SUPPLEMENTAL MATERIALS

1. Protocol
2. Data Dictionary
3. PRISMA Checklist

I. TITLE

Title: School Stock Inhaler Laws in the United States: A Systematic Review

Date: June 2019
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Statistician: Ashley A. Lowe, MSPH
Librarian: None

II. INTRODUCTION

A. Problem Statement

Children spend the majority of their time in school where access to rescue medication for emergency respiratory distress is crucial for quickly alleviating a potentially life-threatening attack. While many states across the United States (US) have adopted legislation to allow schools to procure, store and administer rescue medication to a child while indemnifying school personnel for their good faith use, several variations among these policies exist. We seek to describe and quantify these differences among US states who have adopted legislation regarding stock inhalers in schools.

B. Literature Review

Article: National Analysis of State Health Policies on Students' Right to Self-Carry and Self-Administer Asthma Inhalers at School

Toups et. al. conducted a systematic review of state health policies on student's right to self-carry and self-administer asthma inhalers at school. The study found that states' legislature most frequently outlined requirements for self-carry and medication administration while a minority of states allowed the state Board of Education, school districts, or individual schools to create the policies. The states' laws commonly listed the parent/guardian, physician or healthcare provider, and school nurse as the relevant stakeholders. Most states outlined the type of school the law covers (charter, private parochial, public or other). Most states required schools to maintain medical records for the students' medications. The most common medical records retained were asthma action plans (AAP), asthma inhaler prescription and verification of inhaler technique. Lastly, most states required the student's parent/guardian to sign a waiver

releasing the school of liability unless malicious or illegal activity were implicated in student harm. The author stated the variability in states' law related to: 1) the responsible party for creating self-carry and administration policy, 2) type of school covered by the law, 3) multiple stakeholder approval, and 4) liability concerns that created unnecessarily barriers to asthma self-management. The author concluded school administrators should collaborate with state policymakers to reduce the risk of potential barriers to students' ability to self-carry and administer.

Reference: Toups MM, Press VG, Volerman A. National Analysis of State Health Policies on Students' Right to Self-Carry and Self-Administer Asthma Inhalers at School. J Sch Health. 2018 Oct;88(10):776-784. doi: 10.1111/josh.12681. PMID: 30203483.

Article: Asthma Inhalers in Schools: Rights of Students with Asthma to a Free Appropriate Education

Jones et al. examined 3 federal statutes that may require public schools to permit the carrying and administration of asthma medications at school in the absence of state or local laws or policies. The 3 statutes included the Individuals With Disabilities Education Act (IDEA), Section 504 of the Rehabilitation Act of 1973, and Title II of the Americans with Disabilities Act.

IDEA looks at federally funded special education programs for children *with a disability* - defined in the act as *other health impairments* among other disabilities like mental retardation or visual impairments. To be classified under IDEA, a child must fall under the aforementioned category and require special education due to the asthma agreed upon by a student's individual education program team. The child may require "related services" where carrying an inhaler may be permitted.

Section 504 of the Rehabilitation Act of 1973 aims to eliminate discrimination on the basis of disability. The term disability is broader than under IDEA, therefore, covers more federally funded programs and youth that may not be covered by IDEA - nonacademic and extracurricular activities are also covered under section 504. As with IDEA, school districts must provide "free appropriate public education" to children with disabilities. A disabled person under section 504 was defined as "(i) has a physical or mental impairment which substantially limits one or more major life activities, (ii) has a record of such an impairment, or (iii) is regarded as having such an impairment." - this verbiage covers respiratory disorders and the act of caring for one's self, breathing, and learning.

Title II of the Americans with Disabilities Act is similar to section 504, although section 504 has been regarded to be broad. Title II of ADA prohibits public entities from discriminating against those with disabilities. Recipients of federal funds must be address disability related needs so that disabled students can participate in programs to avoid discrimination. Therefore, a school that refuses to administer medication because of a disability would be in violation of the act. This study focused on these laws permitting self-carry, but may be applied to instances where students may not be able to self-medicate due to age, maturity, ability. The study noted the importance of individual assessment of each case to determine appropriate management of asthma.

