

FIRST AID GUIDE FOR EARLY EDUCATION SPECIALISTS

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Abstract: *Early education is a topical challenge through the increased social needs of the parent community. In this context, policies for social and cultural progress, and legislative measures should support demographic and cultural development in terms of family and work. The Romanian Ministry of National Education has made efforts to support the training of staff specialized in preschool education, by adapting, perfecting, and creating a new curriculum in early education under the financial support of the project Inclusive and Qualitative Early Education (ETIC – Educație Timpurie Incluzivă și de Calitate), co-financed by the European Social Fund through the Human Capital Operational Program 2014-2020, SMIS code 128215. This project is ongoing at the national level through the concerted efforts of the Ministry of Education, universities, and county school inspectorates.*

Keywords: *first aid; early education; children; nurseries; kindergartens.*

Introduction

The statistical research carried out in Romania regarding the training of specialists in early education has shown that there is a need for an expanded curriculum that includes notions of pediatric first aid. The child's right to health is, along with the right to education, a fundamental right of the child (Gavrila-Ardelean, 2019). We cannot talk about the healthy physical and neuropsychic development of the child, without ensuring a healthy physical and social environment (Gavrila-Ardelean & Gavrila-Ardelean, 2016). These disciplinary attributes correlate with the learning-development standards of early childhood education, to correctly assess the specific fields

of personal security. As a specific aspect of standard health, the child must be able to participate in different activities (Gavrilă-Ardelean & Gavrilă-Ardelean, 2017). Accidents can occur in certain contexts of these activities. The educator is the first person who must intervene. The educator must hold appropriate information and practical abilities, which ensure courage and fluency in applying the first aid maneuvers.

These medical measures must be applied immediately, from the first signs of the of the child suffering and by correct techniques. The caregivers' knowledge of first-aid measures can be lifesaving for the child.

Aim of study and methodology

This study reviews the medical literature and compares it with preschool educators' knowledge of first aid in early education. Educators must learn the fundamental notions on first aid because, when applied correctly, they are lifesaving. Discussions within the focus groups of specialists in the project Inclusive and Qualitative Early Education (ETIC – *Educație Timpurie Incluzivă și de Calitate*), showed that educators do not hold enough knowledge about first aid techniques, and, for this reason, they are reluctant to apply them in practice. The study aimed to create a battery of maneuvers and first aid techniques for nurseries and kindergartens.

Results

The most common child health emergencies encountered from 1 to 3 years of age are related to the risk of suffocating or choking with food or various small items in the playground. These accidents occur by the aspiration of small objects (beads, toy components, food fragments, etc.) into the airways. They are tier 1 emergencies in which the rescuer must intervene immediately. In the case of asphyxiation, every second matters because cardiac arrest occurs within 4 minutes after the child has stopped breathing.

How to check the child's state of consciousness and status?

1. Call the child by name, gently shake him, and ask: "Can you hear me?"
2. Check breathing:
 - by observing chest movements for 5 seconds;
 - by bringing your ear/ cheek close to the child's nose;
3. Check the child's pulse for 5 seconds by compressing with two fingers the radial artery (above the thumb on the internal face of the wrist) or the carotid artery (the lateral portion of the neck, under the mandible);
4. Inspect the child's mouth to extract any foreign bodies that may block the airways.

Fundamental first aid measures

We usually apply the Heimlich maneuver to children who are choking with food. The infant is positioned on the forearm of the rescuer, face down, with the abdomen on the adult's knees. The infant's head must be held lower than the rest of his body. The rescuer supports the child's chin with one hand (Figure 1) while using the heel of the other hand to apply five firm slaps between the child's shoulder blades (Figure 2). If the foreign body does not dislodge, the child must be turned face up on the rescuer's thighs, with the head positioned lower than the rest of the body and given five chest thrusts, by pressing on the sternum with two fingers (Figure 3).



