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VISION SCREENING

Visual Screening Programs in British Columbia Schools: Recent Changes

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The purpose of this investigation was to determine whether changes had occurred in visual screening procedures used in British Columbia schools during the last five years. The findings were obtained from a 95% return of questionnaires sent to the 75 school districts in British Columbia. A majority of districts continued to rely primarily on the use of far-point acuity testing by means of an eye-chart. Greater use of learning assistance teachers and of community vision specialists — optometrists and ophthalmologists — appears now to be made when children have reading difficulties.

Introduction

A previous study, Pennock and Shapiro¹, presented results from a questionnaire sent to 75 British Columbia school districts. Some districts reported screening with stereoscopic equipment, enabling the evaluation of acuity, coordination and accommodation at normal reading distance as well as at 20 feet, the latter somewhat analogous to

reading demands in reading from the classroom chalkboard, etc. Most districts, however, appeared to make almost exclusive use of an eye-chart at far-point. It appeared probable that, in such cases, many children with visual anomalies other than myopia would not be identified and that even children referred for diagnosis of learning disabilities might continue to suffer the results of undetected visual problems.

It was recommended that visual screening at near-point should be added to the general practice of checking at far-point. Screening of children with reading difficulties, it was suggested, should include tests of accommodation and coordination, as well as acuity, both at near and far-point by means of stereoscopic equipment.

Criticism of reliance on the Snellen Chart and supporting evidence for the need for more adequate screening has appeared for half a century! More than forty years ago Spache² summarized criticism of the Snellen Chart. Spache claimed that "only 20 to 40 percent of the children are identified (according to the standard used) who really need the aid of a vision specialist."

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In recent years several studies in Canada have been addressed to determine valid and reliable school screening programmes that would reduce the underreferral problems of the Snellen without excessive overreferrals.

Cunningham and Woodruff³ report on the examination of 600 children by an Ontario health unit staff using the Titmus Apparatus and then by optometrists with the Modified Clinical Technique. Using the MCT as the criterion, the Titmus under-referred a high percentage of children of all ages.

In the New Brunswick Vision Assessment Programme of 1982-1983, Woodruff⁴, 10,489 students, slightly more than 99.7% of the children attending grade one in New Brunswick schools were provided a modified clinical examination. In discussing the programme it was suggested that "nurse conducted preschool screening of acuity is likely to produce both underreferrals and overreferrals which are excessive with underreferrals particularly for astigmatism, anisometropia and ocular muscle imbalance. Cunningham and Woodruff³ had previously claimed that "public health nurses fail to detect astigmatism since they have no valid method to assess its presence."

In a recent study in British Columbia, Reynolds⁵ compared the referral efficiency of the Keystone Telebinocular, the Modified Telebinocular and the Snellen against a standard optometric examination. Sixty children, ages 6-9, were administered the above screening measures and a standard optometric exam. The Snellen produced a severe underreferral tendency with less than 30% of those needing attention receiving a positive referral. The Modified Telebinocular Test was found to be the most efficient of the three techniques evaluated and was recommended as a valid school vision screening procedure.

The Study

This study was conducted in the spring of 1984. Its purpose was to determine the nature of changes in school visual screening procedures in British Columbia since a previous survey conducted in 1979¹. A letter as well as a School District Information Form were sent to the superintendent of the 75 school districts in British Columbia. In the letter, superintendents were asked to give the form, a questionnaire on school visual screening practices, to their Director of Special Services or whoever else could provide the information. Responses were received from 60 school districts, an 80% return. A second letter and form was sent to districts not replying to the first letter. Eleven additional responses were obtained for a total of 71, a 95% return.

Findings*

Screening Procedures

Compulsory Screening

When asked about screening procedures used in overall compulsory screening, most of those reporting — 54% indicated use of an eye-chart testing far-point vision, less than (67%) in the previous study. Little difference was noted in the use of a plus lens, a hand-held chart, or stereoscopic machine. More districts — 14% noted the use of "other" procedures — cover test, stereopsis, colour, etc. than previously (3%). Table 1 presents this data.

