (26%) and autism (25%). (Epilepsy Foundation, 2010).
- Overall, from 13 to 18 percent of children and adolescents have some sort of chronic health condition, nearly half of whom could be considered disabled (Cohen et al., 2011; Perrin, Bloom & Gortmaker, 2007; Van Cleave Gortmaker & Perrin 2010)
- Eighteen percent of 12–17 year olds and 14% of children age 5–11 are on regular medication (Bloom, Cohen & ,Freeman, 2011). An estimated 4–6% of all school-age children receive medication in school on a typical day (Ficca & Welk, 2006; McCarthy, Kelly, & Reed, 2000). The range of medications administered at school increased significantly from 2000-2003 (McCarthy, Kelly, Johnson, Roman, & Zimmerman, 2006; Clay et al. 2008). Unlicensed personnel in school make more medication errors than nurses (Canham et al., 2007; Farris, McCarthy, Kelly, Clay & Gross, 2003; McCarthy, Kelly, & Reed, 2000). Medication errors include incorrect dose, missed doses, expired medication, and inconsistent recording (Canham et al., 2007).

School nurses influence attendance, which influences achievement and graduation rates:

- Six percent of children missed 11 or more days of school in the past 12 months due to illness or injury (Bloom, Cohen & ,Freeman, 2011). Repeated studies identified that school nurses reduce absenteeism (Maughan, 2003.) and a higher nurse to student ratio is related to better attendance (Pennington & Delaney, 2008).
- School absence affects performance and contributes to school drop-out and has economic and social repercussions for individuals, families, and communities (Pennington & Delaney, 2008). Attendance predicts dropout and achievement (Chan, 2002; Epstein & Sheldon, 2002; Klem & Connell, 2004).
- School nurses are significantly less likely to dismiss a student from school early than non-licensed personnel (Pennington & Delaney, 2008; Wyman, 2005).
- In one community, hiring nurses increased attendance, decreased dropout, and increased achievement (Bobo, 2001; Cooper, 2005)

School nurses are an essential arm of public health promoting wellness and preventing injury

- Registered nurses in schools are correlated with increasing immunization rates (Ferson, Fitzsimmons, Christie, & Woollett, 1995; Salmon et al., 2005)
- Salmon et al. (2005) found parents were significantly less likely to request an exemption from immunizations from school nurses than school personnel without health care training. Unlicensed school personnel are unaware of the seriousness of vaccine-preventable diseases, and the susceptibility of unimmunized children (Salmon et al., 2004).

The intensity of school health services is lower in schools with other disparities. Poor health and poverty combine to predict low achievement.

- There is a relationship among social-environmental factors (e.g. poverty), education, and health (Basch, 2010). In urban schools, poverty strongly predicts the utilization of school nursing services (Fleming, 2011).
- One study of 18 school districts found the intensity of policies and programs in school health services was significantly related to graduation rate (Cook, 2006).
- School health programs and services are inequitably distributed as are other school resources—that is, fewer and lower quality resources are available in schools serving low-income minority youth (Basch, 2010). A 2007 NASN study found schools with full time RNs were more likely than schools with PT RNs or no nurses to have other health care services and providers.

School nurses are crucial to children's mental health.

The top 5 health problems of children in the United States are now mental health problems not physical problems (Slomski, 2012). Approximately one in five children and adolescents has a diagnosable mental health disorder in the course of a year. Five percent have impairment in functioning that is extreme (U.S.DHHS, 2000).

Twenty percent (20%) of students may have undiagnosed mental health problems that cause difficulty with academic work (Puskar & Bernardo, 2007).

School nurses spend 32% of their time providing mental health services (Foster et al., 2005).

Through case management of chronic illness, school nurses play a pivotal role in the health and well-being of children and contribute to improved health and education outcomes.

