

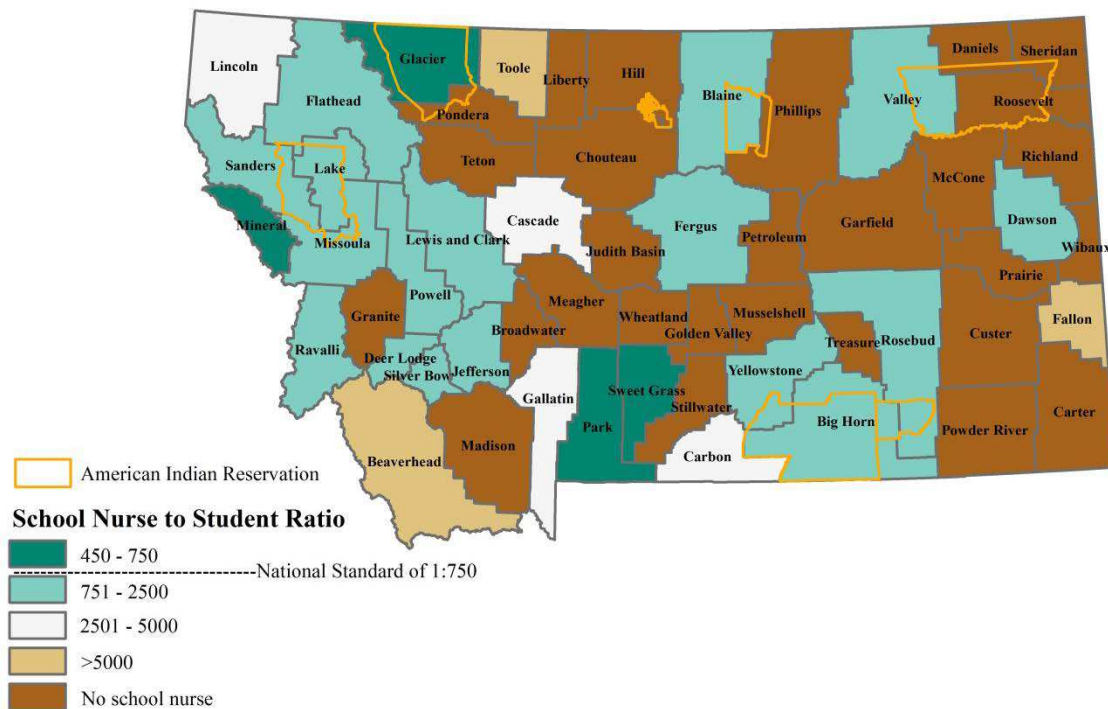


Montana Association of School Nurses

THE STATE OF SCHOOL NURSING IN MONTANA

A COMPREHENSIVE STUDY OF SCHOOL NURSING SERVICES

April, 2015



Sue Buswell, MSN, RN, NCSN
Public Policy Director
Montana Association of School Nurses

Table of Contents

Executive Summary.....	3
Introduction	3
The Registered Professional School Nurse	4
Methods.....	5
Data Collection.....	5
Definition of Terms	6
Results	7
School Nurse to Student Ratio.....	7
Map 1. School Nurse to Student Ratio by County	8
Table 1. School Nurse to Student Ratios, Montana Counties	9
Table 2. School Nurse to Student Ratios, Montana School Districts.....	10
Table 3. School Nurse to Student Ratios: Largest Counties	11
Table 4. School Nurse to Student Ratios: Largest Districts	11
School Nurses: Count and Hours Worked	12
Table 5. Count of Montana School Nurses and Hours Worked	12
Map 2. Number of School Nurses (FTE) by County	12
Educational Preparation of Montana School Nurses	13
Table 6. Educational Qualifications of Montana School Nurses	13
Chronic Health Conditions among Students in Montana Schools.....	13
Table 7. School Nurse Reported Prevalence of Chronic Health Conditions among Students in Districts with a School Nurse	13
Comparison of 2015 to 2009 and 2012 State of School Nursing in Montana Survey Results	14
Table 8. Improvement in the Nurse to Student Ratio from 2009 to 2015 by Urban, Rural & Frontier County Status.....	14
Map 3. Percent Change in Nurse to Student Ratio by County	14
Predictions of Chronic Health Conditions among Students in Counties with No School Nurse ..	15
Table 9. Number of Students in Counties with no School Nurse	15
Sharing of Data.....	16
Citations	17
Appendix A. Step Up and Be Counted Survey Results, Montana 2014-15 School Year	
Introduction.....	18
Methods.....	19
Results.....	20
Table 1. Summary of Submitted Data per Month.....	20
Figure 1. Boxplots of the Distribution of Frequencies of Student Encounters.	21
Figure 2. Median Nurse-Reported Student Encounters per Day	21
Figure 3. Outcomes of Student Encounters with School Nurses	22
Discussion	22
Citations.....	24
Appendix B. National Association of School Nurses' Infographics: Home and Community Factors That Impact Health and Learning; Health Conditions per 100 U.S. Students	25

The State of School Nursing in Montana, 2015

Executive Summary

- The Montana Association of School Nurses surveyed all school nurses in the state in 2009, 2012, and 2015 to monitor the availability of school nursing services and the workload of school nurses throughout the state.
- **The ratio of school nurses to students in Montana in 2015 was 1:1728** while the national standard for the ratio of nurses to students is 1:750. This is an improvement from 2009 when the ratio was 1:2300.
- The availability of school nursing services is not uniform throughout the state. While four counties had a ratio better than the national standard, **28 counties had no school nurses in 2015**. This is an increase from 2009 when 19 counties had no school nurse.
- 26% of students in Montana have no school nurse in their school district.
- Only 6% of students live in a school district that meets the national standard of 1 nurse to 750 students.

Introduction

In 2008, the Montana Association of School Nurses (MASN) began a grassroots campaign to establish a ratio of one registered, professional school nurse (hereafter referred to as a school nurse) to every 750 students in Montana. The 1:750 ratio has been considered the national standard by organizations including the American Academy of Pediatrics (AAP), the National Association of School Nurses (NASN), the American Nurses Association (ANA), and the Centers for Disease Control and Prevention (CDC).

MASN began the campaign by conducting a survey of school nurses in Montana and identified the school nurse to student ratio in Montana as **1 school nurse to 2300 students in 2009**. This ratio ranked Montana 45th out of 50 states in the country. In addition, **19 of 56 counties had no school nursing services at all in 2009**. Only two counties had a ratio of 1:750 or lower.

Montana school nurses, acutely aware that healthy students achieve greater success in the classroom, have since advocated strongly for the increased presence of school nurses in every Montana school.

Due to the efforts of Montana school nurses, the issue was addressed by the Chapter 55 Subcommittee of the Montana Board of Public Education in 2010. MASN submitted proposed rule language that would mandate a statewide 1:750 school nurse to student ratio through the Administrative Rules of Montana. This effort failed.

A second survey of school nurses was conducted in 2012 to identify changes in the school nurse to student ratio in Montana and to compare the data from 2009 to 2012.

Montana school nurses collected the data in its entirety for both surveys. Data collection was complete in all 56 counties, in 100% of school districts, and accounted for every nursing hour per year being provided.

The 2012 data showed some progress had been made in the school nurse to student ratio, identifying the ratio as **1 school nurse to 1985 students in 2012**. This moved Montana up to 42nd of 50 states in school nurse to student ratio. Unfortunately, the improvement was not uniform throughout the state; **26 of the 56 Montana counties had no school nursing services in 2012**. Three counties then had a ratio of 1:750 or fewer.

A challenge to improving the school nurse to student ratio is the rapidly changing population in some parts of the state. In 2010-2012, eleven counties in the northeast corner of the state experienced a mass influx of students and families due to the Bakken oil field boom. Both educational and healthcare services were stretched beyond capacity. In Richland County alone, the student enrollment increased over 17% between 2009 and 2014 while statewide enrollment increased about 1.5% (MT Office of Public Instruction, 2011, 2014). Seven of these 11 counties had no school nurse in 2012.

In 2014, Sue Buswell, Montana Director of NASN, presented the findings of the 2012 survey to Montana's congressional delegation in Washington, DC. Senator Jon Tester was deeply concerned about the lack of school nursing services in Montana and responded by collaborating with NASN to introduce a bill into the United States Senate which was referred to as the NURSE Act (Nurses for Under-Resourced Schools Everywhere Act) on May 7, 2014 (U.S. Senate, 2014). As of January, 2015 the bill is in revision and will be re-introduced at a later date.

The MASN was presented the National Association of School Nurses' President's Award in 2014 because of the organization's effort to promote national change utilizing data collected in the 2012 survey.

In 2015, Senator Jon Tester received the National Association of School Nurses' Lillian Wald Award for his legislative efforts on behalf of school nurses and the students they serve.

The Registered Professional School Nurse

There is evidence of a relationship between health and learning. School districts with school nurses have fewer student absences, decreased dropout rates, and increased graduation rates (NASN, 2012). School nurses make a difference.

