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**Report on the need for a community ophthalmic physician
service in North Dublin**

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CHAPTER 1

INTRODUCTION

The investigation and treatment of eye conditions differs from some other aspects of medical practice in that a large proportion of the activity occurs at hospital level particularly at the hospital outpatient department.

This arises because of:

- (a) the limited practical experience that general practitioners and other doctors have in the investigation and management of ophthalmic conditions and
- (b) the need for special equipment to examine and assist in the diagnosis of ophthalmic conditions.

As a result a substantial proportion of the workload involving eyes falls to the specialist.

Until very recently in this country, the eye specialist was always an ophthalmic surgeon and was hospital based. Thus there have been large numbers of eye patients referred to hospitals and particularly to the outpatient departments. This in turn has given rise to overcrowded clinics and long waiting lists for outpatient ophthalmic services.

To overcome this problem a working group established by the Department of Health in 1980 (1), recommended the appointment of a new category of eye specialist, the Community Ophthalmic Physician. It was foreseen that these physicians would be involved in the management of all eye conditions which did not require surgery or highly specialised investigation. Accordingly 21 sessional Community Ophthalmic Physicians were appointed for the country.

There were no recommendations made for the Dublin area however, as it was considered that 'the needs of patients in the Dublin area have always been catered for by the services based on hospitals in the area' (1). It was envisaged at the time that the situation in Dublin would be reviewed two years later. However, such a review was never carried out.

The situation in the Dublin area in relation to overcrowding in clinics and a lengthy delay between referral and consultation with the specialist has been exacerbated in recent times by the fact that many of the ophthalmic departments in Dublin hospitals are regarded as regional or national centres for certain eye conditions. This would indicate that it is now inappropriate for these departments to deal with certain eye conditions among children and adults which would not be considered to require the level of specialist care provided at these regional centres.

A consultant group at the Mater Hospital has suggested to Eastern Health Board management that the post of Community Ophthalmic Physician be established in Dublin. Following discussions with Mr Fred Donohue, Special Projects Manager, and Dr Brian O'Herlihy, Specialist in Community Medicine, it was agreed that I would examine this proposal in more detail.

The aim of this undertaking was to establish whether the appointment of a Community Ophthalmologist in the North Dublin area would significantly enhance the ophthalmic services therein.

The matters involving the Directors of Community Care/Medical Officers of

Health referred to in this report would need realignment if the recommendations contained in the report Community Medicine and Public Health - The Future (The Hickey Report) (2) are implemented. Some of these functions would clearly fall within the sphere of the Specialist in Public Health Medicine envisaged in the report.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Public health ophthalmology, often referred to as preventive or community ophthalmology, has only recently begun to attract attention in the ophthalmological world. There are three activities that constitute this approach to the delivery of eye care, namely, preventive, curative and promotive activities (3). This review concentrates chiefly on preventable ocular conditions in children and in adults.

2.2 CHILDHOOD SQUINT.

'Strabismus is always due to some defect in the binocular fixation reflexes that normally enable the two eyes to work together to perceive a single stereoscopic view of the visual panorama.'(4). This complex process can fail to develop or break down, resulting in an incidence of squint of 3% in children (4). Childhood squint is commonly caused by some abnormality of the central coordinating mechanisms. Concomitant squint usually results from refractive error, however it may result from neurological deficit. Typically such a squint appears after age 12 months, initially on near fixation only and when the child is tired. There is often a family history of squint and the squint becomes more constant and severe.

Young children suppress the central vision of the deviating eye to overcome the double vision caused by the strabismus. This quickly proceeds to the

development of amblyopia if the squint is constant and unocular and vision remains poor even when the normally fixating eye is occluded. This process is irreversible after age 6-7 years. Recovery of normal binocular vision with treatment is unlikely once a squint has been constantly present for longer than a few months especially if the onset was before the age of 2-3 years when the normal binocular reflexes have not been developed fully.

2.3 AMBLYOPIA

Public health screening should be targeted to prevent amblyopia. Amblyopia is defined as 'low vision that occurs in infants or young children who have experienced some disturbance of binocular and/or foveal vision during development of the visual system but who have no detectable ophthalmological defect' (5). Without treatment vision in an amblyopic eye is likely to deteriorate to functional blindness.

In the United States and Europe the prevalence rate of amblyopia among children is reported as 2%. Many studies have shown that the prevalence rates among preschool children and schoolchildren are similar which suggests that amblyopia develops in the preschool child. In Ireland the prevalence of amblyopia has been estimated at 3%.

There are many causes of amblyopia which is not a single clinical entity. However most cases found in clinical practice are associated with squint and other causes of amblyopia are rare.

2.4 SCREENING OF VISION IN CHILDREN

Screening has been defined as 'the presumptive identification of unrecognised disease or defect by the application of tests, examinations, or other procedures which can be applied rapidly to sort out apparently well persons who probably have a disease from those who probably do not. A screening test is not intended to be diagnostic. Persons with positive or suspicious findings must be referred to their physicians for diagnosis and necessary treatment' (6).

2.4.1 Pre-school vision screening.

Pre-school vision screening is carried out in England, Scotland and Wales.