- School nurses case management of asthma resulted in significantly more students with needed medication at school (Taras, Wright, Brennan, Campana & Lofgren, 2004) and fewer exacerbations resulting in visits to the school nurse office (Erickson, Splett, Mullett, Jensen, Belseth, 2006; Splett, Erickson, Belseth, & Jensen, 2006).
- School nurses caring for children with diabetes is related to better monitor blood glucose levels and lower A1c and better at detecting low blood glucose (Nguyen, Mason, Sanders, Yazdani, & Heptulla, 2008). School nurses positively affect academic success and well-being of students with diabetes (Lightfoot & Bines, 2000) In teens, school nurse case management improves quality of life, particularly the ability to communicate with health professionals (Engleke et al., 2011)
- Lower school nurse case loads, training and support result in school nurses providing more case management services for students (Guttu, Engelke & Swanson, 2004; Kruger et al., 2009; Taras, Wright, Brennan, Campana & Lofgren, 2004; Perry & Toole, 2000).

School nursing services allow faculty and school leaders to teach and lead.

- Teachers and staff consider nurse interventions vital to eliminating barriers to student learning and improving health (Baish, Lundeen, & Murphy, 2011).
- A nurse in the school may provide a principal with nearly an hour each day allocated to their role as instructional leader. Other staff spend less time diverted from their primary job responsibilities to address student health issues (Baish, Lundeen, & Murphy, 2011; Hill & Hollis, 2011).

Case for School Nursing

References

- Allen, M.C., Cristofalo, E.A. & Kem, C. (2011). Outcomes of preterm infants: Morbidity replaces mortality. *Clinics in Perinatology*, 38, 441–454. doi:10.1016/j.clp.2011.06.011
- Barde, L.H., Yeatman, J.D., Lee, E.S., Glover, G. & Feldman, H.M. (2012). Differences in neural activation between preterm and full term born adolescents on a sentence comprehension task: Implications for educational accommodations. *Developmental and Cognitive Neuroscience*, 2(S1), S114-28. doi: 10.1016/j.dcn.2011.10.002
- Baisch, M.J., Lundeen, S.P. & Murphy, M.K. (2011). Evidence-based research on the value of school nurses in an urban school system. *Journal of School Health*, 81, 74-80. doi: 10.1111/j.1746-1561.2010.00563.x
- Basch, C. E.(2010). *Healthier students make better learners: A missing link in school reforms to close the achievement gap*. Equity Matters Research Review #6, Research Initiative of the Campaign for Educational Equity, New York, NY: Teacher's College, Columbia University. Retrieved from http://www.equitycampaign.org/i/a/document/12557_EquityMattersVol6_Web03082010.pdf
- Benneyworth, B.D. Gebremariam, A. Clark, S.J. Shanley, T.P. & Davis, M.M. (2011). Inpatient health care utilization for children dependent on Long term mechanical ventilation. *Pediatrics*, 127, 1533-1541. doi:10.1542/peds.2010-2026
- Bergren, M.D. (2011, May 24). Health care utilization for children dependent on long-term mechanical ventilation: Impact on US public schools. [eLetter] *Pediatrics*, http://pediatrics.aappublications.org/content/early/2011/05/11/peds.2010-2026/reply#pediatrics_el_51360
- Bloom, B., Cohen, R.A. & Freeman, G. (2011). *Summary health statistics for U.S. children: National Health Interview Survey, 2010*. National Center for Health Statistics. Vital Health Statistics, 10(250). Retrieved from http://www.cdc.gov/nchs/data/series/sr_10/sr10_250.pdf
- Bobo, N. (2001). McComb school nurses—Some of the rest of the story. *NASN Newsletter*, 16(4), 16-17. doi: 10.1177/104747570101600410
- Branum, A.M. & Lukacs S.L. (2008). NCHS Data Brief, Food allergy among U.S. Children: Trends in prevalence and hospitalizations, 10, Retrieved from <http://www.cdc.gov/nchs/data/databriefs/db10.htm>
- Burns, K.H., Casey, P.H., Lyle, R.E., Bird, T.M., Fussell, J.J. & Robbins, J.M. (2010). Increasing prevalence of medically complex children in US hospitals. *Pediatrics*, 126, 638 – 646. doi: 10.1542/peds.2009-1658
- Canham, D., Bauer, L., Concepcion, M., Luong, J., Peters, J., & Wilde, C. (2007). An audit of medication administration: A glimpse into school health offices. *Journal of School Nursing*, 23(1), 21-27. doi:10.1177/10598405070230010401
- Centers for Disease Control and Prevention (CDC). (2011). National diabetes fact sheet: General information and national estimates on diabetes in the United States, 2010. Atlanta, GA: USDHHS, CDC. Retrieved from <http://www.cdc.gov/diabetes/pubs/estimates11.htm#6>
- Chan, W. (2002). *Preparing our children to learn: Report of the Select Committee on California children's school readiness and health*. Sacramento, CA: California State Legislature, Assembly. Retrieved from <http://cdm16254.contentdm.oclc.org/cdm/singleitem/collection/p178601ccp2/id/3328/rec/10>
- Clay, D, Farris, K, McCarthy, AM, Kelly, MW & Howarth, R (2008). Family perceptions of medication administration at school: Errors, risk factors, and consequences. *Journal of School Nursing*, 24, 95 - 102. doi: 10.1177/10598405080240020801

