RESPIRATORY HEALTH ASSOCIATION®

LEGAL COUNCIL FOR HEALTH JUSTICE

Issue Brief

Stock Asthma Rescue Medication in Schools:

Creating a safer school environment for children with asthma

I. INTRODUCTION

Asthma is a significant public health issue in Illinois, impacting quality of life, productivity and health care costs. Significant disparities in asthma prevalence, disease management, and health outcomes are experienced across the state. Under-reporting of chronic conditions in schools, including asthma, remain a significant issue.[1] Asthma can be well managed with trigger avoidance and proper medication use, however, it is estimated that only one in four Illinois children with asthma has proper control of the disease.[2]

During the past fifteen years, public health organizations and lung health advocates have led policy efforts to address sources of common triggers, access to medication, proper diagnosis and documentation, and procedures for responding to asthma emergencies. Despite these efforts, barriers to asthma management persist, especially in underserved communities.

Limited access to asthma rescue medication ("rescue inhaler" or "short-acting bronchodilator") remains an important safety issue for schools and for the children they serve. In 2014, Illinois acted to protect children who have severe allergies by authorizing schools to stock undesignated epinephrine auto-injectors; however, no such failsafe measure exists for children with asthma.

Stock asthma rescue medication in schools is a viable policy solution to help prevent the poor health outcomes that can result when a child experiences an asthma emergency at school, but does not have access to medication. After years of studying this critical policy gap, Respiratory Health Association (RHA) and Legal Council for Health Justice came together in 2017 to actively explore pursuing a stock asthma rescue medication policy in Illinois. In furtherance of that end, we are now proud to present this issue brief assessing the fit and feasibility of stock asthma rescue medication in Illinois schools.

Respiratory Health Association
1440 W. Washington Blvd., Chicago, IL 60607
1-888-880-LUNG (5864)
LUNGCHICAGO.ORG

Legal Council for Health Justice
17 N. State St., Suite 900, Chicago, IL 60602
(312) 427-8990
LEGALCOUNCIL.ORG

This issue brief explores the burden of asthma and the asthma policy landscape in Illinois and outlines elements of stock asthma rescue medication policies and lessons learned from other states. It concludes with recommendations for adoption of a stock asthma rescue medication in schools policy for Illinois. It is our conclusion that **a stock asthma rescue medication policy for Illinois schools could achieve a safer school environment for those living with asthma, and that the most appropriate framework for adoption of such a policy would be via the state's existing stock undesignated epinephrine auto-injector law in the School Code (105 ILCS 5/22-30).** RHA and Legal Council for Health Justice hope this paper will serve as a useful educational tool for asthma policy stakeholders statewide to better understand the need for a stock asthma rescue medication policy and how one could be best implemented in Illinois.

Quick Illinois Asthma Facts

- More than 330,000 children in Illinois are reported to have asthma
- Fewer than 1 in 4 children with asthma have their asthma under control
- Asthma causes an estimated 300,000 missed schools days per year in Illinois
- Asthma medical costs in Illinois are projected to reach $1.9 billion by 2020

II. THE BURDEN OF ASTHMA

Asthma is a chronic lung disease that inflames and narrows the airways, making it difficult to breathe. Within the U.S., asthma affects 18 million adults and nearly 6.2 million children.[3] While asthma can be controlled with trigger avoidance and proper medication usage, it is still a serious, potentially life-threatening disease. One in two children with asthma had one or more asthma attacks in 2016.[4] Asthma is responsible for nearly 10 deaths a day across the U.S. (3,615 total in 2015).[5] Asthma also takes a large economic toll on the U.S., with a total cost, including costs incurred by absenteeism, healthcare utilization, and death, of $81.9 billion in 2013.[6]

Asthma in Illinois

In Illinois, more than 330,000 children have been reported as having asthma.[7] At seven percent, Illinois has slightly lower prevalence of pediatric asthma, compared to eight percent nationally.[8] Yet Illinois experiences significant pediatric asthma disparities across races. Eleven percent of non-Hispanic black children have asthma, which is nearly double the prevalence among non-Hispanic white children (6.5%).[9] Additionally, disparities exist among Illinois children in poor or near-poor households (less than 200% of the federal poverty line), with asthma prevalence nearly twice as high among this population as compared to children from higher income households (10% compared to 6%, respectively).[10] Further, fewer than 25 percent of children in Illinois have their asthma under control.[11] This means that three out of four children with asthma are more likely to experience their symptoms, which can lead to more emergency department (ED) visits and hospitalizations.