Reference: Jones, S.E. and Wheeler, L. (2004), Asthma Inhalers in Schools: Rights of Students with Asthma to a Free Appropriate Education. Am J Public Health, 94(7): 1102-1108.

Article: Availability of Asthma Quick Relief Medication in Five Alabama School Systems

Gerald et al. evaluated the presence of asthma action plans and quick relief medication availability for elementary school students across five different school systems in Alabama. Data was obtained from a baseline data collection (fall 2005) of a recently completed school based supervised asthma medication trial. Eligibility requirements for the trial included physician diagnosed asthma requiring daily controller medication and attendance at one of 36 participating elementary schools. Participating schools served predominantly African American, urban, low-income students. In 2003, Alabama state law allowed students to possess and self-administer albuterol as long as parents provided schools with written authorization, indemnification against future liability, and a signed physician medication order form. Two-hundred ninety students participated in the study with 79% of students diagnosed with moderate asthma. While all students had an asthma action plan on file, none contained all elements required by the NAEPP guidelines including known asthma triggers and daily asthma medication regimens. Only 14% of students were found to have albuterol at school and of those, most were maintained by school personnel rather than self-carry. Zero-percent of children diagnosed with severe asthma had albuterol available at school. Albuterol availability was not predicted by race, gender, or health insurance status. Albuterol availability also was not able to predict school absences or red/yellow peak flow recordings. Some limitations to the study include the inability of the study to identify barriers to albuterol access, generalizability of the study due to geographic isolation, age range of participants (participants were elementary school aged) and that the study had a small percentage of students with severe asthma (5%). In conclusion, this study shed light on the lack of albuterol access and incompleteness of asthma action plans at school despite policies allowing students to carry albuterol at school.

Reference: Gerald, J.K., et al. (2012). Availability of Asthma Quick Relief Medication in Five Alabama School Systems. Pediatric Allergy Immunol Pulmonol, 25(1): 11-16.

C. Purpose

The purpose of this study is to explore the key legislation components including similarities and differences across states that have adopted statutes or regulations for stock rescue inhalers in K-12 schools.

D. Objectives

Our primary objectives include examining state statutes or regulations that exist across states who have adopted legislation to allow schools to procure stock and administer rescue medication. As compared to no legislation, states that have adopted stock rescue inhaler are better positioned to manage emergency respiratory distress in children. These laws further should protect schools and school personnel from civil liability while preventing unnecessary death.

1.) Identify current statutes or regulations for stock rescue inhalers for K-12 schools within the U.S. states and territories
2.) Describe common components of current statutes or regulations for stock rescue inhalers for K-12 schools within the U.S. states and territories

3.) Compare and contrast each state/territory's stock rescue inhalers statutes or regulations for K-12 schools

III. METHODS

A. Project Design

This study will be a systematic review of stock rescue inhaler statutes or regulations across the 50 contiguous United States, District of Columbia (i.e., Washington, D.C.) and other territories. We will extensively review all components of legislation passed by these states/territories for stock rescue inhalers in K-12 schools.

B. Eligibility Criteria

Study Inclusion Criteria:

Population:	50 United States, territories and the District of Columbia.
Intervention:	Presence of a statute or regulation regarding stock emergency or rescue asthma medications in K-12 schools.
Comparison:	States that have not adopted any law regarding stock emergency or rescue asthma medications in K-12 schools.
Outcome:	Description of the current status of stock emergency stock emergency or rescue asthma medications in K-12 schools.
Study Design:	Review of state legislature laws.
Exclusion criteria:	U.S. territories. (e.g., Puerto Rico)

C. Sample Size

We expect there will be at least 10 states with stock rescue inhaler statute or regulation.