- Cohen, E., Kuo, D.Z., Agrawal, R., Berry, J.G., Bhagat, S.K.M., Simon, T.D. & Srivastava, R. (2011). Children with medical complexity: An emerging population for clinical and research initiatives, *Pediatrics*, 127, 529-538. doi:10.1542/peds.2010-0910
- Cook, C.M. (2006). The relationship between Coordinated School Health Programs and academic measures of student success in 18 large urban school districts. (doctoral dissertation). Kent State University, Kent, OH.
- Cooper, P. (2005). Life before tests: A district's coordinated health approach for addressing children's full range of needs. *School Administrator*, 62(9), 25-34. Retrieved from <http://www.aasa.org/SchoolAdministratorArticle.aspx?id=7780>
- Engleke, M.K., Swanson, M., Guttu, M., Warren, M.B., & Lovern, S. (2011). School nurses and children with diabetes: A descriptive study. *North Carolina Medical Journal*, 72, 351-358. Retrieved from <http://www.ncmedicaljournal.com/wp-content/uploads/2011/09/725-complete-issue.pdf>
- Epilepsy Foundation. (2010). *Epilepsy: Just the facts*. Landover, MD: Epilepsy Foundation. Retrieved from <http://www.epilepsyfoundation.org/resources/newsroom/upload/Epilepsy-Just-the-FactsNOV2010-2.pdf>
- Epstein, J., & Sheldon, S. (2002). Present and accounted for: Improving student attendance through family and community involvement. *Journal of Educational Research*, 95(5), 308-314. doi: 10.1177/001312402237212
- Erickson, C.D., Splett, P.L., Mullett, S.S., Jensen, C., & Belseth, S.B. (2006). The Healthy Learner Model for student chronic condition management—Part II: The asthma initiative. *Journal of School Nursing*, 22, 319-329. Doi: 10.1177/10598405060220060301
- Ferson, M.J., Fitzsimmons, G., Christie, D., & Woollett, H. (1995). School health nurse interventions to increase immunisation uptake in school entrants. *Public Health*. 109(1), 25-29. doi: 10.1016/S0033-3506(95)80072-7
- Fleming, R. (2011). Use of the school nurse services among poor ethnic minority students in the urban Pacific Northwest, *Public Health Nursing*, 28, 308-316. doi: 10.1111/j.1525-1446.2010.00929.x.
- Foster, S., Rollefson, M., Doksum, T., Noonan, D., Robinson, G., & Teich, J. (2005). *School Mental Health Services in the United States, 2002–2003*. DHHS Pub. No. (SMA) 05-4068. Rockville, MD: Center for Mental Health Services, Substance Abuse and Mental Health Retrieved from <http://store.samhsa.gov/shin/content//SMA05-4068/SMA05-4068.pdf>
- Ficca, M. & Welk, D. (2006). Medication administration practices in Pennsylvania schools, *Journal of School Nursing*, 22, 148 – 155. doi: 10.1177/10598405060220030501
- Gupta, R.S., Springston, E.E., Warriar, M.R., Smith, B., Kumar, R., Pongracic, J., & Holl, J.L. (2011). The prevalence, severity and distribution of childhood food allergy in the United States. *Pediatrics* 128, e9-e17. doi: 10.1542/peds.2011-0204
- Guttu, M, Engelke, MK, & Swanson, M. (2004). Does the school nurse ratio make a difference? *Journal of School Health*, 74, 6-10. doi: 10.1111/j.1746-1561.2004.tb06593.x
- Hill, N. J. & Hollis, M. (2012). Teacher time spent on student health issues and the school nurse presence. *Journal of School Nursing*, 28, 181-186. doi: 10.1177/1059840511429684
- Keet, C. A. & Wood, R. A. (2007). Food allergy and anaphylaxis. *Immunology and Allergy Clinics of North America*, 27, 193-212. doi: 10.1016/j.iac.2007.03.005