In 2014, the rate of pediatric ED visits for asthma in Illinois was 92 per 10,000, a figure that rose to 265 when looking only at non-Hispanic black children in Illinois (5.5 times as high as that for non-Hispanic white children).[12] These figures are well above the *Healthy People 2020*[i] goal of 49.6 asthma-related ED visits per 10,000 children.[13] In 2014, the childhood asthma hospitalization rate among non-Hispanic black children was 38 hospitalizations per 10,000 children 0-19 years old. Not only is this the highest rate of hospitalizations among Illinois children, it is also 4.4 times the *Healthy People 2020* objective of asthma-related hospitalizations per 10,000 children. The rate of Illinois asthma hospitalizations for Hispanic children was 12.7 hospitalizations per 10,000, while it was 8.4 hospitalizations per 10,000 non-Hispanic white children. In addition, Illinois children living in the

[i] *Healthy People* is an initiative of the U.S. Department of Health and Human Services' Office of Disease Prevention and Health Promotion to provide science-based, 10-year national objectives for chronic diseases.

highest level of concentrated disadvantage had the highest childhood asthma hospitalization rates of 18.8 hospitalizations per 10,000 children.[14]

State data reveal not only that significant asthma disparities exist in Illinois, but that these disparities are experienced state-wide. The map in **Figure 1** depicts the *Healthy People 2020* asthma ED visit and hospitalization objective status of Illinois counties.

Figure 1: Pediatric *Healthy People 2020* Objective Status per Illinois County

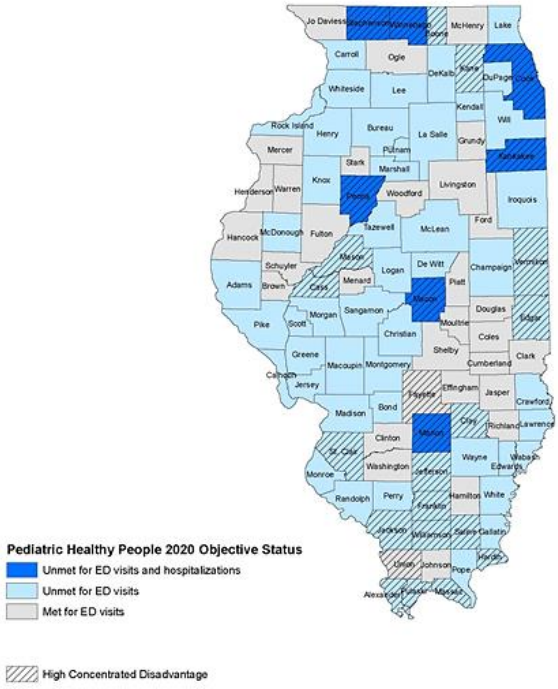

Image Source: Illinois Department of Public Health

As seen above, of the 102 counties in Illinois, only 30 counties have met the *Healthy People 2020* objective for pediatric ED visits due to asthma. Seven counties have not met objectives for both pediatric ED visits and hospitalizations due to asthma.[15] These seven counties account for half of the state's population.

Asthma ultimately takes a large toll on Illinois lives and the Illinois economy. In 2015, there were 157 deaths in Illinois due to asthma.[16] Asthma medical costs in Illinois are projected to reach $1.9 billion by 2020.[17]

Asthma in Schools

Asthma is a leading cause of school absenteeism, accounting for 313,710 missed school days in Illinois, which in turn lead to days of work missed by adult caregivers.[18] Research shows children attending schools with a majority of low-income students were more likely to miss school because of asthma.[19] Asthma-related school absenteeism is linked to lower academic performance, especially among urban minority youth.[20] Research further suggests that school-based interventions to help children manage asthma are effective to reduce absenteeism.[21]

> *"This disease is not taken seriously enough in school settings."*
> ~School Nurse, LaGrange School District 102

