

**Annual Analysis of Health Care Delivered in Alabama
Public School Systems: Academic Year 2008-2009**

**Principal Investigator
Allison J. Terry, PhD, MSN, RN
Director, Center for Nursing**

**Alabama Board of Nursing
Montgomery, Alabama
April 2009**

Acknowledgements

Technical and Administrative Support

Richard Boyette
Programmer Analyst

Initial Planning and Development

N. Genell Lee MSN, RN, JD
Executive Officer

Consultant

Thomas A. Petee, PhD
Auburn University at Montgomery
Center for Government

Table of Contents

Acknowledgements	p. 2
List of Tables	p. 4
Glossary	p. 5
Introduction	p. 8
Methods	p. 9
Results	p. 9
Implications for School System Administrators	p. 20
Implications for School Health Administrators	p. 20
Implications for School Nurses	p. 20
Recommendations for Further Research	p. 21
Conclusion	p. 21
References	p. 23
Appendix	p. 24
Data Reported per School System	p. 35

List of Tables

Table 1: RN Personnel	p. 11
Table 2: LPN Personnel	p. 12
Table 3: Additional Duties	p. 14
Table 4: Medication Administration	p. 15
Table 5: Acute Conditions	p. 15
Table 6: Conditions	p. 16
Table 7: Physician's Orders for Medications/Treatments	p. 17
Table 8: Responding to Emergency Situations	p. 18
Table 9: Results of Linear Regression Performed Using "Access to Medical Information" as Dependent Variable	p. 19
Table 10: Results of Linear Regression Performed Using "Time Required for a Registered Nurse to Respond to a Student in a Life-Threatening Emergency Situation in the Nurse's Assigned Schools" as Dependent Variable	p. 19
Table 11: Results of Linear Regression Performed Using "Access to Medical Information" as Dependent Variable	p. 20

Glossary

The major reference for the definitions included in the glossary is the *Merck Manual* (2007 edition). All terms and definitions should be considered in the context of being relevant to Alabama's public school systems.

1. Arteriosclerosis-general term for disorders causing thickening and loss of elasticity in the walls of arteries; may lead to coronary artery disease and cerebrovascular disease.
2. Attention deficit disorder-syndrome of disordered learning and disruptive behavior that has several subtypes.
3. Automatic external defibrillator-an electronic device used to defibrillate a heart by applying an electric shock.
4. Asthma-a chronic lung disorder that is marked by recurring episodes of airway obstruction manifested by labored breathing accompanied especially by wheezing and coughing and by a sense of constriction in the chest, and that is triggered by hyperreactivity to various stimuli.
5. Autism-a developmental disorder that appears by age three and that is recognized and diagnosed by impairment of the ability to form normal social relationships, impairment of the ability to communicate with others, and by stereotyped behavior patterns.
6. BMI (body mass index)-calculated from height and weight; may be used as a tool to assist in diagnosing obesity.
7. Cardiopulmonary resuscitation (CPR)-emergency first aid procedure for a victim of cardiac arrest.
8. Cellulitis-inflammation of the connective tissue underlying the skin.
9. Central line-a central venous catheter (CVC or central (venous) line) is a catheter placed into a large vein in the heart.
10. Diabetes- a disorder of carbohydrate metabolism caused by a combination of hereditary and environmental factors; usually characterized by inadequate secretion or utilization of insulin, excessive urine production, excessive amounts of sugar in the blood and urine, and by thirst, hunger, and weight loss.
11. DNR (Do Not Resuscitate)-an order by a physician that indicating that the patient should not have cardiopulmonary resuscitation performed in the event of a cardiac arrest.

12. Epinephrine- used medicinally especially as a heart stimulant, to treat open-angle glaucoma and life-threatening allergic reactions, to prolong the effects of local anesthetics, and as a bronchodilator.

13. Gastric tube- medical device inserted through a small incision in the abdomen into the stomach; used to provide nutrition to patients who cannot obtain nutrition by swallowing.

14. Glucagon- hormone that promotes an increase in the sugar content of the blood.

15. Glucose monitoring- process that measures the amount of glucose in the blood right at the time of sample collection.

16. Hemophilia- hereditary blood defect that occurs almost exclusively in males and is characterized by delayed clotting of the blood and consequent difficulty in controlling hemorrhage even after minor injuries.

18. Hickman catheter- an indwelling central venous line that provides direct access to the heart.

19. Human immunodeficiency virus (HIV)- causes *acquired immunodeficiency syndrome* (AIDS), a condition in which the immune system begins to fail, leading to life-threatening opportunistic infections.

20. Hypertension- sustained elevation of resting systolic blood pressure of greater than or equal to 140, diastolic blood pressure of greater than or equal to 90, or both.

21. Immunization- process by which an individual is exposed to a substance that is designed to fortify his or her immune system against that substance.

22. Inhaler- a device designed to deliver medication via inhalation.

23. MRSA (methicillin resistant *Staphylococcus aureus*)-cause of acute bacterial infection of the skin and subcutaneous tissue.

24. Nebulizer- an atomizer equipped to produce an extremely fine spray of medication for deep penetration of the lungs.

25. NO CODE-physician's order meaning "do not resuscitate".

26. Ostomy- surgically created opening in the body.

27. Pediculosis-infestation of head or body lice.

28. Pressure ulcer-skin breakdown caused by pressure or friction.
29. Scoliosis-curvature and deformity of the spine.
30. Seizure- convulsions, sensory disturbances, or loss of consciousness resulting from abnormal electrical discharges in the brain.
31. Sickle cell anemia-genetic disorder in which red blood cells change shape, assuming a “sickle”-shape.
32. Solu-Cortef- medication classified as a corticosteroid.
33. Standard precautions-practice of avoiding contact with another person’s bodily fluids.
34. Staph- short for *Staphylococcus*, a type of bacteria.
35. Tracheostomy- the surgical formation of an opening into the trachea through the neck especially to allow the passage of air.
36. Urinary catheterization- insertion of a catheter into a patient's bladder in order to drain urine from the bladder into an attached bag or container.
37. Vagal nerve stimulator- device implanted in the brain in an attempt to decrease seizure activity.
38. Ventilator-a device for maintaining breathing.

(Porter and Kaplan (eds.) (2007) *The Merck Manual*)

Annual Analysis of Health Care Delivered in Alabama Public School Systems: Academic Year 2008-2009

INTRODUCTION

Health care delivery to children, including that provided during years of public school education, was priority enough to warrant a twenty-year, billion-dollar study, according to Dunham (2008). In January 2009, the National Institutes of Health began to implement a study on American children that is estimated to cost \$3.2 billion and last more than two decades. Designed to track the health of 100,000 American children from before their birth to age 21, the study will examine factors influencing conditions that are commonly seen in public schools, including those in Alabama. Those conditions include autism, cerebral palsy, learning disabilities, attention deficit hyperactivity disorder, diabetes, asthma, heart disease, and obesity.