The registered, professional school nurse is a leader in the school community who oversees school health policies and programs. Using clinical knowledge and judgment, the school nurse provides health care to students and staff, performs health screenings, coordinates referrals to a medical home or private healthcare provider, and educates the school community in healthcare issues. A school nurse can serve as a liaison between school personnel, family, community and healthcare providers to advocate for health care and a healthy school environment (Wolfe, 2012; Council on School Health, 2008).

The prevalence of chronic health conditions among children has increased in recent decades (Van Cleave, 2010). More students are coming to school with increasingly complex medical problems requiring complicated treatments commonly provided by the school nurse (Lineberry & Ikes, 2015). The registered, professional school nurse coordinates medical care in the school setting, providing equal accessibility for all students in a free and appropriate environment.

The registered, professional school nurse is the only individual who is licensed to practice nursing independently in the school setting, creating and implementing the nursing process. The licensed practical nurse cannot work independently but must work under the supervision of a licensed healthcare provider (Administrative Rules of Montana, 24.159.1004).

The registered, professional school nurse maintains the responsibility for development of the individualized healthcare plan (IHP) and strategies for nursing intervention and evaluation (NASN, 2015).

Methods

Data Collection

This most current survey of school nursing services in Montana was conducted by the Montana Association of School Nurses in April 2015. The design of the survey was similar to those surveys conducted by MASN in 2009 and 2012. School nurses belonging to MASN volunteered to conduct the survey in each of Montana's 56 counties. The following criteria were utilized:

- Individual school districts and their student enrollment, as well as contact phone numbers were identified using the Montana Office of Public Instruction Directory of Montana Schools 2014-15.
- This was a telephone survey. MASN volunteers were asked to personally call each school or school district in the county to which they had been assigned.
- The volunteer first asked to speak to the school nurse in each district or school called. If the respondent stated that a school nurse was on staff, the volunteer requested a name and contact phone number. The volunteer then called the person identified as the school nurse to check credentials and determine if the person identified was a registered, professional school nurse.
- Those schools that did not identify a school nurse were asked whether a county health nurse or public health nurse provided any services to the school and requested contact information for those nurses, as well. Professional credentials were also identified for the county/public health nurses.
- Volunteers contacted each identified registered, professional (RN) school nurse and registered county or public health nurse (RN/PHN) and collected the data pertinent to the survey. This included the qualifications and education of the school nurse as well as the number of hours per week, month, or year that the nurse was employed in the school.*

- RN school nurses and RN/PHNs provided data regarding the number of students in their caseloads with chronic health conditions including asthma, type 1 and type 2 diabetes, seizure disorder, and life-threatening allergies.**

The data were collected from 100% of Montana's 310 currently operating public school districts and included each of 824 schools (Montana Office of Public Instruction, 2014).

*In general, RN/PHNs working in schools without a school nurse provided services to schools including immunization reviews, health screenings, and classes such as growth and development with groups of students. Time spent in schools was most likely to be a matter of several days over the course of the school year. In a few instances, RN/PHNs spent much more time in their local schools as part of their public health positions. Those that provided an average of at least one hour per week to the school were included in the total number of RN FTE and were identified as a school nurse for their county.

**The majority of RN/PHNs contacted did not work with individual students or write individualized healthcare plans and these nurses were generally not able to identify the numbers of students with chronic health conditions in the schools.

Definition of Terms

RN School Nurse – A Registered Nurse whose specialized practice involves application of the nursing process to children and families in the school setting and who is employed at least 0.027 FTE.

RN/PHN School Nurse – A Registered Nurse/County Health or Public Health Nurse who is employed by a local health department and whose focus is to promote health and prevent disease for an entire population group or community. The RN/PHN practices in a variety of settings throughout the community, which may include the public schools. RN/PHNs who provided services for at least one hour per week during the school year were included in the total number of RN FTE.

Total # RN – The sum total of hours (FTE) provided by RN School Nurses and RN/PHN School Nurses within a given county.

FTE – Full Time Equivalent, based on 36 hours per week in the schools. The 36 hour week corroborates with standards of the National Association of School Nurses.

#K-12 Students in County – Total number of public school students in a county as identified in the 2014-15 Directory of Montana Schools published by the Montana Office of Public Instruction.

FTE in hours/week*

1 hours/week = 0.027 FTE	6 hours/week = 0.166 FTE
2 hours/week = 0.055 FTE	10 hours/week = 0.277 FTE
3 hours/week = 0.083 FTE	12 hours/week = 0.333 FTE
4 hours/week = 0.110 FTE	18 hours/week = 0.500 FTE

*Based on 180 day school year, 36 hours per week, full time

Licensed Practical Nurses (LPNs) – The 2015 survey identified 10 licensed practical nurses (LPNs) providing services as school nurses in Montana public schools. Nine were employed part-time and 1 was employed full-time. Although LPNs in schools make valuable contributions to the health and education of school children, the LPN scope of practice and educational preparation do not encompass the full range of nursing responsibilities required of a registered, professional school nurse. The LPN must work closely with the RN school nurse so that healthcare needs and safety of all students are provided for during the school day (NASN, 2015).

Results

Registered, Professional School Nurse to Student Ratio in Montana, 2015:

1 Nurse to 1728 Students

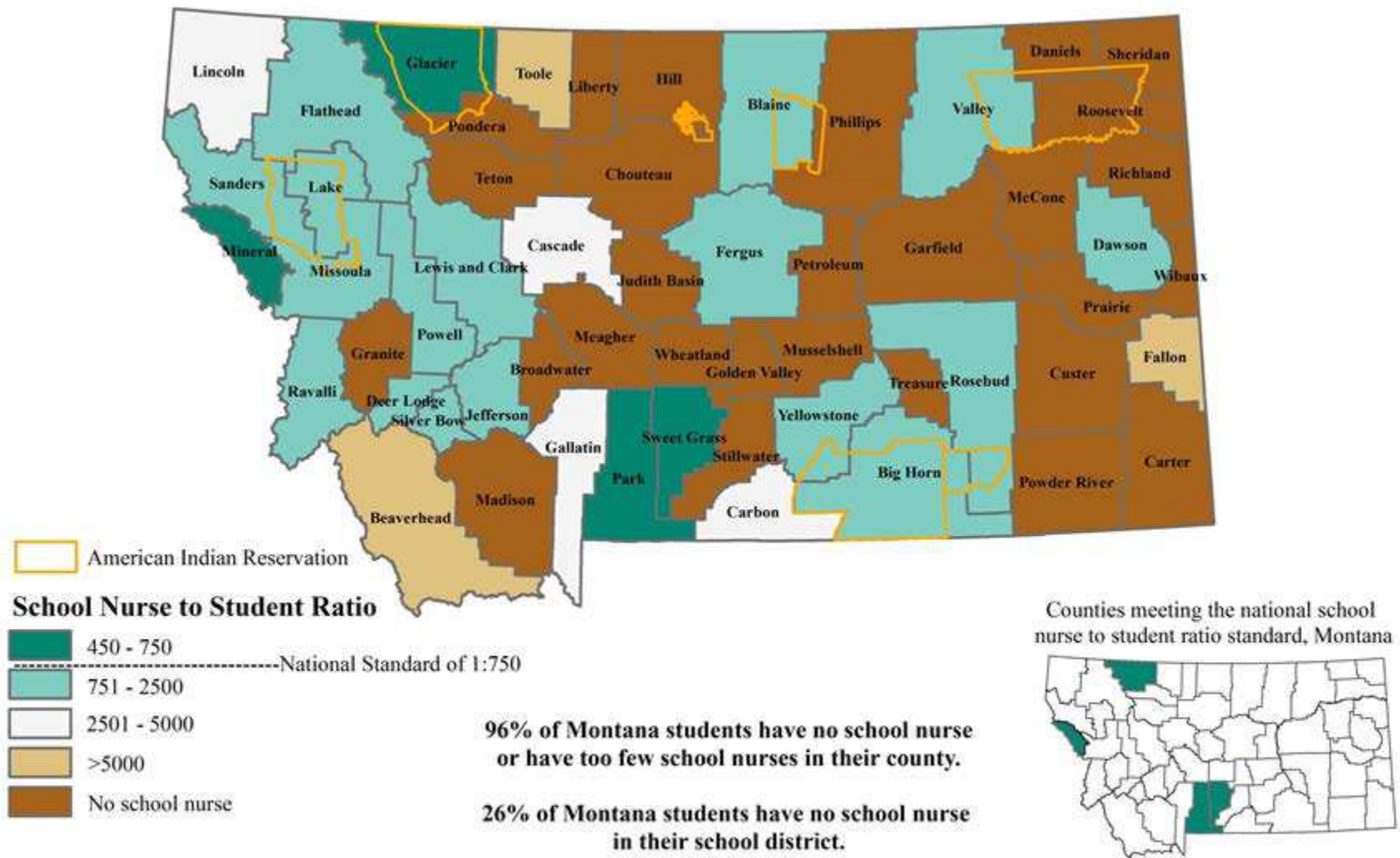
School Nurse to Student Ratio

Statewide, there are **83.4 RN school nurse FTEs**, up from 66.4 in 2009 and 72.8 in 2012. The statewide school nurse to student ratio is **1 to 1728**. There is substantial variation in the ratio between counties in Montana. Of the 56 counties, only 4 meet the national standard of 1 nurse to 750 students. Seventeen counties have a ratio of 1 nurse to between 751 and 2500 students. Four counties have a ratio of 1 nurse to between 2501 and 5000 students. Three counties have a ratio of 1 nurse to over 5000 students. The remaining 28 counties have no school nurse. (Map 1; Tables 1, 3)

In total, 14% of students in Montana live in a county with no school nurse. Only 4% of students live in a county that meets the national standard of 1 nurse to 750 students.

