

## PROPHYLAXIS OF CHILDHOOD VISION IN PRIMARY CARE SETTINGS IN BULGARIA

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### ABSTRACT:

**Background:** The whole prophylaxis and early diagnosis of childhood vision disorders in Bulgaria is in the hands of primary care physicians.

**Aims:** Assessing the level of prophylaxis of vision disorders during childhood

**Materials:** Written anonymous questionnaires

**Results:** According to the parents, the acuity of vision of 41% of their children has never been measured. Most of the children with strabismus have been referred to an ophthalmologist immediately after the discovery of the disorder. Half of the children that were born prematurely have never been referred for an ophthalmic assessment.

**Conclusion:** The level of prophylaxis of vision disorders during childhood in primary care is insufficient.

**Key words:** *general practitioners, questionnaires, childhood, vision disorders*

**Background:** The National Healthcare Insurance fund in Bulgaria has created for the children between the age of 0 and 18 a programme called "Childhood healthcare", which is accomplished by a general practitioner or a pediatrician, chosen by the parents of the child. All the prophylactic measures (examination, investigations, immunizations) that are compulsory are defined by this programme. The chosen physicians visit the newborns at home. They make thorough examination of the newborn during the first 24 hours after being released from the hospital. After the birth, at the age of 6 and 12 months a general assessment of the vision is performed, between the age of 7 and 18 years visual acuity and colour vision are measured once every year. Between the age of 2 and 7 only one compulsory examination is included without the exact time being defined. (6)

There is no mandatory check-up by an ophthalmologist in childhood even though, results from studies conducted on the territory of Bulgaria on the level of prevention of ocular disorders in children are generally anxious. (1-2) In a screening study conducted on 171 children in kindergarten "Eighth March" in Plovdiv in 2010, conducted by V. Marinov, abnormal ocular status was found in 46 (26.9%) children, while only 10 of them had been examined by an ophthalmologist before that. (3) Another similar study among preschool children in the city of Sofia, also shows an extremely low number of children examined by an ophthalmologist. (7)

**Purpose:** Assessing the level of prevention of ocular disorders in primary health care in childhood.

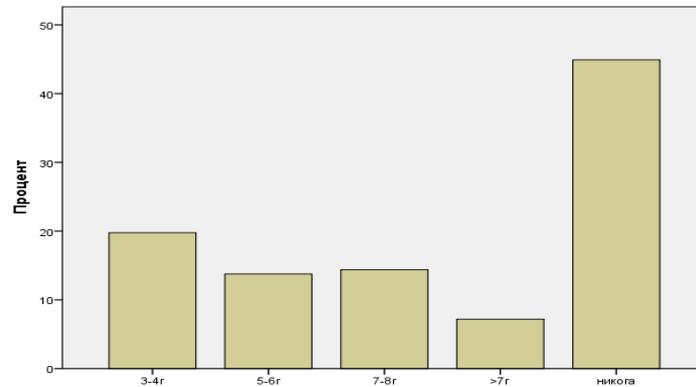
**Materials:** Written questionnaires were distributed to parents of children in two kindergartens in Plovdiv, two schools in Stara Zagora, an elementary school in Stara Zagora and Asenovgrad, filled out completely anonymously, of which 178 questionnaires were returned suitable for analysis.

**Results:** Measuring visual acuity at the age of 3-5 years is very important in order to discover and treat on time amblyopia and strabismus. The earlier the disease is treated, the better visual results. If amblyopia is not treated on time its prognosis is worse and it can lead to permanent loss of function. (9) In order to check the role of general practitioners in Bulgaria in the early detection

of amblyopia and strabismus we asked patients the following question: “At what age the family physician tried to measure the visual acuity of your child? “

According to the answers the visual acuity of 41% of the children of the parents that took part in the survey has never been measured. (fig1)

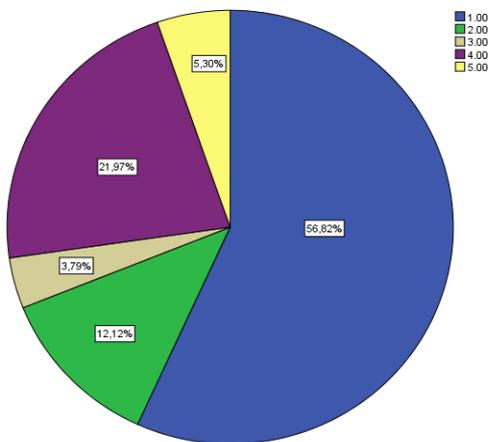
(fig 1)