D. Information Sources

The following will be searched for studies:

Databases including LexisNexis, state legislatures and the State Board of Pharmacy from inception to April 2020.

E. Study Screening, Data Extraction, Search Method Documentation

Study Screening:

To screen the study, we will use the screening tool shown in **Appendix A**. Two investigators (SS & BN) will review the literature and abstracts identified through the search using the tool. The investigators will meet to review selections and resolve any differences through consensus using the content experts (LBG, HP & AAL).

Data Extraction Procedures:

Using the data extraction tool shown in **Appendix B**, two investigators (SS & BN) will independently extract data from each study and meet to compare the extracted data. All extracted data will be inputted into REDCap by two separate investigators. Any differences will

be resolved by consensus. If agreement cannot be reached, the study will be brought to the senior authors LBG and HP.

Search Method Documentation:
The number of studies reviewed and tracked will be recorded using the form in **Appendix C**. In the documentation:
- Record the number of studies retrieved from individual searches
- Document the search method for each database/website

F. Data Storage and Access Procedures

Articles retrieved from full text review, study, screening and extraction forms, and data files will be stored on a shared electronic file system).

G. Study Variables

Primary Outcome Variable:
The primary outcome variable is components of the legislation.

- Presence of a statute or regulation for stock rescue or emergency inhaler
- Law type: statute or regulation
- Type of school systems regulated- public vs. charter, public vs. private (parochial)
- Training requirements including
    - Training delivery (in person, online/web based)
    - Requirement of school personnel training
    - Defined required minimum number of trained individuals
    - Defined training frequency
    - Requirement of basic life support training/certification
- Medication/devices
    - Valved-holding chamber (VHC), a.k.a. spacer
    - Nebulizer and/or inhaler short acting beta agonist (e.g., albuterol)
- Prescription items
    - Standing prescription order
    - Define who can prescribe stock inhaler
    - Pharmacy dispensing to school/school district
    - Indemnification or lability shield for medication administration
    - School personnel liability
    - School/school district liability
- Medication administration requirements
    - Guardian permission prior to use
    - Prior asthma diagnosis
    - Registered nurse administration only
    - Directions for medication administration
    - Contact 9-1-1 or emergency medical service
    - Not restricted to students
    - Maintenance and/or storage of medication
- Required documentation and/or reporting

- Required documentation
- Documentation retention
- Mandated reporting
- Funding source

Treatment (Exposure Variable):
States who have adopted policies regarding stock rescue inhalers/nebulized medication in K-12 schools

Covariates:
Descriptive and demographic variables include population density, number of children under 17 years-of-age, number of active physicians per capita, number of active pharmacists per capita, number of public schools, percent of students who qualify for the National School Lunch Program (NSLP), socioeconomic status.

G. Statistical Analysis Plan (SAP)

We will use descriptive statistics to assess possible demographic characteristics between states/territories with and without stock inhaler statutes or regulations. The *a priori* alpha level for all tests of statistical significance is 0.05. All analyses will be conducted in STATA 16, College Station, Texas.[11]

IV. TIMELINE

Task	Month					
	1	2	3	4	5	6
1. Preparation of protocol						
2. Finalize search strategy						
3. Pilot test of eligibility criteria						
4. Conduct search						
5. Screen states s for eligibility criteria						
6. Pilot test of risk of bias tool						
7. Pilot test of data collection						
8. Data collection						

Task	Month					
	1	2	3	4	5	6
9. Data entry						
10. Follow-up on missing info						
11. Analysis						
13. Preparation of review report						
14. Updating						
15. Submit for publication						

V. BUDGET

No funding will be available for personnel time. All statutes and regulations included in the systematic review will be available free of cost through the University of Arizona.