At the district level, 26% of students have no school nurse in their district. Ninety-four percent of students have either no or too few school nurses in their district. Across all districts with a school nurse, the nurse to student ratio was 1 to 1276. Only 18 districts of the 310 in the state met the 1:750 ratio. (Tables 2, 4)

Map 1. School Nurse to Student Ratio by County, the State of School Nursing in Montana Survey, 2015



Data Sources: The State of School Nursing in Montana Survey, 2015;
MT Office of Public Instruction 2014-2015 Directory of MT Schools
Map Created: May 2015 by the MT Asthma Control Program

Table 1. School Nurse to Student Ratios, Montana Counties, 2015

County	#RN School Nurses (FTE)	#RN/PHN School Nurses (FTE)	Total # RN (FTE) in County Schools	# K-12 Students in County (Public)	Nurse to Student Ratio per County 2015
Beaverhead	0.03		0.03	1162	1 to 38733
Big Horn	2.2		2.2	2387	1 to 1074
Blaine	1.4		1.4	1274	1 to 888
Broadwater			0	636	0 to 636
Carbon		0.3	0.3	1377	1 to 4131
Carter			0	121	0 to 121
Cascade	3.4		3.4	11603	1 to 3424
Chouteau			0	673	0 to 673
Custer			0	1669	0 to 1669
Daniels			0	267	0 to 267
Dawson	0.7	1.0	1.7	1342	1 to 801
Deer Lodge	1.1		1.1	1052	1 to 947
Fallon	0.1		0.1	541	1 to 7790
Fergus	0.8		0.8	1593	1 to 1912
Flathead	6.0	1.1	7.1	13749	1 to 1941
Gallatin	4.2		4.2	12081	1 to 2887
Garfield			0	195	0 to 195
Glacier*	4.4		4.4	2811	1 to 632
Golden Valley			0	116	0 to 116
Granite			0	368	0 to 368
Hill			0	3130	0 to 3130
Jefferson	0.7	0.1	0.8	1593	1 to 2124
Judith Basin			0	269	0 to 269
Lake	5.2		5.2	4442	1 to 851
Lewis & Clark	7.7	0.03	7.7	9513	1 to 1232
Liberty			0	247	0 to 247
Lincoln	0.6		0.6	2391	1 to 4304
Madison			0	869	0 to 869
McCone			0	258	0 to 258
Meagher			0	197	0 to 197
Mineral*	0.4	0.8	1.2	610	1 to 523
Missoula	7.4		7.4	13456	1 to 1821
Musselshell			0	716	0 to 716
Park*	1.9	0.9	2.9	1946	1 to 674
Petroleum			0	85	0 to 85
Phillips			0	675	0 to 675
Pondera			0	954	0 to 954
Powder River			0	255	0 to 255
Powell	0.8		0.8	730	1 to 939
Prairie			0	147	0 to 147
Ravalli	3.3		3.3	5566	1 to 1670
Richland			0	1915	0 to 1915
Roosevelt			0	2480	0 to 2480
Rosebud		1.1	1.1	1651	1 to 1486
Sanders	1.1		1.1	1367	1 to 1230
Sheridan			0	564	0 to 564
Silver Bow	3.6		3.6	4436	1 to 1228
Stillwater			0	1425	0 to 1425
Sweet Grass*	1.1		1.1	518	1 to 466
Teton			0	1080	0 to 1080
Toole	0.1		0.1	647	1 to 11646
Treasure			0	77	0 to 77
Valley	1.0		1.0	1258	1 to 1294
Wheatland			0	317	0 to 317
Wibaux			0	163	0 to 163
Yellowstone	14.8	4.0	18.8	23070	1 to 1229
State	74.0	9.4	83.4	144034	1 to 1728

*Nurse:Student ratio meets the national standard of 1:750

**Table 2. School Nurse to Student Ratios, Montana
School Districts with a School Nurse, 2015**

District	Total # RN (FTE) in District	#K-12 Students in District	Nurse:Student Ratio in District
Alberton K-12 Schools*	0.19	143	735
Anaconda Public Schools	1.11	1052	947
Anderson Elementary	0.22	204	918
Arrowhead Schools*	0.19	37	190
Baker K-12 Schools	0.07	457	6581
Belgrade Public Schools	1.67	3175	1905
Bigfork Public Schools*	1.11	821	739
Billings Public Schools	13.64	16388	1202
Bonner Elementary*	0.56	365	657
Bozeman Public Schools	1.94	6205	3191
Browning Public Schools*	3.33	2018	605
Butte Public Schools	3.61	4296	1190
Charlo Public Schools*	1.11	293	264
Chinook	0.32	393	1213
Clinton Elementary*	0.58	203	348
Colstrip Public Schools*	1.11	604	544
Columbia Falls Public Schools	2.22	2097	944
Cooke City Elementary*	0.02	4	231
Corvallis K-12 Schools	1.06	1277	1210
Cut Bank Public Schools*	1.11	736	662
Deer Lodge Elementary*	0.78	419	539
East Helena Elementary	0.97	1180	1214
Frazer Public Schools*	0.97	132	136
Frenchtown K-12 Schools	0.97	1202	1236
Gardiner Public Schools*	0.56	225	405
Glendive Public Schools	1.58	1223	774
Great Falls Public Schools	3.39	10237	3021
Hamilton K-12 Schools	1.22	1524	1247
Hardin Public Schools	2.22	1877	845
Harlem Public Schools*	1.11	587	528
Helena Public Schools	6.72	8080	1202
Hellgate Elementary	1.11	1417	1275
Huntley Project K-12 Schools	0.83	798	958
Kalispell Public Schools	2.11	5830	2762
Laurel Public Schools	0.64	2043	3198
Lewistown Public Schools	0.83	1163	1396
Libby K-12 Schools	0.56	1141	2054
Lima K-12 Schools	0.03	64	2242
Livingston Public Schools	1.67	1444	866
Lockwood Elementary	1.11	1222	1100
Manhattan Public Schools	0.13	583	4497
Missoula County Public Schools	4.17	8648	2076
Monforton Elementary	0.22	314	1413
Montana City Elementary*	0.69	454	654
Pine Creek Elementary	0.03	22	792
Pioneer Elementary	0.06	61	1098
Plains Public Schools	0.56	425	765
Polson Public Schools*	3.00	1677	559
Ramsay Elementary	0.02	132	6110
Ronan Public Schools	1.11	1457	1311
Shelby Public Schools	0.06	437	7866
Shepherd Public Schools	0.97	834	858
Shields Valley Schools*	0.44	208	468
Somers Elementary	0.56	569	1024
St Regis K-12 Schools	0.19	165	849
Stevensville Public Schools	1.06	1001	948
Superior K-12 Schools*	0.78	302	388
Thompson Falls Public Schools	0.56	460	828
Whitefish Public Schools	1.08	1577	1456

*Nurse:Student Ratio Meets the 1:750 National Standard

For several districts, one school nurse served multiple districts and FTE was not assessed per district. The combined RN FTE for these districts was 3.13. Districts in this category include the following:

Basin Elementary
Belfry K-12 Schools
Big Timber Elementary
Bloomfield Elementary
Blue Creek Elementary
Boulder Elementary
Bridger K-12 Schools
Broadview Public Schools
Cardwell Elementary
Clancy Elementary
Deer Creek Elementary
Elder Grove Elementary
Elysian Elementary
Fromberg K-12
Independent Elementary
Joliet Public Schools
Lincoln K-12 Schools
Lindsay Elementary
Luther Elementary
Morin Elementary
Red Lodge Public Schools
Richey Public Schools
Roberts K-12 Schools
Spring Creek Elementary
Sweet Grass County HS
Trinity Elementary
Valley View Elementary
Whitehall Public Schools
Wolf Creek Elementary

Table 3. RN School Nurse to Student Ratios: Largest Montana Counties (>2500 Students), 2015

County	# Students	RN School Nurse FTE	Nurse to Student Ratio
Yellowstone	23070	18.8	1 to 1229
Flathead	13749	7.1	1 to 1941
Missoula	13456	7.4	1 to 1821
Gallatin	12081	4.2	1 to 2887
Cascade	11603	3.4	1 to 3424
Lewis & Clark	9513	7.7	1 to 1232
Ravalli	5566	3.3	1 to 1670
Lake	4442	5.2	1 to 851
Silver Bow	4436	3.6	1 to 1228
Hill	3130	0.0	0 to 3130
Glacier	2811	4.4	1 to 632
Roosevelt	2480	0.0	0 to 2480
Lincoln	2391	0.6	1 to 4304
Big Horn	2387	2.2	1 to 1074

Table 4. RN School Nurse to Student Ratios: Largest Montana School Districts (>2000 Students), 2015