The National Asthma Education and Prevention Program (NAEPP) (coordinated by the National Heart, Lung, and Blood Institute [NHLBI]) developed clinical guidelines for the diagnosis and management of asthma.[22] These guidelines recommend prompt response to an asthma exacerbation (attack) including administration of asthma rescue medication. The NAEPP and the Centers for Disease Control and Prevention (CDC) National Asthma Control Program (NACP) also issued compilations of resources to support schools with improving the environment for students living with asthma.[23] Both NAEPP and CDC recommend a series of program and policy initiatives, including school policies that allow safe, reliable and immediate access to asthma rescue medications.[24]

Despite these recommendations and existing policies, there is a lack of access to asthma medication in schools. Research conducted in a large urban school district in Alabama found that fewer than 20 percent of students with asthma had access to asthma rescue medication.[25] Barriers included difficulty obtaining asthma action plans from physicians or medication from parents, lack of a source of medical care, forgetting or losing the inhaler, or having the inhaler run out.[26]

Barriers to asthma management have also been well noted among Chicago Public Schools (CPS) students. Approximately five percent of CPS students have an asthma diagnosis on file with the school district;[27] however, the number of students living with asthma is likely much higher since the mean childhood asthma prevalence for Chicago neighborhoods ranges from 9.6 percent to 23.5 percent.[28] Moreover, research from the Center for Community Health at Northwestern University found that only 25 percent of CPS students with diagnosed asthma have asthma action plans on file with their school, with lower numbers among minority and low-income students.[29] Access to quick-relief medication in school may be as low as 14 percent.[30] According to a recent survey of CPS school nurses, the most common barrier to proper asthma management among students is lack of medication (73%); more than half of the school nurses surveyed (66%) indicated that a stock asthma rescue medication policy would improve asthma management in school.[31]

III. STOCK ASTHMA MEDICATION POLICIES

Stock asthma rescue medication policies authorize school districts to maintain a stock of albuterol or levalbuterol, and enable trained staff members to administer the medication in the event of an asthma emergency. While Illinois currently authorizes schools to stock and administer epinephrine, the law does not currently allow stocking of asthma rescue medication. Stock asthma rescue medication laws serve as an important failsafe measure. Such a law provides districts the ability to respond if a student has an asthma emergency at school, but does not have access to his or her own medication.

As of February 2018, ten states have either enacted a law or regulations authorizing the stocking of rescue asthma rescue medication in schools: Arizona[32], Georgia[33], Indiana[34], Missouri[35], Nebraska[36], New Hampshire[37], New Jersey[38], New Mexico[39], New York[40], and Ohio.[41] We analyzed each of these policies

Asthma Policies in Illinois:

Over the last 20 years, Illinois has enacted many baseline policies to protect children with asthma and other chronic diseases.

2001 – PA 92-0402 enables students with asthma to self-administer their medication in school. Law strengthened in **2006** (PA 97-0361) and **2010** (PA 98-0795) to enable students to carry asthma medication at school with only a parental permission letter.

2003 – PA 93-0529 prohibits insurers from restricting coverage of inhalers based on refill frequency.

2004 – PA 93-1015 requires the Illinois Department of Public Health (IDPH) to develop a comprehensive statewide asthma management plan. Need for asthma policy action in Illinois has since been formalized in IDPH's Illinois Asthma State Plan 2015-2020.

2006 – State Medicaid Plan amended to increase reimbursement for spacers and peakflow meters, with no prior authorization needed.

2008 – PA 95-0969 creates chronic disease training program for school staff.

2016 – PA 99-0843 establishes asthma emergency response protocols for schools.

For these policy protections, Illinois has made the Asthma and Allergy Foundation of America's (AAFA) "State Honor Roll" for asthma-friendly policies. While Illinois has many of AAFA's recommended policies in place, one notable gap is enabling schools to acquire and maintain a stock of asthma rescue medication and to administer it when a student, diagnosed or undiagnosed, experiences respiratory distress.

and identified a number of common elements across them. Our analysis of these state policies revealed great consistency between states when it comes to which schools are covered, training requirements, and medication prescription and dispensing authority; however, there is great variation in who can be administered stock asthma medication. (See **Table 1** on p8 for a full list of asthma rescue medication policy elements by state.)

All ten existing policies cover all schools, public and private. The majority of existing stock asthma rescue medication policies allow districts to determine themselves which drug type they will stock (albuterol, levalbuterol) and which device will be used for administration (inhaler with disposable spacer, nebulizer). Likewise, the majority of existing policies enable doctors, physician assistants, or advance practice nurses to write a prescription and standing order on behalf of a school district and also authorize pharmacists to dispense asthma medication to a school district or its agent. The majority of states require completion of a training program for authorized personal to administer the medication and require reporting to the state when the medication is obtained and/or administered.