VI. REFERENCES

1. Toups MM, Press VG, Volerman A. National Analysis of State Health Policies on Students' Right to Self-Carry and Self-Administer Asthma Inhalers at School. J Sch Health. 2018 Oct;88(10):776-784. doi: 10.1111/josh.12681. PMID: 30203483.
2. Jones, S.E. and Wheeler, L. (2004), Asthma Inhalers in Schools: Rights of Students with Asthma to a Free Appropriate Education. Am J Public Health, 94(7): 1102-1108.
3. Gerald, J.K., et al. (2012). Availability of Asthma Quick Relief Medication in Five Alabama School Systems. Pediatr Allergy Immunol Pulmonol, 25(1): 11-16.

VII. NOMENCLATURE

In order of appearance:

US: United States
AAP: Asthma Action Plan
VIC: Valved-holding Chamber

VIII. APPENDICES

A. Demographics Data Extraction Tool
B. Statute/Regulation Data Extraction Tool
C. Search Method Documentation Form

Appendix A

State Demographic Tool (Sample)

School Stock Inhaler Laws in the United States: A Systematic Review

Record ID: _____ Reviewer's Initials: _____

Data Extraction Date: / /

Statute or Regulation Characteristics		
Field	**Choices**	**Website Link**
State / Territory		
Total Population		
Number of children under 17-years of age		
Number of active physicians		
Number of licensed pharmacists		
Number of public schools		
Number children who qualify for NSLP		
Impoverished families High Poverty Low Poverty		

NOTES: *(Record any notes here, e.g., contact study authors.)*

Appendix B

Full Data Extraction Tool (Sample)

School Stock Inhaler Laws in the United States: A Systematic Review

Unique Identifier (Record ID): _____ Reviewer's Initials: _____

Directions:
Review the inclusion and exclusion criteria for each U.S. state.
(If unable to determine the answers from the website, or no information is available, please leave comments.)

1. Insert today's date or date the information was reviewed [Fill in the blank or current date button]: / /

2. Please specify which medication law is being reviewed (Drop down menu):
   () Stock Rescue Inhaler
   () Neither

3. Please insert the website link to the state law:
_____

4. Type of school systems regulated (Check boxes):
   □ Charter
   □ Private / Parochial
   □ Public

5. Does the law specify that the child's parent or guardian approval is required for medication administration? Please select only one answer. (Radial Button)
   () Yes
   () No
   () Unable to determine

   5a. {Branching Logic} Does the law specify that annual written consent, a call prior to administration or district-level nurse approval is required for medication administration? (Please check all that apply):
      □ Annual written consent is required
      □ A call prior to administration is required
      □ District-level nurse approval required
      □ Primary care physician (PCP)
      □ Other
         {Branching Logic} If other, please specify:
         _____ (Fill in the blank)

□ Unable to determine

6. Does the law specify that the medication should be administered by a registered school nurse (RN)? Please select only one answer. (Radial Button)

() Yes
() No
() Unable to determine

7. Does the law specify that individuals or school personnel (i.e., school staff) must be trained for medication administration? Please select only one answer. (Radial Button)

() Yes
() No
() Unable to determine

7a. {Branching Logic} If yes, how many individuals are required to receive training?
_____ individuals (Fill in the blank).

7b. {Branching Logic} If yes, what is the frequency of training renewal that is specified by the law? Please select only one answer. (Radial Button)

() 0-12 months (or annually)
() 12-24 months (or every two years)
() 36 months (every three years)
() 36+ months (greater than three years)
() Unable to determine

7c. {Branching Logic} If yes, does the law specify that online or in-person training is required? Please select only one answer. (Radial Button)

() Online Training only is required
() In-person Training only is required
() Either Online or In-person training is required
() No training is required
() Unable to determine

7d. {Branching Logic} If yes, does the law specify that Basic Life Support (BLS) certification is required? Please select only one answer. (Radial Button)

