RESCUE ILLINOIS SCHOOLS:

A Statewide Program for Asthma Emergencies

RESPIRATORY HEALTH ASSOCIATION®

Asthma and Allergy Foundation of America®

MIDSTATES CHAPTER

2023–2024 School Year Report

ACKNOWLEDGEMENTS

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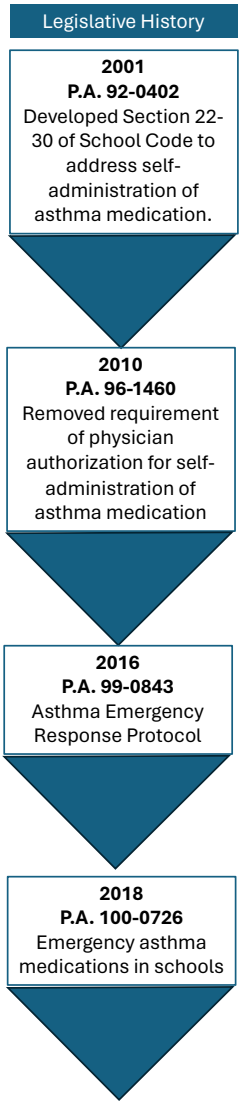
I. BACKGROUND & INTRODUCTION

Some of the most effective public health strategies require an underlying legislative and policy foundation. Following the drafting and promotion of such legislation, its passage is typically a time for very brief celebration, and often represents just the beginning of the real work. This report describes one such story with, thus far, very encouraging outcomes.

In 2017 and early 2018, Respiratory Health Association convened Chicago and statewide stakeholders to further improve the capacity of Illinois schools to address the needs of children with asthma. After significant committee work, meetings with potential legislative champions, and public testimony, Public Act 100-0726 was signed into law.

Public Act 100-0726, commonly referred to as "stock albuterol in school" permits a school nurse or other trained personnel to: (1) provide undesignated asthma medication to a student for self-administration in accordance with that student's Individual Health Care Action Plan or asthma action plan; (2) administer undesignated asthma medication to any student who has an Individual Health Care Action Plan or asthma action plan; and (3) administer undesignated asthma medication to any person who they believe in good faith is experiencing respiratory distress. This Act is intended to reduce the number of 911 calls, EMS transports, and missed school days due to asthma episodes by better equipping schools to handle respiratory emergencies.



Public Act 100-0726 was a major piece of legislation adding a key component to existing policies to strengthen the capacity of Illinois schools to assess and respond to the needs of students with asthma. Two important preceding policies, dating back to 2001, include:

- ◊ Self-Carry and Self-Administration, which requires schools to allow self-administration of medication by students with asthma, provided they submit (a) written authorization from a parent or guardian, and (b) a prescription label that includes the medication name, prescribed dosage, and conditions under which the medication is to be administered. Prior to 2010, the policy also required written authorization by a student's medical provider.

- ◊ Asthma Emergency Response Protocol which requires that (a) the Illinois State Board of Education (ISBE) develop a model asthma emergency response protocol,(b) that all Illinois school districts implement an emergency protocol by January 1, 2017, (c) that all Illinois school staff who work with students with asthma complete training every two years, and (d) all schools request an Asthma Action Plan from the parents or guardians of every student with asthma.

The three-year period following the passage of the Public Act 100-0726 was marked by several activities including the development of Administrative Rules by the Illinois State Board of Education (ISBE); the creation of an online training module, a preliminary guidance document for school staff; and an unsuccessful attempt to secure state funding for implementation. Several schools that tried to maintain a stock of emergency albuterol reported immediate challenges in obtaining and filling prescriptions that were not attached to a specific student's name.

II. THE RESCUE ILLINOIS SCHOOLS PROGRAM

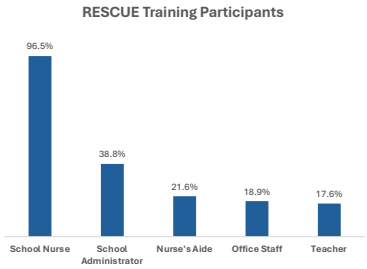
In Fiscal Year 2023, the Illinois General Assembly appropriated $2.4 million to support a statewide stock albuterol program for Illinois schools. Notably, Illinois was the first state to make funding available for this purpose. Funds for this program were secured by the Asthma & Allergy Foundation of America - MidStates Chapter (AAFA-MS), which successfully established and has been leading a similar program in Missouri for more than a decade.