As noted above, there is less consistency among the states regarding who can receive the medication. Five states allow only students to receive an administration of stock asthma medication. Others allow the medication to be administered to anyone whom an authorized staff person believes in good faith to be experiencing respiratory distress, which could include staff and school guests. Further, six states do not require the person receiving the medication to have a known diagnosis of asthma on file with the district.

Interestingly, while there is great variation in who can receive an administration of stock asthma rescue medication, we found there was a great deal of consistency in who can administer the medication. Seven of ten states allow both school nurses and any other trained personnel to administer the medication. However, only six states waive liability for the authorized school staff, the school district, and prescriber as it relates to the administration of stock asthma rescue medication.

Finally, funding sources for the medication and/or device are key to implementation. While each of these laws leave it up to the districts to acquire the medication, four states expressly authorize school districts to work directly with pharmaceutical companies or other distributors to secure a supply of asthma rescue medication.

Efficacy of Stock Asthma Rescue Medication Policies

While full, peer-reviewed evaluations of the ten existing state stock asthma rescue medication policies have thus far been limited, available data demonstrate that these policies likely reach populations of need and improve health outcomes.

Missouri enacted a stock asthma rescue medication law in 2012 and has collected data on the medication's use each year of the program. During the 2013-2014 school year, stock asthma rescue medication was administered 1,357 times in 103 schools, with students receiving the medication then returning to class 86 percent of the time. The program has grown each year of its existence and as of 2016-2017 was used 3,194 times in 217 schools, with 92 percent of students returning to class after administration of asthma rescue medication.[42]

Gerald, et al. (2016) examined a stock asthma rescue medication policy in a low-income, urban school district in Tucson, AZ. In the first year of the policy, a stock inhaler was used 222 times with 55 children across 22 schools. While the stock inhaler was used only a "modest" amount in the first year, the district experienced *20 percent fewer 911 calls* and 40 percent fewer EMS transports. The authors note that if the results (5 EMS transports per 1,000 children with asthma) were substantiated, it would result in "25,000 fewer EMS transports per year among the 5 million children with asthma in U.S. public schools."[43]

IV. CONSIDERATIONS FOR ADOPTION AND IMPLEMENTATION IN ILLINOIS

If a stock asthma rescue medication policy were introduced in Illinois, one factor that demands careful consideration is the existence of the state's 2014 stock undesignated epinephrine auto-injector law. Compared to other states that have adopted a stock asthma rescue medication policy, Illinois is fairly unique in that it has an existing framework within which to work. This means that there is an existing model for easy adoption in Illinois, but conversely, that the policy language would likely need a level of consistency, which could constrain drafting if unique or divergent policy features are desired.

Stock Epinephrine – An Available Framework for Stock Asthma Rescue Medication in Illinois

As noted above, since 2014, Illinois school districts have been authorized to voluntarily stock undesignated epinephrine auto-injectors and to have trained school staff and nurses administer the stock epinephrine to students with a diagnosed allergy and anyone whom the administrator believes in good faith to be experiencing anaphylaxis.[44] Illinois' stock epinephrine law contains many of the same provisions found in stock asthma medication laws in other states, which could ease adoption and implementation of a similar asthma medication law in Illinois. (See **Table 2** on p9 for full details of Illinois' stock undesignated epinephrine auto-injector law.)

Policy elements found in Illinois' stock epinephrine law that would also need to be addressed in a stock asthma rescue medication law, per the analysis above, include: which schools are covered; who may administer the medication; who may receive the medication; where the medication can be stored; who may prescribe; school liability; training requirements; and annual reporting. Notably, Illinois' stock epinephrine law allows both school nurses and trained staff to administer epinephrine. It allows students with a documented food allergy to receive an administration of epinephrine, but also allows it to be administered to anyone whom the staff person believes in good faith to be having an anaphylactic reaction. It allows epinephrine to be administered at school, during a school-sponsored activity, during before- or after-school events, or while in the supervision of school personnel. The law also waives liability for the district. If a stock asthma rescue medication law is introduced in Illinois and uses these provisions as the vehicle for the bill, it is likely that the asthma provisions would need to largely mirror the epinephrine provisions in order to ease implementation and maintain consistent training requirements for nurses and authorized school staff.