() Basic Life Support (BLS) certification is required
() Unable to determine

8. Does the law specify who can prescribe the medication? Please select only one answer. (Radial Button)

() Yes
() No
() Unable to determine

9. Does the law specify who is authorized to administer the medication? Please select only one answer. (Radial Button)

() Yes
() No
() Unable to determine

10. Does the law specify the student, pupil or individual must have a previous diagnosis of disease (i.e., asthma) in order to receive medication? Please select only one answer. (Radial Button)

() Yes
() No
() Unable to determine

11. Does the law specify who can sign the standing medical order? Please select only one answer. (Radial Button)

() Yes
() No
() Unable to determine

11a. {Branching Logic} If yes, who must sign the standing medical order? Please select all that apply. (Multiple Choice/checkbox)

□ Chief Medical Officer of County
□ Board certified physician
□ Other

If other, please specify: _____

12. Does the law indemnify the school's liability for medication administration? Please select only one answer. (Radial Button)

() Yes
() No
() Unable to determine

13. Does the law indemnify the school personnel's liability for medication administration? Please select only one answer. (Radial Button)

() Yes
() No
() Unable to determine

14. Does the law specify the source of the stock medication or pharmacy dispensing laws (i.e., individual versus institutional)? Please select only one answer (Radial Button)

() Yes
() No
() Unable to determine

15. {Branching Logic for Stock Rescue Inhaler) Does the law specify the use and prescription of a valved-holding chamber or “spacer”? Please select only one answer (Radial Button)

() Yes
() No
() Unable to determine

16. {Branching Logic for Stock Rescue Inhaler) Does the law delineate between a stock rescue inhaler or a stock rescue nebulizer? Please select only one answer (Radial Button)

() Yes
() No
() Unable to determine

17. {Branching Logic for Stock Rescue Inhaler) Does the law specify any cleaning procedures required for the stock rescue inhaler or nebulizer? Please select only one answer (Radial Button)

() Yes
() No
() Unable to determine

18. Does the law specify the source of funding for the emergency stock medication? Please select only one answer (Radial Button)

() Yes
() No
() None
() Unable to determine

19. Does the law specify if the rescue medication can be used for all individuals? Please select all that apply. (Checkbox)

□ Children, student or pupil
□ School staff or personnel
□ Adults
□ Unable to determine
□ Other

If other, please specify: _____

20. Does the law designate if schools can adopt, create or modify an emergency protocol for medication administration? Please select only one answer (Radial Button)

() Yes
() No
() Unable to determine

20a. {Branching Logic} Does the law specify a required number or minimum number of doses/devices for rescue medication at the school? Please select only one answer (Radial Button)

() Yes

If yes, how many? _____ doses

If yes, how many? _____ devices

() No

() Unable to determine

21. Does the law specify the type of documentation required for administration? Please select only one answer (Radial Button)

() Yes

() No

() Unable to determine

21a. {Branching Logic} If yes, what type of documentation is required (fill-in-the-blank):

_____

21b. {Branching Logic} If yes, how long must the documentation remain on file with the school? Please select only one answer. (Radial Button)

() 0-12 months (one year)

() 12-24 months (two years)

() 36 months (three years)

() 36+ months (greater than three years)

() Unable to determine

21c. {Branching Logic} If yes, who receives the reports (fill-in-the-blank):

_____

21ci. {Branching Logic} If yes, how often do they receive the reports? Please select only one answer. (Radial Button)

() 0-12 months (one year)

() 12-24 months (two years)

() 36 months (three years)

() 36+ months (greater than three years)

() Unable to determine

APPENDIX C

Search Method Documentation (Sample)

Search Topic: Stock Inhaler Statutes and Regulations

Refworks account: NA

Limits: None

Type of publications: Statutes and regulations

Search Date Range: Conception to current date (April 2020) – (Updated on December 2020)

Databases:

# of Results	Lexis Nexis / Westlaw

Hand Searching:

# of Results	
	Recommended articles already known

METHODS:

