



## REVIEW ARTICLE

## School Education Program in Asthma and Allergic Diseases: PIPA and VIDA in Uruguaiana, Brazil

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### Abstract

**Introduction:** Children and adolescents spend a lot of time in school where it is possible that critical allergic episodes occur. Also, there is some lack of knowledge of staff and teachers about how to assist a child in an emergency situation, especially if he or she is having an allergic reaction to something.

**Methods:** Due to the need to improve care, knowledge, monitoring, and education regarding asthma, the Children's Asthma Prevention Program (Programa Infantil de Prevenção de Asma, PIPA) was implemented along with an allergic diseases program at schools - the VIDA program (Portuguese acronym for Overcoming Allergic Diseases in Children) - to improve the monitoring of allergic episodes in children at schools.

**Results:** By simple and cooperative action among health teams, school authorities, parents, and the community, the school can act on prevention and recognition of symptoms, which in turn ensures better assistance to allergic children in a school environment.

**Conclusion:** This multidisciplinary intervention in schools should be extended to other regions, where the relatives of allergic children do not feel safe and welcomed when they put their children in school, thus improving the integration of children into school and with their peers.

### Keywords

Adolescent, Allergic diseases, Asthma, Atopic dermatitis, Child, Education, Rhinitis, School program

of life, and the health expenditure they cause. According to the World Health Organization, they rank sixth among childhood diseases, account for one-third of chronic diseases in pediatrics, and one in five children have an allergic disease during their school age [1].

Among all of the allergic diseases, asthma is a significant reason for primary care consultation. More than 5 million school-age young children are diagnosed with asthma, and this is the main reason for hospitalization in children under 15 years of age [2], causing a loss of 13 million schooldays annually [3].

It is estimated that the average prevalence of asthma among children and adolescents in Brazil is 20% [4]. In the state of Rio Grande do Sul (RS), respiratory diseases constitute the first group of causes of hospitalization in children under 19 years of age, with asthma taking the second place in this group [4].

But despite all of the efforts and advances in treatments to reverse this situation, the levels of asthma control in most Latin American countries are still far from the goals set by current international protocols [5]. Asthma remains underestimated or undiagnosed, mainly due to the lack of knowledge about its management, not only between patients and their families but also among the professionals involved in asthma care [6], thus generating an enormous impact on the patient's quality of life, with significant school absenteeism, learning difficulties, school integration, and affecting the academic objectives of these patients [7,8].

### Introduction

Allergic diseases are a public health problem because of their high prevalence, impact on the quality



**Citation:** Urrutia-Pereira M, Solé D (2019) School Education Program in Asthma and Allergic Diseases: PIPA and VIDA in Uruguaiana, Brazil. Int Arch Public Health Community Med 3:027. doi.org/10.23937/2643-4512/1710027

**Accepted:** September 12, 2019; **Published:** September 14, 2019

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In the city of Uruguayana, southern Brazil (RS), whose population is approximately 120,000, the prevalence of wheezing in the last 12 months was 25.6% in children aged 9-13. Among them, 9.3% had current asthma [9] and, in the first year of life, 28.4% had wheezing, and 14% had recurrent wheezing (three or more episodes of wheezing) [10]. Therefore, due to the need to improve care and knowledge about asthma and make it accessible in the clinical practice of an outpatient clinic specialized in it (linked to the public health system), the Children's Asthma Prevention Program (PIPA) [11] was created in 2012, and it was incorporated definitively within the programs of the Health Department of the city by Municipal Decree 4675, on August 16, 2016.

The more intense interaction with these children and their relatives allowed us to understand their needs better, not only related to asthma, but also to other concomitant allergic diseases, such as allergic rhinitis, atopic dermatitis, and food allergy. The use of standardized and consecrated Questionnaires, specific for children of different age groups, as well as for parents and caregivers [6,12-14] made it possible to increase the knowledge about these diseases in the environment in question and thus allow the execution of better-targeted measures.

In general, allergic diseases cause great concern for parents and caregivers, especially when children go to school or daycare, thereby being away from their care. Evidence indicates that school professionals have little knowledge about the negative impact of allergic diseases on the lives of children and their families and the emergency situations that may occur in school [15,16].