Fig.1. Heimlich maneuver in infants Fig.2. Heimlich maneuver Fig.3. Step 2 of the Heimlich Maneuver

*(<https://www.familia.md/i/info/Articles/addit/mini/1730.jpg>;
<https://www.romedic.ro/uploadart/ghid/1481.jpg>)*

If the child is older (2-4 years), the rescuer can apply the Heimlich maneuver by flexing the child's abdomen over the back of a chair. Another option is to grab the toddler by the legs, raise him upside down, and shake vigorously, then apply a firm slap between his shoulder blades (Figure 4).



Fig.4. Maneuver for airway de-obstruction by turning the child upside down (https://mamaplus.md/sites/default/files/mplus_migrate/5968/5589212e37ff5_5589212e38089.jpg)

Children over the age of 5 receive the standard Heimlich maneuver technique for children and adults. The rescuer stands behind the child and wraps his arms around the waist of the victim. The child's trunk flexes forwards. The caregiver positions the thumb side of his fist between the sternum and the navel of the child (above the belly button). Then, he covers his fist with his other hand and presses quickly and firmly, pushing upwards four times or until the foreign body is removed by coughing (Figure 5).



Fig.5. Heimlich maneuver for children (ages 1-5)

(<https://www.familia.md/i/info/Articles/addit/mini/1730.jpg>; <https://mamaplus.md/>)

If the rescuer can see the foreign object in the mouth or throat of the child, he must remove the fingers,

If the child is lying on the ground or unconscious, the Heimlich maneuver can be applied as follows. Place the heel of your hand on the abdomen (belly) of the child, between the belly button and the sternum. Grasp your hands together, with the elbows outstretched, then push firmly and quickly in a downward and forward movement, 4-5 times (Figure 6).



Fig.6. Heimlich maneuver with the child in dorsal decubitus (lying down)
(https://assets.aboutkidshealth.ca/akhassets/choking_child_heimlich_laying_down)

If the Heimlich maneuver fails and the child loses consciousness, the caregiver must call the emergency medical services (112, in Romania).

De-obstruction of upper airways in children

The Heimlich maneuver is the primary technique for the de-obstruction of upper airways in children. The educator and the early care staff must recognize the emergency of upper airway obstruction (UAO) and act according to an algorithm of the symptoms and signs of the child. Figure 7 schematizes this algorithm.