Efficacy of Illinois' Stock Epinephrine Law

In June 2016, the Illinois State Board of Education (ISBE) released its first required report on use of undesignated epinephrine auto-injectors in Illinois schools.[45] The report revealed that in the first year of the policy (2014-15 school year), 59 schools in 17 districts reported 65 administrations of undesignated epinephrine. More than half (58%) of the students and other persons who received the epinephrine were not previously known to have a diagnosed severe allergy.

Last school year (2016-17), the number of schools stocking epinephrine increased to 92 schools across 53 districts, with the number of administrations increasing to 122.[46] Again, the majority (52.5%) of epinephrine recipients were not previously known to have a diagnosed severe allergy. Last year, CPS accounted for 11% of the total administrations of stock epinephrine across the state.

Feedback from Stock Albuterol Advisory Group

To ensure any potential stock asthma rescue medication in schools policy would be both evidence-based, and informed by practical experience from the field, in the fall of 2017, RHA, with support from the Illinois Department of Public Health (IDPH) and Legal Council for Health Justice, convened an advisory group of school and health experts to discuss the fit and feasibility of such a policy in Illinois. Participants

included, health care providers from University of Chicago Medicine, Lurie Children's Hospital, University of Illinois at Chicago, Sinai Urban Health Institute; chronic disease program staff from local and state health departments; a nurse consultant from ISBE; administrators from CPS (SD 299) and Waukegan Public Schools (SD 60); leadership from patient and provider advocacy organizations; *pro bono* counsel from McClain & Canoy, LLC and representatives from the Illinois Asthma Partnership.

The advisory group considered the policies adopted in other states and explored a variety of Illinois policy implementation considerations, including methods of delivery of asthma rescue medication (nebulizer and metered dose inhaler with disposable spacer) based on cost, maintenance and ease of use. This group also made recommendations on appropriate staff training to support recognition of respiratory distress and correct administration of asthma rescue medication.

The advisory group also reflected on some of the challenges school districts have experienced with Illinois' stock epinephrine law, including securing a standing order when no health care provider is available within the school district. Some members supported enhanced reporting following use of stock asthma rescue medication to ensure appropriate case management is provided. It was recommended that following use of this medication, the health care provider of record and school nurse be notified for appropriate follow-up care and case management in and out of school. Some Illinois school districts benefit from a program that provides free or reduced stock epinephrine to support maintaining this stock. Members of the advisory group recommended exploring funding mechanisms (for example, 1115 Medicaid waiver and Medicaid MCO funding) to help offset costs associated with securing stock asthma rescue medication for school districts.

V. CONCLUSION

Earlier in this issue brief, we noted the 2016 passage of a law to improve asthma emergency protocols in Illinois schools. That bill was passed recognizing that children spend a significant portion of their days in school and that while in their care, school staff should be prepared to immediately tend to the needs of students with asthma. In ISBE's model emergency response protocol (a requirement of the law), the very first item addressed is the provision of asthma rescue medication.[47] While the law permitting students to bring their asthma medications to school was a key step, the reality is not all children with asthma do so, and not all children with asthma have been reported to their school or diagnosed.

For these reasons, and the fact that a majority of the 330,000 Illinois children with asthma are of school-age, **RHA and Legal Council for Health Justice recommend that a stock asthma rescue medication law for Illinois be pursued**. The health and safety of Illinois children must remain the priority.

Our review of the ten existing stock asthma rescue medication state policies yielded important lessons for Illinois healthcare, public health, and school stakeholders to consider moving forward. The advisory group provided additional input that is worthy of further consideration. We also recommend that upon passage of a stock asthma rescue medication policy, IDPH and ISBE convene an implementation workgroup that can work through the details of this life saving policy. RHA and Legal Council for Health Justice stand ready to assist in this effort.

Report Prepared By:

Todd Fraley, JD, Respiratory Health Association; **Amy O'Rourke**, MPH, Respiratory Health Association; **Amanda Weiler**, MPH candidate 2019, Respiratory Health Association; **Amy Zimmerman**, JD, Legal Council for Health Justice. March 2018. Authors would like to thank *Illinois Department of Public Health* for its support in assembling the stock asthma rescue medication advisory group. We also thank Rachel Barenie, Rachel Ruback, and Ben Postone for their exceptional research assistance and Joel Africk, Jessica Hoffen, Dani Hunter, Erica Salem, and Jill Wohl for their careful review.