Data Dictionary

Baseline Demographics

Variable Label	Definition	Answer	Source
record_id_bd	Unique Identifier.	Whole number (1-54)	
state_bd	Name of the U.S. state or territory.	Text	
state_abr_bd	State or territory abbreviation.	Text	
census_region_bd	U.S. Census Region.	Region 1 (Northeast) Region 2 (Midwest) Region 3 (South) Region 4 (West)	https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf
census_division_bd	U.S. Census Division	Division 1 Division 2 Division 3 Division 4 Division 5 Division 6 Division 7 Division 8 Division 9	https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf
current_date_bd	Today's date.	M-D-Y	
team_member_bd	Who is the team member conducting the review?	Anna Ashley Bradley Elizabeth Hanna Lynn Scott	
population_den_bd	What is the population estimate of the U.S. state or territory?	Whole number	https://www2.census.gov/programs-surveys/popest/datasets/2010-2019/national/totals/ (Use 2010 Census)
no_licensed_physicians_bd	What is the number of active physicians practicing across the state or territory per 100,000 individuals?	Whole number (per 100,000 individuals)	https://store.aamc.org/downloadable/download/sample/sample_id/30/

Variable Label	Definition	Answer	Source
no_licensed_pharmacists_bd	What is the number of licensed pharmacists practicing across the state or territory per 1,000 individuals?	Whole number (per 1,000 individuals)	https://data.bls.gov/oes/#/geoOcc/Multiple%20occupations%20for%20one%20geographical%20area (2017)
no_chainparm_bd	What is the number of chain pharmacies for the state?	Whole number	NCPA digest 2016 – see folder in google drive
no_indeppharm_bd	What is the number of supermarket pharmacies in the state?	Whole number	NCPA digest 2016 – see folder in google drive
no_superpharm_bd	What is the number of mass chain pharmacies in the state?	Whole number	NCPA digest 2016 – see folder in google drive
No_masschainparm_bd	What is the number of mass chain pharmacies in the state?	Whole number	NCPA digest 2016 – see folder in google drive
no_pub_schools_bd	What is the total number of public school districts in the state or territory?	Whole number	https://nces.ed.gov/surveys/ruraled/TablesHTML/5localedistricts.asp (2004)
nslp_bd	What is the total percentage of children that qualify for the National School Lunch Program in the state or territory?	Percentage	https://fns-prod.azureedge.net/sites/default/files/resource-files/01slfypart-7.pdf https://www.fns.usda.gov/pd/child-nutrition-tables (2019)

Variable Label	Definition	Answer	Source
pov_family_bd	What is the total percentage of families who are impoverished?	Percentage	http://www.nccp.org/tools/table.php?states=&cat=1&denom=char&db=dem&data=per&unit=Children&age=18&inc=Low-Income&submit=Create+Table https://data.census.gov/cedsci/table?q=S01&d=ACS%201-Year%20Estimates%20Subject%20Tables&g=0100000US.04000.001&table=S0101&tid=ACSST1Y2018.S0101&lastDisplayedRow=32 (Must be search and extracted by each US state)
age_>17_years_bd	What is the percentage of the state or territory population that is 17-years-of-age or under?	Percentage	(The American Community Survey includes up to 19-years-age.)
lowinc_lhighschool_bd	What is the percentage of the state or territory's population that has completed high school?	Decimal percentage	http://www.nccp.org/tools/demographics/
lowinc_highschool_bd	What is the percentage of the state or territory's population that has completed high school?	Percentage	http://www.nccp.org/tools/demographics/
lowinc_somecoll_bd	What is the percentage of the state or territory's population that has completed high school?	Percentage	http://www.nccp.org/tools/demographics/