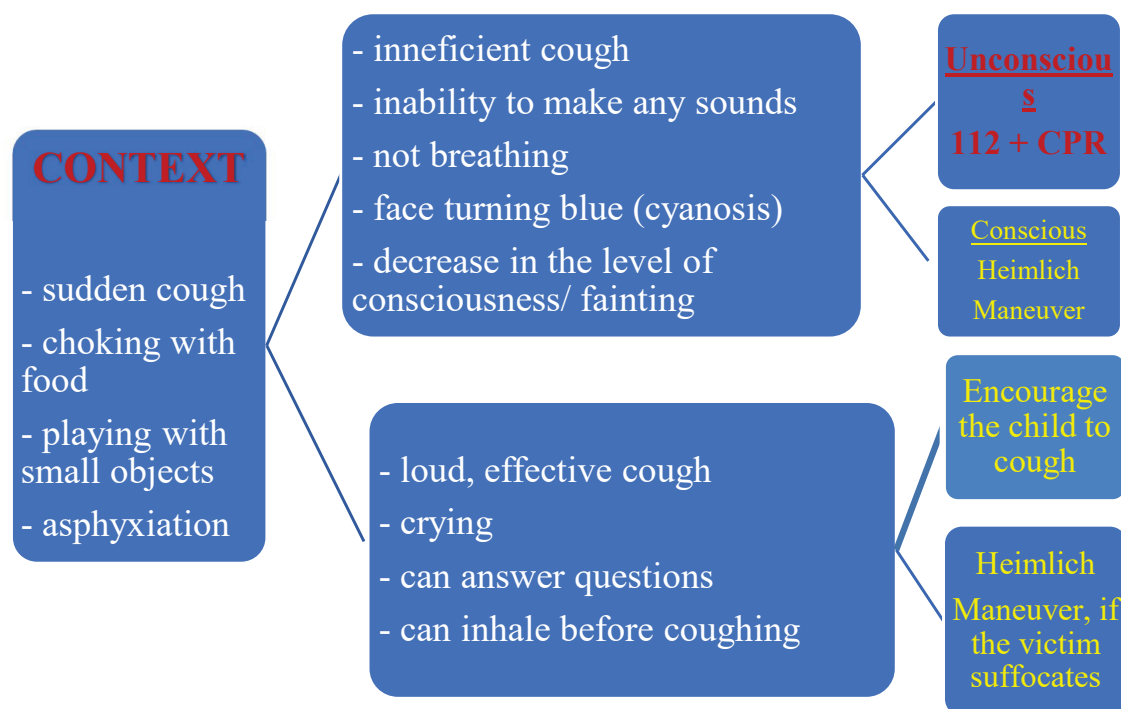


Fig.7. Algorithm of UAO symptoms for emergency intervention

Mouth-to-mouth ventilation and cardiopulmonary resuscitation (CPR)

If the child is unconscious, the rescuer will always call the emergency services (112, in Romania), then begin cardiopulmonary resuscitation (CPR). Cardiopulmonary resuscitation consists of repeating cycles of 30 sterno-thoracic manual compressions, with a frequency of 100-120 compressions per minute, followed by light insufflations (two insufflations every 30 chest compressions). If there are 2 or more rescuers, one will begin resuscitation, and the other will call the ambulance service; they will rotate places every two minutes.

If the child begins to vomit during resuscitation, the rescuer must turn him to the left side and clean his mouth. Then, the victim must be returned to the dorsal decubitus (lying down on the back) position, with the head in extension to open the airways, and the rescuer can continue the resuscitation maneuvers.

For the two rescue breaths, the rescuer tilts the child's head backward to release the airways, then he takes a deep breath and blows into the victim's mouth for one second. It is important to compress the victim's nostrils, to create a seal. Mouth-to-mouth ventilation can be performed directly or through a handkerchief that covers the victim's mouth. Infants and toddlers can receive mouth-to-nose ventilation, where the rescuer uses his mouth to cover and blow into the nostrils and mouth of the child. Mouth-to-nose ventilation is also an option for when the child's mouth is clenched.

Resuscitation maneuvers for children are the same used for adults, but gentler. Infants receive chest compressions done with only one hand, to avoid rib fractures and damage to internal organs. When it comes to older children, the rescuer can use two hands for compressions, pressing only with the heel of his hands. During chest compressions, the rescuer kneels next to the victim, outstretches his elbows, and leans above the victim's chest (Figure 5).

The resuscitation maneuvers continue until the child begins to breathe, his heart starts beating, or until the arrival of the medical crew.

First aid treatment for burns

Do not remove the burned clothes off the victim's body. Do remove clothes only in chemical burns. If blisters appear, do not try to pop, or cut them. Do not apply any medicine on the burned skin. Cool down the burned area with clean water for 10-15 minutes. The rescuer must call the emergency health services.

First aid in case of swallowing of a toxic substance

If the child accidentally swallows a toxic substance (medicines, poison, detergent, etc.), the adult must call the emergency service (112, in Romania). Until the rescue arrives, the adult must discover what toxic substances the child swallowed, by asking the victim or the other children in the group and/or by investigating the surroundings of the child when the incident occurred. The child will not be given milk or activated charcoal. The rescuer will not try to induce vomiting in the victim, as it would be potentially dangerous if the child has ingested caustic substances.

Conclusions

Technical elements and notions of first aid go beyond the sphere of the medical specialty in terms of applicability. They are lifesaving in any situation if known and applied correctly. Time has proven that these notions need to be introduced into the training curriculum of the staff that works in nurseries and kindergartens, for good safety.

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