Table 1 – Comparison of Stock Asthma Rescue Medication Policy Elements

Ten states currently have a stock asthma rescue medication in schools policy: Arizona[32]; Georgia[33]; Indiana[34]; Missouri[35]; Nebraska[36]; New Hampshire[37]; New Jersey[38]; New Mexico[39]; New York[40]; and Ohio.[41]

Statute or Regulation	Eight of ten state stock asthma rescue medication policies were enacted by statute. Two were enacted via rules or regulations (NE, NY).
Authorization or Mandate	Eight of ten state stock asthma rescue medication policies *authorize* a school district to obtain and administer undesignated quick relief asthma medication. Two states (NE, NJ) *mandate* that schools maintain a stock of medication.
Schools Covered	Ten of ten state stock asthma rescue medication policies apply to all school districts in the state, public or private.
Drug Preference	Only one state specifies which drug must be stocked (IN: Albuterol). Three states (AZ, NH, NM) indicate that a bronchodilator means Albuterol, levalbuterol, or another bronchodilator that is approved by the FDA for treatment of respiratory distress. The other six states make no mention of drug preference.
Who Can Receive Medication	Five of ten states allow only students to receive an administration of stock asthma rescue medication (GA, MO, NH, NM, NY). Four states also allow school staff to receive the medication (AZ, IN, NE, OH) and three allow guests or any other adults to receive an administration of the school's asthma rescue medication (AZ, IN, OH). One state (NJ) does not specify.
Diagnosis Required?	Six of ten states do not require a diagnosis on file to receive an administration of stock asthma rescue medication (AZ, GA, MO, NE, NM, OH). Only two of ten states (NH, NY) require a diagnosis. Two state policies (IN, NJ) are ambiguous as to diagnosis.
Who Can Administer	Seven states (AZ, GA, IN, MO, NE, NH, OH) allow both nurses and trained school personnel to administer. Only one state (NM) limits administration to school nurses. Two states (NJ, NY) do not specify who can administer the stock asthma medication.
Waiver of Liability	Six of ten states waive liability for a varying combination of the person administering, the person prescribing, the district, the school board, and/or the entity doing the training (AZ, GA, IN, MO, NH, OH). The four remaining states (NE, NJ, NM, NY) offer no waiver of liability.
Prescription Authority	Eight states (AZ, GA, IN, MO, NE, NH, NM, OH) authorize a combination of doctors, physicians, physician assistants, advance practice nurses, or other medical professionals with prescribing authority the authority to write a prescription or standing order for stock asthma rescue medication on behalf of a school district. One state (AZ) specifically mentions the chief medical officer of the state department of human services or of a local health department, but also authorizes doctors or nurses to issue the standing order as well. Two states (NJ, NY) do not specify who is authorized to prescribe asthma rescue medication on behalf of a school district.
Pharmacist Authority to Dispense	Six of ten state laws (AZ, GA, IN, MO, NE, NH) specify that pharmacists are authorized to dispense asthma rescue medication either in the name of the school or of an authorized entity. Laws in the four remaining states (NE, NJ, NY, OH) make no specifications.
Training Requirements	Seven of ten states (AZ, GA, IN, MO, NH, NM, OH) require that nurses and/or other authorized school staff undergo training in order to administer stock asthma rescue medication. Requirements for the training program and frequency of completion vary between states and commonly are left to administrative rules.
Funding Source	Four states (GA, NH, NM, OH) specify that school districts can enter into agreements or receive donations of asthma medication directly from pharmaceutical companies or other distributors.
Reporting	Seven states (AZ, GA, IN, MO, NH, NM, OH) require reporting to the state, either when the stock asthma rescue medication is obtained, or when it is administered.