District	# Students	RN School Nurse FTE	Nurse to Student Ratio
Billings Public Schools	16388	13.6	1 to 1202
Great Falls Public Schools	10237	3.4	1 to 3021
Missoula County Public Schools	8648	4.2	1 to 2076
Helena Public Schools	8080	6.7	1 to 1202
Bozeman Public Schools	6205	1.9	1 to 3191
Kalispell Public Schools	5830	2.1	1 to 2762
Butte Public Schools	4296	3.6	1 to 1190
Belgrade Public Schools	3175	1.7	1 to 1905
Columbia Falls Public	2097	2.2	1 to 944
Laurel Public Schools	2043	0.6	1 to 3198
Browning Public Schools	2018	3.3	1 to 605

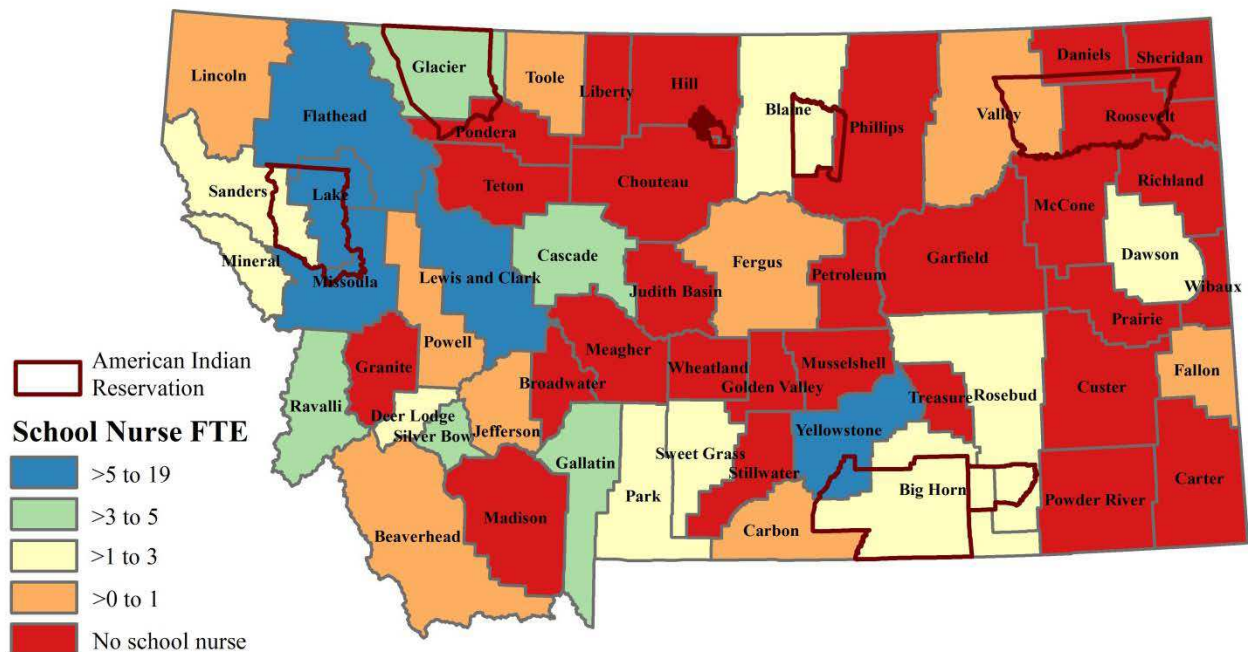
School Nurses: Count and Hours Worked

- Number of RN School Nurses practicing in Montana public schools: **90**
- Number of RN/PHN School Nurses providing at least 1 hour per week of services in Montana public schools: **17**
- Total number of school nurses: **107**
- Total number of school nurse FTE: **83.4**
- Total number of students in Montana public schools: **144,034**
- Students per school nurse FTE, statewide: **1728**

Table 5. Count of Montana School Nurses and Hours Worked

# RN School Nurses:	90	# RN/PHN School Nurses:	17	# Total RN School Nurses:	107
Full time (≥ 1.0 FTE):	39	Full time (≥ 1.0 FTE):	2	Full time (≥ 1.0 FTE):	41
Part time ($0.5 \leq \text{FTE} < 1.0$):	41	Part time ($0.5 \leq \text{FTE} < 1.0$):	6	Part time ($0.5 \leq \text{FTE} < 1.0$):	47
Under ½ time (< 0.5 FTE):	10	Under ½ time (< 0.5 FTE):	9	Under ½ time (< 0.5 FTE):	19

Map 2. Number of School Nurses (FTE) by County, the State of School Nursing in Montana Survey, 2015



Educational Preparation of Montana School Nurses

The majority (79%) of Montana school nurses have a bachelor's degree or higher, with 9% having a master's degree. Other qualifications include 17% with associate degrees and 2% with diplomas in nursing.

Table 6. Educational Qualifications of Montana School Nurses

RN School Nurses		RN/PHN School Nurses		Total RN School Nurses	
Master's Degree:	9	Master's Degree:	1	Master's Degree:	10
Bachelor's Degree:	61	Bachelor's Degree:	13	Bachelor's Degree:	74
Associate Degree:	15	Associate Degree:	3	Associate Degree:	18
Diploma:	2	Diploma:	0	Diploma:	2
Other:	3	Other:	0	Other:	3

Chronic Health Conditions among Students in Montana Schools

A portion of data collected for the 2015 State of School Nursing in Montana Survey involved the numbers of students with chronic health conditions within the caseloads of school nurses in Montana. The identified chronic health conditions included asthma, type 1 diabetes, type 2 diabetes, seizure disorder, and life-threatening allergies.

In aggregate, the prevalence of these conditions matches closely with state and national estimates. This may indicate that school nurses are aware of the chronic health conditions of the students under their care with accuracy.

Table 7. School Nurse Reported Prevalence of Chronic Health Conditions among Students in Districts with a School Nurse, Montana, 2015

Condition	Number of Students Identified	Nurse Reported Prevalence	Statewide Prevalence Estimate	National Prevalence Estimate
Asthma	5919	5.99%	6.9% ^a	8.4% ^a
Diabetes	370	0.37%	--	0.29% ^b
Type 1 Diabetes	342	0.35%	--	0.24% ^b
Type 2 Diabetes	28	0.03%	--	0.05% ^c
Seizure Disorder	693	0.70%	--	0.63% ^d
Life Threatening Allergy	1512	1.53%	--	3.10% ^e

^a Children aged 0-17, 2010. Montana Asthma Control Program. *The Burden of Asthma in Montana, 2013*. Montana DPHHS. Available online.

^b Children aged 5-19, 2009. Dabelea D, Mayer-Davis EJ, Saydah S, et al. *Prevalence of Type 1 and Type 2 Diabetes Among Children and Adolescents From 2001 to 2009*. JAMA. 2014;311(17):1778-1786.

^c Children aged 10-19, 2009. Dabelea D, Mayer-Davis EJ, Saydah S, et al. *Prevalence of Type 1 and Type 2 Diabetes Among Children and Adolescents From 2001 to 2009*. JAMA. 2014;311(17):1778-1786.

^d Children aged 0-17, 2007. Russ SA, Larson K, Halfon N. *A national profile of childhood epilepsy and seizure disorder*. Pediatrics. 2012 Feb;129(2):256-64

^e Children aged 0-17, 2009. Gupta RS, Springston EE, Warrier MR, Smith B, Kumar R, Pongracic J, Holl JL. *The prevalence, severity, and distribution of childhood food allergy in the United States*. Pediatrics. 2011 Jul;128(1):e9-17.

Comparison of 2015 to 2009 and 2012 State of School Nursing in Montana Survey Results

Statewide, there are 83.4 RN school nurse FTEs, an increase from 66.4 in 2009 and 72.8 in 2012.

The ratio of 1 school nurse to 1728 students shows an improvement from 1 to 2300 in 2009 and 1 to 2985 in 2012. The ratio has improved by 25% since 2009.