The Court Report (1975) recommended that "tests of vision be administered at 7 to 9 months and at 2-3 years(7). "Prevention in the Child Health Services" (1980) recommended that all children should have their visual acuity tested and the cover test for the presence or absence of squint performed at 8 and 18 months, and again at two and a half to 3 years and four and a half to 5 years (8). Based on the recommendations of the British Paediatric Association and the Faculty of Ophthalmologists in 1980, Jay (9) recommends that pre-school children should have a simple examination of their eyes at around 9 months of age and a more comprehensive examination at approximately 3 years.

The question of who should carry out screening has been much debated.

Jay (9) recommends the involvement of orthoptists in the comprehensive 3 year examination. He suggests that the training of the orthoptist

is ideally suited to the assessment of visual acuity, binocular functions and squint. The usefulness of orthoptists in screening of young children is also advocated by MacLellan and Harker (10) and others (11,12).

The effectiveness and efficiency of the pre-school programme has been questioned by a number of authors. In 1986, Ingram et al.(13), carried out a review of 2270 children born between 1973 and 1978 who were screened at age three and a half years. Screening for visual acuity and squint was carried out by an orthoptist and retinoscopy was performed in all cases by an ophthalmologist. The authors found that the uptake of screening by the population was only 70-75% suggesting that it would be administratively difficult to organise screening at age three and a half years. Of all visual defects apart from puberty-onset myopia fewer than half were detected by screening at age three and a half, and most of the children who ended up with the worst vision had presented before age three and a half.

A survey of health districts in England and Wales carried out by Stewart-Brown et al.(14), revealed a large variation in the number of vision screening tests being carried out, the types of tests being carried out and the ages at which they were performed. Although the overall response rate was 81.3% only 25% of district medical officers could provide a figure for the proportion of children in their districts who had been screened at 7-9 months. The reported rates from these districts varied from 50-90%. In the 11% of districts who could record a referral rate for the programme, reported rates varied from 1-33%.

The authors concluded that "the combination of imperfect screening tests and relatively poor outcomes of treatment make it difficult to justify visual acuity screening at 3-5 years" (14).

Johnson et al.(15) suggest that that the principal questions that need to be answered to assess a vision screening programme in children are:

1. Do the tests differentiate well between children who do and do not have the condition?
2. Is the screening programme effective?, i.e. what is the contribution of a screening programme when applied at a particular age and to a particular population to the early detection and management of vision problems and ocular defects in the total population?
3. Is the screening programme efficient? Would the resources needed to support the programme be better spent in other ways? What is the impact of the screening programme on the diagnostic services?

An opportunity to study the first two questions arose when a screening programme was offered to a sub-population of infants considered at particular risk of vision and ocular defects as part of the Oxford region child development project (15). Subsequently a search was made of all referrals for specialist eye care in the Oxfordshire Health District to ascertain the number and characteristics of all children presenting with an eye problem by the age of 2. The relationship between the results of the screening test in the high risk sub-population and the presence or absence of a vision or ocular defect by age 2 was examined. By examining referral patterns and age of referral, the

authors assessed the contribution of the screening programme to the detection of defects. Comparison of the type of ocular and vision defects in the high risk group and in the remainder of the population allowed assessment of the overall contribution of the screening programme to the detection of these defects by age 2. The authors found that the screening tests in current use at age 8 and 18 months for vision loss and squint showed a low sensitivity - that is, their ability to detect the presence of a defect was poor, and had a low predictive value - that is, failing the test was poorly predictive of a defect. In general, the tests had a high specificity i.e. their ability to exclude a defect was good. However, the authors concluded that performance of the screening tests for vision loss and squint contributed minimally to the detection of these defects over the impression gained on overall inspection. In relation to the effectiveness of the screening programme the high risk population contributed only 15% of all infants with defects identified by age 2. It became evident, therefore, that a screening programme confined to a high risk population would miss most cases in the total population.

Ingram et al.(16) have suggested that screening for refractive error at one year might be more effective, as the presence of hypermetropia at this age appears to be a better predictor of those likely to have the most severe amblyopia. However spectacle correction of unusually hypermetropic refractions from age 1 year did not reduce the incidence of squint or amblyopia, nor did it lead to a reduction in the severity of residual amblyopia after subsequent occlusion. Further long-term studies are therefore required on the

significance of refractive errors in the first year of life.

2.4.2 Screening of vision in schoolchildren

The vision of schoolchildren is tested at present to identify those with unsuspected remediable conditions so that treatment can be offered which will improve or preserve vision in some conditions (7) and which will correct the impairment of vision in those conditions where the natural progression of the condition is not amenable to alteration by treatment (8).

The eye conditions which are commonly detected by school vision screening are:

1. Refractive errors due to myopia, hypermetropia or astigmatism.
2. Amblyopia.
3. Ocular muscle imbalance (latent or manifest squint).