The Alabama Center for Nursing annually surveys public school nurses to provide cross-sectional data on health care delivery to public school students. The survey includes an examination of the factors that influence the conditions experienced by students. The collection of such information occurs as part of the implementation of regulations in 2001 by the Alabama Board of Nursing (ABN) that allowed school nurses to delegate activities such as assistance with medication to unlicensed assistive personnel. Rule 610-X-6-.06 of the Alabama Board of Nursing Administrative Code specifically addressed delegation by school nurses and stipulated that a report would be submitted to the ABN upon request by either the State School Nurse Consultant or the School Nurse Administrator (Terry, 2007). To obtain the report, the Board has implemented an annual survey of public school nurses.

The 2008-2009 academic year survey was placed on the ABN website from November 20, 2008-February 17, 2009. Although the survey was required to be completed for each public school in Alabama, respondents were assured of the confidentiality of their submitted information since data were collected in the aggregate. The study analyzes data provided by respondents to the survey, yielding both the cross-sectional picture provided by questions in the sampling paradigm and the longitudinal view produced when current data are compared with data submitted in previous years. A report of existing trends that are developing in the health care of Alabama's public school children will be included.

Trends that will be of particular interest will be those related to conditions noted, medications provided, and treatments delivered. Multiple studies have been released on the healthcare delivered in America's public schools or to school age children, as cited in Terry (2007), Terry (2006) and Allen (2005). In 2005, as part of the American Alliance for Health, Physical Education, Recreation, and Dance

National Convention and Exposition, King analyzed the results of a mail survey of Alabama public school nurses regarding the prevalence of chronic conditions and health care procedures performed in the public schools. He found that at that time, asthma was the most prevalent chronic condition and the administration of oral medication was the most commonly performed health care procedure.

The study tests the hypothesis that a school nurse is more likely to have access to all needed medication information on each student receiving medical services in that school if a full-time registered nurse is employed in that school. It is also hypothesized that a school nurse is more likely to be able to respond promptly to a student in a life-threatening emergency situation if a registered nurse is employed full-time for that specific school.

METHODS

Cases consisted of 1,432 schools in 205 public school systems in Alabama. The survey instrument was sent to school nurses via an online listserve and questions were updated prior to each online distribution to reflect current workforce conditions, particularly those unique to school nursing. The survey instrument is found in the Appendix.

School nurses were given the opportunity to add narrative responses to specific questions, although answer options were primarily multiple choice. Findings are reported based on responses per item since not all respondents chose to answer each question. Since the survey was required for completion by each school, a 100% response rate was achieved. Validation of the content and format of questions was provided through consultation with individuals currently appointed to serve on the ABN. The research project was non-experimental and descriptive in design and utilized a sample of convenience (the entire population of public schools currently open in Alabama). Though appropriate for the project, the use of a sample of convenience created a limitation for the project by decreasing the amount of generalization available for other states. The framework for the survey was multiple causation since multiple independent variables were proposed in regression models.

RESULTS

Statistical analysis occurred using the Statistical Package for the Social Sciences (SPSS) version 16. Descriptive statistics were initially calculated to provide a cross-sectional view of the health care provided in Alabama's public schools. Prior to the 2008 survey, school nurses were asked personnel-related questions that pertained to all actively licensed nurses practicing in the school system at the time of the survey. The 2008 survey separated questions into those pertaining to registered nurses (RNs) and licensed practical nurses (LPNs). These results are found in Tables 1 and 2.

Responses showed that students are more likely to have access on a daily basis to an RN (n= 815; 57%) in Alabama's public schools than an LPN (n=566;

39.6%). However, an almost equal number of RNs (n=462; 32.3%) and LPNs (n=467; 32.6%) are employed full-time for one school only as well. A similar result was found concerning the availability of substitute nurses for a school system, with 217 (15.2%) schools reporting one RN being available as a substitute nurse for the system, while 179 schools (12.5%) reported one LPN being available to substitute for the system. When questioned regarding the assignment of licensed personnel to one classroom or one student, more than twice as many LPNs (3.8%) as RNs (1.6%) were assigned to one classroom, and a similar result was seen with assignments to one student (LPNs=1.5%; RNs=.9%).

Table 1
RN Personnel

Variable Name	2008 n	2008 %
Days/wk students have on-site access to an RN: Every day/all day/5 days	815	57.0
4	50	3.5
3	35	2.4
2	12	.8
1	0	0
Less than 1 day	387	36.3
Days/wk students have on-site access to CRNP: Every day/all day/5 days	11	.8
4	0	0
3	0	0
2	0	0
1	0	0
Less than 1 day or no access	1420	99.2
RNs employed full-time for this school only:		
0	951	66.5
1	462	32.3
2	16	1.1
3	1	.1
more than 3	1	.1
RNs employed part-time for this school only:		
0	1359	95.0
1	68	4.8
2	3	.2
3	0	0
more than 3	1	.1
RNs substitute school nurses for this school system:		
0	958	66.9
1	217	15.2
2	97	6.8
more than 2	159	11.1
Health career teachers/RNs in this school		
0	1345	94.0
1	72	5.0
2	12	.8
more than 2	2	.1
Volunteers in this school who are also RNs:		
0	1381	96.5
1	31	2.2
2	10	.7
3	7	.5
more than 3	2	.1
RNs assigned to one classroom:		
0	1401	97.9
1	23	1.6
2	6	.4
3	1	.1
more than 3	0	0
RNs assigned to one student:		
0	1417	99
1	13	.9
2	1	.1
3	0	0
more than 3	0	0

*prior to 2008, personnel categories were reported as the numbers of RNs and LPNs combined that were functioning in the public school systems and were not reported separately

Table 2
LPN Personnel

Variable Name	2008 n	2008 %
Days/wk students have on-site access to LPN: Every day/all day/5 days	566	39.6
4	13	.9
3	10	.7
2	5	.3
1	0	0
Less than 1 day	729	50.9
LPNs employed full-time for this school only:		
0	940	65.7
1	467	32.6
2	17	1.2
3	4	.3
more than 3	3	.2
LPNs employed part-time for this school only:		
0	1390	97.1
1	38	2.7
2	3	.2
3	0	0
more than 3	0	0
LPNs employed as substitute school nurse for this school system:		
0	1090	76.2
1	179	12.5
2	93	6.5
more than 2	69	4.8
Health career teachers/LPNs in this school		
0	1427	99.7
1	3	.2
2	1	.1
more than 2	0	0
Volunteers in this school who are also LPNs:		
0	1420	99.2
1	8	.6
2	2	.1
3	0	0
more than 3	1	.1
LPNs assigned to one classroom:		
0	1373	95.9
1	54	3.8
2	3	.2
3	1	.1
more than 3	0	0
LPNs assigned to one student:		
0	1403	98.0
1	22	1.5
2	2	.1
3	0	0
more than 3	4	.3