X= percent

Y= age intervals

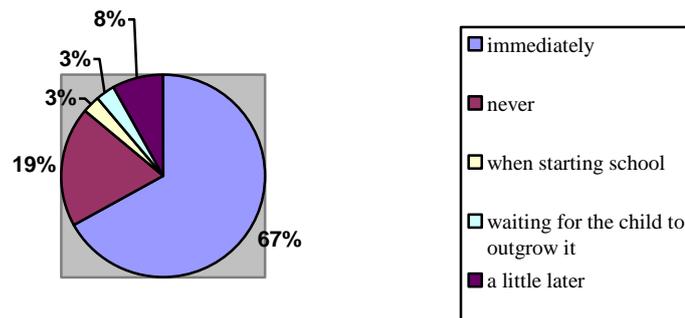
We decided to check if GPs did examine the vision of children and if they have any problems during the examination. The second question that we included was: “How does your child endure the examination of the vision by the general practitioner? “(fig2)



1. Calmly, the child allows to be examined
2. It takes time
3. The child does not cooperate, it is difficult to be controlled
4. The GP refers the child to an ophthalmologist without any examination
5. Other General practitioners know the children in their practices since they were born. It is normal that the child would accept more calmly any examination performed by them.

In our third question we asked the parents that have children with a history of strabismus when the GP referred it to an ophthalmologist. In our survey 36 parents of children with strabismus took part. Fortunately most of the children were referred immediately after the discovery of the disorder.( fig 3)

Fig 3



GPs (general practitioners) have to be clear which children are threatened of retinopathy of prematurity and when they need to be examined. (6) The criteria for screening in our country is age before 32 g.a. and weight under 1500g, as well as newborn weighting less than 2000g that are on artificial ventilation, have intracranial hemorrhage, exchange transfusion, severe intrapartum asphyxia, sepsis. The first exam is needed 4-6 weeks after birth and the follow up every two weeks after that. According to a British investigation, the examination needs to be focused mainly on children under 1251g and under the age of 30 weeks. (13) The American Pediatric Academy recommends examining every newborn under 30 weeks of g. a. and under 1500g. (19)

In order to prevent blindness from retinopathy of prematurity a strong collaboration between GPs, ophthalmologists, neonatologists and pediatricians is needed. That is why, we decided to check their role by our next question to the parents “If you have a prematurely born child, which was in an incubator, who referred the newborn for an examination by an ophthalmologist?”

table 1

Nobody	N=10(45,5%)
Hospital physicians	N=2(9,1%)
GP	N=5(22,7%)
Pediatrician	N=4(18,2%)
GP& pediatrician	N=1(4,5%)

These results are very disturbing. The fact that 10 out of 21 newborn with risk of retinopathy of prematurity have not been investigated by an ophthalmologist shows lack of collaboration and knowledge in this field.

The general practitioner is the one to give advices for the prophylaxis of the vision of children as there is no mandatory examination by an ophthalmologist. Thus we decided to include the following next question- “Have the family physician ever recommended you any prophylactic measures for the vision of your child?” The results show that the majority (84%) have never been recommended any prophylactic measures.

Red reflex examination is not included in the general practice office in Bulgaria. It could be used for early screening of many diseases often met in childhood, like retinoblastoma. It is curable disease if discovered and treated on time. (14) Another diseases easily discovered by red reflex examination is congenital cataract which is a leading cause of preventable blindness. The American and British pediatric academies recommend red reflex examination. (12)

According to the literature in many European countries, USA, Canada, New Zealand GPs use ophthalmoscopes and investigate red reflex, which is part of the general assessment of the newborns. (8, 10, 15, 21, 22)

**Discussion:** Health education is needed among primary care physicians and parents about the examination of children at risk for retinopathy of prematurity, and the timely referral to departments

where this disease is being investigated and treated. It is necessary a mandatory examination of the vision of children by an ophthalmologist to be introduced or at least for the ones at risk (born prematurely, infections during pregnancy etc). The examination after birth has to include red reflex check up. The visual acuity needs to be measured at the age of 3-4 years for the early detection and treatment of amblyopia. In an article by V. Marinov, T. Boeva and N. Sivkova the need of compulsory ophthalmic examinations is also discussed.(4) In many countries red reflex examination is adopted in general practice settings as well as ophthalmic assessment of children at risk by an ophthalmologist. The recommendations of the American Academy of Ophthalmology are also the same. (11, 16, 17, 18)

**Conclusion:** The level of prevention of ocular disorders in children at primary care in Bulgaria does not meet the current requirements. The results from the lack of prevention and early detection in general practice settings as well as the lack of compulsory examination of the children's vision by an ophthalmologist will lead to raising the level of blindness. Part of the future work of the team is raising the knowledge of parents and primary care physicians in the field of ophthalmology by organizing seminars and creating information site and brochures.

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