Respiratory Health Association (RHA) supported AAFA-MS and the RESCUE Illinois Schools program by convening public health and health care stakeholders, advocates, and school leadership at both the highest levels and within individual schools. With many Illinois stakeholders having worked on the early legislation, it was important that they have input into the program development process. Participation also included the Illinois State Board of Education and the Illinois Department of Public Health.

Consistent with the state policy, goals of the RESCUE programs include keeping students with asthma in class and out of emergency departments.

Training

Staff from AAFA-MS, RHA, and clinician partners from University of Chicago Medicine and University of Illinois Health provided training to over 2,100 school staff in the first program year. While participants were overwhelmingly school and school district nurses, other staff who have regular contact with students with asthma also participated.



Rescue Resources

RESCUE resources were distributed to schools using an AAFA-MS classification based on the size of a school's population and a risk assignment determined by local data on pediatric asthma visits to hospital emergency departments defined below.

- ◊ *Regular Risk:* School is in a county that has less than a 30% rate of pediatric emergency department asthma visits.
- ◊ *High Risk:* School is in a county that has a 30% or greater rate of pediatric emergency department asthma visits.

Classification	Risk Level	Student Population
Class 1	Regular	0-250
Class 2	Regular	251-499
Class 3	Regular	≥500
Class 4	High	0-250
Class 5	High	251-499
Class 6	High	≥500

Each school received a minimum number of medications and equipment and schools with higher classifications receiving greater quantities of each item.

- ◊ *Medication Box:* A minimum of 3 metered dose inhalers were shipped directly from a participating RESCUE Illinois Schools pharmacy partner to each school, or when preferred, to the district.

- ◊ *Equipment Box:* Each school received at least 3 spacers and 10 disposable spacers, shipped directly from the RESCUE Illinois Schools project warehouse to each school, or when preferred, to the district.

- ◊ *Education Box:* Each school received one Peak Flow Meter, a branded tote, a program overview, RESCUE Portal instructions, and other educational materials.

  An implementation handbook was developed by RHA, with AAFA-MS, and sent to more than 3,000 eligible schools. The handbook provided guidelines and considerations on medication administration and protocols, consistent with Illinois State Board of Education protocols on emergency albuterol treatment. The handbook then addressed how schools could enroll and participate in the RESCUE Illinois Schools program.

The RESCUE Illinois Schools Program Portal

The RESCUE Illinois Schools Program is managed entirely through a program portal which is organized into three sections:

- ◊ *The School Profile* section includes pre-loaded information from the Illinois State Board of Education, including school address, contact information, and website address. It is also where a school can see the risk category to which it's been assigned.

- ◊ *The Nurse Profile* is where the school nurses or other school officials provide their name and contact information, and identify the county, school district, and school(s) where they work.

- ◊ *The RESCUE Connect* includes school reporting forms, including a Usage Reporting Form to be completed within 72 hours of a medical incident that required usage of RESCUE materials. The form also asks reporters to project what an incident outcome might have been had the emergency albuterol not been available.

Data provided through the program portal has been used by partners at University of Chicago Medicine, University of Illinois Health, AAFA-MS, and RHA to evaluate the first year of implementation. This evaluation is managed by RHA with grant funding from the Illinois Department of Public Health.

III. YEAR ONE OUTCOMES

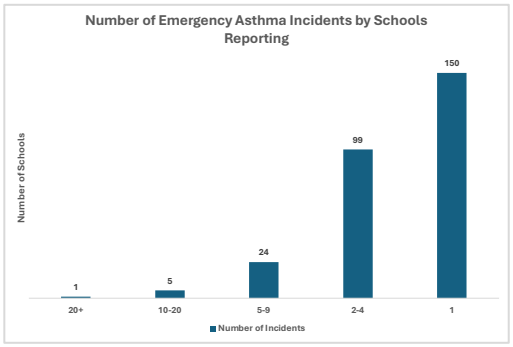
During school year 2023-2024, 2,171 of 3,183 (68%) eligible schools formally enrolled in the program using the RESCUE Illinois Portal. While 19 adults had asthma emergencies that required the use of RESCUE program albuterol, the data presented in this section focus solely on students.

- ◊ 657 asthma emergency incidents reported
- ◊ 279 schools from 138 school districts reported emergency incidents
- ◊ 43 Illinois counties were home to reporting schools.