Teachers need to be recognized as health-promoting agents, and knowledge about standardized guidelines for attending to basic aspects of allergic diseases should be part of their training curriculum so they could act more precociously by sharing the responsibility for the dissemination of this knowledge with the local health teams [7,17].

Children spend long hours at school, and exposure to micro-particles and substances derived from cockroaches and rodents within the classroom is high. It is essential that the cleaning crews know the impact of proper hygiene and ventilation within the classrooms to ensure a lower concentration of allergens and irritants within them, making the school an environment conducive to the control of allergic diseases, avoiding worsening, especially in the most susceptible children [18,19].

For the allergic child, the school should be considered an extension of the home and an important place for the correct management and control of allergic diseases [17,20]. For this end, it is fundamental to carry out an interdisciplinary work between school, family, health team, and the community, with the purpose of

improving multi-professional communication and thus offer allergic children better care within the school [21].

Thus, trained and guided teachers can recognize the child with allergic problems by the medical report, favoring their integration into school activities [7,21], improving the relationship with their colleagues who, knowing better the challenges faced by these children, avoid that they feel excluded in their daily activities or suffer from bullying from uninformed colleagues [22,23].

## Methods

Therefore, in order to improve the assistance to these individuals, a partnership was established between the city's Health Department (PIPA Program) and Department of Education, in collaboration with the Center for Environmental Research and Health Education (Núcleo de Pesquisa Ambiente e Educação em Saúde, NUPAES) of the Federal University of Pampa, for the implementation, in the city of Uruguayana, of an extension of the PIPA Program within schools -- the VIDA Program, by Municipal Decree 531/2017, signed on August 1, 2017, with the purpose of developing an educational process that allows to improve the knowledge about and monitoring of the allergic children in school.

Thus, the full integration of these students into school activities will depend on the degree of knowledge about the disease on their part, their families, teachers, and mainly their peers so that inclusion and acceptance in school can happen in the best possible way [6].

### The primary objectives of the VIDA program at the school are

- a) Promote awareness among the staff and teachers of the school about allergic diseases (asthma, atopic dermatitis, food allergy, allergic rhinitis) so that children don't have their daily activities limited;
- b) Improve the knowledge of allergic diseases by peers, so that one can better understand the student who suffers from it, thereby making such student feel more integrated and supported;
- c) Reduce the frequency of acute allergic exacerbation in school;
- d) Decrease school absenteeism due to asthma and other allergic diseases, with improved academic achievement;
- e) Improve the education of allergic children and their families, so that they can have a better quality of life, without any limitations or stigmas;
- f) Improve the level of knowledge of school students about appropriate respiratory habits (impact of environmental pollution on allergic diseases, tobacco-free school, etc.);
- g) A permanent exchange of information and news

by active social media

### **Strengths of the PIPA Program, which allowed the implementation of the VIDA Program**

a) Recognition, by managers, of the vital role of the program in improving the quality of life of children and their families through the information received from the annual activities reports;

b) Family adherence to the PIPA Program;

c) Monitoring of program activities through social networks;

<https://www.facebook.com/PIPA-Programa-Infantil-De-Prevenção-De-Asma-179468155578874/>

d) Manual on how to care for an asthmatic child in school:

[http://issuu.com/pipaprograma/docs/cartilha\\_asma\\_web](http://issuu.com/pipaprograma/docs/cartilha_asma_web)

## **Results**

### **Difficulties encountered in the implementation of the VIDA program**

a) Heterogeneity of schools about the material, human, and operating conditions within the city;

b) Rural schools lacking medical attention in the vicinity;

c) Need for individual willingness and skills within the school to carry out the actions and make the necessary decisions

d) Need for the availability of school hours for the training of teachers and staff.

e) Need for the commitment of the school, health professionals, family members, and the community.