A screening test of distant vision will detect cases of myopia, amblyopia or astigmatism and hypermetropia if it is severe. Screening near vision will detect hypermetropia. Of the three different types of refractive error only myopia commonly develops during school age. The relationship between acquired myopia in school-children and increased intelligence has been well established (17). Stewart-Brown et al.(18) in a large study on the educational achievement of 10 year old children with treated and untreated vision defects confirmed that untreated mild myopia does not affect performance. The poor reading of children with amblyopia could be accounted for by their low intelligence rather than the visual defect itself. Having adjusted for intelligence, sex, and social class, they suggested that children with

bilateral near vision defects might be the only group for which treatment may be justified on educational grounds. However Ingram suggests that since these schoolchildren are probably hypermetropic since infancy and as treatment from age 1 year did not reduce amblyopia in hypermetropic children (16), it would seem pointless to identify them when they have started school. In a review of the progress of 108 children with defective vision, referred from the school vision screening programme in Kettering during 1976-78, excluding those with puberty onset myopia, Ingram reported an improvement in visual acuity in the worst eye in only 16 cases (14.8%) (19). A significant improvement in visual acuity was recorded in only 5 of 18 cases of severe amblyopia (6/24 or worse). However 38 (35%) of the 108 children needed to be identified because they had a refractive problem in the better eye which required correction. The author concluded that it seems sensible to identify and treat children with bilateral refractive errors, however the need to treat children with lesser degrees of amblyopia must be debated. He also suggests that the use of autorefractors should be assessed to see if they identify children who need treatment more selectively.

Similar to their survey of pre-school vision screening (14) Stewart Brown and Haslum (20) conducted an evaluation of screening of vision in schools in a large number of health districts in England and Wales. Like the pre-school programme the authors found considerable variation in the frequency of testing ranging from 2-13 tests for screening for distant vision during a child's school career. There was also wide variation in the types of tests used and

the criteria for referral. In many districts, children were screened in unsuitable places, such as corridors, assembly halls and toilets. These factors would suggest that the reliability of screening was unlikely to be high. Only 55% of districts could report on the number of children referred for further investigation, and even fewer on the rate of referral; in the districts that could the rate varied from less than 2% to more than 10%.

In a critical assessment of their results, the authors suggest that a high proportion of districts devote more resources to screening vision in schools than can be justified on the basis of likely benefit. Commenting specifically on the lack of effectiveness of treatment for amblyopia and squint after age 6-7 years, they conclude that while screening for these conditions at school entry is justified at least until pre-school screening programmes become more widespread, the benefit of screening after school entry seems highly questionable.

2.5 SCREENING OF VISION IN ADULTS

Over the past two or three decades the role of the ophthalmic service for adults has changed gradually. Increasing emphasis is being placed on preventive ophthalmology and on the diagnosis and management of the ocular manifestations of systemic disease the classic example being diabetic retinopathy. Increasing consideration has therefore been given to the provision of a screening service for glaucoma and diabetic retinopathy.

Chronic simple glaucoma is a common disorder, which is insidious, progressive

and irreversible, affecting between 0.5% and 1.0% of the population over 40 years (21). It is asymptomatic until visual loss is far advanced. Medical and surgical treatment have a proven effect in slowing down its progression (21). Screening of whole populations for glaucoma is not cost-effective, but screening of those who are particularly at risk e.g. first degree relatives of patients with glaucoma is desirable, as nearly 10% of these relatives will eventually develop the disease(9).

Diabetic retinopathy is the commonest cause of blindness in young and middle aged adults in the United Kingdom (22). Effective treatment is available and early detection offers the best hope of a successful outcome. Unfortunately, diabetics continue to be referred to ophthalmologists with advanced retinal changes when treatment is less successful. A number of studies advocate that patients should be screened at least once a year by medical staff concerned with their direct management (23 24). Yudkin et al. (24) have shown that less than half of all known diabetic patients attend clinics. The remaining patients were much less likely to have regular fundoscopy performed by their general practitioners. However, Yudkin's suggestion that screening for diabetic retinopathy should be carried out by ophthalmic opticians which was supported by Harrison et al. (21) who also recommended that ophthalmic opticians should screen for glaucoma, led to a wave of comment in the British medical press on this topic. While some supported this view, many like Blach from the British Institute of Ophthalmology (25) held the view that although the optician is highly trained to carry out refraction he has minimal training in

eye disease and is therefore not a suitable person to carry out screening without supervision and instruction. Bishop and others (26) advocated that the ophthalmic medical practitioner be contracted to carry out screening for these conditions.

CHAPTER 3

THE ROLE OF THE COMMUNITY OPHTHALMIC PHYSICIAN AND ANCILLIARY SERVICES.

3.1 BACKGROUND

In 1981, Comhairle na nOspideal issued a discussion document on the 'Development of Hospital Ophthalmic Services'(27). Although primarily concerned with the hospital ophthalmic service, reference was made to the need to develop the community ophthalmic service based on a document prepared by the Irish Faculty of Ophthalmology. The Comhairle emphasised the need to develop ophthalmic medical services in the community in conjunction with the development of specialist services at hospital level. It recommended the establishment of a new grade of community ophthalmic medical practitioner who would live in the area served, provide a community ophthalmic service for the health board for that area, supply a primary care level of ophthalmology for the area and link in with consultant hospital services. It was intended that the new grade of ophthalmic practitioner would replace the then existing County Ophthalmologists who were medical practitioners mainly involved with the detection and treatment of ocular disease and with refractions. They did not usually hold hospital appointments and were mainly employed on a session payment basis. The Comhairle considered it of paramount importance that the new grade of post have proper standards of entry and tenure of office.