*prior to 2008, personnel categories were reported as the numbers of RNs and LPNs combined that were functioning in the public school systems and were not reported separately

Respondents were also asked about additional duties that occurred as part of their current work situations. They reported that 35.4% of schools (n=506) had more than three unlicensed personnel trained to assist with medications in that facility if that duty was delegated by the school nurse. In addition, 3.7% of schools (n=53) had one student within the past three months of the survey experience side effects from a medication, an increase from the 2007 report of 3% (n=43). In comparison, 14.1% of schools (n=202) reported completing from one to ten unusual occurrence reports regarding medication within the three

months prior to the survey, a slight decrease from the 2007 response of 14.2% (n=206).

In addition, respondents reported that RNs were going with students who required health services on field trips more than LPNs, were accompanying these students on buses more than LPNs, and were present during extracurricular activities more than LPNs. Additional duties also consisted of health-related teaching for students. Eighty-three (5.8%) schools reported that nurses spent 16-20 hours providing such teaching to students over a three-month period. Students and parents also required counseling by school nurses on health care follow-up or the need for health insurance. A total of 220 (15.4%) schools reported that nurses spent more than twenty hours counseling students and/or parents on these topics. A summary of the information is found in Tables 3 and 4.

Table 3
Additional Duties

Variable Name	2008 n	2008 %
Unlicensed personnel trained to assist with medications		
0	214	15.0
1	181	12.6
2	313	21.9
3	217	15.2
more than 3	506	35.4
Hrs. in 3 months RNs have gone on field trips:		
0	1124	78.5
1-5	154	10.8
6-10	104	7.3
11-15	25	1.7
16-20	24	1.7
more than 20 hours	0	0
Hrs. in 3 months LPNs have gone on field trips:		
0	1174	82.0
1-5	106	7.4
6-10	79	5.5
11-15	27	1.9
16-20	17	1.2
more than 20 hours	28	2.0
Hrs. in 3 mths. RNs have gone with students on buses		
0	1270	88.7
1-5	112	7.9
6-10	23	1.6
11-15	8	.6
16-20	18	1.3
more than 20 hours	0	0
Hrs. in 3 mths. LPNs have gone with students on buses:		
0	1289	90.1
1-5	111	7.8
6-10	16	1.1
11-15	7	.5
16-20	8	.6
more than 20 hours	0	0
Hrs. in 3 mths. students have required individualized health-related teaching:		
0	233	16.3
1-5	770	53.8
6-10	235	16.4
11-15	110	7.7
16-20	83	5.8
more than 20 hours	0	0
Hrs. in 3 mths. students/parents have been counseled on health care follow-up or insurance:		
0	187	13
1-5	567	39.6
6-10	280	19.6
11-15	99	6.9
16-20	78	5.5
more than 20 hours	220	15.4
Hrs. in 3 months RNs have gone on extracurricular activities:		
0	1328	92.8
1-5	79	5.6
6-10	14	1.0
11-15	7	.5
16-20	3	.2
more than 20 hours	0	0
Hrs. in 3 months LPNs have gone on extracurricular activities:		
0	1360	95
1-5	49	3.4
6-10	10	.7
11-15	7	.5
16-20	5	.3
more than 20 hours	0	0

*prior to 2008, these additional duties were reported according to the numbers of RNs and LPNs combined that were functioning in the public school systems and were not reported separately

Table 4

Assistance with Medication Administration

Variable Name	2006 n	2006 %	2007 n	2007 %	2008 n	2008 %
Times in the past 3 mths. students have experienced side effects of medication:						
0	not asked in 2006	not asked in 2006	1248	86.0	1329	92.9
1			43	3.0	53	3.7
2			25	1.7	27	1.9
3			8	.6	18	1.3
more than 3			29	2.0	4	.3
Unusual occurrence reports regarding medication completed in the past 3 mths:						
0	not asked in 2006	not asked in 2006	1143	78.8	1221	85.3
1-10			206	14.2	202	14.1
11-20			2	.1	5	.3
21-30			0	0	1	.1
31-40			0	0	1	.1
41-50			0	0	0	0
more than 50			0	0	1	.1

Schools were also surveyed regarding the conditions of students that were requiring care, treatment, and regular assessment. Information on both acute and chronic conditions was requested. When the results of acute conditions surveyed were compared to 2007 survey results, it was found that the number of cases of all of the acute conditions except for influenza increased significantly in 2008 and usually was doubled. For example, cases of students requiring acute wound care increased from 2007 to 2008 almost fourfold (from 6,838 to 21,090), as did those experiencing cellulitis (from 1,453 to 4,528). Students requiring treatment for acute pain increased by more than threefold (from 54,574 in 2007 to 171,248 in 2008). The acute condition that saw the least amount of increase from 2007 to 2008 was fractures. The development of fractures increased from 1,579 cases in 2007 to 1,601 in 2008. A summary of information related to acute conditions is found in Table 5.

Table 5
Acute Conditions

Variable Name	2006 n	2007 n	2008 n
students requiring acute wound care	not asked in 2006	6,838	21,090
students having cellulitis	not asked in 2006	1,453	4,528
students having a concussion	not asked in 2006	369	628
students having diarrhea	not asked in 2006	8,266	15,871
students requiring first aid	not asked in 2006	115,379	262,803
students having a fracture	not asked in 2006	1,579	1,601
students having a headache	not asked in 2006	46,253	89,622
students having influenza	not asked in 2006	1,909	1,654
students experiencing pain	not asked in 2006	54,574	171,248
students experiencing vomiting	not asked in 2006	24,145	51,329

*nurses were not surveyed on all conditions in 2006; list became more inclusive with successive surveys

Responses to questions regarding chronic conditions yielded an increase in cases of specific conditions, but not to the extent of increase that responses to questions on acute conditions indicated. For example, students requiring glucose monitoring increased consistently from 2006 to 2008, with 1,587 cases reported in 2006, 1,894 cases in 2007, and 1,921 cases reported in 2008. Other consistent increases over all three years surveyed were seen in cases of

students requiring tracheostomy care, students having attention deficit disorder, students having hemophilia, those having some type of mental disorder, as well as those experiencing a seizure disorder. A summary of information related to chronic conditions is included in Table 6.

