Implementation of cost-optimized childhood vision and hearing screening programmes in middle-income countries in Europe

Reporting

Project Information

EUSCREEN

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Periodic Reporting for period 2 - EUSCREEN (Implementation of cost-optimized childhood vision and hearing screening programmes in middle-income countries in Europe)

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Summary of the context and overall objectives of the project

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In our study, data on screening programmes, demography, administration, general screening, screening professions, uptake and treatment availability has been gathered in a network of professionals in 41 European countries and several countries outside Europe.

A cost-effectiveness model (available at miscan.EUSCREEN.org) has been developed to the point that test users anywhere in the world can enter their choice of screening programme and a custom-made prediction of cost-effectiveness of a screening programme is calculated for that country or region.

The implementation of screening programmes guided by the model has been studied in the County of Cluj in Romania for vision and in three counties in Albania for neonatal hearing screening.

A Manual with Strategy for Implementation is being developed from the results of the implementation studies, from identified requirements, facilitators and barriers, and from good-practice guidelines for existing screening programmes.

The cost-effectiveness model and the Manual with Strategy for Implementation will together constitute the TOOLKIT that will assist healthcare providers and policy makers in their decisions to introduce or modify screening programs.

By our collaborative effort we now have the largest set of data about vision and hearing screening ever. As suspected, vision and hearing screening programmes differed tremendously among countries in Europe.

An important obstacle to efficient screening identified in the EUSCREEN Study thus far is lack of monitoring, quality control, data collection and evaluation. Even in HIC countries with highly developed nation-wide screening programmes this is lacking or insufficient. This may be caused, in part, by the relatively low degree of competition in preventive health care as compared to curative health care: Screening programmes are funded by the state, province or council and very few parents will think that screening is better elsewhere or seek second opinion. The impression that monitoring, quality control, data collection and evaluation could be improved arose from the data gathered in the network of professionals, but also became evident in the implementation studies.

Another disturbing issue was the high percentage of children who did not return for a second screen in neonatal hearing screening in Albania and the high percentage of children who were referred for diagnostic assessment of vision but are not (yet) back-reported by an ophthalmologist in County Cluj. There are many possible reasons for this and these are currently being analysed.

At the end of the reporting period (months 19-36) the cost-effectiveness model (available at miscan.EUSCREEN.org) has been developed to the point that test users anywhere in the world can enter their choice of screening programme, like the number of neonatal hearing tests and the salary of
the screening technician, or the number of visual acuity measurements and the age of the tested child, to calculate the total costs of the screening programme, the cost per screen and the cost per detected case. As the user of the cost-effectiveness model himself enters data on the availability and the salary of professionals who could screen in that country and several other parameters reflecting the region and its organisational and resource requirements, a custom-made prediction of cost-effectiveness of a screening programmes is calculated for that country or region.

In long discussions about the model and in exercising with the model during its development, the great advantage of combining vision and hearing screening with other high-attendance events was stressed, ranging from being born (neonatal hearing screening in maternity clinics) to immunization and heel prick blood test (hearing screening), immunization boosters (vision screening), both for better coverage and for higher cost-effectiveness.

Continuation of hearing screening in Albania
The transition of the implementation study of neonatal hearing screening to state-paid neonatal hearing screening is a reality now that the Albanian government has included neonatal hearing screening in the 2020 budget. A national plan is now being written by our local EUSCREEN Study coordinator to include the other parts of Albania in neonatal hearing screening in the course of 2020.

Continuation of vision screening in Romania
In Romania the implementation of vision screening in rural communes has been difficult. Of all people in Romania, 46% lives in rural communes. Vision screening by the Family Doctor’s nurses was only partly successful, more so when they visited the local kindergartens for screening. Full coverage was reached after a travelling screening nurse was been appointed. A dual solution for rural communes is being considered, of Family Doctor’s nurses screening in kindergartens and of travelling screening nurses to (i) screen children in underserved rural communes, (ii) train Family Doctor’s nurses and (iii) guard the expertise of vision screening. To limit travelling distance they could be employed by the local council administration organisations in the smaller and larger cities, that were very successful in screening in Cluj-Napoca and the five smaller cities in the study. Finally a training for orthoptists, paramedics who treat children with amblyopia, could be started and orthoptists could be stationed in smaller cities for low-threshold access of care for children from rural areas treated for amblyopia.

Progress beyond the state of the art and expected potential impact (including the socio-economic impact and the wider societal implications of the project so far)

In our study, the participation of countries outside Europe, including Malawi, Ruanda, South-Africa, Russia, India and China is very important for the development of the model, because Europe has no low-income or lower middle-income countries and data from such countries is essential to construct a cost-effectiveness model that works for all countries in the whole world. This again is important because several lower middle-income countries like India would like to implement vision and hearing screening nation-wide and need objective calculations to get the best value for money in screening. It proved necessary to add a pre-module to the cost-effectiveness model with questions to determine whether the introduction of vision or hearing screening would be unacceptable or inappropriate, for
instance in case of more urgent health issues like high infant mortality.

A manual with a strategy for implementation is being developed from the results of the implementation studies, from identified requirements, facilitators and barriers, and from good-practice guidelines for existing screening programmes.

The TOOLKIT, consisting of the cost-effectiveness model and the Manual with the Strategy for Implementation, will then be made. It will assist healthcare providers and policy makers in their decisions to introduce or modify screening programs and offer many advantages over the present situation where each country has expert committees to develop guidelines, a screening committee to approve and coordinate guidelines and commissioners to decide whether to follow these guidelines. It is an innovative solution to the problem of inefficiency in the delivery of preventive health care to children and will confer greater cost-effectiveness, improved health outcome, greater health equity.

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