(DuAl)buterol: Addressing an Unmet Need for DC Students with Asthma

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Ryan Gibbons was an energetic 12-year-old boy with chronic asthma. On October 9, 2012, he suffered from an asthma attack at school and tragically died before he could access his rescue inhaler. Disturbingly, as per school policy, Ryan's rescue inhaler was locked in the principal's office, and many of his inhalers he previously brought from home had been confiscated. This is just one of many examples where misunderstanding about the severity of asthma, combined with the lack of knowledge surrounding the necessity of readily accessible asthma medications, can lead to a child's very preventable death.

Asthma is a chronic obstructive lung disease caused by inflammation and constriction of the airways. This makes breathing difficult and causes wheezing, shortness of breath, and cough. According to the Asthma and Allergy Foundation of America, 1 in 12 children in the United States currently have asthma. In Washington DC, however, this number rises to 1 in 3 children, about four times the national average. Moreover, vast disparities exist between DC's neighborhoods. Specifically, according to the 2017 Asthma Surveillance Report by ImpactDC, children that live in underserved areas, such as Southeast DC, are more than ten times more likely to have asthma compared to children that live in Northwest DC.

Asthma significantly affects the daily activities of many children, and it can even be life-threatening. As a result, children with asthma are often seen in urgent care centers and the emergency room for asthma exacerbations. Some are even hospitalized. According to the above Asthma Surveillance Report, there were 7,525 asthma-related pediatric visits to DC-area emergency rooms in 2015, a 23 percent increase from 2010. Of these visits, 62.3 percent were made by DC residents alone. Frequent medical visits lead to missed school days, which profoundly impacts a child's education.

Myriad factors can trigger an asthma exacerbation, including poor air quality, cold air exposure, outdoor play, and even certain foods. Moreover, many of these triggers are not only present in a child's home, but they are also present at school. An exacerbation involves increased swelling of the airways and mucus secretions, which further blocks the airways. As a result, less air is able to pass through, and symptoms associated with asthma exacerbations arise such as wheezing, coughing, and gasping for air. If not treated immediately, asthma can cause death.

Fortunately, many patients can mitigate an exacerbation by using an inhaled, short-acting "rescue" bronchodilator, such as Albuterol. This medication works by relaxing and dilating the airways, allowing more air to pass through and alleviating asthma symptoms. Access to these life-saving medications is crucial for children with asthma, especially at school. However, and troublingly so, not all children with asthma have access to their inhaler at school. Children can spend up to 35 hours a week at school, not including after-school sports and activities. Thus, it is imperative that children with asthma have their rescue inhaler on hand.

To address this issue, we propose legislation to mandate dual Albuterol prescriptions for children with asthma in which one inhaler is sent directly to a child's school. Under current law, it is up to a physician's discretion to prescribe more than one rescue inhaler at a time. This creates potential barriers, though, as many children do not consistently have their rescue inhaler on hand at school should it be necessary. Under our proposed new policy, a child enrolled in a DC public school that is diagnosed with asthma will receive an Albuterol prescription as a 2-pack. One prescription will be sent home with the patient while the other is sent directly to the patient's school to be held on premises for use in sudden symptom onset.

To promote complete implementation, the electronic medical record (EMR) will require a prescribing clinician to input a school address prior to submitting billing information for reimbursement for any diagnosis codes related to asthma and/or electronic prescriptions for Albuterol. EMRs will also have pop-up reminders to review the school address information with the patient and their family during each visit to ensure the prescription is going to the correct location. The patient will then receive one half of the 2-pack prescription through their preferred pharmacy while the other half will be automatically sent to an identified fulfillment center to then be delivered to the school. The school nurse or other responsible party will store and track the Albuterol prescriptions on behalf of the students and help administer the medication in the event of an exacerbation should the child require assistance.

Within this legislation, we also propose a clause to remove the requirement for parental consent to have and/or use Albuterol in the school setting. As such, instead of signing a waiver to allow Albuterol possession and usage while at school, they must opt out of the otherwise fully authorized use. An established asthma diagnosis in addition to an Albuterol prescription and detailed asthma plan should suffice as permission to have and use Albuterol at school, particularly in the context of ongoing efforts to prevent severe exacerbations among children with asthma.

EpiPen® is an excellent example of a drug that the FDA mandates be prescribed as a 2-pack and serves as a model for our proposal. Epinephrine is critical in a life-or-death anaphylaxis, so it is logical that a spare be provided. Similarly, rescue inhalers are critical in a life-or-death asthma exacerbation. Students spend a great deal of time at school and after school activities, so increasing access to these life-saving medications by providing one specifically for school is paramount. Should a child forget to bring their inhaler to school, they and their family will have peace of mind knowing they are prepared in the event of an emergency.

There are several limitations to our proposal including, but not limited to: the cost of Albuterol delivery to schools, the cooperation of insurance companies in providing coverage, and the ability to pass our proposed legislation. However, these limitations will be ameliorated by long-term

savings accrued from reduced utilization of emergency health services over time. For both families of patients with asthma and insurance companies, it will be more cost-effective to pay for Albuterol to be delivered to a child's school than to pay for emergency health services during an acute exacerbation. Thus, over time our proposal will demonstrate an economic advantage for both families of patients with asthma and insurance companies. Further, as asthma is prevalent across multiple districts, it would behoove local policymakers to support and pass our proposed legislation to not only protect the health of their constituents, but to also gain support across party lines.

Clearly, there is an established need to provide rescue inhalers at school for students with asthma. Our proposal to mandate a dual Albuterol prescription model in which one inhaler is sent directly to a child's school begins to address this issue. This important legislation will allow students to better manage their asthma symptoms at school and ultimately lead to fewer emergency room visits, fewer missed school days, and overall improved education. More importantly, however, this legislation will pave the way for future political and medical innovations, putting us one step closer to ensuring preventable tragedies, like that which happened to 12-year-old Ryan Gibbons, never happen again.