

EVALUATION OF THE FIRST 24 MONTHS OF THE EUSCREEN PROJECT FROM THE PERSPECTIVE OF THE IMPLEMENTATION TEAM

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Abstract

INTRODUCTION: The goal of the present paper is to evaluate the Cluj team members' attitude towards the general progress of the vision screening at the end of the first year of the implementation study in the EUSCREEN project ("Implementation of cost-optimized childhood vision and hearing screening programmes in middle-income countries in Europe").

METHOD: The analysis covered 7 questionnaires, each comprising an anonymous 20-question survey filled out by the members of the UMF Cluj EUScreen team in January 2019.

RESULTS AND DISCUSSION: The EUScreen Cluj team members unanimously consider the kindergarten to be the most appropriate location for the screening in the urban areas. In the rural areas, preschoolers who attend kindergarten courses regularly could be screened in kindergarten, while the remaining could be tested in the general practitioner's office. Although all the respondents mutually agree that the amount of theoretical and practical information in the initial training courses was adequate and that the nurses' practical skills are fairly good, they also acknowledge that a regular assessment of the accuracy of the visual screening performed by the nurses is needed.

Among the primary reasons for which a higher percentage of children in the rural communes have not yet been enrolled in this screening program were:

infrequent attendance of preschoolers to the kindergarten; poor rural coverage of the project; insufficiency of the medical personnel in the rural areas as well as their overloaded daily; poor access to medical services due to social conditions, financial issues, lack of public transportation facilities; parents' lack of interest in the child's health and welfare.

Possible approaches that could increase the number of screened children were: raising awareness regarding the importance of detection of visual deficits in childhood; promotion and implementation of visual screening programs at a national level; requirement of a compulsory visual acuity test at the beginning of the school year.

CONCLUSION: Implementation of a screening program for child vision in Romania continues to be a feasible goal, but substantial efforts are still needed, especially in rural areas, to have satisfactory and uniform coverage rates.

Also, it will be possible to increase attendance to screening among all parties involved by: raising more awareness of the importance of detecting visual deficits in childhood, promoting and implementing visual screening programs at national level, and requiring a compulsory visual acuity test at the beginning of the school year.

KEYWORDS: **visual acuity screening, amblyopia**

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INTRODUCTION

A majority of the vision and hearing problems could be prevented or early detected by appropriate health screening programmes, which would offer more than 1 in 10 children worldwide a better start in life and improve not only their development but also their life chances [1]. According to recent studies, pediatric eye disorders seem to affect more than 1 in 5 school-aged children in the United States and could potentially alter a child's academic success and quality of life [2-6]. Amblyopia refers to an abnormal development of vision in one or both eyes which do not reach the maximum threshold of visual acuity, despite appropriate optical correction [7]. This condition is the main cause of monolateral low visual acuity in childhood, with a prevalence of 1% -5% in the population [8-12].

EUscreen is a 4-year multicenter European project funded by the HORIZON 2020 program that runs under the full name of "Implementation of cost-optimized childhood vision and hearing screening programmes in middle-income countries in Europe". The Romanian county of Cluj was selected as the setting for the visual screening pilot study. Accordingly, the aim of the project is the detection of visual disturbances, namely amblyopia, in children between the ages 4 and 6 by means of direct measurement of visual acuity, employing age-appropriate techniques and standard logMAR distant visual acuity charts. The pilot study unfolds over a 2-year period, between January 2018 and December 2019. Visual acuity is measured by the nurses in the kindergartens in the city of Cluj-Napoca and in the other five towns (Turda, Câmpia-Turzii, Huedin, Dej, Gherla), respectively the family doctors or their nurse practitioners in the rural areas in the county. The medical personnel involved in the screening were required to attend a mandatory two-day training session organized at the University of Medicine and Pharmacy Cluj-Napoca prior to the commencement of the screening.

The EUscreen team members maintained a close contact with the nurses and family doctors enrolled in the project; correspondingly, repeated visits to the kindergartens and general practitioner's offices in the rural area were made to the order to evaluate the progress of the screening and to assess the practical visual acuity measurement technique.