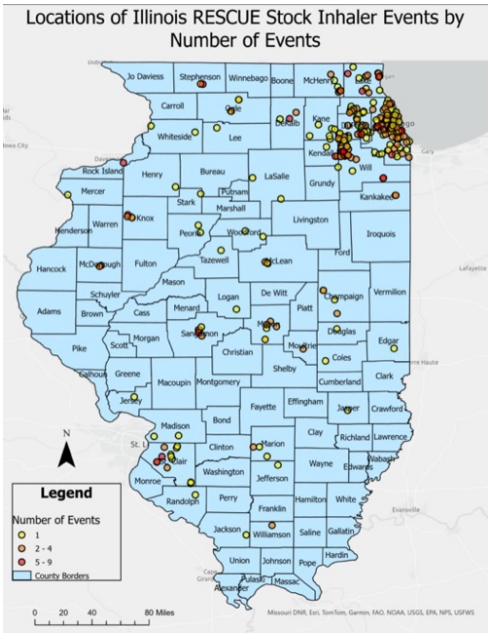
Characteristics of Asthma Emergency Incidents

Frequency of RESCUE Medication Use

The majority of 279 schools reporting emergency medication use (54%) reported only a single incident during the school year. Over one-third (35%) used the emergency medication between two and four times, while 9% of schools reported five to nine incidents. A small fraction of schools (2%) reported between 10 and 20 emergencies, and a single school reported 24 uses.



Locations of Reporting Schools



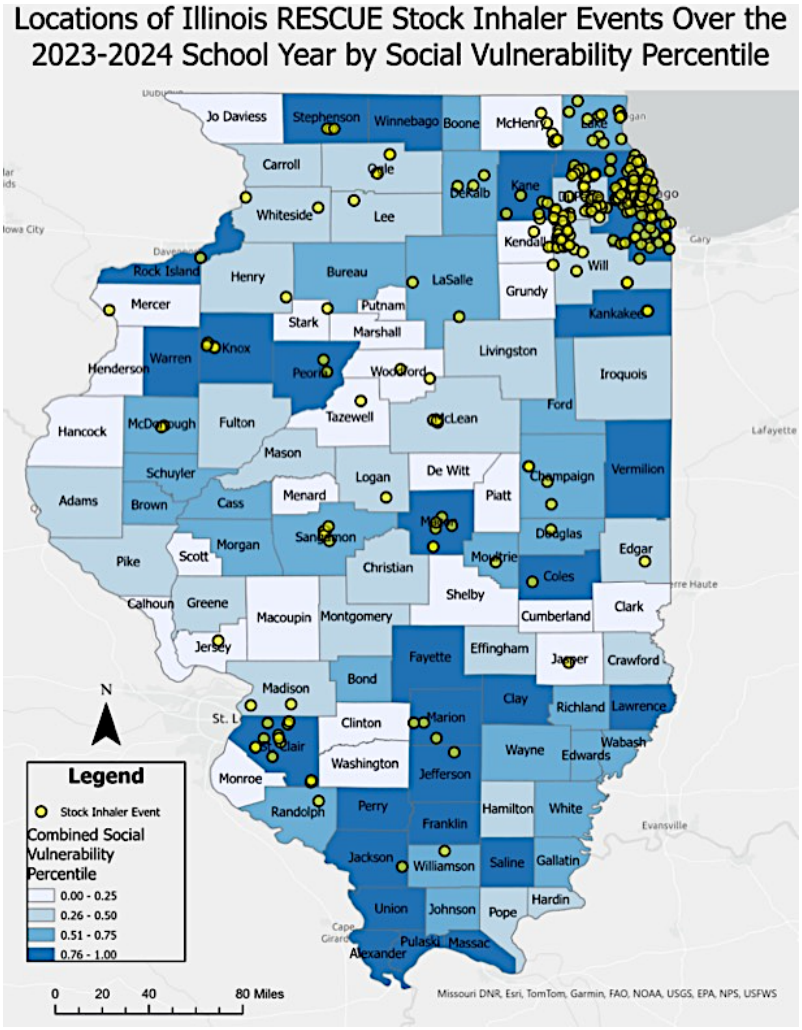
As noted above, reported use of RESCUE Illinois Schools' emergency asthma medication came from schools in 43 Illinois counties. A majority of incidents were reported from northern Illinois. Of the 292 reports from schools in Cook County, 116 came from Chicago and 176 from suburban county schools The second highest number of reported incidents (98) occurred in Will County, with 80 (81%) of these reports coming from the Plainfield School District. Other reports from the region came from schools in DuPage (48), Lake (37), McHenry (22), and Stephenson (20) counties.