Accordingly a Working Group was established by the Minister for Health at the

time to determine the number of ophthalmic medical practitioners required in the light of the involvement of ophthalmic opticians in the provision of a refraction service for adults for the health boards(1).

The Group recommended the appointment of 21 Community Ophthalmic Physicians throughout the country, excluding the Dublin area, on the basis of an approximate estimate of one post per 100,000 total population. It recommended that the title can be adopted as this would reflect the community and medical aspects of the work. It made recommendations on the level of knowledge, including epidemiological skills, required by the Community Ophthalmic Physicians and on the ophthalmological techniques necessary. The required qualifications for the position would be possession of the Diploma in Ophthalmology of the Royal College of Physicians and a period of three years in hospital ophthalmic posts recognised as suitable for the D.O.. The Working Group made detailed recommendations on the range of duties to be carried out by the holders of these posts:

1. Pre School children

- (a) examination of children referred from developmental paediatric clinics.
- (b) examination and refraction of pre-school children

2. School Medical Services.

- (a) examination and refraction of children with defective vision discovered by Public Health Nurses in visual screening at primary schools.
- (b) supervision of squint patients in conjunction with the ophthalmic surgeon

and orthoptist.

3. Services to eligible patients.

- (a) Examination and refraction of referral eye problems from the General Medical Service.
- (b) Primary management of eye emergencies.
- (c) The management of post-operative eye patients.
- (d) The management of glaucoma patients.
- (e) Supervision of patients with contact lenses prescribed for medical reasons.
- (f) Periodic review of patients with systemic medical disease associated with eye complications.

4. Local General Hospital Services.

- (a) Provision of emergency care for acute minor eye problems.
- (b) Provision of eye care for inpatients with general and surgical problems.

5. Special Care Hospitals.

- (a) Visual assessment and examination of mentally handicapped children in institutional care.
- (b) Ophthalmic care, including refraction of patients in local geriatric and psychiatric hospitals.

6. Central Eye Department.

- (a) To act as referral doctor for major eye problems to the central eye department.
- (b) To participate regularly in the activities of the central eye department

with the consultant ophthalmic surgeons.

7. Domiciliary Services.

The provision at the request of the Director of Community Care/Medical Officer of Health for the area, of an examination and refraction service in their homes for eligible patients who are unable to travel to clinics.

8. Preventive Services.

Involvement in preventive ophthalmology in conjunction with the Community Care Services.

The Working Group recommended that the Community Ophthalmic Physicians should have a commitment of not less than five sessions per week. Although the report was in broad agreement with the Comhairle concept of community ophthalmic arrangements not all of its recommendations were implemented. The report led to the establishment of 21 Community Ophthalmic Physician posts in the country. However difficulties have arisen from a service point of view as only one of these posts has been filled in a temporary capacity. The incumbents of these temporary posts perform a maximum of six sessions per week. One of the important recommendations of the working party was that the Community Ophthalmic Physicians would develop links with a central eye departments. This does not seem to have been implemented.

3.2 PROBLEMS WITH THE EXISTING COMMUNITY OPHTHALMIC SERVICE

All of the posts currently held by Community Ophthalmic Physicians are occupied

on a part time basis, with the exception of one post occupied by a former Area Medical Officer. They are mainly employed on a sessional payment basis which means that their services are dependent on the amount of funding available from the community care budget. This funding is variable and results in an uneven level of service which leads to difficulties. The Directors of Community Care/Medical Officers of Health drew attention to the lack of accountability which has led to problems in the planning of the service and in dealing with priority cases. They expressed dissatisfaction with the throughput of patients as they considered that the work of the 3 hour session was completed in a much shorter time period in some cases. For these reasons the Directors considered the service to be bad value for money.

A visit was made to a clinic in the South-Eastern Health Board to view the operation of the community ophthalmic service first-hand. Here the Consultant Ophthalmologist, the Community Ophthalmic Physician, the orthoptist and a nurse with special training in ophthalmology work together as a team. Clinics with the full team are conducted at the local major health centre. In the view of the Consultant Ophthalmologist and the Community Ophthalmic Physician, the ophthalmic service in the region was well organised until 1987 when the Free Sight Testing Scheme by opticians was abandoned. However, since then much of the work of the medical staff is concerned with refraction and the waiting lists are jammed with clients who require this service.

An estimate of the workload of the Community Ophthalmic Physician in 1990 was obtained from the Eastern Health Board for Kildare Community Care Area

where this service currently exists. Kildare Community Care Area has a population of 116,247 (29). Two sessional Community Ophthalmic Physicians work in this area. Clinics are held at four major population centres, Naas, Newbridge, Athy and Maynooth. Table1 provides an estimate of the workload of the clinics for 1990.

TABLE 1 -NO. OF CLINICS HELD, NO. OF PATIENTS SEEN AND WAITING LIST FOR COMMUNITY OPHTHALMIC PHYSICIAN CLINICS IN KILDARE BY AREA FOR 1990.

Clinic Centre	No. of clinics	No. patients seen	Waiting list (recalls only) (Oct 1990)
Naas	62	1070	1191
Newbridge	64	958	1179
Athy	47	815	621
Maynooth	65	1087	1269

On average 12 new patients were seen per 3 hour session and 12 recall patients.