METHOD

In January 2019, at the end of the first year of the implementation study, corresponding to the intermediate stage of the project, the members of the UMF Cluj EUscreen team were asked to fill in an anonymous 20-question survey on their outlook regarding the attitude as well as practical abilities of the medical personnel involved in visual acuity screening. We have analysed the answers in the seven questionnaires.

RESULTS

Regarding the most suitable location for achieving the highest possible screening rates among children in the urban areas, all 7 respondents agreed upon the kindergarden. As for screening in the rural area, 2 respondents believe that vision testing in kindergarden would be the location of choice, other 2 nominate the general practitioner's practices as the best alternative; meanwhile the other 3 respondents chose a combination of the two variants.

When asked about medical staff's attitude regarding visual acuity testing, 6 of the team members consider the medical staff as being confident in their technique, while one assessment was "neutral". Moreover, 6 of the 7 participants in the survey assess the nurses' and family doctors' practical skills as being "good", while one of them deemed there were significant differences from one examiner to another. Furthermore, when asked to appraise the theoretical skills of the medical personnel, on a scale of 1 to 5 (where 1 is "unsatisfactory" and 5 is "excellent"), 3 of the respondents selected a 3, that is "average", grading, while the remaining 4 opted for a 4, namely "good" rating. The medical staff's communication skills with children are considered to be "excellent" by 4 out of 7 respondents, and "good" by the remaining 3 respondents.

All 7 members of the team consider that the theoretical and practical information provided to the medical staff during the training sessions was sufficient; and that a periodic evaluation of the accuracy of the visual screening performed by the nurses is needed.

In this respect, among the parameters that could be taken into account for a qualitative assessment of the visual screening performed by the nurses the team members mentioned:

- the percentage of referred children whose positive ophthalmological report confirms the need for a full ophthalmological exam; too low a percentage of children referred to the ophthalmologist might raise suspicions regarding the quality of screening;

- possibly the random re-testing of certain children by an experienced examiner (like a pediatric ophthalmologist);

- the ability to communicate/interact with the child;

- the examination conditions (room brightness, background noise);

- the visual acuity measurement technique.

The main reasons why a larger number of children have not yet been enrolled in this screening program in the rural area are considered to be:

- the sporadic attendance of preschoolers to the kindergarten;

- the perception on the importance of visual screening is different in rural versus urban areas: parents in the countryside commonly show little concern for the routine health check-ups mainly due to the fact that they are either not aware of the importance of these visits or because they have a busy schedule;

- the poor rural coverage of the project (less than half of the communes are currently registered in the project) and the information related to visual screening has generally been distributed more difficult to the parents in rural areas;

- the overloaded daily schedule of family doctors in addition to the fact that preventive health check-ups are not reimbursed separately by the Romanian National Health Insurance Company;

- the insufficient medical personnel in the rural areas and the refusal of some nurses / doctors to enter the project possible due to lack of time for an active and full involvement in extra activities;;

- the access to medical services is rather difficult for some children in the rural areas, due to social conditions, financial issues, lack of public transportation facilities;

- last, but not least, there is a fairly large number of children from rural areas who actually attend kindergartens in urban areas.

Among the major reasons for which parents refused to give their consent to the participation of their children in the screening were:

- the lack of parental involvement in children's health, insufficiency of sanitary education (parents are not aware of the benefits of early detection of visual acuity disorders; moreover, due to the poor attendance of children in kindergarten nurses did not have the opportunity to meet the parents and discuss the importance of visual screening);

- distress in disclosing personal data (some refused to fill in the child's personal identification number, whereas others did not understand the necessity of giving a written consent for the eye test or some simply cannot write);

- distrust in medical staff;

- the existence of a previous ophthalmological exam (some parents refused to enroll their children in the screening if they have already been seen by an ophthalmologist).

