

THE ORGANIZATION OF A GLAUCOMA SCREENING IN GENERAL PRACTICE

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“Glaucoma accounts for some 14 per cent of Blind Registration in this country and statistics show that 40 per cent of these patients have had no previous treatment. This emphasizes the insidious nature of the condition in that many patients are unaware of symptoms until they are certifiably blind. Treatment at this stage can do little beyond attempting to preserve the remnants of vision and the only way of preventing this visual loss is to diagnose the condition before symptoms are present. This can only be done by examining the apparently healthy population for the early signs of glaucoma.” (Perkins 1964)

THE problem of glaucoma and its early detection is one that is arousing increasing concern in this country. The interest of the writer was aroused by the publication of the results of a screening programme of a hospital outpatient population in Oxford. (Luntz *et al.*, 1963).

It was felt that a glaucoma screening programme in a general medical practice might be of value for the following reasons:

- (1) Such a programme might produce useful information both on methods and cost.
- (2) It would screen a more representative cross-section of the population than a factory or hospital outpatient department could achieve.
- (3) A family doctor has a defined population which can more easily be followed up, and the incidence of a condition or disease in his practice can afford an estimate of prevalence in the population as a whole.

Before starting this project it was arranged that the suspect cases would be further investigated at the glaucoma clinic of the North Staffordshire Royal Infirmary where the writer holds a clinical assistantship.

A number of glaucoma screening programmes have been carried out over the past 16 years, mostly in the U.S.A. No publication could be found in the literature of such work having been carried out by a family doctor in his practice.

The screening took place in an urban practice of 6,000 National

Health Service patients. There were three principals when the programme began in April 1965. The senior partner retired in November of the same year and the practice list was reduced by 500 patients and this number has been excluded from the results of the survey. The practice is almost entirely National Health Service. There is a mixture of light and heavy industries in the area. Other hospital, Ministry of Health, and local authority appointments are held by the practice.

Screening method

The method used was tonometry, using a standardized Schiøtz weightless tonometer. The technique is simple, easily learned, and takes only a minute or two to perform. Those patients found to have an intra-ocular pressure of 25 mm. Hg or more, were regarded as suspect and requiring further investigation.

Organization

Screening was limited to those patients of 40 years of age or more, as glaucoma is rare below this age. A list of patients in this age group was obtained from the practice files, and their names and addresses were entered in a book which later was used to record attendance, refusal, death, etc. This search took two people over 20 hours.

As the surgery premises were not available, the screening was carried out in the local authority maternity and child welfare clinic, by permission of the Newcastle-under-Lyme Corporation Health Committee, who made no charge. These premises were ideal for the purpose having a large waiting room with inter-connected side-rooms leading off.

Two pilot sessions were run to which 50 and 100 patients respectively were invited. These sessions helped the staff to settle into a routine and indicated a 50 per cent response to the first contact.

A screening rate of 50 patients per hour was our aim, and this was achieved when the numbers attending were sufficient. Block bookings of 25 patients every 15 minutes were made. The patient was first contacted by printed letter which briefly explained the purpose of the examination. Fifty-two per cent responded to this first invitation. The response rate to a second and third letter dropped to 26 per cent and 13 per cent respectively, and the numbers invited per session were correspondingly increased.

At first, sessions were held twice weekly, but this was later reduced to one per week. Each session lasted approximately two hours, from 6.30 pm to 8.30 pm. Staff consisted of one receptionist and

two nurses. The latter were volunteers from the eye department of the North Staffordshire Royal Infirmary.

Session routine

On arrival at the clinic, the patient was directed to the reception desk where his attendance was recorded in the book and his date of birth written in the bottom left hand corner of his addressed envelope, which was then returned to him. If he had forgotten to bring his envelope, a substitute was provided.