Variable Label	Definition	Answer	Source
highinc_lhighschool_bd	What is the percentage of the state or territory's population that has completed a Bachelor's Degree?	Percentage	http://www.nccp.org/tools/demographics/
highinc_highschool_bd	What is the percentage of the state or territory's population that has completed a Bachelor's Degree?	Percentage	http://www.nccp.org/tools/demographics/
highinc_somecoll_bd	What is the percentage of the state or territory's population that has completed a Bachelor's Degree?	Percentage	http://www.nccp.org/tools/demographics/
student_schoolrn_bd	What is the average student-to-nurse ratio among public schools in the state or territory?	Whole number ratio	http://www.nea.org/home/35691.htm
asthma_prev_youngest_bd	What is the prevalence of asthma among children 0-4 years in the state or territory?	Percentage	https://www.cdc.gov/asthma/brfss/2017/child/tableL3.htm
asthma_prev_young_bd	What is the prevalence of asthma among children 0-4 years in the state or territory?	Percentage	https://www.cdc.gov/asthma/brfss/2017/child/tableL3.htm

Variable Label	Definition	Answer	Source
asthma_prev_y=middle_bd	What is the prevalence of asthma among children 5-9 years in the state or territory?	Percentage	https://www.cdc.gov/asthma/brfss/2017/child/tableL3.htm
asthma_prev_older_bd	What is the prevalence of asthma among children 10-14 years in the state or territory?	Percentage	https://www.cdc.gov/asthma/brfss/2017/child/tableL3.htm
asthma_prev_oldest_bd	What is the prevalence of asthma among children 15-17 years in the state or territory?	Percentage	https://www.cdc.gov/asthma/brfss/2017/child/tableL3.htm
notes_bd	Document any notes.	Fill-in-the-blank	NA

Stock Inhaler Statutes and Regulations

Variable Label	Question	Answer	Source
record_id_iml	Unique Identifier.	Whole number (1-54)	
state_iml	Name of the U.S. state or territory.	Fill-in-the-blank	
state_abr_iml	State or territory abbreviation.	Alphabetical	
census_region_iml	U.S. Census Region.	Region 1 (Northeast) Region 2 (Midwest) Region 3 (South) Region 4 (West)	
census_division_iml	U.S. Census Division	Division 1 Division 2 Division 3 Division 4 Division 5 Division 6 Division 7 Division 8 Division 9	https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf
current_date_iml	Today's date.	Current date	
team_member_iml	Who is the team member conducting the review?	Anna Ashley Bradley Elizabeth Hanna Lynn Scott	
source_iml	Which governing body is responsible for developing the school policy?	Fill-in-the-blank	
school_type_charter_iml	Does the law specifically include charter schools?	No Yes Unable to determine	
school_type_privateorparochial_iml	Does the law specifically include private or parochial schools?	No Yes Unable to determine	

Variable Label	Definition	Answer	Source
school_type_public_iml	Does the law specifically include public schools?	No Yes Unable to determine	
school_type_tribal_iml	Does the law specifically include tribal schools?	No Yes Unable to determine	
school_type_other_iml	Does the law specifically include other school types?	No Yes Unable to determine	
school_type_other_yes_iml	If yes to other, please specify which type of schools are specified in the law.	Fill-in-the-blank	
valved_chamber_iml	Does the law specify the use of a spacer or one-way valved holding chamber?	No Yes Unable to determine	
inh_self_carry_iml	Does the state have a current self-carry law for rescue inhalers (i.e., short acting bronchodilator)?	No Yes Unable to determine	
parent_perm_iml	Does the law specify that the child's parent or legal guardian is contacted and approval obtained before the medication administration?	No Yes Unable to determine	

Variable Label	Definition	Answer	Source
rn_req_iml	Does the law specify that the medication should only be administered by a licensed, registered nurse (i.e., RN)?	No Yes Unable to determine	
trained_staff_iml	Does the law specify that individuals or school staff must be trained before administering the medication to an individual or child?	No Yes Unable to determine	
trained_staff_training_iml	If yes, which types of training are mandated by law?	Online training only is required In-person training only is required Either online or in-person training is required No training is required Unable to determine	
no_individuals_iml	How many individuals must be trained?	0 1 2 3 4 5 or more	
training_freq_iml	What is the frequency of training renewal specified by the law?	0-12 months 12-24 months 24-36 months >36 months Unable to determine	