3.3 EQUIPMENT.

Following discussions with Consultant Ophthalmologists and Community Ophthalmic Physicians, a list of equipment was compiled which was considered necessary to carry out the duties of a Community Ophthalmic Physician. Both groups agreed on the necessity of a number of items of equipment. There was some dissension in relation to some items in particular the provision of a slit lamp, these items therefore were classified as desirable but not essential (table 2). There was general agreement however, that these latter items would be considered essential at a major clinic centre with a high turnover of patients. Table 2 provides the list of equipment and the costs involved.

TABLE 2 - COST OF EQUIPMENT CONSIDERED NECESSARY TO PERFORM THE FUNCTIONS OF COMMUNITY OPHTHALMIC PHYSICIAN.

EQUIPMENT	**COST RANGE (approx.) ('s)
Snellen Charts	13.50
Stycar Charts	40.00
Set of Lenses	1000.00
Trial Frames	90.00 - 220.00
Direct Ophthalmoscope	110.00 - 300.00
Retinoscope	210.00 - 270.00
*Snellen Illuminated Box	250.00 - 300.00
*Indirect Ophthalmoscope	750.00
*Tonometer	500.00 - 850.00
*Lens Meter	600.00 - 900.00
*Slit Lamp	3000.00 - 5995.00
*Automatic Refractor	10,000.00

* Desirable but not essential items

** Costs provided by courtesy of Trinity Instruments, Trinity St, Dublin.

3.4 THE ROLE OF THE ORTHOPTIST

Orthoptists are specially trained to undertake, under the supervision of an ophthalmologist, the diagnosis, assessment and treatment of squint pre and post operatively. Orthoptists work chiefly with children and as the work involves obtaining the confidence and cooperation of small children it can

be very time consuming. In view of the recognition by the Department of Health on the need to improve the community ophthalmic service a working group was established by the Minister for Health in 1979 to determine the number of orthoptists required in the country, and to consider whether a training school for orthoptists should be established (28).

Several assessments have been made on the number of orthoptists required for this country ranging from 1 : 60,000 (approximately 50-60 full time posts per total population) to 1 : 100,000 (approximately 35-40 full time posts per total population) (28).

The working party recommended an increase in the number of orthoptic posts from the then existing complement of 14.5 whole time posts to 27 whole time posts or their part time equivalent, which it considered the minimum necessary for the provision of an orthoptic service on a national scale. A total of five posts, which would be based at the Mater Hospital, was recommended for North Dublin, a 100% increase over the existing level of orthoptic service.

In view of the shortage of orthoptists in this country, the cost of training orthoptists in the United Kingdom, and based on the recommendations of the Irish Faculty of Ophthalmology and the Irish Association of Orthoptists, the working group recommended the establishment of an orthoptic training school. The school was to be located at the Royal Victoria Eye and Ear Hospital.

Unfortunately the recommendations of the report were not implemented: the numbers of orthoptists have not increased and the proposed training school

was never established.

3.5 THE ROLE OF THE OPTICIAN

In 1979 the Free Sight Testing Scheme was introduced whereby adults with full eligibility for medical services became entitled to receive a sight test from an ophthalmic optician or a private ophthalmologist of their choice upon authorisation from a health board. Thus a number of ophthalmic opticians contracted with the Health Boards to provide a refraction service and to supply spectacles for medically eligible adults. One of the objectives of the scheme was to partly replace the refraction service for adults provided by the Community Ophthalmic Physicians. The Health Boards utilised the Sight Testing Scheme to a varying extent. In the late 1980's because of a need to prioritise services a number of health boards curtailed or abandoned the scheme. Thus in a number of health board areas, refraction of adults continues to occupy a major proportion of the Community Ophthalmic Physician's time.

CHAPTER 4

DEVELOPMENT OF THE OPHTHALMOLOGY SERVICES IN NORTH DUBLIN

4.1 SETTING

North Dublin encompasses the three community care areas on the north side of the River Liffey, Community Care Areas 6,7, and 8. North Dublin which includes north Dublin city and county, is bounded by the river to the south, by Ballyfermot, Clondalkin and Lucan to the west, by County Meath to the north, by the coast to the east and by County Louth to the north-east. The population of North Dublin is 445,164 persons (29).

An age breakdown of the population in the three community care areas of North Dublin is shown in table 3.

**TABLE 3.- AGE BREAKDOWN OF THE POPULATION IN
COMMUNITY CARE AREAS 6,7,8 (1986 CENSUS).**

Community Care Area	Age groups. (years)						Total
	0-4	5-12	13-24	25-44	45-64	65+	
6	12,410	19,985	32,395	37,565	22,804	11,852	136,128
7	8,470	14,175	22,645	29,535	23,641	15,258	121,230
8	17,420	33,274	50,694	52,024	28,382	9,787	187,806
Total	38,300	67,434	105,734	119,124	74,827	36,897	445,164

The population of North Dublin is heavily weighted towards the younger age-groups with a large population of children especially school-children and young adults.

There are four main hospitals serving the North Dublin area: Beaumont, the Mater, James Connolly Memorial Hospital and the Children's Hospital Temple Street.