Table 2 – Illinois Stock Undesignated Epinephrine Auto-injector Policy Elements (105 ILCS 5/22-30)

Who may administer 105 ILCS 5/22-30 (b-10)	• School nurses • Trained school personnel
Who may receive 105 ILCS 5/22-30 (b-10) (i-iii)	• Student with an action plan or 504 plan (for self-administration OR staff-assisted administration) • Any person whom the nurse or trained personnel believes in good faith to be experiencing an anaphylactic reaction (staff-assisted administration only)
Where can it be administered 105 ILCS 5/22-30 (e)	• In school • At a school-sponsored activity • While in the supervision of school personnel • Before or after normal school activities, e.g. before- or after-school care • School bus
Where can it be kept 105 ILCS 5/22-30 (e-5), (f)	• In places with highest risk of allergy, including but not limited to classrooms and lunchrooms • On the person of nurse or trained personnel
Notice of policy 105 ILCS 5/22-30 (c)	• School must inform parents, guardians, and the professional writing the prescription or standing order of school's lack of liability for stocking, administering, or not administering undesignated epinephrine, except in cases of willful and wanton misconduct
Liability 105 ILCS 5/22-30 (c-5)	• No liability for stocking, administering, or not administering undesignated epinephrine, except in cases of willful and wanton misconduct
Who can prescribe or write standing order 105 ILCS 5/22-30 (a)	• Physicians • Physician assistants with prescribing authority under state law • Advanced practice nurses with prescribing authority under state law
Reporting of incidents 105 ILCS 5/22-30 (f-5), (f-10), (i)	• Upon administration, notify EMS and child's parent or guardian • Within 24 hours, notify professional who wrote prescription or standing order • Within 3 days, must provide a report to ISBE
Training 105 ILCS 5/22-30 (h)	• School personnel authorized to administer undesignated epinephrine must complete annual training • Training must cover identification of symptoms, areas of high risk, allergy prevention, emergency response procedures, how to administer an auto-injector, and potential differences between diagnosed and undiagnosed allergies
Data dissemination 105 ILCS 5/22-30 (j)	• Annual report to governor from ISBE on use of undesignated epinephrine
Administrative Rules 105 ILCS 5/22-30 (k)	• ISBE may adopt administrative rules to implement law