Table 6
Conditions

Conditions Experienced by Students	2006 n	2007 n	2008 n
physician's orders for access to an AED	not asked in 2006	not worded in this format in 2007	26
central line care	not asked in 2006	26	19
gastric tube feedings	359	367	341
glucose monitoring	1,587	1,894	1,921
implanted defibrillators	not asked in 2006	33	27
implanted insulin pump	not asked in 2006	422	580
receive medication through a central line	not asked in 2006	7	9
nebulizer care	not asked in 2006	852	967
oral suctioning equipment to be available	not asked in 2006	not worded in this format in 2007	87
ostomy care	not asked in 2006	127	92
skin assessment for prevention of pressure ulcers	not asked in 2006	506	367
tracheostomy care, including suctioning	48	51	52
urinary catheterization, whether clean or sterile	168	191	178
vagal nerve stimulator care	not asked in 2006	66	95
ventilator care	9	9	14
wound care for pressure ulcers	not asked in 2006	29	14
suffer from severe allergies	not asked in 2006	7,706	12,062
attention deficit disorder/attention deficit hyperactivity disorder	18,381	20,655	30,552
asthma	35,025	36,933	31,436
autoimmune diseases	not asked in 2006	424	628
cancer	not asked in 2006	208	338
cardiac conditions	not asked in 2006	2,274	2,054
dental problems	not asked in 2006	not asked in 2007	4,368
diabetes mellitus (Type I or Type II)	1,919	1,887 (Type I) 338 (Type II)	1,737 (Type I) 529 (Type II)
gastrointestinal diseases	not asked in 2006	1,873	3,259
genetic condition	not asked in 2006	1,087	1,531
genitourinary disorder	not asked in 2006	not asked in 2007	1,265
gynecological disorder	not asked in 2006	not asked in 2007	179
hearing impairment	not asked in 2006	not asked in 2007	1,927
hemophilia	117	128	138
hypertension	not asked in 2006	not asked in 2007	918
mental disorders	2,732	3,263	3,524
mental retardation	not asked in 2006	4,534	4,762
neurologic disorders	not asked in 2006	not asked in 2007	2,218
obese	not asked in 2006	18,197	16,417
orthopedic disorders	not asked in 2006	1,455	1,789
pregnant	not asked in 2006	not asked in 2007	1,223
seizure disorder	4,240	4,693	4,827
sickle cell anemia	not asked in 2006	556	680
substance abuse	not asked in 2006	not asked in 2007	342
visually impaired	not asked in 2006	not asked in 2007	11,619

*nurses were not surveyed on all conditions in 2006; list became more inclusive with successive surveys

Schools were also surveyed on the numbers of students with physician's orders for specific medications or treatments. It was found that the number of students requiring breathing treatments increased from 2006-2008, having doubled from 2007 to 2008. The numbers of students requiring injectable epinephrine (used to treat severe allergic reactions), as well as those requiring glucagon (used to treat severe hypoglycemia), insulin injections, and oral antibiotics increased consistently from 2006 throughout 2008. The number of students requiring

medications to treat attention deficit disorder decreased from 2007 to 2008, an interesting finding when considered in light of the consistent increase in numbers of students requiring care and treatment of the disorder in the public schools. A summary of information related to medications and treatments is found in Table 7.

Table 7
Physician's Orders for Medications/Treatments

Variable Name	2006 n	2007 n	2008 n
automatic external defibrillator			
used on students within the past 3 months	not asked in 2006	reported inaccurately by school nurses in 2007	7
used on staff members within the past 3 months	not asked in 2006	not asked in 2007	5
blood products administered	31	21	24
blood pressure checks	not asked in 2006	not asked in 2007	8,275
breathing treatments	2,186	3,809	7,589
do not resuscitate	not asked in 2006	82	1
eardrops	not asked in 2006	73	177
epi-pens or other injectable epinephrine	2,481	2,786	2,902
eyedrops	not asked in 2006	252	684
glucagon ordered	1,080	1,086	1,419
glucagon administered	not asked in 2006	not asked in 2007	10
insulin pump	not asked in 2006	not asked in 2007	717
insulin injections	1,324	2,984	3,280
self-administered inhalers	8,809	10,085	9,928
oral antibiotics	171	853	945
oral ADD/ADHD medications	18,381	8,243	7,744
oral psychiatric medications	658	628	610
oral seizure medications	610	558	704
orthopedic equipment use	not asked in 2006	not asked in 2007	1,965
rectal medications	not asked in 2006	417	549
self-administration of medications for chronic illnesses	not asked in 2006	not asked in 2007	1,189
administration of Solu-Cortef	not asked in 2006	26	32
topical medications	not asked in 2006	496	809
vaginal medications	not asked in 2006	not asked in 2007	4

*nurses were not surveyed on all medications/treatments in 2006; list became more inclusive with successive surveys

Finally, schools were surveyed to determine the response of school nurses to emergency situations. When asked if the school nurse had access to all medication information needed for each student receiving health services, 68.3% (n=907) reported affirmatively. When school nurses were asked to elaborate on barriers that prevented them from receiving such necessary information, they cited, in order of priority:

- uncooperative physicians and medical facilities
- parents who either did not speak English or spoke it poorly as a second language, and
- parents or guardians who were difficult to contact and did not respond to requests for information.

Most school nurses providing information on the survey (n=249) reported that they had not contacted emergency health services at all regarding a student within the three months prior to receiving the survey. In a disturbing set of responses, although 728 nurses reported that an RN could respond to a student

in a life-threatening emergency situation in that school within five minutes, 305 nurses reported that an RN would need fifteen minutes to respond, and 183 nurses reported requiring thirty minutes to respond. A total of 107 nurses reported that an RN would require more than thirty minutes to respond to a student in a life-threatening emergency situation in that school. Responses were provided by the RN having responsibility for a specific school, so although data were recorded per school, it should be noted that most typically, RNs are assigned to multiple schools. In addition, the answers provided were the RNs' own estimate of their ability to respond in an emergency situation, not the result of any type of time measurement study that had occurred. Four nurses reported that they had experienced participating in the resuscitation of a child in a public school setting. Information on school nurses' response to emergency situations is summarized in Table 8.