4.2 BACKGROUND

In 1977, a joint working group of the Department of Health and Comhairle na nOspideal recommended the development of hospital specialties on the basis of a north city and a south city population catchment(27). In 1980 the Minister for Health, based on the recommendations of the working party, issued his decisions on the allocation of specialist units to individual hospitals. In relation to ophthalmology he decided that in North Dublin, there should be a regional unit at the Mater Hospital and service units at Beaumont and James Connolly Memorial Hospitals. A service unit would consist of outpatient facilities with a limited number of beds, as appropriate, for minor procedures. It would have visiting consultant staff only.

In their discussion document on the development of hospital ophthalmic services in 1981(27), Comhairle na nOspideal endorsed the Minister's decision on the continued development of the Mater Hospital as the regional unit. It also recommended that the Temple Street Childrens Eye Unit should be brought

fully within the ambit of the Mater Unit to avoid unnecessary duplication of equipment and other facilities. In relation to Beaumont Hospital, Comhairle considered that the appropriate requirements in ophthalmology did not fall within the definition of a service unit as special arrangements would be needed for neuro-ophthalmology and orbital surgery. The Comhairle concurred that James Connolly Memorial Hospital should have a service unit in ophthalmology.

4.3 CURRENT ARRANGEMENTS

The Mater Eye Unit is the Regional Unit for North Dublin and the North Eastern Health Board. It has thus a total population catchment of 800,000 when one includes the population of the North Eastern Health Board. Ophthalmic surgery and all specialised investigations take place at the Mater Unit.

The specialty of neuro-ophthalmology is provided at Beaumont Hospital because the largest neurological and neurosurgical units in the country are located there. The eye unit at Beaumont Hospital is therefore the national unit for neuro-ophthalmology and it is proposed that orbital surgery which is not catered for at present will be developed there. Routine general ophthalmology clinics are provided by the consultant staff at all three hospitals and at James Connolly Memorial Hospital where outpatients clinics only are carried out.

4.3.1 Staffing

There are at present six Consultant Ophthalmologists working out of the Regional Unit who service the four hospitals and the North-Eastern Health Board region - a ratio of 1 consultant per 150,000 population.

Comhairle na n-Ospideal recommends an ideal level of 1 per 80,000 population.

At present there is one Registrar and three S.H.O's in the Mater Hospital, one part-time Registrar and one S.H.O. in Temple Street, and one S.H.O. in Beaumont Hospital (30). A rota is established by which consultant and N.C.H.D. cover for all the North city general hospital units is linked to the Regional Unit. There is one orthoptist at the Mater Unit and one at Temple Street and three orthoptic sessions are held weekly at Beaumont Hospital.

4.4 WORKLOAD

4.4.1 Outpatient referrals.

There are 10 consultant outpatient clinics per week at the Mater Hospital. Six new patients are seen per clinic and thirty percent of new patients are children. At present, there are an estimated 1680 patients waiting for non-urgent appointments and the waiting period is approximately 28 weeks. On average, approximately 40 patients are seen per clinic which is in excess of recommended norms. Patients with diabetic retinopathy are reviewed on average between 6 months and 2 years depending on the state of progression of the condition. All juvenile diabetic eye disorders are reviewed at Temple Street Children's Hospital.

There are six consultant outpatient clinics per week held at Temple Street Children's Hospital. In 1990, 8679 children were referred to the eye outpatients. The attendance rate was 7071 (81.5%); 1692 children were new patients and 5379 were returns. An audit of the referrals revealed that the Eastern Health Board was the single biggest source of referral. Nine hundred

and six cases (47%) were referred to the hospital from this source as opposed to 379 cases (19.7%) from general practitioners(31).

Since 1988 a weekly screening clinic has commenced which is carried out by the orthoptist and a nursing sister who has special training in ophthalmic nursing. This clinic was started to reduce the waiting list for appointments for the consultant clinics, to ensure early detection of serious defects and to reduce the false-positive rate of refractive errors in children referred from the school medical service. Following assessment at the screening clinic appointments are arranged, if required, according to urgency for the consultant clinics. However, the waiting list at the end of 1990 was six months due to an increase of 32% in referrals over the previous year. Approximately 40 patients are seen at each consultant outpatient session.

There are seven ophthalmology clinics and two orthoptists clinics held per week at Beaumont Hospital. Three of the seven clinics are general eye clinics, one of which deals entirely with children aged 12 years or under. The waiting period for this clinic currently stands at 5 months. In 1990, 770 new patients attended the eye clinics and 2831 return patients. A breakdown of the numbers who attended the general clinics and the numbers of children who attended is not available.

There are two consultant clinics per week at James Connolly Memorial Hospital. During 1990 there were 321 new patients seen and 278 return patients. The waiting period for obtaining a new consultant appointment is approximately 13 weeks. It is difficult to obtain a precise breakdown of the proportion of

children attending the general hospitals. However James Connolly Memorial report that approximately one in four patients seen are children.

4.4.2 Number of attendances at the Eye and Ear Hospital from North Dublin.

The Royal Victoria Eye and Ear Hospital has traditionally played an important role in the evolution of the ophthalmology services. The regional unit at the Mater Hospital is a much newer development. Therefore a number of general practitioners in North Dublin continue to refer patients to the Eye and Ear Hospital. To estimate the number of patients who are referred outside the catchment area for the investigation and treatment of eye conditions, the number of ophthalmic patients who attended the Eye and Ear Hospital in the month of January 1991 was calculated (Table 4).