- Klem, A., & Connell, J. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health, 74*, 262-273. doi: 10.1111/j.1746-1561.2004.tb08283.x
- Kruger, B.J., Toker, K.H., Radjenovic, D., Comeaux, J.M. & Macha, K. (2009). School nursing for children with special needs: Does the number of schools make a difference. *Journal of School Health, 79*, 337–346. doi: 10.1111/j.1746-1561.2009.00419
- Lightfoot, J., & Bines, W. (2000). Working to keep school children healthy: The complementary roles of school staff and school nurses. *Journal of Public Health Medicine, 22*, 74–80. doi: 10.1093/pubmed/22.1.74
- May, A.L., Kuklina, E.V. & Yoon, P.W. (2012). Prevalence of cardiovascular disease risk factors among US adolescents, 1999-2008. *Pediatrics, 129*(6), 1035-1041. doi: 10.1542/peds.2011-1082.
- Maughan, E. (2003). The impact of school nursing on school performance: A research synthesis. *Journal of School Nursing, 19*, 163-171. doi: 10.1177/10598405030190030701
- McCarthy, A.M., Kelly, M.W., & Reed, D. (2000). Medication administration practices of school nurses. *Journal of School Health, 70*, 371-376. doi: 10.1111/j.1746-1561.2000.tb07277.x
- McCarthy, A.M., Kelly, M.W., Johnson, S., Roman, J., & Zimmerman, M.B. (2006). Changes in medications administered in schools. *Journal of School Nursing, 22*(2), 78-83. doi: 10.1177/105984050602200207
- McIntyre, C.L., Sheetz, A.H., Carroll, C.R., Young, M.C. (2005). Administration of epinephrine for life threatening allergic reactions in school settings, *Pediatrics, 116*, 1134-1140. doi: 10.1542/peds.2004-1475
- National Association of School Nursing. (2007). School nursing in the United States: A quantitative study. Silver Spring, MD: National Association of School Nurse. Retrieved from http://www.nasn.org/portals/0/2007_Burkhardt_Report.pdf
- National Center for Education Statistics. (2011a). Chapter 2: Elementary and secondary education. *Digest of Education Statistics, 2010* (NCES 2011-015), Washington DC: U.S. Department of Education, National Center for Education Statistics, Institute of Education Science. http://nces.ed.gov/programs/digest/d11/ch_2.asp
- National Center for Education Statistics. (2011b). Fast facts. *Digest of Education Statistics, 2010* (NCES 2011-015), Washington DC: U.S. Department of Education, National Center for Education Statistics, Institute of Education Science. Retrieved from <http://nces.ed.gov/fastfacts/display.asp?id=64>
- Nguyen, T.M., Mason, K.J., Sanders, C.G., Yazdani, P. & Heptulla, R.A. (2008) Targeting blood glucose management in school improves glycemic control in children with poorly controlled type 1 diabetes. *Journal of Pediatrics, 153*, 575 – 578. doi: 10.1016/j.jpeds.2008.04.066
- Pennington, N & Delaney, E (2008). The number of students sent home by school nurses compared to unlicensed personnel. *Journal of School Nursing, 24*: 290 – 297. doi: 10.1177/1059840508322382
- Perrin, J.M., Bloom, S.R. & Gortmaker, S.L. (2007). The increase of childhood chronic conditions in the United States. *JAMA, 297*, 2755 – 2759. doi: 10.1001/jama.297.24.2755
- Perry, C.S., & Toole, K.A. (2000). Impact of school nurse case management on asthma control in school children, *Journal of School Health, 70*, 303 - 304. doi: 10.1111/j.1746-1561.2000.tb07259.x
- Price, J.H., Dake, J.A., Murnan, J., & Telljohann, S.K. (2003). Elementary school secretaries' experiences and perceptions of administering prescription medication. *Journal of School Health, 73*, 373-379. doi: 10.1111/j.1746-1561.2003.tb04179.x

