

## Learner-to-learner visual acuity screening: A solution for early identification of visual acuity disabilities

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**Background.** The National School Health Policy guidelines (2002) stipulate that primary school learners should have their vision, speech, hearing, mental health, teeth, nutrition and development screened annually. In reality, especially in under-resourced areas such as the Eastern Cape, many learners with disabilities are not identified, with profound consequences for their ability to learn.

**Method.** This article describes a cost-effective and community-empowering solution, Learner-to-Learner Visual Acuity Screening, whereby secondary school learners were trained to conduct basic visual acuity (VA) eye screening for foundation-phase learners.

**Results.** Of a group of Grade R learners, 30% were identified as having impaired VA and referred for ophthalmic or optometric evaluation.

**Conclusions.** This project created greater awareness among learners, parents and teachers regarding abnormal VA and increased interaction between secondary and primary school learners. This simple and cost-effective strategy could be easily and effectively replicated in other schools, helping to address the need for basic eye care.

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The South African (SA) government pledged to 'Put Children First' by becoming a signatory to the Convention on the Rights of the Child, and by according children special recognition in the Bill of Rights of the SA Constitution, promulgated in 1996. This commitment requires that children's rights are upheld and that adequate provision is made for them to reach their full potential in every aspect of their lives.

Since the right to optimal health and development is especially significant during the early school years, the National School Health Policy of 2002<sup>1</sup> stipulates that all Grade R learners attached to a primary school should be assessed to identify barriers to learning, as well as all new Grade One learners not assessed in Grade R. Such assessments would include: hearing; vision screening; speech impairment; physical examination for gross locomotor dysfunction; oral health and anthropometric assessment.

At present, the state employs 310 school health nurses to service more than 12 000 primary schools. In reply to a parliamentary question in February 2012, Health Minister Aaron Motsoaledi acknowledged that school nurses had visited only 6 500 primary schools the previous year – leaving 5 500 schools without assessment. Moreover, he could not say whether school nurses had ever visited any primary school in either the Eastern Cape (EC) or Northern Cape (NC), because these provinces had failed to report on this issue since 2008.<sup>2</sup>

While the state supports the World Health Organization (WHO) Expert Committee's 1996 recommendation that school health programmes can increase the efficiency of the education system and reduce common health problems, it is clear that there have been major challenges in developing a national school health policy in SA. If we are to effectively 'put children first', we require different ways of approaching these challenges, especially in resource-scarce provinces such as the EC.

As part of their community outreach programme, Aravind Eye Hospital in India has developed a system to assist schools in the early identification of learners with visual difficulties.<sup>3</sup> Medical teams from Aravind Hospital train community workers and teachers in eye

screening, enabling them to assess learners' vision. Records are kept of each learner screened. In this way, potential vision impairments are identified early.

In January 2008, Dr S Cook, ophthalmologist at the East London Eye Centre, visited Aravind Hospital and recognised that a similar community outreach programme could be started in SA. If successful, it would promote basic primary healthcare and prevent visual disability.

### Literature review

A literature review revealed that studies have been conducted in a range of countries using a variety of methods to screen learners' visual acuity (VA).

In the USA, a comparative study<sup>4</sup> compared the performance of nurse screeners with that of lay screeners in administering preschool vision screening tests, and concluded that the two groups can achieve similar sensitivity for detecting preschool children in need of a comprehensive eye examination.

In Ibadan, Nigeria, a pilot study<sup>5</sup> trained teachers in VA testing and eye care. This project concluded that teachers can become effective primary care workers, but that school authorities must organise continuing education to prevent deterioration in knowledge and interest in school health.

The Department of Optometry and Visual Science at City University, London, UK conducted a study<sup>6</sup> using a computer-based programme for vision screening in schools, a method which the study found to be efficient, sensitive and specific.

The School of Public Health at the University of Texas, USA,<sup>7</sup> conducted a major literature review to determine the social, economic and political barriers that contribute to the underuse of vision screening among preschool-aged children. The conclusion was that low-income, minority and uninsured families are at high risk of not utilising vision screening. Ignorance remains a major problem at all levels, and improvements in the distribution of information and education are required.

There is currently nothing in the literature regarding training secondary school learners as VA screeners.

## Aim

This study tested whether learner-to-learner visual acuity screening would prove effective in the SA setting, using structures already in place in the community.

## Method

The involvement of Rotary International<sup>8</sup> in teaching the principles of community service to learners, aged 12 - 18, through local Rotary Interact clubs, provided an ideal platform from which to commence and sustain learner-to-learner visual acuity screening.

The Interact Club at Clarendon Secondary School for Girls in East London was approached to act as the pilot group for screening Grade R learners at the school. The proposal was warmly welcomed by this club, which falls under Arcadia Rotary and whose members aspire to interact with those less fortunate.

Grade 11 Interact learners were trained using course material designed for the project.<sup>9</sup> The course covered social interaction, basic anatomy, physiology, optics, data collection and VA screening using an Illiterate E Snellen Chart. This chart was selected because many Grade R learners are not yet familiar with identifying and naming basic letters and numbers.

Appropriate permission was obtained from the school authorities, parents and the East London Hospital Complex Ethics Committee. The Interact learners then screened Grade R learners on a day that fitted in with the school curriculum.

## Results

Twenty Grade 11 learners were trained in VA screening in a 2-hour session. The following week, in another 2-hour session, 90 Grade R learners were screened. Twenty-seven learners were identified as having reduced VA and were referred for ophthalmic or optometric evaluation. As an added benefit the project taught secondary school learners basic data collection skills, which is one of the modules in their Life Orientation curriculum. The project also created a greater awareness of abnormal VA among learners, teachers and parents, and promoted interaction between secondary and primary school learners.

## Discussion

This method of VA screening is cost-effective in terms of time and human resources, relieving teachers or nurses who already have substantial professional work loads. Secondary school learners were trained outside school hours. Grade R learners were screened during school hours.

The material resources used were: school classrooms, Illiterate E Snellen Charts, tape measures, tissues (as eye patches), class lists and feedback forms - all readily available and inexpensive.

Through Rotary International, the Interact clubs are an ideal organisation to roll out this initiative and ensure its sustainability and annual application. The next logical step is for the trained pupils to conduct training for Interact clubs in other schools so that they can also undertake VA screening. This would ensure transfer of knowledge and further promote community interaction and resource sharing.

Approximately 8% of a normal test population would be expected to require referral for impaired VA.<sup>9</sup> However, a higher referral figure is to be expected when schools are screened for the first time,

reflecting teachers', parents' and learners' lack of awareness of the issue. Referrals are also typically higher from schools serving underprivileged populations of poor socio-economic status.

Use of the Illiterate E Snellen Chart might also have influenced the high referral figure in this study, by making it harder for Gr R learners to discern the letters, and highlighting laterality difficulties rather than reduced VA. In this context use of the 'TVOXHA' chart, the letters of which cannot be reversed, might be expected to reduce the number of false negative results.

## Conclusion

VA screening is not conducted regularly in SA. When it is, it is usually conducted by an expert from outside the school setting, such as a local optometrist, which means there is often no knowledge transfer and no growth in the community's knowledge about eye health. This study has shown the benefit of training secondary school learners in basic eye screening, so that potential visual impairment can be attended to early in the learner's education. The more people trained in basic eye screening, the greater the general community's awareness of eye abnormalities will be. This will empower the community and allow early identification of visual impairment. We have demonstrated that learner-to-learner visual screening can be successfully undertaken in SA and merits wider application.

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