TABLE 4 - NO. OF PATIENTS FROM NORTH DUBLIN WHO ATTENDED THE EYE AND EAR HOSPITAL IN JANUARY 1991.

Patient Type	North Dublin Pts.		Total	
	No.	%	No.	%
Inpatients	53	(14.7)	360	(100)
Outpatients	471	(19.6)	2403	(100)
Casualty	422	(16.8)	2516	(100)
Total	946	(17.9)	5279	(100)

It is evident therefore that approximately 18% of all ophthalmic patients who attended the Eye and Ear Hospital during the month of January were resident in North Dublin. This would suggest that in excess of 11,000 patients from North Dublin attend the Eye and Ear Hospital annually.

4.4.3 Eastern Health Board Vision Screening Services

Information was requested from the Senior Area Medical Officers in the three community care areas in North Dublin on the numbers of children screened per year, the number of referrals, and on the screening procedures in each area.

Screening of vision by the community care services in the Eastern Health Board is confined to children. Opportunistic case finding for gross visual impairment and squint is carried out at pre-school developmental clinics and screening for visual acuity and ocular defects is carried out by the school medical service.

4.4.3 (a) Pre-school Service

All infants in the three community care areas are offered appointments for developmental screening between 6-12 months of age. The uptake for this service ranges between 60-92%. A breakdown of the number of children examined and the number of vision defects detected is provided in table 5.

TABLE 5 - NO. OF INFANTS EXAMINED AND VISION DEFECTS DETECTED AT DEVELOPMENTAL SCREENING IN COMMUNITY CARE AREAS 6,7 AND 8.

COMMUNITY CARE AREA	NO OF APPOINTMENTS OFFERED	NO. OF CHILDREN EXAMINED %	NO. OF VISION DEFECTS	
			Squint (%)	Other (%)
CCA6 (1988)	2444	2238 (92%)	10 (0.4)	1 (0.04)
CCA7 (1989)	1706	1166 (68%)	14 (1.2)	0
CCA8 (1989)	2279	1383 (61%)	13 (0.9)	5 (0.03)

In addition a number of 'special' clinics whereby the public health nurse may refer pre-school children to the Area Medical Officer are held in Community Care Area 8. Walk-in clinics are held in certain deprived districts in Community Care Area 7. In 1989, 65 cases of squint were referred by the Area Medical Officers from the 'special' clinics in Community Care Area 8.

4.4.3 (b) School Medical Services

Because of a policy to concentrate the limited resources available on the pre-school period, screening for vision by the school medical service is selective and the extent of coverage varies from area to area.

Since 1987, all schools in Community Care Area 6 are screened on average once every three years and 1st 2nd 3rd and 6th classes are examined.

In Community Care Area 7, screening of 1st and 6th classes in selected schools is carried out annually. In Community Care Area 8, all school-children age 6 and age 8 and children in 6th class are screened annually. Screening is performed for distant vision and for squint in the three areas. A combination of the Keystone J Cards and Snellen Charts are used to test for distant vision in the three areas and the cover test is performed to detect squints. An evaluation of the reliability, validity, sensitivity and specificity of these

instruments is currently being undertaken in the Eastern Health Board. Table 6 shows the number of children screened and the number of defects in the three community care areas in the 1989-1990 school year.

TABLE 6 - NUMBERS OF SCHOOLCHILDREN SCREENED AND NUMBER OF DEFECTS IN COMMUNITY CARE AREAS 6, 7 AND 8 IN 1989-1990

	SCHOOL POPULATION (5-12 years)	NO. OF CHILDREN SCREENED	NO. OF DEFECTS	%
CCA6	19,921	1259	119	9.5
CCA7	14,239	2621	264	10.1
CCA8	33,274	12,262	1,327	10.8

A retrospective review of vision defects detected in a large mixed school in Community Care Area 8 in the 1988-89 school year was undertaken to determine:

- The prevalence of vision defects during that year.
- The severity of the defects and the age of their occurrence.
- The incidence of new defects.

The school which was selected has approximately 478 attenders and has a mixture of pupils from all the social class groups. Two hundred and fourteen children were screened. Sixty-one visual defects were detected (28.5%). All the defects detected were refractive errors. The severity of the defects in one or both eyes is presented (Table 7). The incidence of new defects was 4.3%

TABLE 7. - BREAKDOWN OF THE SEVERITY OF THE DEFECTS IN ONE OR BOTH EYES DETECTED DURING ROUTINE VISUAL SCREENING IN THE SCHOOL YEAR 1988-9 IN HOLY TRINITY SCHOOL.

Defect	No of children (n = 214).	
	No.	%
6/12	37	17.2
6/15	13	6.0
6/18	2	0.9
6/21	4	1.9
6/30	4	1.9
6/36	1	0.5

TABLE 8 . - PREVALENCE OF DEFECTS IN EACH AGE GROUP.