In Southern Illinois, the most incidents were reported by schools in Saint Clair County (26). In central Illinois, the largest number of incidents were reported from schools in Sangamon (13) and Macon (12) counties.

Overall, the counties from which the greatest number of reports came tend to have higher rates of pediatric asthma-related emergency when compared to others. However, a more detailed analysis would be useful.

Program evaluators also considered the location of schools reporting emergency asthma incidents relative to the Social Vulnerability Index (SVI). The SVI was developed by the U.S. Centers for Disease Control and Prevention to help identify the locations of vulnerable populations. It refers to the resilience of a community when confronted by external stresses on human health, such as natural or human-caused disasters, or disease outbreaks. The SVI is compiled from a combination of 15 variables across four categories: (1) socioeconomic status, (2) household composition and disability, (3) minority status and language, and (4) housing and transportation.

As reflected in the following map, with few exceptions, asthma emergencies requiring RESCUE program asthma medication occurred in counties with higher social vulnerability indexes.



School Type

A majority of emergency incidents were reported from elementary schools (410 or 62%), followed by high schools (152 or 23%), and middle schools (94 or 14%). One asthma emergency was reported from a pre-school.

Student Demographics

Students treated with the RESCUE Illinois Schools medication ranged from three to 18 years in age, with an average age of eleven years old. By race/ethnicity, students experiencing an asthma incident were 39% Black (254), 28% White (181), and 18% Hispanic (119). Eight percent (52) belonged to other racial/ethnic groups.

Just over half of students (52%) were male, 46% were females, and (0.2%) were non-binary. Gender was not reported or unknown for 2.6% of students.

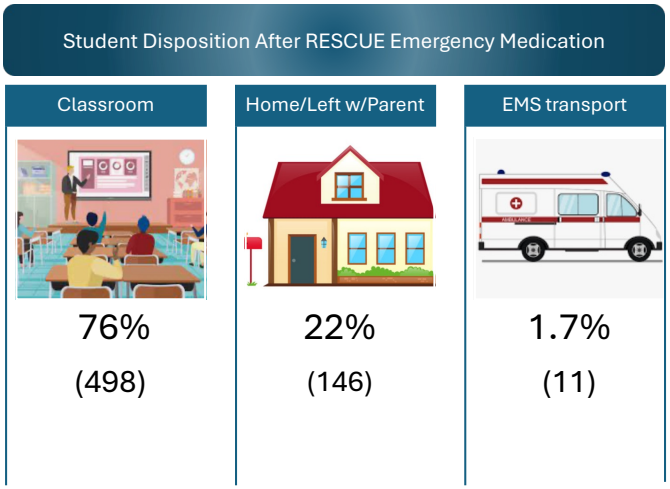
Incident Triggers and Symptoms

Physical activity was a reported trigger for 346 (53%) student asthma emergencies, with 64 (10%) students reporting the weather as a factor. Other reported triggers included allergens (7%), and environment, e.g., smoke or pollution (3%). In thirty-seven percent of incidents, no trigger was reported.

The most frequently reported respiratory symptoms were shortness of breath or difficulty breathing (75%) wheezing (53%), coughing (43%) and chest tightness (41%).

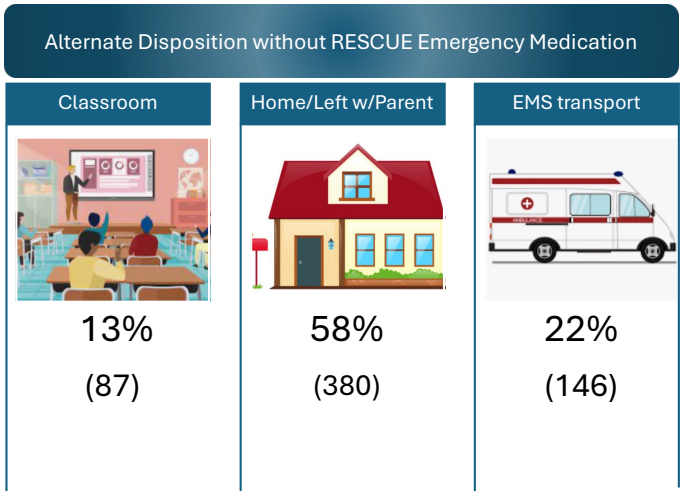
Student Disposition Following Treatment

Following treatment with RESCUE emergency asthma medication, more than three-fourths of students returned to class. Less than one-fourth were with picked up by a parent or went home on their own. Of the eleven students which required emergency medical service transportation to a nearby emergency department, seven were from Chicago schools.