### **The role of health professionals**

a) Present explanations in person, in a clear and detailed way, on the importance of the topic and all relevant information. In addition to the issues related to the treatment of exacerbation and control of allergic diseases, it is worthy of mentioning the possible impact on health, safety, and performance of school activities;

b) Live demonstration of procedures (use of pressurized metered dose inhaler with spacer and mask, peak of expiratory flow), with the possibility of educators practicing them and repeating the actions until they feel safe to execute them when necessary;

c) Applying knowledge tests, written, oral, and practical, to evaluate the absorption of concepts and information and correctness in the execution of procedures and decision making;

d) Assessment of quality of life by specific Questionnaires at the enrollment of the child in the program and

one year after monitoring [24];

e) Encourage families to notify the school at the time of admission if the child has any allergic conditions;

f) Instruct parents to obtain a written action plan with the child's diagnosis, the main signs and symptoms, and their correct assessment and interpretation from the attending physician or the primary health unit if reported by the child, and the step-by-step on the use of medication and the implementation of other procedures. This item is of particular importance because prescriptions and procedures may vary from child to child and must be strictly adhered to as recommended in the action plan;

g) Ensure that these documents (action plan, medical prescriptions, written instructions for handling medications, written description of procedures) are kept in a place of quick and easy access by the school professional for whenever they are necessary;

h) Provide videos with a demonstration of methods and review and periodically update relevant information;

i) Any occurrence, whether light or severe, or changes in the child's state of health, must be communicated to the parents or guardians, or to their physician if authorized;

j) Refer low-income student for medical evaluation regarding their school activities, either for the occurrence of symptoms or possible side effects of medication;

k) Adequacy and adaptation of school activities, aiming at the participation of students in allergic processes in the most integrated way possible;

l) Guide and promote, at school, the reduction of the factors with the potential to trigger allergic diseases, and maintain the proper cleaning and ventilation in classrooms for the management and control of allergic diseases in the school environment [9,25,26];

m) Compliance with stringent tobacco-related regulations and education about their toxic health effects should be carried out and monitored permanently;

n) Guidance on the use of drugs and more complex procedures in an emergency [27];

o) Guidance on activities to be performed outside of school so that the allergic child's action plan and medications are available during transportation and activity.

### **The role of the school**

a) Identify the child with asthma at the time of enrollment at the school, using the medical report. Keep track of doctor's notes, hospitalizations, and school absenteeism due to asthma;

b) Require, at the time of enrollment, the Action Plan for the student with allergic problems;

c) Ensure program implementation and compliance with an action plan, and keep rescue medication, spacer, and peak expiratory flow at school;

d) Medication administration at school - according to a prescription; medicines in the original packaging, within the expiration date, and labeled with the child's name;

e) Constant observation of the state of health of allergic children, especially those with already known diseases and who inspire more care;

f) Keep the school environment with the lowest possible concentration of allergens and contaminants;

g) Establishment of logistics that allows easy and quick access to information as well as medicines and materials that are needed;

h) Avoid discrimination and bullying of allergic children.

### The role of the family

a) Inform the school about the severity of the child's illness;

b) Provide an action plan to the school, developed by the child's doctor, informing the medication to be administered to the allergic child in an emergency, as well as what would be the triggers of their crisis;

c) Provide the medicines to be used;

d) Commit to reducing exposure to triggering factors within the home.

### Conclusion

In conclusion, we must take into account the following considerations to succeed in the implementation of a program of allergic diseases in schools:

a) Know the local reality to better put in place the health policies necessary to better serve the target population [26];

b) Base the program guidelines on the main consensus;

c) Involve professionals in different categories in the program;

d) Involve managers and keep them informed, permanently, about the results of the program;

e) Publicize the program through new communication tools, such as the Internet, that offer innovations in physician-patient-school-community communication and knowledge of and recommendations about the disease;

f) In addition to all of the above, it is necessary to raise collective awareness among health managers

[26], so that this form of multidisciplinary care for allergic diseases at school achieves the goals of the World Health Organization [27] for the control of respiratory diseases, and that the existing consensus for monitoring and treatment of various allergic diseases is better used and followed [28-30].

### Conflict of Interest

All authors have no conflict of interest to declare.

### Financial Support

None.

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