Sources

[1] Rivkina V, et al. (2014). Identifying barriers to chronic disease reporting in Chicago Public Schools: A Mixed-Methods Approach. *BMC Public Health*, 14: 1250.
[2] Centers for Disease Control and Prevention. (2012). CDC and ICHS BRFSS Asthma Call-back Survey, 2007-2010 adults; 2007-2009 children. Retrieved March 01, 2018, from http://dph.illinois.gov/sites/default/files/publications//idphasthmainfographic.pdf.
[3] Centers for Disease Control and Prevention. (2015). Asthma. Retrieved from https://www.cdc.gov/nchs/fastats/asthma.htm.
[4] Centers for Disease Control and Prevention. (2018). Vital Signs: Asthma in Children. Retrieved from https://www.cdc.gov/vitalsigns/childhood-asthma/index.html.
[5] United States Environmental Protection Agency. (2017). Asthma Facts. Retrieved from https://www.epa.gov/sites/production/files/2017-08/documents/2017_asthma_fact_sheet.pdf.
[6] Nurmagambetov, T., Kuwahara, R., & Garbe, P. (2018). The Economic Burden of Asthma in the United States, 2008-2013. *Annals of the American Thoracic Society, 15(3),* 348-356. doi:10.1513/annalsats.201703-249oc.
[7] Centers for Disease Control and Prevention. (2015). Child Asthma Data: Lifetime Asthma. Retrieved from https://www.cdc.gov/asthma/brfss/2015/child/tableL1.htm.
[8] Centers for Disease Control and Prevention. (2017). 2015 Child Asthma Data: Prevalence Tables. Retrieved from https://www.cdc.gov/asthma/brfss/2015/child/tableC1.htm.
[9] *Ibid.* note 8.
[10] *Ibid.* note 7.
[11] Centers for Disease Control and Prevention. (2012). CDC and ICHS BRFSS Asthma Call-back Survey, 2007-2010 adults; 2007-2009 children. Retrieved March 01, 2018, from http://dph.illinois.gov/sites/default/files/publications//idphasthmainfographic.pdf
[12] Illinois Department of Public Health Office of Women's Health and Family Services. (2016). Illinois Childhood Asthma Surveillance Report, 2011-2014.
[13] *Ibid.* note 12.
[14] *Ibid.* note 12.
[15] *Ibid.* note 12.
[16] *Ibid.* note 3.
[17] Nurmagambetov T, et al. (2016). State-level medical and absenteeism cost of asthma in the United States. *J Asthma,* 10: 1-14.
[18] Nurmagambetov T, et al. (2017). State-level medical and absenteeism cost of asthma in the United States. *Journal of Asthma*, 54(4): 357-370.
[19] Meng, Ying-Ying, et al. (2012). Asthma-Related School Absenteeism and School Concentration of Low-Income Students in California. *Prev Chronic Dis*, 9: E98.
[20] Hsu, Joy, et al. (2016). Asthma-Related School Absenteeism, Morbidity, and Modifiable Factors. *American Journal of Preventive Medicine*, 51(1): 23 – 32.
[21] *Ibid.* note 19.
[22] Managing Asthma: A Guide for Schools. National Health, Lung, and Blood Institute. (2014). NIH Publication No. 14-2650. Retrieved from https://www.nhlbi.nih.gov/files/docs/resources/lung/NACI_ManagingAsthma-508%20FINAL.pdf.
[23] National Asthma Education and Prevention Program. (2007). Expert Panel Report 3. Guidelines for the Diagnosis and Management of Asthma. NIH Publication Number 08-5846. Retrieved from https://www.nhlbi.nih.gov/files/docs/guidelines/asthsumm.pdf.
[24] Centers for Disease Control and Prevention. (2017). Strategies for Addressing Asthma in Schools. Retrieved from https://www.cdc.gov/asthma/pdfs/strategies_for_addressing_asthma_in_schools_508.pdf.
[25] Gerald JK, et al. (2012). Availability of Asthma Quick Relief Medication in Five Alabama School. *Pediatric Allergy, Immunology, and Pulmonology*, 25(1): 11-16.
[26] *Ibid.* note 25.
[27] Conversation with Dr. Ken Fox, Chicago Public Schools Chief Medical Officer, January 30, 2018.
[28] Gupta RS, Zhang X, Sharp LK, Shannon JJ, Weiss KB. (2008). Geographic variability in childhood asthma prevalence in Chicago. *J Allergy Clin Immunol*, 121(3): 639-645.e1.
[29] Gupta RS, Rivkina V, DeSantiago-Cardenas L, Smith B, Harvey-Gintoft B, Whyte SA. (2014). Asthma and food allergy management in Chicago Public Schools. *Pediatrics*, 134(4):729-36.
[30] Gerald JK, et al. (2012). Availability of asthma quick relief medication in five Alabama school systems. *Pediatr Allergy Immunol Pulmonol*, 25(1): 11–16.
[31] Pappalardo AA, Stinson A, Bruscato R, Martin MA. (2018). Chicago Public School Nurse Opinions About School Asthma Care Coordination. *JACI Abstract*, AB216.
[32] Arizona HB2208 (2017).
[33] Georgia SB126 (2015).
[34] Indiana Public Law 117 (2017).
[35] Missouri House Bill 1188 (2012).
[36] Nebraska Department of Education, Rule 59 (2003).
[37] New Hampshire SB322 (2016).
[38] New Jersey Statutes, §18A:40-12.7 (2001).
[39] New Mexico Statutes Annotated, §7.30.12.1 (2015).
[40] New York State Education Department. (August 23, 2011). New Policy for Stocking Albuterol Metered Dose Inhalers (MDIs) [memo]. Retrieved from http://www.p12.nysed.gov/sss/schoolhealth/schoolhealthservices/Albuterol2011memo.pdf.
[41] Ohio House Bill 39 (2016).
[42] Krieger J, et al. (2016). State-wide Legislation Positively Impacts Attendance for Students with Asthma. Annals of Allergy, Asthma & Immunology, 117(5): S57.
[43] Gerald LB, et al. (2016). Implementation and Evaluation of a Stock Albuterol Program for Students with Asthma. *AnnalsATS*, 13(2).
[44] Illinois Public Act 98-0795.
[45] Illinois State Board of Education. (2016). Report on the Use of Undesignated Epinephrine School Year 2014-15. Retrieved from https://www.isbe.net/Documents/epinephrine-use-report14-15.pdf.
[46] Illinois State Board of Education. (2017). Report on the Use of Undesignated Epinephrine School Year 2016-17. Retrieved from https://www.isbe.net/Documents/epinephrine-use-report16-17.pdf.
[47] Illinois State Board of Education. (2016). Illinois Asthma Emergency Response Protocol. Retrieved from https://www.isbe.net/Documents/asthma_response_protocol.pdf.

March 2018