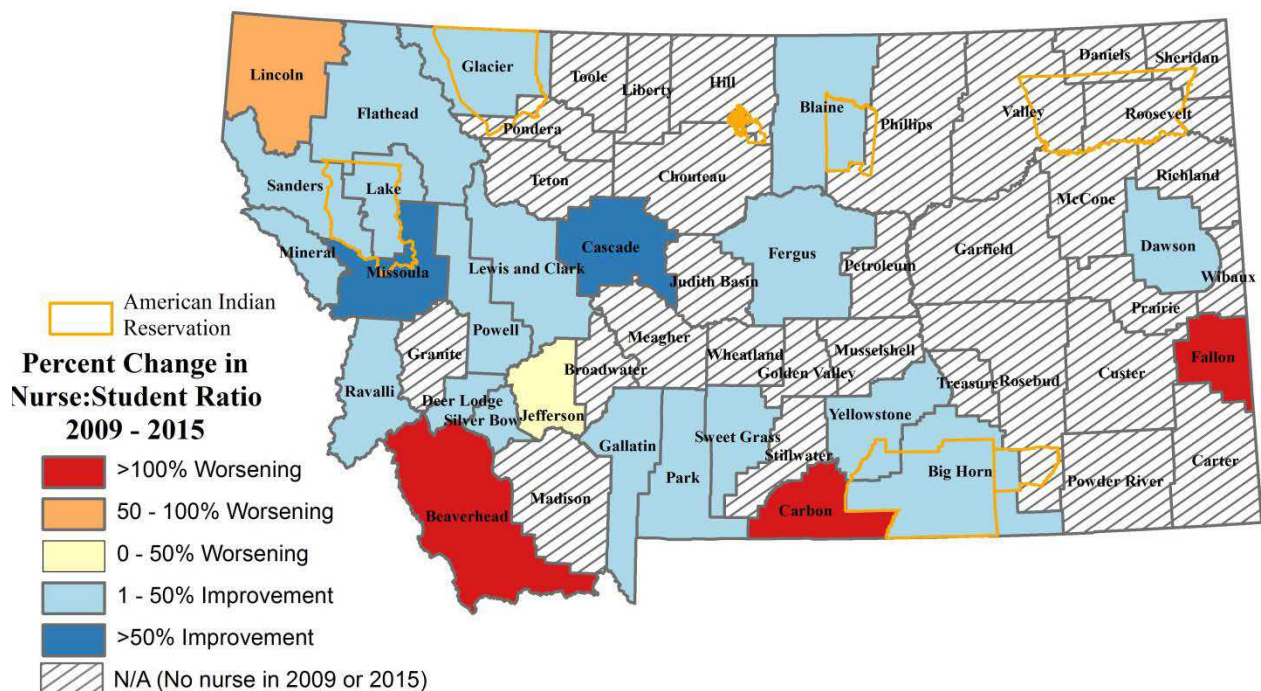
However, not all areas have seen the same extent of improvement. In aggregate, the 45 frontier counties experienced a 13% improvement in the nurse-to-student ratio from 2009 to 2015 while the 10 rural counties experienced a 32% improvement. The one urban county, Yellowstone, experienced a 10% improvement.

Table 8. Improvement in the Nurse-to-Student Ratio from 2009 to 2015 by Urban, Rural & Frontier County Status

Status	Number of Counties	2009	2012	2015	% Improved 2009 to 2015
Urban	1	1 to 1371	1 to 1365	1 to 1229	10%
Rural	10	1 to 2592	1 to 2082	1 to 1769	32%
Frontier	45	1 to 2411	1 to 2144	1 to 2091	13%

Urban (>50 persons per square mile): Yellowstone; Rural (6 to 50 persons per square mile): Silver Bow, Missoula, Gallatin, Cascade, Lake, Lewis & Clark, Flathead, Ravalli, Deer Lodge, Jefferson; Frontier (<6 persons per square mile): All other counties

Map 3. Percent Change in Nurse-to-Student Ratio by County, State of School Nursing in Montana Surveys, 2009 to 2015



Speculative Predictions of Chronic Health Conditions among Students in Counties with No School Nurse

No data on chronic health conditions were collected from school districts without a school nurse. By extrapolating nurse-reported prevalence estimates of chronic health conditions among students in districts with a school nurse to counties without a school nurse, we can speculate how many students are living with chronic health conditions in counties with no school nurse.

Total Number of Students in Counties with no School Nurse: 19,868 (14%)

Table 9. Number of Students in Counties with No School Nurse

County	#K-12 Students
Broadwater	636
Carter	121
Chouteau	673
Custer	1669
Daniels	267
Garfield	195
Golden Valley	116
Granite	368
Hill	3130
Judith Basin	269
Liberty	247
Madison	869
McCone	258
Meagher	197
Musselshell	716
Petroleum	85
Phillips	675
Pondera	954
Powder River	255
Prairie	147
Richland	1915
Roosevelt	2480
Sheridan	564
Stillwater	1425
Teton	1080
Treasure	77
Wheatland	317
Wibaux	163

Students with Chronic Conditions in Counties with No School Nurse: Extrapolation from Districts with a School Nurse

Condition	Prevalence Estimate in Districts with a School Nurse	Speculated # of Students with Condition in Counties with No School Nurse
Asthma	5.99%	1190
Diabetes	0.37%	74
Type 1 Diabetes	0.35%	70
Type 2 Diabetes	0.03%	4
Seizure Disorder	0.70%	139
Life Threatening Allergy	1.53%	304

Extrapolating from the Montana prevalence estimates from the 2013 Youth Risk Behavior Survey (YRBS, 2013) to the counties with no school nurse, we can speculate as to the prevalence of certain health risk factors of high school students in counties with no school nurse.

Health Risk Factor	Statewide Prevalence Estimate among High School (HS) Students	Speculated # of HS Students with Health Risk Factor in Counties with No School Nurse (N=5803)
Felt Sad/Hopeless¹	26.4%	1532
Suicide Attempt in Past Year	7.9%	458
Current Alcohol User	37.1%	2153
Currently Sexually Active	34.1%	956
Not Taught About HIV/AIDS	16.2%	940
Current Physical Inactivity	10.7%	621
Special Needs	12.4%	720
Hunger ²	3.3%	191

1 Reported feeling so sad or hopeless almost every day for two weeks or more in a row in the past year that they stopped doing some usual activities.

2 Reported most of the time or always went hungry during the past 30 days because there was not enough food in their home.

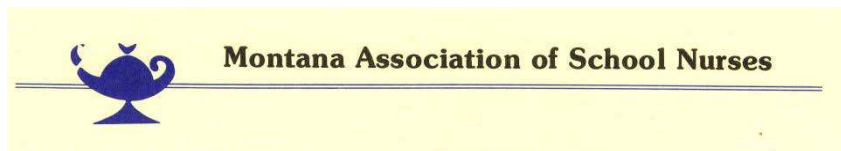
Sharing of Data

Much of the data collected in this survey was shared in June, 2015 with the National Association of School Nurses/National Association of State School Nurse Consultants Step Up and Be Counted Initiative, 2014-15. Step Up and Be Counted is a program aimed at developing a national standardized data set for school health services which can be utilized in school nurse advocacy efforts both nationally and locally. The specific data collected nationally for this initiative included: 1. the numbers of nurses in schools; 2. the numbers of students with diagnosed chronic health conditions; and 3. the dispositions of student encounters with the school nurse. A full report of the data collected in Montana may be found in Appendix A.

Citations

- Administrative Rules of Montana. *Standards Related to the Practical Nurse's Application of the Nursing Process*. Rule 24.159.1004. (Administrative Rules of Montana, 24.159.1004)
- Council on School Health. *The role of the school nurse in providing school health services*. J Sch Nurs. 2008 Oct;24(5):269-74. (Council on School Health, 2008)
- Lineberry, M & Ickes, M. (2015). The role and impact of nurses in American elementary schools: A systematic review of the research. *The Journal of School Nursing*, 31(1), 22-33. (Lineberry & Ickes, 2015)
- MT Office of Public Instruction. *2013 Montana Youth Risk Behavior Survey: High School Results*. Web. 26 May 2015. (YRBS, 2013)
- MT Office of Public Instruction. *Directory of Montana Schools: 2014-15*. Web. 26 May 2015. (MT Office of Public Instruction, 2015)
- MT Office of Public Instruction. *Enrollment History: Montana Public School Districts*. Retrieved from <<http://opi.mt.gov/Reports&Data/Index.html>>. (MT Office of Public Instruction, 2011)
- National Association of School Nurses. (2012). *The Case for School Nursing* (Position Statement). Silver Spring, MD. (NASN, 2012)
- National Association of School Nurses. (2015). *Individualized healthcare plans: The role of the school nurse* (Position Statement). Silver Spring, MD. (NASN, 2015)
- National Association of School Nurses. (2015). *Role of the licensed practical nurse/licensed vocational nurse in the school setting* (Position Statement). Silver Spring, MD. (NASN, 2015)
- U.S. Senate. (2014). *Tester Introduces Bill to Hire More School Nurses, Improve Student Health*. Retrieved from <http://www.testersenate.gov/?p=press_release&id=3380>. (U.S. Senate, 2014)
- Van Cleave, J., Gortmaker, S., & Perrin J. (2010). *Dynamics of Obesity and Chronic Health Conditions Among Children and Youth*. JAMA. 303(7), 623-630. (Van Cleave, 2010)
- Wolfe, Linda and Janice Selekman. *The Profession of School Nursing*. School Nursing: A Comprehensive Text. 2nd ed. F. A. Davis, 2012. Print. (Wolfe, 2012)

Appendix A.



Step Up and Be Counted Survey Results

Montana, 2014-2015

Standardized Data Set for School Health Services:

A Joint Project of the National Association of School Nurses (NASN) and the National Association of State School Nurse Consultants (NASSNC)



Sue Buswell, MSN, RN, NCSN
Public Policy Director
Montana Association of School Nurses

Introduction

Keeping children safe, healthy, in school, and ready to learn should be a top priority for both healthcare and educational systems. School absence affects performance and contributes to school drop-out as well as having economic and social repercussions for individuals, families, and communities (Pennington and Delaney, 2008). Attendance predicts drop-out and achievement (NASN, 2012).