IV. ALTERNATIVE OUTCOMES AND ESTIMATED PROGRAM IMPACT

To understand the potential impact of the RESCUE Illinois Schools program, we analyzed the "alternate disposition" responses from the RESCUE program portal. The specific question asked reporting nurses, "In your professional opinion, what would have happened if the child did not have access to RESCUE-provided medication?" The responses below do not include 44 students whose status was noted as multiple potential dispositions, e.g., "would have gone home or returned to class" or "would have gone home or to the emergency department."



While saving lives is the ultimate goal of the RESCUE Illinois Schools program, reducing avoidable healthcare expenditures is also a priority. We found that in the first year of the program, an estimated $2.5 million in healthcare savings was achieved. Additional savings were found in the reduction of missed class time and lost wages for parents and guardians who would have had to leave work to pick up their student.

Data reveal that had the RESCUE Illinois Schools emergency asthma medications *not* been available during the incident, the following outcomes would have likely occurred.

- ◊ 411 fewer students would have been able to return to class,
- ◊ 234 additional students would have been sent home,
- ◊ 135 additional students would been transported to an emergency department,
- ◊ and an estimated 10.6% would have been admitted to the hospital.

Estimated Health Care Savings

To determine the potential cost savings associated with the program, we reviewed available cost data from the 2023 Illinois Hospital Discharge Dataset, U.S. Bureau of Labor Statistics, and National Center for Education Statistics (2022).

Average Costs	
Indicator	Costs
Ambulance Transport	$1,636.00
Asthma Emergency Dept Visit	$6,336.00
Asthma Admission from ED	$27,775.00
Daily Wages	$258.20
Daily Attendance	$107.54

Based on the alternate disposition responses above, potential health care savings of more than $2.5 million in the first year of RESCUE Illinois Schools included:

- ◊ Emergency medical service transports $220,909
- ◊ Asthma-related emergency department visits $855,360
- ◊ Asthma-related hospitalizations $388,568

Other Savings

Missed class time: Based on the analysis of the time of day the asthma emergencies occurred, it is estimated the 411 additional students who would not have returned to class would have missed a total of 1,128 hours of school time. The value of those missed hours, based on the National Center for Education Statistics, is $31,112.00.

Missed work time: Lost work time was also calculated for the parents/guardians of the 369 children that would have gone home or to an emergency department had the RESCUE Illinois Schools program not been available. The result was 2,244 lost work hours or more than $72,000 in lost wages.

Financial savings to school districts: Regardless of whether the medications and equipment are used, the RESCUE Illinois Schools program saves money simply based on its ability to purchase in large quantities. For example, the program can buy inhalers in bulk for $10 less than the same vendor would charge individual schools. While this number has not yet been quantified, there is significant savings for local school districts considering the number of schools in Illinois.

V. PLANS FOR YEAR TWO

As data continue to be analyzed by the program evaluation team, lessons will continue to emerge. However, with the start of the 2024-2025 school year approaching, planning is well underway.

Program and Eligibility Expansion

There are just over 4,100 public schools in Illinois, In the first year of RESCUE Illinois Schools implementation, 3,183 public schools (77%) were identified as eligible for participation, 2,171 of which enrolled in the program. Thus, just over half (53%) of all public schools in the state participated in the program during the 2023-2024 school year. Year two will also focus on reaching the 1,929 additional public schools which did not participate in year one, we will also work to expand eligibility to the 630 state-recognized private and parochial schools. A successful expansion of the program will not only keep more students in their classrooms and out of emergency departments but has the potential for considerably larger health care savings.

Asthma Action Plans

Of the 657 students who experienced an asthma emergency during the 2023-2024 school year, only 63% had asthma action plans on file with their schools. These plans, when completed with provider and parent input, contain critical information about a child's individual protocol for addressing their asthma needs. Year two of program implementation will include public awareness efforts to increase the number of students with asthma who have an asthma action plan on file with their school.

Access to Personal Inhalers

Several nurses used the RESCUE portal to provide additional details regarding the student asthma emergency incidents. Many noted that students reported they had either forgotten their inhaler that day or that their single inhaler was at home. Others noted that inhalers were at school but either empty or expired.

On a few occasions the nurses noted that a student did not have “medical authorization” to carry albuterol at school. This suggests that nurses still don’t fully understand that provider authorization is no longer required. As previously noted, the provider authorization requirement was removed in 2010, and only a parent/guardian authorization and copy of the medication label are required. This information will be highlighted in future RESCUE Illinois Schools program trainings.