Variable Label	Definition	Answer	Source
prior_approval_iml	Does the law specify that annual written consent, a call prior to administration, or district-level nurse approval is required before medication administration?	No Yes Unable to determine	
prior_approval_yes_type_iml	If yes, please specify which type of consent is required by the law?	Annual written consent Call prior to administration District-level nurse approval required Primary Care Physician (PCP) Other Unable to determine	
prior_approval_other_iml	If other, please specify which type of consent is required by the law.	Fill-in-the-blank	
bls_req_iml	Is Basic Life Support certification required in order to administer the rescue medication?	No Yes Unable to determine	
als_req_iml	Is Advanced Life Support certification required in order to administer the rescue medication?	No Yes Unable to determine	

Variable Label	Definition	Answer	Source
who_iml	Does the law specify who can administer the rescue medication?	No Yes Unable to determine	
prior_dx_iml	Does the law specify the student, pupil or individual must have a previous diagnosis of disease (i.e., asthma or allergy) in order to receive medication?	No Yes Unable to determine	
standing_iml	Does the law specify who can sign the standing medical order?	No Yes Unable to determine	
standing_yes_iml	If yes, who can sign the standing medical order?	Chief Medical Officer of the county Board Certified Physician Any licensed provider Other Unable to determine	
school_lia_iml	Does the law indemnify the school's liability for medication administration?	No Yes Unable to determine	
school_personnel_lia_iml	Does the law indemnify school personnel's liability for medication administration?	No Yes Unable to determine	

Variable Label	Definition	Answer	Source
dispense_law_iml	Does the law specify the source of the stock medication or pharmacy dispensing laws (i.e., individual versus institutional)?	No Yes Unable to determine	
who_prescribes_bd	Does the state specify who can prescribe stock inhalers to an entity?	No Yes Unable to determine	
cleaning_iml	Does the law specify any cleaning procedures required for the stock rescue inhaler or nebulizer?	No Yes Unable to determine	
safe_iml	Does the state law or statutes specify a safe harbor provision?	No Yes Unable to determine	
stock_vs_neb_iml	Does the law specify the use of a stock inhaler or stock nebulizer?	No Yes Unable to determine	
funding_iml	Does the law specify the source of funding for the emergency stock medication?	No Yes Unable to determine	
all_use_iml	Does the law specify if the rescue medication can be used for all individuals?	No Yes Unable to determine	

Variable Label	Definition	Answer	Source
protocol_iml	Does the law designate if schools can adopt, create or modify an emergency protocol for medication administration?	No Yes Unable to determine	
min_dose_iml	Does the law specify a required number or minimum number of doses/devices for rescue medication at the school?	No Yes Unable to determine	
doc_req_iml	Does the law specify the type of documentation required for administration?	No Yes Unable to determine	
doc_req_length_iml	If yes, how long must the documentation remain on file with the school?	0-12 months 12-24 months 24-36 months >36 months Unable to determine	
9-1-1_call_req_iml	Is the school required to call 9-1-1 after rescue medication administration?	No Yes Unable to determine	
notes_iml	Document any notes.	Fill-in-the-blank	

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	**1**
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	**4-5**
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	**6**
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	**6**
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	**7**
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	**7, Appendix A**
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	**7, Appendix A**
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	**7, Appendix A**
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	**7, Appendix A**
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	**7, Appendix A**
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	**7, Appendix A**
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	**NA**
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	**8**
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	**8**

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	**NA**
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	**NA**
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	**8**
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	**8 Appendix A**
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	**NA**
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	**NA**
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	**NA**
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	**NA**
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	**NA**
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	**13-16**
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	**15**
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	**16**
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	**2**

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

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