Table 8
Responding to Emergency Situations

Variable Name	2008
Nurse has access to all medication information needed in each student receiving health services Yes No	907 421
No. of times in the past 3 months nurse has contacted emergency health services regarding a student 0 1 2 3 4	no responses 249 98 65 35
time needed for an RN to respond to a student in a life-threatening emergency situation in assigned school within one minute within five minutes within fifteen minutes within thirty minutes longer than 30 minutes	341 387 305 183 107
nurse has had to assist in resuscitating a child in a public school Yes No	4 1320

*nurses were not asked about their emergency responses in previous surveys

In order to generate predictive statistics, linear regression was performed on the data collected and yielded statistically significant results in specific areas. Initially, having access to all needed medical information on each student receiving health services in a school was used as the dependent variable. Independent variables used were having substitute school nurses for a specific school, assigned level of the school nurse (assigned to an individual school, the entire school system of a city/county, or the Central Office of the city/county Department of Education), number of days per week that students have access to a registered nurse, and having a full-time registered nurse in that school. Table 9 presents the results of the regression, specifically parameter estimates, standard error, degrees of freedom, and level of significance. Linear regression revealed that if all of the variables are held constant, only one independent measure, having a full-time registered nurse employed in that school ($b= 1.774$, $p < .05$), significantly predicted a school nurse's access to all needed medical information on each student receiving health services.

Table 9
Results of Linear Regression Performed Using “Access to Medical Information” as Dependent Variable

Variable	Data Represented by the Variable	Standard Error	t	Significance
assigned level	individual school, school system, or Central Office	.048	1.096	.276
days	days/week students have access to RN	.049	-.283	.778
RN full-time	full-time RN in that school	.431	4.113	.000
substitute	having substitute school nurses for a school system	.297	.264	.792

As data analysis continued, an additional set of independent variables was selected using past resuscitation of a child in a school setting, number of times within the past three months that students experienced medication side effects, and number of registered nurses employed full-time in a specific school. The dependent variable used for the regression was the time required for a registered nurse to respond to a student in a life-threatening emergency situation in the nurse’s assigned schools. Table 10 presents the results of the regression analysis. The analysis revealed that, if all of the independent variables are held constant, the nurse having previously resuscitated a child in a school setting ($b= 1.408$, $p < .05$), and the number of registered nurses employed full-time for that specific school ($b= -.506$, $p < .05$) significantly predicted a school nurse’s ability to respond promptly to a student in a life-threatening emergency situation in the RN’s assigned school.

Table 10
Results of Linear Regression Performed Using “Time Required for a Registered Nurse to Respond to a Student in a Life-Threatening Emergency Situation in the Nurse’s Assigned Schools” as Dependent Variable

Variable	Data Representing by the Variable	Standard Error	t	Significance
RN full-time	RNs employed full-time for school	.143	-3.553	.001
Side effects	times within 3 months students experienced medication side effects	.026	.157	.876
Resuscitation	nurse previously resuscitated child in school setting	.058	24.246	.000

A regression model was also constructed that further examined a nurse’s access to needed medical information. The model included the number of times within the past three months that a school nurse has contacted emergency health services regarding a student, how quickly the RN school nurse could respond to a student in a life-threatening situation, and having previously been required to resuscitate a student as independent variables. Table 11 presents the results of the regression analysis. The analysis revealed that if all of the variables are held constant, having previously resuscitated a child in a public school setting ($b= .609$, $p < .05$) and the number of times within the past three months that a school nurse has contacted emergency health services regarding a student ($b= .038$, $p < .05$) significantly predicted school nurses’ access to needed medical information.

Table 11
 Results of Linear Regression Performed Using “Access to Medical Information” as Dependent Variable

Variable	Data Representing by the Variable	Standard Error	t	Significance
Emergency	times within 3 months that a school nurse has contacted emergency health services regarding a student	.013	3.044	.002
Respond	how quickly the RN school nurse could respond to a student in a life-threatening situation	.010	.058	.954
Resuscitation	previously helped resuscitate a student	.026	23.025	.000

IMPLICATIONS FOR SCHOOL SYSTEM ADMINISTRATORS

Of paramount concern to school administrators should be the response of 595 school nurses that fifteen minutes or longer would be required to respond to a student in a life-threatening situation. In addition, 107 school nurses reported that more than 30 minutes would be required to respond to such a situation in their specific schools. The reasons for these school nurses’ assumption that such an extensive amount of time would be required for them to respond to a student in an emergency situation should be investigated. Also, the regression model that indicated that having a full-time RN employed in a school was a significant predictor for both the nurse’s access to medical information on students as well as the nurse’s ability to respond promptly in an emergency provides staffing implications for administrators.

IMPLICATIONS FOR SCHOOL HEALTH ADMINISTRATORS

An additional implication specific to school health administrators relates to the need to prepare school nurses to respond adequately in an emergency situation. Regression analysis indicated that having previously resuscitated a child in a school setting was a significant predictor for a school nurse’s ability to respond promptly in an emergency. The analysis implies that additional research should be performed to assess the prior resuscitative experience of school nurses. In addressing the increase in acute conditions, the documentation of the incidence of these conditions by school nurses must be verified and the accuracy of their figures determined. For example, an almost fourfold increase in cellulitis and need for acute wound care was noted. Such a change in the data could actually be the result of more accurate reporting rather than an actual fourfold increase.

IMPLICATIONS FOR SCHOOL NURSES

In addition, school nurses should verify the accuracy of their documentation, particularly regarding acute conditions of students. Such clarification may be able to occur as a result of implementation of the computerized documentation in 2009. Once documentation accuracy is verified, school nurses should assist school health administrators in identifying schools where specific acute conditions occur in greatest frequency and factors in these student populations that could contribute to these occurrences. School nurses should be able to identify such factors as a result of the assessments of students that are occurring on a regular basis. Once these factors are identified, school nurses should also

assist school health administrators in developing actions to alleviate these factors.

RECOMMENDATIONS FOR FURTHER RESEARCH

Based on the results of the statistical analysis of the data compiled , the following recommendations are offered for future research:

- Determine if having previously resuscitated a child in a school setting and the number of times within the past three months that a school nurse has contacted emergency health services are significant predictors of a school nurse's ability to access necessary medical information because nurses who have these types of experiences also have additional critical care nursing experience;
- Data suggests that an increase in both the number and type of acute conditions being experienced by public school students is occurring; determine if there is truly an increase in the acuity level of Alabama students, or if it is the result of more comprehensive assessment procedures as well as more accurate documentation; if the acuity level is truly increasing, further research should be implemented to determine specific areas of the State where the change is most prevalent;
- Determine if the delay in responding to life-threatening situations in specific schools is the result of school nurses being shared between multiple schools or if other factors are contributing to the problem;
- Because of the significance of having previously resuscitated a child in a school setting, determine if participation in emergency response drills would be as significant a predictor of a school nurse's ability to respond in an emergency situation;
- Determine if there is a change in the effectiveness and/or efficiency of documentation when nurses utilize the computerized documentation system.