Repeated studies have identified school nurses reduce absenteeism and a higher nurse to student ratio is related to better attendance (NASN, 2012). School nurses are significantly less likely to dismiss a student from school early than non-licensed personnel (Pennington and Delaney, 2008).

School nurses also address the issue of student absenteeism by intervening in situations of chronic or extended absences. Serving as a care coordinator, school nurses interact and communicate with families

Appendix A.

of students with special needs. The school nurse is a counselor, helping families connect with healthcare services, financial resources, shelter, food and health promotion. Creating, updating, and implementing individualized healthcare plans and working comprehensively to create an environment where students will achieve academic success and maintain optimal health is fundamental (McClanahan & Weissmueller, 2015).

As part of the National Association of School Nurse's nation-wide data collection effort known as Step Up and Be Counted, Montana school nurses participated in collecting data on their encounters with students throughout the 2014-15 school year. Their data were aggregated and entered into a standardized data set that will be used to describe the work of school nurses around the nation and show their effect on student health and education.

Through this data collection project, we aimed to assess the workload of Montana school nurses. Measures collected include the number of students a nurse tends to see in a day in the health room, the outcomes of these encounters including the percent of encounters that result in the student being sent home, and the frequency of visits to the school nurse among students with chronic health conditions, including diabetes and asthma, relative to the general student population.

Methods

Each month, RN school nurses who are members of the Montana Association of School Nurses were asked to collect and report aggregate numbers of student encounters. These counts were reported in three categories depending on the student outcome of each encounter: returned to class, sent home, or 911 called. In addition, the aggregate numbers of encounters that were related to asthma and diabetes were reported. Methods of record keeping and data collection were not specified and likely varied between nurses.

The submitted data were merged by the nurse's name with the State of School Nursing in Montana Survey data (State of School Nursing in MT Survey, 2015). This allowed the encounter counts to be standardized by school-level denominators including student enrollment, school nurse FTE, and the estimated number of students with asthma or diabetes.

To account for varying number of student school days per month, the number of student school days for each month was estimated by applying the monthly school days from the academic calendar of a large Montana school to all participating schools. The analysis took this into account by estimating encounters per day from the monthly aggregate count divided by the number of days in the month.

Appendix A.

Results

Overall, 28 of the 107 RN school nurses in Montana submitted data for all or part of the 2014-15 school year. Table 1 shows the number of nurses submitting data, their combined number of student encounters reported, their combined FTE, and their combined number of enrolled students represented by month.

Table 1. Summary of Submitted Data per Month, Step Up survey, 2014-15 school year

Month	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
Number of Nurses who Submitted Data*	15	18	16	22	19	17	16	16	10
Combined Reported Student Encounters	5,855	6,737	3,856	8,504	6,078	8,710	7,307	6,440	3,246
Asthma-related Encounters	113	80	79	104	80	120	155	179	54
Diabetes-related Encounters	990	1,105	1,130	1,100	619	345	617	727	1,003
Represented Student Enrollment	11,578	17,085	24,795	25,154	20,826	20,795	21,255	20,320	16,367
Represented Students with Asthma	875	1,087	1,538	1,191	1,343	1,091	1,229	1,153	936
Represented Students with Diabetes	51	72	91	96	92	80	84	78	63
Represented Nurse FTE	12.1	15.1	16.6	21.4	18.2	18.2	15.6	16.4	10.7
Student Days	21	21	17	15	18	19	20	19	19

*A unique set of nurses submitted data each month, with some nurses submitting data every month and others submitting only on some months. The students represented in each months report are those enrolled at the schools from which a nurse submitted data that month.

Appendix A.

The median number of encounters per nurse (Full Time Equivalent (FTE)) per day was 13.4. The median number of encounters per 1000 students per day was 15.5. The frequency of student encounters varied widely between reports. The distribution of these frequencies was positively skewed. While half of reported frequencies were in the range of 1 to 13 encounters per nurse FTE per day, the other half ranged from 14 to 75 encounters. Likewise, for encounters per 1000 students per day, half of reports ranged from 1 to 15 encounters while the other half ranged from 16 to 114 encounters. The interquartile ranges, or the ranges of the central 50% of frequencies, were from 7 to 31 encounters per nurse per day or from 7 to 34 encounters per 1000 students per day. (Figure 1)

Large portions of student encounters with school nurses are for needs related to asthma and diabetes. Overall, about 13% of encounters were related to diabetes while 2% were related to asthma. The median frequency of student encounters for asthma was 2.1 encounters per 1000 students with asthma per day. For diabetes encounters, the median frequency was 450 per 1000 students with diabetes per day. (Figure 2) This is in addition to the non-asthma and non-diabetes encounters the students with these conditions may have. However, there were much fewer students with diabetes than there were with asthma in the average school enrollment. The median number of asthma-related encounters per day per nurse FTE was 0.2 while the median number of diabetes-related encounters per day per nurse was 2.1.

Figure 2. Boxplots of the distribution of reported frequencies of student encounters by Montana school nurses, Step Up survey, 2014-15 school year.

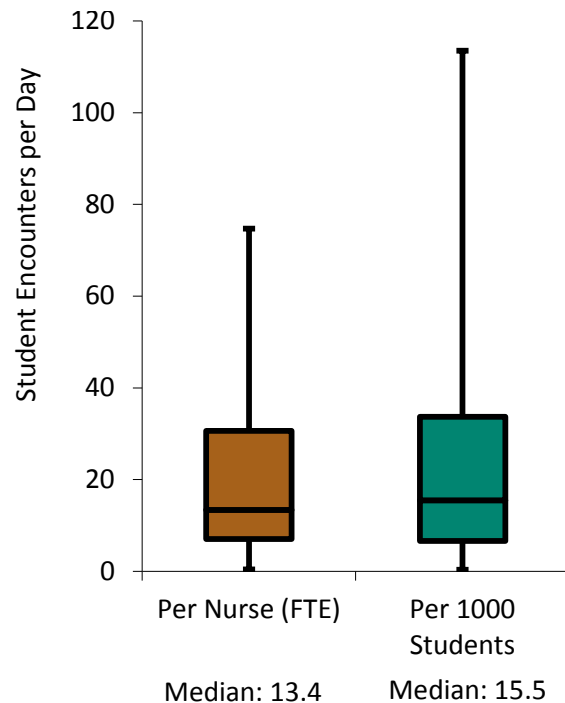
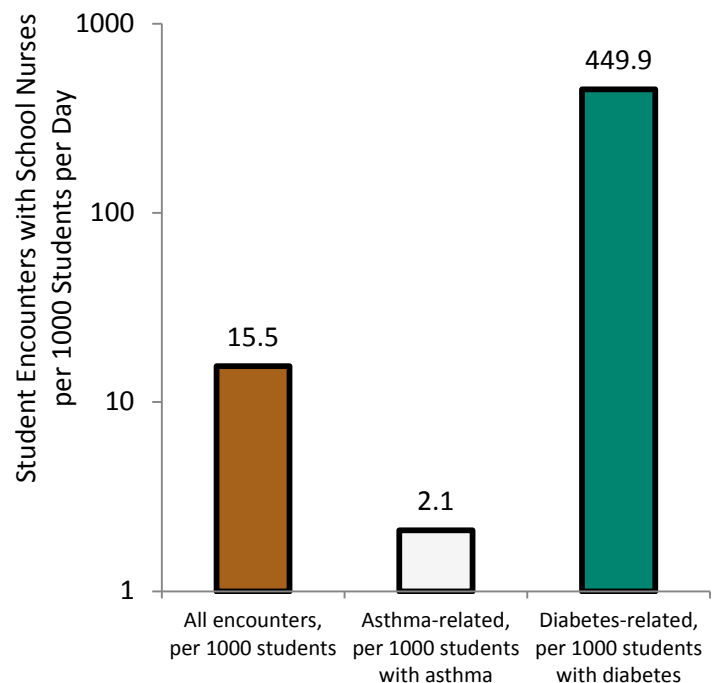


Figure 3. Median nurse-reported student encounters per day, Montana Step Up survey, 2014-15 school year.

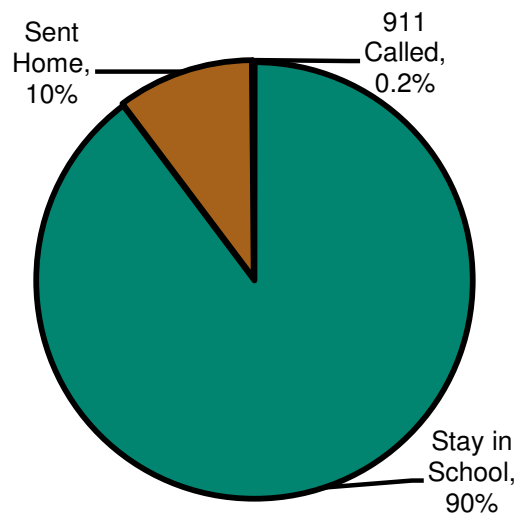


Appendix A.