Table 1
Visual Screening Procedures

	1979	1984
Compulsory Screening		
eye chart	67%	54%
plus lens	5%	5%
hand-held chart	1%	2%
stereoscopic machine	24%	25%
other procedures	3%	14%
Screening Children with Reading Difficulties		
eye chart	63%	52%
plus lens	10%	10%
hand-held chart	0	6%
stereoscopic machine	20%	22%
other procedures	7%	10%

Children with reading difficulties

Children with reading difficulties have their vision checked using almost identical procedures, with 52% of districts still reporting use of the eye-chart, although this is less than five years ago (63%). Little change was noted in use of the plus lens, hand-held chart, stereoscopic machine or other procedures.

Visual Screening Staff

Compulsory screening is still usually done by a nurse (85%) and occasionally by a learning assistance teacher (3%), representing no change. Individual instances were noted of compulsory screening done by an optometrist, health aide, general practitioner, ophthalmologist, teacher of the visually impaired, coordinator of special services and classroom teacher. Little change is noted in these assignments.

Changes have taken place in the nature of screening personnel screening children who have reading difficulties. This data is presented in Table 2. Use of a nurse is now reported by 46% of districts (73%). Much greater use than previously reported is made of physicians — 24% (11%), optometrists — 13% (7%) and learning assistance teachers — 11% (5%).

*Findings from the 1979¹ study are reported in parentheses.

Table 2
Visual Screening Staff

	1979	1984
Compulsory Screening		
nurse	85%	85%
health aide	6%	1%
optometrist	2%	1%
physician — G.P.	1%	1%
physician — Specialist	0	1%
learning assistance teacher	3%	3%
teacher of the visually impaired	0	1%
coordinator of special services	0	1%
ophthalmologist	1%	3%
classroom teacher	0	1%
Screening Children with Reading Difficulties		
nurse	74%	46%
optometrist	7%	13%
physician — G.P.	8%	7%
physician — Specialist	3%	17%
learning assistance teacher	5%	11%
ophthalmologist	0	5%

Student Characteristics

While only 22% of districts reported visual screening as a prerequisite for school entrance, no change from our last report¹, visual screening appears to be considered even more important in the early school years. An increase was noted — 45% (36%) in compulsory screening, done in kindergarten. No change — 23% (23%) was reported for grade one. Slightly less emphasis seems to be placed on testing the visual proficiency of children with reading difficulties. In only 22% of the districts are these children always tested (26%), in a majority of districts — 51% (56%) they are tested most of the time and in 22% (17%) occasionally. Three districts reported *seldom* and one *never*!

Sources of Referrals

Students are referred much more frequently by the learning assistance teacher — 24% (1%) but less frequently by their classroom teacher — 42% (54%) or by a nurse — 14% (27%).

Summary

From the high level of response (95%) in this study, it would appear that school districts in British Columbia are very concerned with providing good visual screening. There is a greater emphasis on early screening, particularly in kindergarten, which would seem the most productive route in preventing later difficulties in both vision and learning.

Findings reveal somewhat less emphasis than previously on the screening of children with reading difficulties, in terms of when this is done. Greater use, however, is made of vision specialists, both physicians and optometrists.

The role of the learning assistance teacher in referring children for screening and in participating as screening staff has grown considerably.

While some districts report the use of stereoscopic equipment, screening is still done at far-

point by means of an eye-chart by most districts. It is probable, taking into account the high under-referral rates of the Snellen, that numerous children with visual anomalies are not identified in school screening and thereby study with discomfort and/or difficulty in classrooms in the province.

Recommendations

1. An attempt should be made to provide visual screenings for all children prior to starting grade one.
2. Children with reading difficulties and/or other learning problems should be screened as a first step on diagnostic procedures.
3. Screening should include accommodation, coordination as well as acuity at both near-point and far-point by means of a stereoscopic device.
4. School personnel should be trained by vision specialists to use this equipment. Screening should be monitored by vision specialists to insure as much as possible minimum underreferrals and overreferrals.
5. Studies should be undertaken to investigate the relative efficiency and relative cost effectiveness of school screening programmes that are sufficiently comprehensive to identify children needing visual care. Taking into account the unacceptably high underreferral rate of the Snellen, its use as a basis for referrals should be phased out as quickly as possible.

References

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Correction

In the *Shilling Optical Case* advertisement which appeared in the Special Congress Souvenir Program, carried with the March issue of the CJO, the wrong telephone number was printed. Following is the correct number for the company:

(416) 630-4470