The patient was then asked to sit on a chair in the waiting room and his attention drawn to a notice which briefly described what he would be asked to do, and which warned him against wiping his eyes after the test. He was then invited into the first side-room where the nurse instilled 0.25 per cent amethocaine eye drops in both eyes. He was then called into the second side-room, occupied by the examiner and an assistant, where he was asked to lie on a couch and the tonometry was then performed. It was intended to use two couches but we had to be content with one couch and one ancient dental chair borrowed from the local public health department. The latter proved to be an asset as many of the elderly and infirm found it more easy to negotiate than the couch. Two Schiøtz tonometers were used alternately, and thus one could be sterilized while the other was in use. Sterilization was carried out by swabbing the foot plate with a cotton wool pledge, moistened with methylated spirits, followed by careful drying.

The tension readings were called out as they were obtained and were recorded by the nurse in the top left hand corner of the patient's envelope. Those patients with a recording of 25 mm. Hg or more, in one or both eyes, were told that the result of the test was 'border line' and that they would require further investigation at hospital. They were informed that they would be sent an appointment for this visit and they were finally reassured that there was nothing to be alarmed about. Their envelope was set aside in a separate bundle.

Non-attenders

Those who failed to attend were later sent a second invitation. Those still defaulting were sent a third duplicated letter couched in rather stronger terms. Anyone refusing the test was not contacted again. At the end of the third series of screening, approximately 60 per cent of the patients 'at risk' had been examined. It was felt that some effort should be made to try and establish the reasons for the failure of the remainder to attend and that a home visit would be the most effective method. Accordingly, a questionnaire was devised and so worded that it was suitable for leaving at the patient's home, with a stamped addressed envelope, should he be out when the questioner called.

The names and addresses of all remaining non-attenders (approximately 650 patients), were regrouped geographically and home visiting started by the writer and a health visitor attached on a part-time basis to the practice. Sunday morning was found to be the most rewarding time to visit, when 16 to 18 visits per hour could be achieved. After four weeks about 300 home visits had been made. Subsequently another ten interviewers, mostly health visitors, were recruited and the home visiting completed in one morning.

The completed questionnaires now showed that there were 353 patients who stated that they still wished to have the eye test and these were sent a final invitation to attend. They were given the choice of an evening or a morning appointment and 119 patients (33 per cent) attended one or other session.

The whole screening programme took place over a period of nine months.

Results

TABLE I

Total number 'at risk'	2,338
Number of patients screened	1,724 (73)
Number of suspects	95
Number attending for follow-up	81
Patients on treatment for glaucoma	25 (1.4)
Patients discharged	36
Patients whose investigations are incomplete (defaulted)	16
Doubtful cases (still under surveillance)	4

TABLE II

<i>Costs</i>		£	s.	d.
Printing, stationery, posters		31	17	2
Clerical, typing and cleaners' salaries		49	0	0
Postage		77	2	4
Session staff salaries		52	5	0
Tonometer		17	5	3
		£227	9	9

TABLE III

Approximate costs at end of:—	£	s.	d.
(a) 1st contact screening	125	0	0
(b) 2nd contact screening	150	0	0
(c) 3rd contact screening	187	0	0

The results of the programme are given briefly in table I. A more detailed analysis of these results is in preparation. One

hundred and four patients who could not be traced were excluded from the survey as were nine with known glaucoma.

It took approximately $2\frac{1}{2}$ hours clerical work to complete 100 contact letters. An estimate of the cost of the investigation is given in table II.

The session and clerical staff were paid a rate of 5s. per hour.

Discussion

An age-sex register was started in 1966 and completed in March 1967.

In retrospect it was felt that the work and cost involved in sending the third letter to the non-attenders was not justified and the home visiting could have followed the second or even the first failure to attend.

Few problems were met during screening. Most patients had completed the eye test within ten minutes of entering the clinic. Delays were occasionally caused by the difficulty in performing tonometry on the tense and anxious patient.

A screening rate of 50 patients per hour in a two-hour session is tiring. However, reducing the rate would have extended the screening period and brought other problems in tracing and follow-up.

The use of 'eye-trained' nursing staff was a considerable asset, and the efficient running of the sessions was due largely to their experience. The nature of their work during the screening, however, is not beyond the capabilities of an intelligent lay person provided he or she is adequately instructed.

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