In this relation, the team members were further asked what methods could be attempted in the future to encourage parents / legal representatives to approve of their children being screened. Some of the approaches they proposed were:

- raising awareness regarding the importance of detection of visual deficits in childhood, by means of written, verbal, audio data dissemination;

- involvement of the national health and/or education authorities in the promotion and implementation of visual screening programs; an exhaustive, assertive outreach program focused on the long-term consequences of the disorder could be helpful;

- the parents-teachers meetings in kindergarten or the 5-year health check-up in the general practitioner's office on the occasion of the ROR booster vaccine could be a good opportunity for the parents to be informed;

- the requirement to perform the visual acuity test at the beginning of the school year

On a scale from 1 to 5, where 1 means "very reluctant" and 5 means "very enthusiastic", 2 participants to the survey consider the nurses as "reluctant", 3 as "neutral" and 3 as "enthusiastic" about the enrollment in a visual acuity screening program; one of the respondents selected 2 possible answers and pointed out the large variability among different nurses in the county. When asked the same question but referring to the family doctors, 4 of the respondents believe they were 'reluctant', 2 thought they were "neutral"

and another 2 consider them “enthusiastic” about taking part in such a screening. Once again, one of the respondents nominated 2 possible responses.

The likely reasons why some nurses and family doctors refused to get involved in the Euscreen project were: lack of medical personnel or an appropriate location destined to visual screening; presumed difficulties in contacting and mobilizing patients in view of screening; problematic collaboration with the parents; lack of interest in the sphere of ophthalmological pathology; an overloaded daily schedule that does not allow them to perform extra tasks ; a large amount of forms required to be filled in for each examination; non-motivating compensation in the case of family doctors.

With regard to the reimbursement per child, the respondents consider it to be stimulating for the medical staff in urban areas, where the number of children in kindergarten is quite large or in the case of nurses who carry out screening in the locality where they work / live. In contrast, the team members believe that, in rural areas, the amount of 19 lei net / child is insufficient as the mobilization of parents / children is more difficult, frequently involves travelling outside the locality of residence (which implicates transportation costs and a longer time spent on the screening activity).

As far as the perspective of increasing the percentage of screened children in rural areas in the subsequent 12 months of the EUscreen project is concerned, 6 out of the 7 respondents are optimistic. Accordingly, they feel that certain measures could improve rural attendance: focusing efforts on examining children in kindergartens in the locations in which there is allegedly a larger number of children enrolled; advising nurses in rural areas to try to perform the examination in kindergartens, where possible; recommending to identify certain days of the month in which the schedule in the general practitioner’s office is less busy and plan the screening on those days; continuation of examinations in other communes, on the model in 2018 in Cojocna, Triteni, Panceu; one could even attempt to re-contact the medical staff who have not collaborated so far.

The last item in the questionnaire referred to the aspects related to the EUscreen project that could possibly be improved. Two of the respondents suggested

that, in order for visual screening to work, it would need qualified medical staff as well as personnel exclusively employed in such a project. Moreover, 3 of the team members believe that, for the aforementioned reasons, the remuneration of the nurses who perform the screening in other localities than the home ones should be increased. As well, a closer collaboration between nurses and the project staff was mentioned by 2 respondents and one participant in the survey implied a better collaboration with institutions (School Inspectorate, Ministry of Health) would grant a formal promotion of the screening. Other proposals referred to a regular verification of the practical skills of the nurses who test visual acuity, an easier data reporting system by medical staff, the reduction of the number of forms to be filled out and the introduction in the database of the residence of the child (whether urban or rural).

DISCUSSION

Taking into account the experience gathered within the first 12 months of the implementation of the project, all the respondents consider the kindergarten to be the best location for screening among children in the urban areas. Screening in the rural areas, on the other hand, has proven to be rather problematic in the first year of the pilot study; in this respect, the opinions are divided and the most recommended solution would be a combination of the two variants: kindergarten and general practitioner’s practices. Hence, preschoolers who attend kindergarten courses regularly could be screened in kindergarten, while the remaining could be tested in the family doctor’s office.

In a previous study, performed between October and November 2017, by the same EUscreen team, which analysed 178 questionnaires, filled out by family doctors and nurses who attended professional visual acuity training, organised at the beginning of EUscreen project, the vast majority of the respondents also considered that if the child vision screening programme would take place in school medical offices and general practitioner’s practices, the highest possible screening rates would be achieved.[13]

All respondents consider that the amount of theoretical and practical information provided to the attendees in the initial training courses was adequate;

also taking into account the fact that the majority (74%) of the medical staff enrolled in the EUscreen project did not participate in any other screening program and 65% never tested visual acuity in children. [13] Furthermore, they also acknowledge that a periodic assessment of the accuracy of the achieved results is mandatory.