CONCLUSION

The results support the hypothesis that a school nurse is more likely to have access to all needed medication information on each student receiving medical services in that school if a full-time registered nurse is employed in that school. It also partially supports the secondary hypothesis that a school nurse is more likely to be able to respond promptly to a student in a life-threatening emergency situation if a registered nurse is employed full-time for that specific school since it was found that having previously resuscitated a child in a school setting is a slightly more significant predictor than the number of registered nurses employed full-time for the school. Furthermore, it was found that a school nurse's ability to respond promptly to a student in a life-threatening emergency situation is predicted by having previously resuscitated a child in a school setting as well as the number of registered nurses employed full-time for that specific school. Further analysis of the data suggests that an increase in the number of students experiencing acute illness in Alabama's public schools along with an increase in

the type of acute illnesses being experienced by students in specific areas of the State may be producing a delayed response to emergency situations by healthcare providers.

REFERENCES

Allen (2005). *Health services in Alabama public schools (academic year 2003-2004)* (Monograph). Alabama Board of Nursing.

King, T. (2005). Alabama's public school nurses caring for children with special health care needs. Retrieved April 1, 2009 from http://aahperd.confex.com/aahperd/2005/preliminaryprogram/abstract_6409.htm.

Merck Research Laboratories. (2006). *The Merck Manual*. (18th ed.) Merck Research Laboratories. Whitehouse Station, New Jersey.

Terry (2006). *State of children's health and nursing services in Alabama's public school systems* (Monograph). Alabama Board of Nursing.

Terry (2007). *Annual report of children's health and nursing service in Alabama's public school systems* (Monograph). Alabama Board of Nursing.

APPENDIX

School Nurse Survey Academic Year 2008-2009

Registered nurses or licensed practical nurses who provide nursing care in the school setting through the twelfth grade may delegate specific tasks to unlicensed assistive personnel. The school nurse shall provide periodic and regular evaluation and monitoring of the individual performing the delegated tasks. The School Nurse Consultant or School Nurse Administrator shall submit a report(s) to the Alabama Board of Nursing in a format specified by the Board upon request (Alabama Board of Nursing Administrative Code, Chapter 610-X-6, Standards of Nursing Practice, Section 610-X-6-.06, Delegation by School Nurses).

The survey should be completed between November 1 and November 20, 2008.

Definitions Pertaining to School Nurse Survey

1. access to a nurse- the nurse, while not necessarily on-site at a school for an entire 8-hour day, could easily be on-site or available by telephone for an emergency.
2. acute illness- the disease process has an abrupt onset and a short course of progression before it resolves.
3. first aid- student presents for treatment required because of an injury which occurred during school hours on school property or for an illness which developed while at school.
4. full-time employment- > 35 hours per week.
5. health promotion activities- any type of activity which can promote good health in students such as health screenings and nutritional promotions.
6. Lead nurse or Nurse Administrator- supervises the school system's nursing personnel; not a role seen universally in all Alabama school systems.
7. obesity- body weight greater than 20% of what it should be for the student's height.
8. part-time employment- <35 hours per week.
9. RN supervisor- registered nurse who may provide supervision to nursing personnel in multiple schools.
10. time period utilized for survey- begin counting students from the first day that school opened for the current academic year.
11. substitute school nurse- may provide substitute coverage for all schools in the school system. If the substitute school nurse covers all schools in the school system, please count that nurse only **once** under **one** school's report.

Section 1-Identifying Information

1. Name of registered nurse completing survey as listed on ABN license card _____
2. License number 1- _____
3. County of school (**drop-down menu**)
4. Name of school system (**drop-down menu**)
5. Name of school (**use drop-down menu**)
6. Has the name of this school changed since last year? If so, give the previous name of the school.

If the name of the school has not changed, proceed to question 7. Also, please note if this school is newly opened this year.

7. Does this school system have a Lead Nurse/Nurse Administrator over the School Health Program?

- 1. Yes
- 2. No

8. Please select the level at which you are assigned to provide health care services:

- 1. Central Office
- 2. Entire School System of a City or County
- 3. Individual School

Section 2-Personnel Questions

{RNs, IF ONE NURSE COVERS MULTIPLE SCHOOLS, COUNT THAT PERSON ONLY ONCE UNDER ONE SCHOOL'S REPORT TO AVOID APPEARING TO HAVE MORE NURSES THAN ACTUALLY ARE PRESENT.}

1. How many days per week do students in this school have on-site access to at least one RN?

- 1. Every day/all day/5 days
- 2. 4
- 3. 3
- 4. 2
- 5. 1
- 6. Less than 1 day

2. How many days per week do students in this school have on-site access to a Certified Registered Nurse Practitioner (CRNP)?

- 1. Every day/all day/5 days
- 2. 4
- 3. 3
- 4. 2
- 5. 1
- 6. Less than 1 day

3. How many RNs are employed full-time (35-40 hours/week) for **this school ONLY**?

- 1. 1
- 2. 2
- 3. 3
- 4. more than 3 (specify:_____)
- 5. none

4. How many RNs are employed part-time (< 36 hours/week) for **this school ONLY**?

- 1. 1
- 2. 2
- 3. 3
- 4. more than 3 (specify:_____)
- 5. none

5. How many RNs currently function as a substitute school nurse for this school system?

- 1. 1
- 2. 2
- 3. more than 2 (specify:_____)
- 4. none

6. How many health career teachers in this school are also RNs?

- 1. 1
- 2. 2
- 3. more than 2 (specify:_____)
- 4. none

7. How many volunteers who are RNs assist in this school?
- 1. 1
 - 2. 2
 - 3. 3
 - 4. more than 3 (specify:_____)
 - 5. none
8. How many RNs in this school are assigned to **one** classroom?
- 1. 1
 - 2. 2
 - 3. 3
 - 4. more than 3 (specify:_____)
 - 5. none
9. How many RNs in this school are assigned to **one** student?
- 1. 1
 - 2. 2
 - 3. 3
 - 4. more than 3 (specify:_____)
 - 5. none
10. How many days per week do students in this school have on-site access to at least one LPN?
- 1. Every day/all day/5 days
 - 2. 4
 - 3. 3
 - 4. 2
 - 5. 1
 - 6. Less than 1 day
11. How many LPNs are employed full-time (35-40 hours/week) for **this school ONLY**?
- 1. 1
 - 2. 2
 - 3. 3
 - 4. more than 3 (specify:_____)
 - 5. none
12. How many LPNs are employed part-time (< 36 hours/week) for **this school ONLY**?
- 1. 1
 - 2. 2
 - 3. 3
 - 4. more than 3 (specify:_____)
 - 5. none
13. How many LPNs currently function as a substitute school nurse for this school system?
- 1. 1
 - 2. 2
 - 3. more than 2 (specify:_____)
 - 4. none
14. How many health career teachers in this school are also LPNs?
- 1. 1
 - 2. 2
 - 3. more than 2 (specify:_____)
 - 4. none
15. How many volunteers who are LPNs assist in this school?
- 1. 1
 - 2. 2
 - 3. 3
 - 4. more than 3 (specify:_____)
 - 5. none