- Puskar, K.R. & Bernado, L.M. (2007). Mental health and academic achievement: Role of school nurses. *Journal for Specialists in Pediatric Nursing*, 12, 215-223. doi: 10.1111/j.1744-6155.2007.00117.x
- Roberts, G., Lim, J., Doyle, L.W. & Anderson, P.J. (2011). High rates of school readiness difficulties at 5 years of age in very preterm infants compared with term controls. *Developmental and Behavioral Pediatrics*, 32, 117 – 124. doi: 10.1097/DBP.0b013e318206d5c9
- Salmon, D. A., Omer, S. B., Moulton, L. H., Stokley, S., deHart, M. P., Lett, S., Norman, B., Teret, S. & Halsey, N. A. (2005). Exemptions to school immunization requirements: the role of school-level requirements, policies, and procedures. *American Journal of Public Health*, 95: 436-440. doi: 10.2105/AJPH.2004.046201
- Salmon, D. A., Moulton, L. H., Omer, S. B., Chace, L. M., Klassen, A., Talbien, P. & Halsey, N. A. (2004). Knowledge attitudes and beliefs of school nurses and personnel and association with nonmedical immunization exemptions, *Pediatrics*, 113, e 552 - e559. Retrieved from <http://pediatrics.aappublications.org/content/113/6/e552.full.pdf+html>
- Sicherer, S.H., Munoz-Furlong, A., & Sampson, H.A. (2003). Prevalence of peanut and tree nut allergy in the United States determined by means of a random digit dial telephone survey: A 5-year follow-up study. *Journal of Allergy & Clinical Immunology*, 112, 1203–1207. doi: 10.1016/S0091-6749(03)02026-8
- Slomski, A. (2012). Chronic mental health issues in children now loom larger than physical problems. *JAMA*, 308, 223-225. doi:10.1001/jama.2012.6951
- Splett, P.L., Erickson, C.D., Belseth, S.B., & Jensen, C. (2006). Evaluation and sustainability of the Healthy Learners Asthma Initiative. *Journal of School Health*, 76(6), 276-282. doi: 10.1177/10598405060220060301
- Taras, H., Wright S., Brennan, J., Campana, J., & Lofgren, R. (2004). Impact of school nurse case management on students with asthma. *Journal of School Health*, 74, 213-219. doi: 10.1111/j.1746-1561.2004.tb07935.x
- Telljohann, S. K., Dake, J. A., & Price, J. H.,(2004). Effect of fulltime versus part-time school nurses on attendance of elementary students with asthma. *Journal of School Nursing*, 20, 331–334. doi: 10.1177/10598405040200060701
- U.S. Department of Health and Human Services. (2000) Report of the Surgeon General's Conference on Children's Mental Health: A national action agenda. Washington, DC: U.S. Public Health Service. Retrieved from <http://www.ncbi.nlm.nih.gov/books/NBK44233/pdf/TOC.pdf>
- Van Cleave, J., Gortmaker, S., & Perrin, J. (2010). Dynamics of obesity and chronic health conditions among children and youth. *JAMA*, 303, 623-630. doi: 10.1001/jama.2010.104
- Wyman, L. (2005). Comparing the number of ill or injured students who are released early from school by school nursing and nonnursing personnel. *Journal of School Nursing*, 21, 350-355. doi: 10.1177/10598405050210060901