The student outcomes of encounters with school nurses were classified into three categories: Stay in School, Sent Home, or 911 Called. The large majority of encounters, 90%, resulted in the student staying in school. 10% of encounters resulted in the student being sent home. Only 0.2% of encounters resulted in 911 being called for the student. (Figure 3)

The median rate at which nurses sent students home was 1.2 students per 1000 students per day. The interquartile range, or the range of the middle 50% of rates, was from 0.7 students to 2.1 students per 1000 students per day.

Figure 4. Outcomes of student encounters with school nurses, Montana Step Up survey, 2014-15 school year.



Discussion

Based on these data, in a school of 1000 students, about 16 encounters with a school nurse per day could be expected. One or two students would be sent home by the school nurse each day. 911 would be called about once every 6 weeks. Over the course of a school year, a nurse working full time could expect to have about 2400 encounters with students, with 33 of these being asthma-related and 380 diabetes-related. 911 would be called for students about 5 times. Students would be sent home about 240 times.

Data collected in the Step Up and Be Counted survey indicate that school nurses in Montana are keeping students in school (Figure 3). Students were sent home by a school nurse at a rate of about 1.2 students per 1000 students per day. Ninety percent of students seen by a registered, professional school nurse in the health room returned to class. The frequency at which students are sent home at schools without a school nurse was not measurable by this survey.

In the 2015 State of School Nursing in Montana Survey, the nurse-reported prevalence of asthma among Montana students in districts with a school nurse was estimated to be about 6% which, while lower than state and national prevalence estimates, is an indicator that school nurses have approximate knowledge of which children have asthma (State of School Nursing in MT Survey, 2015). Yet, only 2% of school

Appendix A.

nurse encounters resulted from students seeking assistance because of asthma. This particularly low rate of encounters could be in part due to self-management by children with asthma. A factor contributing to this could be a Montana state law enacted in 2005 that allows students who have a Medication Authorization form on file with the school to carry and self-administer their rescue asthma medication (MCA 20-5-420).

In contrast, the nurse-reported prevalence of diabetes (Types 1 and 2) was less than 1%, yet 13% of school nurse encounters were diabetes-related. Diabetes management in children and adolescents requires complex daily management skills and health services must be provided to students with diabetes to ensure their safety in the school setting (AADE, 2008). For example, children are monitoring their blood glucose levels several times a day, calculating carbohydrate contents of meals, and dosing insulin to achieve blood glucose within a target range (Bobo, et al., 2011). A registered, professional school nurse is required to develop an individualized healthcare plan for each student with diabetes and to provide continued oversight for the implementation and evaluation of the effectiveness of the plan in the school setting (ANA/NASN, 2011).

While these data provide a partial image of the workload of Montana school nurses, the data was collected by a relatively small, self-selected sample of Montana school nurses and therefore may not be generalizable to the experiences of other school nurses. In addition, due to the small sample size and high variability in the frequency of student encounters, we were unable to examine any correlation between the school nurse to student ratio and the rate at which students were sent home from school. Future data collection would benefit from increased school nurse participation.

Appendix A.

Citations

- American Association of Diabetes Educators. (2008). *Management of children with diabetes in the school setting* (Position Statement). *The Diabetes Educator*, 34(3), 439-443. (AADE, 2008)
- American Nurses Association /National Association of School Nurses (2011). *Scope and standards of practice: School nursing*, 2nd ed. Silver Spring, MD. (ANA/NASN, 2011)
- Bobo, N., Kaup, T., McCarty, P., & Carlson, J.P. (2011). *Diabetes management at school: Application of the healthy learner model*. *Journal of School Nursing*, 27(3), 171-184. (Bobo, et al., 2011)
- Buswell, S. (2015) *The State of School Nursing in Montana*. Available at masn.nursingnetwork.com (State of School Nursing in MT Survey, 2015)
- McClanahan, R., & Weismuller, P. (2015). *School nurses and care coordination for children with complex needs: An integrative review*. *Journal of School Nursing*, 31, 34-43. (McClanahan & Weissmueller, 2015)
- Montana Code Annotated (2013). 20-5-420. *Self-administration or possession of asthma, severe allergy, or anaphylaxis medication*. Available here: <http://dphhs.mt.gov/Asthma/asthmafriendlyschools.aspx>. (MCA 20-5-420)
- National Association of School Nurses. (2012). *The Case for School Nursing* (Position Statement). Silver Spring, MD. (NASN, 2012)
- Pennington, N. and Delaney, E. (2008). *The number of students sent home by school nurses compared to unlicensed personnel*. *Journal of School Nursing*, 24: 290-297. (Pennington and Delaney, 2008)

Home and Community Factors That Impact Health and Learning Per 100 U.S. Students



KEY:



Hunger



English not
spoken at
Home



Single
Parent
Home



Parent without
HS Diploma



Cannot
Afford
Healthcare



No Vehicle



No Home

Home and Community Factors That Impact Health and Learning Per 100 U.S. Students

HUNGER (21%)

16 million children in the U.S. struggle with hunger.¹ Undernourishment affects a child's physical, emotional and cognitive development. A child can be overweight and undernourished. Children who suffer from hunger get sick more often and face challenges concentrating or performing well in school.¹

ENGLISH NOT SPOKEN AT HOME (21%)

Speaking a language other than English can impact a family's ability to navigate social, healthcare and educational systems. This barrier may also affect a parent's ability to participate in school and other community events.

PARENT WITHOUT A HIGH SCHOOL EDUCATION (13%)

Educational attainment contributes to future earnings and employment.² Parents without a high school education experience challenges to adequately providing for a child's educational, child care, and healthcare costs.² Research has also shown links between parental education and child academic and behavioral outcomes.³

SINGLE PARENT HOUSEHOLDS (28% OF U.S. CHILDREN AGES 0-17 YEARS)

Children from single-parent households have an increased risk for dropping out of school, becoming teen parents, and face barriers to success in the workforce.⁴ Although many children from single parent homes fare well, others face challenges in their educational, occupational, and social well-being.

CANNOT AFFORD TO SEE A HEALTHCARE PROVIDER (8%)

Individuals who lack access to health care are at increased risk for delaying to seek appropriate care and are less likely to receive preventive care services. As a result, individuals who cannot afford seeing a healthcare provider when sick (lack insurance) have inferior health status and outcomes. Data shows that uninsured children achieve lower educational outcomes than those with insurance. Children who cannot afford to see a medical provider without miss more days of school, experience increased severity of illness, and suffer from disparities in health.⁵

NO VEHICLE AT HOME (6%)

Lack of transportation can be a major barrier for some families, especially for those living in urban or rural areas where public transportation is limited. Lack of transportation can limit a family's access to employment, medical care, and quality foods. In addition, it also prevents a parent from engaging in a child's school or other community services/programs.⁶

NO HOME (2%)

More than 1.6 million children experience homelessness each year in the United States. Homeless children develop increased rates of acute and chronic health conditions, and the stress of their living situation can negatively affect their development and ability to learn.⁷

The chart on the reverse side depicts the prevalence of some of the social, cultural, and economic conditions, which may influence a school-age child's health and learning outcomes. This chart is not meant to imply that every student is affected or negatively impacted by one or more of these issues. Instead, it illustrates the prevalence, in percentages, among the total U.S. child population. It is important to consider these variables when engaging with students and families in an effort to ensure effective communication and enhance the quality of care provided. The social determinants of health are "conditions in the environments in which individuals are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks."⁸ School nurses, educators, and health and education policy makers must take into account the social determinants which may impact a child's health and learning potential.

References:

1. NoKidHungry.org (2011). 2013 Hunger Facts Sheet. Retrieved from: <http://www.nokidhungry.org/pdfs/Facts-Childhood-Hunger-in-America-2013-grid.pdf>
2. National Center for Education Statistics (NCES). (2010). Status and Trends in the Educational Attainment of Racial and Ethnic Groups.
3. Mather, M. (2010). U.S. Children in Single-Mother Families. Population Reference Bureau (PRB).
4. Davis-Kean, P.E. (2005). The influence of parent education and family income on child achievement: The indirect role of parental expectations and the home environment. *Journal of Family Psychology*. 19. 294-304.
5. Institute of Medicine. (2002). *Health Insurance is a Family Matter*. Washington, D.C. The National Academies Press.
6. Athens County Job and Family Services. (2012). Lack of Transportation: another hardship facing people living in poverty.
7. National Center on Family Homelessness. (2011). The Characteristics and Needs of Families Experiencing Homelessness. Retrieved from: <http://www.familyhomelessness.org/media/306.pdf>
8. Healthy People 2020. (2012). Social Determinants of Health. Retrieved from: <http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=39>

Statistics Data:

Hunger: NoKidHungry.org (2013). 2013 Childhood Hunger in America Fact Sheet. Retrieved April 2, 2015 from:

<http://www.nokidhungry.org/pdfs/Facts-Childhood-Hunger-in-America-2013-grid.pdf>

English Not Spoken at Home: U.S. Department of Education. National Center for Education Statistics (2012). English Language Learners. Retrieved December 10, 2012 from: <http://nces.ed.gov/fastfacts/display.asp?id=96>

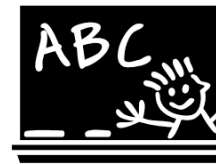
Single-Parent Households: Childstats.gov. (2013). Family and Social Environment Table. Retrieved April 2, 2015 from: <http://www.childstats.gov/americaschildren/tables.asp>