16. How many LPNs in this school are assigned to **one** classroom?
- 1. 1
 - 2. 2
 - 3. 3
 - 4. more than 3 (specify:_____)
 - 5. none
17. How many LPNs in this school are assigned to **one** student?
- 1. 1
 - 2. 2
 - 3. 3
 - 4. more than 3 (specify:_____)
18. How many **unlicensed** school personnel in this school have completed sufficient training to be delegated the task of assisting students with medications?
- 1. 1
 - 2. 2
 - 3. 3
 - 4. more than 3 (specify:_____)
 - 5. none
19. How many hours **in the past three months** have RNs assigned to this school spent on field trips with students who require health services?
- 1. none
 - 2. 1-5
 - 3. 6-10
 - 4. 11-15
 - 5. 16-20
 - 6. more than 20
 -
20. How many hours **in the past three months** have LPNs assigned to this school spent on field trips with students who require health services?
- 1. none
 - 2. 1-5
 - 3. 6-10
 - 4. 11-15
 - 5. 16-20
 - 6. more than 20
21. How many hours **in the past three months** have RNs spent riding the school bus with students who require health services?
- 1. none
 - 2. 1-5
 - 3. 6-10
 - 4. 11-15
 - 5. 16-20
 - 6. more than 20
22. How many hours **in the past three months** have LPNs spent riding the school bus with students who require health services?
- 1. none
 - 2. 1-5
 - 3. 6-10
 - 4. 11-15
 - 5. 16-20
 - 6. more than 20

23. How many hours **in the past three months** have students required individualized health-related teaching?
- 1. none
 - 2. 1-5
 - 3. 6-10
 - 4. 11-15
 - 5. 16-20
 - 6. more than 20
24. How many hours **in the past three months** have students and/or parents been counseled regarding follow-up health care appointments, health insurance, or the need to obtain other types of medical care?
- 1. none
 - 2. 1-5
 - 3. 6-10
 - 4. 11-15
 - 5. 16-20
 - 6. more than 20
25. How many hours **in the past three months** have RNs attended extracurricular activities (football games, band trips, cheerleading) with students who require health services?
- 1. none
 - 2. 1-5
 - 3. 6-10
 - 4. 11-15
 - 5. 16-20
 - 6. more than 20
26. How many hours **in the past three months** have LPNs attended extracurricular activities (football games, band trips, cheerleading) with students who require health services?
- 1. none
 - 2. 1-5
 - 3. 6-10
 - 4. 11-15
 - 5. 16-20
 - 6. more than 20
27. What types of health promotion activities have RNs participated in within the past three months in this school? Please list the activities.

28. What types of health promotion activities have LPNs participated in within the past three months in this school? Please list the activities.

Section 3-Medication Questions

1. How many times **in the past three months** have students experienced side effects of medication?
- 1. 1
 - 2. 2
 - 3. 3
 - 4. more than 3 (specify:_____)
 - 5. none
2. How many unusual occurrence reports specific to medications have you received or completed **in the past three months**?
- 1. 1-10
 - 2. 11-20

- 3. 21-30
 - 4. 31-40
 - 5. 41-50
 - 6. more than 50 (specify: _____)
 - none
3. The type (s) of unusual occurrence report specific to medication that required completion at this school **in the past three months** consisted of: **(select all that apply)**
- 1. Failure to obtain adequate amount of medication
(please describe specific symptoms experienced by the student and follow-up action taken by nurse: _____

 - 2. Overdose
(please describe specific symptoms experienced by the student and follow-up action taken by nurse: _____

 - 3. Wrong medication
(please describe specific symptoms experienced by the student and follow-up action taken by nurse: _____

 - 4. Wrong time
(please describe specific symptoms experienced by the student and follow-up action taken by nurse: _____

 - 5. Wrong student
(please describe specific symptoms experienced by the student and follow-up action taken by nurse: _____

 - 6. Failure to document
(please describe specific symptoms experienced by the student and follow-up action taken by nurse: _____

 - 7. Other
(please describe specific symptoms experienced by the student and follow-up action taken by nurse: _____

 - 8. None

Section 4-Medication and Procedure Questions

1. Provide the **number of students** at this school who have an authorized prescriber’s order for the following procedures:

- Automatic external defibrillator to be available for specific students based on their conditions _____
- Central line care (Hickman or Groshong catheters or PICC lines)
- Gastric tube feedings _____
- Glucose monitoring (finger sticks) _____
- Implanted defibrillator _____
- Insulin pump care _____
- Medication administration via central line _____
- Nebulizer care _____
- Oral suctioning equipment to be available for specific students based on their conditions _____
- Ostomy care _____

- Skin assessment for prevention of pressure ulcers _____
- Tracheotomy care, including suctioning _____
- Urinary catheterization, clean or sterile (self or assisted) _____
- Vagal nerve stimulator care _____
- Ventilator care _____
- Wound care for pressure ulcers _____
- Other procedures (please specify the procedure and the number of students who require it)

2. Provide the **number of students** at this school who have the following diagnosed chronic conditions (these conditions may have been identified from the student's health information card as well as from first-hand knowledge of the student) :

- Allergies (severe) _____
- ADD/ADHD _____
- Asthma _____
- Autism _____
- Autoimmune diseases _____
- Cancer _____
- Cardiac conditions (please specify the condition) _____
- Dental problems _____
- Diabetes (specify Type I or II) _____
- Gastrointestinal diseases _____
- Genetic disorder _____
- Genitourinary disorder _____
- Gynecological disorder _____
- Hearing impairment _____
- Hemophilia _____
- Hypertension _____
- Mental disorders _____
- Mental retardation _____
- More than one identified chronic illness (please specify the multiple chronic illnesses) _____
- Neurologic disorder _____
- Obesity (as indicated by BMI) _____
- Orthopedic disorders (e.g. hip contractures) _____
- Pregnancy _____
- Seizure disorder _____
- Sickle cell anemia _____
- Substance abuse _____
- Visual impairment _____
- Other condition (please specify the condition and the number of students who have it)