Regarding the reason why many children did not participate in the screening, most of the problems identified at 24 months, by the team, were also mentioned in the debriefing session from the beginning of the screening implementation, as potential causes of failure. So, the problems estimated at that time to be encountered were mainly the same: poor collaboration and compliance from parents, including negligence, lack of health education, refusal to give consent or to send the child to an ophthalmological consultation; but also insufficient medical staff, the troublesome data transmission, poor feedback from the ophthalmologist.[13]

With respect to the methods of persuading parents to give their consent for visual screening, aspects like: nurse-parent communication and detailed explanations on the importance of early vision testing were mentioned both in the initial debriefing session and in the 24-months questionnaire[13]; but of great importance, as stated in the literature that promotes evidence-informed patient choice, is that the informed patient consent should be obtained as a joint decision of both the patient and healthcare professional, allowing the patient's choice to prevail.[14] All in all, several respondents found it worth mentioning that there were very few parents who did not consent to the screening.

Concerning the attitude of nurses and family physicians, respectively, towards enrollment in a screening program for visual acuity, the team's answers ranged quite heterogeneously between "reluctant" and "enthusiastic", one of the team's members emphasizing inter-individual discrepancies of rigor and responsibility.

Among the obstacles encountered by medical staff and the reasons why some refused to enroll, the team identified issues such as the lack of medical staff and adequate screening facilities, along with a busy schedule, low attendance of children to an appointed screening session, laborious forms and data

submission, and also non-stimulating retribution and even lack of interest for ophthalmological pathology.

Notably, we found most of these impediments mentioned in other reports, such as a 2015 study on the vision screening experience of school nurses in Colorado, USA, where the challenges to be overcome were: insufficient medical staff, poor compliance from parents to send their children to an ophthalmologist (where needed); and also poor child cooperation/ inability to screen, inadequate testing space and lighting. [15] Also, an Australian study, which aimed to assess the degree of public understanding for mass screening of a disease, found that only 21% (out of 835 respondents) correctly understood that screening tests are for asymptomatic people. Thus, this low percentage was related to the level of education in general, and health education in specific.[16] Lack of trust in health care programs is also cited in the literature, especially because patients do not seem to receive the amount of information they would normally expect.[17]

Regarding the persuasion of the medical staff to join the visual screening project, the team members mentioned: continuous medical education / visual screening training courses; close collaboration between ophthalmologists and the medical staff who carried out the screening and, finally, the financial incentive.

With respect to reimbursement of screening activity, the respondents conclude that it depends to a large extent on the expectations of the medical staff and the efforts they made; and emphasize that a certain medical staff would examine regardless of remuneration.

Concerning this important aspect, we found in our previous study that most respondents considered that the medical staff involved in screening should be paid in addition to their salary.[13] However, data from the literature show that the payment of healthcare providers based on the number of people they screen, works against the spirit of enabling patients/parents to make an informed choice whether or not they want them/their children to be screened. [18],[19]

The prospect of increasing the percentage of screened children in rural areas in the next 12 months of the EUscreen project is an achievable goal, according to the majority of the team. Also, for the visual screening program to be improved, it would require qualified medical staff employed exclusively for the

project, as well as regular verification of the practical skills of the nurses who test visual acuity, and also a more facile data submission system.

CONCLUSION

The most relevant aspects that emerged from the evaluation of the first 24 months of the EUscreen project were that a screening program for child vision in Romania continues to be a feasible goal, but substantial efforts are still needed, especially in rural areas, in order to achieve satisfactory and uniform coverage rates.

The kindergarden is believed to be the most suitable location for the screening in urban areas, while for rural areas it is either the kindergarden or the

general practitioner's office. The team unanimously considers that the amount of information in the training courses was adequate and that the nurses' practical skills are fairly good, but the efficiency of the screening could be improved by hiring qualified medical staff exclusively for the project and performing periodic performance checks on the practical skills of the staff involved in screening.

Moreover, it will be possible to increase attendance to screening among all parties involved by raising more awareness of the importance of detecting visual deficits in childhood; promoting and implementing visual screening programs at national level; the requirement of a compulsory visual acuity test at the beginning of the school year.

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