Parent without H.S. Education: U.S. Department of Education. (2010). Status and Trends in the Education of Racial and Ethnic Groups. Retrieved December 10, 2012 from: <http://nces.ed.gov/pubs2010/2010015.pdf>

Cannot Afford to See a Healthcare Provider: U.S. Census Bureau. (2012). Income, Poverty and Health Insurance Coverage in the U.S.: 2011. Retrieved December 10, 2012 from: http://www.census.gov/newsroom/releases/archives/income_wealth/cb12-172.html

No Vehicle at Home: Annie E. Casey Foundation. (2012). Children without a vehicle at home – 2011. Retrieved December 10, 2012 from: <http://datacenter.kidscount.org/data/acrossstates/Rankings.aspx?ind=68>

Health Conditions Per 100 U.S. Students 2011 Update



COLOR KEY

See reverse for more information



Asthma



Hearing Loss



Autism Spectrum Disorders



Mental/Emotional Disorders



Food Allergy



Vision Deficiencies



Teen Pregnancy



Threatened by Weapon



Seizure



Obesity



Tobacco use



Access to Health Care

ASTHMA

Approximately **10%** of school-aged children have asthma¹. Asthma is responsible for 13 million missed school days each year.² In schools with full time nurses, African-American students missed significantly fewer schools days than children in school with part time nurses.³

FOOD ALLERGY

The prevalence of food allergy among children under age 18 increased 18% from 1997-2007, with **3.9%** of children reported to have a food or digestive allergy in the previous 12 months.⁴ In a survey of school epinephrine administration, approximately 25% of recipients had no previous diagnosis.⁵

SEIZURE DISORDER

By 16 years of age, **0.4% to 0.7%** of children will have developed epilepsy.⁶

HEARING LOSS

One to 3 out of every 1,000 children is born with hearing loss. Among adolescents, **4.6%** aged 12 to 18 years have elevated hearing thresholds in high frequencies (3, 4, or 6 kHz), in both ears, signifying noise-induced hearing loss.⁷

VISION DEFICIENCIES

Over **13%** of individuals 12 years and older had uncorrected refractive errors in 2005–08.⁸

OBESITY

Almost 32% of children 2-19 years old are overweight at or above the 85th percentile and at risk for developing health problems, **16.9%** of whom are obese, at or above the 95th percentile. The incidence of obesity has doubled for 2-5 year olds in the last 30 years, tripled among 6 to 11 year olds, and more than tripled among 12-19 year olds.⁹ Approximately one in every 500 children and adolescents has type 1 or type 2 diabetes (0.2%).¹⁰

AUTISM SPECTRUM DISORDERS (ASD)

It is estimated that between 1 in 80 and 1 in 240 with an average of **1 in 110** children in the United States have an ASD.¹¹ Approximately 13% of children have a developmental disability, ranging from mild disabilities such as speech and language impairments to serious developmental disabilities, such as intellectual disabilities, cerebral palsy, and autism.¹²

TEEN PREGNANCY

A total of 409,840 infants were born to 15–19 year olds in 2009, for a live birth rate of **39.1 per 1,000** women in this age group.¹³

TOBACCO USE

In 2009, 19.5% of students (**5.1% on school property**) had smoked cigarettes on at least 1 day during the 30 days before the survey.¹⁴

MENTAL / EMOTIONAL DISORDERS

A recent study reports the overall prevalence of mental/emotional disorders with severe impairment and/or distress was **22.2%**. Approximately one in every four to five youth in the U.S. meets criteria for a mental disorder with severe impairment across a life-time.¹⁵ This same study reported an ADHD prevalence of 4%, although the most recent parent-reported prevalence of ADHD was 9.5%.¹⁶

THREATENED BY WEAPON

According to the 2009 YRBS Survey, **7.7%** of students had been threatened or injured with a weapon (e.g., a gun, knife, or club) on school property one or more times during the 12 months before the survey. 19.9% of students had been bullied on school property during the 12 months before the survey.¹⁴

ACCESS TO HEALTH CARE

In 2008, **10%** of children lacked health insurance coverage at any time during the year.¹⁷

The chart on the reverse side depicts the prevalence of some common health concerns in children and youth, and is **not** meant to imply that every student has a health concern. Instead, it illustrates that for every 100 U.S. students, there are likely 100 health concerns that would benefit from onsite management by a school nurse. Overall, 15 to 18% of children and adolescents have some sort of chronic health condition; nearly half of whom could be considered disabled.¹⁸ School nurses are extensions of the public health system, assisting many children not served by the traditional health care system, and a vital component of the care of children with chronic health conditions and disabilities. Even in the absence of chronic health conditions, **all students benefit** from having a full time Professional Registered Nurse to provide immunization and communicable disease monitoring; health screenings such as hearing and vision; health education and promotion; and episodic care of student illness and injury. The literature shows a higher nurse-to-student ratio is related to better attendance rates.¹⁹ **Healthy People 2020 recommends one registered nurse per every 750 regular education students.** Only, 40.6 percent of all elementary, middle, and senior high school had a nurse-to-student ratio of at least 1:750 in 2006.²⁰

References:

1. American Lung Association (2007). Trends in asthma morbidity and mortality. Retrieved from http://www.lungusa.org/atf/cf/%7B7a8d42c2-fcca-4604-8ade-7f5d5e762256%7D/ASTHMA_TREND_Nov2007.PDF
2. Akinbami, L.J. (2006). The state of childhood asthma, United States, 1980-2005. Hyattsville, MD: National Center for Health Statistics. Retrieved from <http://www.cdc.gov/nchs/data/ad/ad381.pdf>
3. 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.
4. Branum, A.M., & Lukacs, S.L. Food allergy among U.S. children: trends in prevalence and hospitalizations. *NDHS Data Brief*, no 10, October 2008. Retrieved from <http://www.cdc.gov/nchs/data/databriefs/db10.pdf>
5. McIntyre, C.L., Sheetz, A.H., Carroll, C.R., & Young, M.C. Administration of epinephrine for life-threatening allergic reactions in school settings. *Pediatrics* 2005;116:1134-40.
6. Hirtz, D., Thurman, D.J., Gwinn-Hardy, K., Chaudhuri, A. R. & Zalutsky, R. (2007). How common are the "common" neurological disorders? *Neurology*, 68, 326-337.
7. Department of Health and Human Services (USDHHS). (2010). *Healthy People 2020. Hearing and other sensory or communication disorders*. Retrieved from <http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicid=20>
8. USDHHS. (2010). *Healthy People 2020. Vision*. Retrieved from <http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicid=42>
9. Ogden, C.L., Carroll, M.D., Curtin, L.R., Lamb, M.M., & Flegal, K.M. (2010). Prevalence of high body mass index in U.S. children and adolescents, 2007-2008. *JAMA* 303, 242-249.
10. Centers for Disease Control and Prevention (CDC). (2008). National diabetes fact sheet: General information and national estimates on diabetes in the United States, 2007. Atlanta, GA: USDHHS, CDC. Retrieved from http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2007.pdf
11. Mulvihill, B. et al. (2009). Prevalence of autism spectrum disorders: Autism and Developmental Disabilities Monitoring Network, United States, 2006, *Morbidity Mortality Weekly Report (MMWR)*, 58(SS10), 1-20. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5810a1.htm>
12. Boulet, S.L., Boyle, C. A. & Scheive, L. A. (2009). Health care use and health and functional impact of developmental disabilities among US children, 1997-2005. *Archives of Pediatric Adolescent Medicine*, 163, 19-26.
13. Hamilton, B.E., Martin, J.A., & Ventura, S.J. (2010). Births: Preliminary data for 2009. *National Vital Statistics Reports*, 59(3), 1-29.
14. CDC. (2010). Surveillance Summaries: *MMWR*. 59, 1- 148. Retrieved from <http://www.cdc.gov/mmwr/pdf/ss/ss5905.pdf>
15. Merikangas, K.R. et al. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: Results from the National Comorbidity Survey Replication-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, 49, 980 – 989.
16. Visser, S.N., Bitsko, R.H. Danielson, M.L., Perou, R. & Blumberg, S. J. (2010). Increasing prevalence of parent-reported attention-deficit/hyperactivity disorder among children --- United States, 2003 and 2007. *MMWR*, 59, 1439-1443. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5944a3.htm?s_cid=mm5944a3_w
17. DeNavas W.D., Proctor, B.D., & Smith, J.C. (2009). Income, poverty, and health insurance coverage in the United States: 2008 (Current Population Reports, P60-236 [RV]). Washington, DC: U.S. Census Bureau. Retrieved from <http://www.census.gov/prod/2009/pubs/p60-236.pdf>
18. Perrin, J.M., Bloom, S.R., & Gortmaker, S.L. (2007). The increase of childhood chronic conditions in the United States, *JAMA*, 297, 2755-2759.
19. 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.
20. Brener, N., Wheeler, L., Wolfe, L., Vernon-Smiley, M., & Caldart-Olson, L. (2007). Health services: results from the School Health Policies and Programs Study 2006. *Journal of School Health*, 77, 464-485.