3. Provide the **number of students** at this school who have had the following acute conditions in the last 3 months:

- Acute wound care (wound < 3 days old) _____
Follow-up actions for student (check all that are appropriate):
 1. ___ sent to Emergency Department
 2. ___ received first aid on campus
 3. ___ received medication on campus
 4. ___ condition was monitored by school nurse
 5. ___ was returned to class
 6. ___ parent or responsible party was notified
 7. ___ sent home
- Cellulitis or other acute infections _____
Follow-up actions for student (check all that are appropriate):

1. ___ sent to Emergency Department
 2. ___ received first aid on campus
 3. ___ received medication on campus
 4. ___ condition was monitored by school nurse
 5. ___ was returned to class
 6. ___parent or responsible party was notified
 7. ___sent home
- Concussion_____

Follow-up actions for student (check all that are appropriate):

 1. ___ sent to Emergency Department
 2. ___ received first aid on campus
 3. ___ received medication on campus
 4. ___ condition was monitored by school nurse
 5. ___ was returned to class
 6. ___parent or responsible party was notified
 7. ___sent home
 - Diarrhea_____

Follow-up actions for student (check all that are appropriate):

 1. ___ sent to Emergency Department
 2. ___ received first aid on campus
 3. ___ received medication on campus
 4. ___ condition was monitored by school nurse
 5. ___ was returned to class
 6. ___parent or responsible party was notified
 7. ___sent home
 - First aid_____

Follow-up actions for student (check all that are appropriate):

 1. ___ sent to Emergency Department
 2. ___ received first aid on campus
 3. ___ received medication on campus
 4. ___ condition was monitored by school nurse
 5. ___ was returned to class
 6. ___parent or responsible party was notified
 7. ___sent home
 - Fracture_____

Follow-up actions for student (check all that are appropriate):

 1. ___ sent to Emergency Department
 2. ___ received first aid on campus
 3. ___ received medication on campus
 4. ___ condition was monitored by school nurse
 5. ___ was returned to class
 6. ___parent or responsible party was notified
 7. ___sent home
 - Headache_____

Follow-up actions for student (check all that are appropriate):

 1. ___ sent to Emergency Department
 2. ___ received first aid on campus
 3. ___ received medication on campus
 4. ___ condition was monitored by school nurse
 5. ___ was returned to class
 6. ___parent or responsible party was notified
 7. ___sent home

- Influenza_____

Follow-up actions for student (check all that are appropriate):

 1. ___ sent to Emergency Department
 2. ___ received first aid on campus
 3. ___ received medication on campus
 4. ___ condition was monitored by school nurse
 5. ___ was returned to class
 6. ___parent or responsible party was notified
 7. ___sent home

- Pain_____ Location_____

Follow-up actions for student (check all that are appropriate):

 1. ___ sent to Emergency Department
 2. ___ received first aid on campus
 3. ___ received medication on campus
 4. ___ condition was monitored by school nurse
 5. ___ was returned to class
 6. ___parent or responsible party was notified
 7. ___sent home

- Vomiting_____

Follow-up actions for student (check all that are appropriate):

 1. ___ sent to Emergency Department
 2. ___ received first aid on campus
 3. ___ received medication on campus
 4. ___ condition was monitored by school nurse
 5. ___ was returned to class
 6. ___parent or responsible party was notified
 7. ___sent home

- Other conditions (please specify the condition and number of students)

4. Provide the **number of students** at this school who have authorized prescriber's orders for the following:

- Use of defibrillator
 - a. how many times within the past 3 months has the nurse covering this school utilized the AED at this facility on a student? _____
 - b. how many times within the past 3 months has the nurse covering this school utilized the AED at this facility on a staff member? _____
- Blood products _____ (specify how often blood products are administered: _____)
- Blood pressure checks _____
 - a. blood pressure checks on students _____
 - b. blood pressure checks on faculty and staff _____
- Breathing treatments (including inhalers and nebulizers) _____
- Do Not Resuscitate _____
- Ear drops _____
- Epi-Pens or other injectable epinephrine _____
- Eye drops _____
- Glucagon _____
 - a. how many students have glucagon ordered? _____
 - b. how many times have these students required administration of glucagon within the past 3 months? _____
- Injectable pain medication (please specify medication and no. of students)

- Injectable psychiatric medication (please specify medication and no. of students)

- Insulin injections _____
- Insulin pump _____
- "On-person" inhalers which student can self-administer _____
- Oral antibiotics _____

- Oral medications for treatment of ADD/ADHD _____
- Oral medications for treatment of psychiatric/mental illness _____
- Oral medication for treatment of seizures _____
- Orthopedic equipment such as orthotic or prosthetic device, wheelchair, or crutches _____
- Rectal medications (e.g. Diastat) _____
- Self-administration of medications for treatment of chronic illnesses _____
- Solu-Cortef _____
- Topical medications _____
- Vaginal medications _____
- Other medication/procedure (please specify medication/procedure and number of students)

5. Do you have access to all medical information needed on each student who receives health services?

- 1. Yes
- 2. No

If not, what barriers exist that prevent you from receiving this information?

6. How many times **in the last three months** have you contacted emergency health services regarding a student, such as ambulance transport or paramedics?

- 1. 1
- 2. 2
- 3. 3
- 4. more than 3 (specify: _____)
- 5. none

7. How soon could an RN respond to a student in a life-threatening emergency situation in your assigned school(s)?

- 1. Within one minute
- 2. Within five minutes
- 3. Within fifteen minutes
- 4. Within thirty minutes
- 5. It could take me longer than 30 minutes to reach a student in one of my assigned schools who is in an emergency situation.

8. Have you been in a situation where a child at your school required resuscitation?

- 1. Yes
- 2. No (If no, proceed to question 10)

9. If you have resuscitated a child in a public school setting, please identify the issues that were associated with the resuscitation:

- 1. difficulty contacting physician
- 2. difficulty contacting parent or guardian
- 3. difficulty communicating with parent/guardian because of culture or language
- 4. experiencing ethical dilemma
- 5. difficulty performing CPR
- 6. no other personnel were CPR certified to provide assistance
- 7. conflict with personal values/beliefs
- 8. other

10. Please identify barriers/challenges to the provision of health services for students in your school(s). _____

11. Please identify any cultural or language barriers that you have encountered while providing care to the students in your assigned school(s).

12. What do you see as the unmet needs of children in your school?

[RETURN](#)