Age-group (years)	No. of Defects		No. of children screened	
	No.	%	No.	%
6-7	3	23.0	13	100
8-9	21	22.1	95	100
10-11	13	31.0	42	100
12-13	24	37.5	64	100
Total	61	100.0	214	100

CHAPTER 5

DISCUSSION

In the Eastern Health Board assessment of the vision of pre-school children is carried out by medical staff at approximately age 9 months at the developmental paediatric screening clinics. In addition the assessment of vision forms part of the duties of Public Health Nurses in their surveillance of children in the pre-school period. General Practitioners may also be involved in the detection of vision defects in this age-group.

Screening of schoolchildren for refractive errors and squint is carried out at several stages during the primary school cycle. Similarly general practitioners may be involved in the identification of vision problems in schoolchildren.

This review, however, is not concerned with the screening and identification of vision defects at primary care level but rather with the consequences arising from eye problems identified at this level.

This review was undertaken as a result of representations made to the Eastern Health Board for the appointment of a Community Ophthalmic Physician. The report principally relates to the ophthalmic service in North Dublin city and county.

The Comhairle Report in 1981 (27) stressed that the role of the Community Ophthalmic Physician was crucial for the development of the hospital service.

The Department of Health Working Party Report (1) laid out in detail the role of these specialists and clearly envisaged that they would work at secondary level.

It is evident from my review that activities at primary care level result in significant numbers being referred to specialist eye clinics. Consequently if it is worth continuing these activities, it is important that patients referred for specialist opinion be seen and assessed within a reasonable time period. Clearly this is not happening at the present time.

A number of factors would appear to favour the appointment of additional ophthalmology personnel in the North Dublin area. Firstly the very low consultant population ratio, which is almost one half the level recommended by Comhairle na n-Ospideal, and the level of overcrowding at clinics justifies the appointment of additional staff. Secondly the large child population in the area results in a large demand from the Eastern Health Board services, particularly the school medical services, on the outpatient clinics at Temple Street Hospital and to a lesser extent at the Mater and the other hospitals. The constant heavy workload posed by these services prevents the appropriate usage of consultants skills in the management of medical and surgical ophthalmic cases, commensurate with their level of training and expertise. It is therefore apparent that the post of Community Ophthalmic Physician would be of benefit to the service.

It would appear that a good case can be made for the development of a community ophthalmic service in North Dublin. As an initial step, I would

recommend the appointment of one Community Ophthalmic Physician on a pilot basis for the North Dublin area.

In looking at the operation of the existing community ophthalmic services in a number of health board areas. It became evident that the structure of the existing community ophthalmic physician posts is unsatisfactory. The following were identified as problems:

- the lack of accountability
- the low throughput of patients
- the lack of liaison with regional eye units.
- the employment of the Community Ophthalmic Physicians on a sessional basis
- the lack of permanent posts

The role of the Community Ophthalmic Physician in it's present form would confer little advantage to the Eastern Health Board. A majority of the recommendations of the working group on Community Ophthalmic Physicians which reported in 1981 have not been implemented. This has resulted in an unsatisfactory situation for the Community Ophthalmic Physicians and their employers, the Health Boards.

To date, except for one post, all posts are filled in a temporary capacity although Comhairle na nOspideal stressed the importance of security of tenure. There is some suggestion however, that this situation is likely to be resolved in the near future.

Accountability is of the utmost importance and if a Community Ophthalmic Physician is to be appointed in the North Dublin area it is essential that a clear

line of accountability be established at the outset. Consequently I would recommend that the Community Ophthalmic Physician be accountable to the Directors of Community Care / Medical Officers of Health in respect of community ophthalmic services provided in their areas. In practice however, to simplify the reporting relationship, one Director of Community Care / Medical Officer of Health should have designated responsibility for the community ophthalmic services. In the event of a Community Ophthalmic Physician being appointed as recommended, it would be essential that review of the level of service provided should be undertaken periodically.

Where possible the service of the Community Ophthalmic Physician should be as close as possible to the population being served. I would recommend therefore, that a major part of their work commitment be carried out in the community at selected major health centres.

It is important that a portion of the time of the Community Ophthalmic Physician be spent in a regional eye unit would need to be realised if a post of Community Ophthalmic Physician were to be incorporated into the provision of ophthalmic services for the North Dublin area. This would be essential to coordinate the curative and preventive aspects of the service, and improve links between hospital and community. It would allow the Community Ophthalmic Physician to maintain his/her clinical skills and become aware of any new research developments. I would recommend that while the Community Ophthalmic Physician should work principally in the community, at least one day per week should be spent in a hospital setting.

Review of the literature has highlighted the lack of basic epidemiological information available to assist in the proper planning of the service.

The lack of epidemiological data on the ophthalmology services relating to outcome was also evident in the compilation of this report. It is not possible to determine the true incidence of defects in children referred to hospitals from the developmental clinics and school medical services partly because of the lengthy delay between referral and assessment by a consultant. In addition routine statistics on vision screening in children collected by the Department of Health are activity rather than outcome based. From the literature, apart from puberty onset myopia, the value of screening children for visual defects and squint beyond school entry is questionable. Although the evidence to support a pre-school screening programme is inconclusive, in the United Kingdom most ophthalmologists would seem to favour a move in this direction, to facilitate detection of those conditions which it is too late to detect at school medical examinations. The realisation that resources are not endless limits this move to some extent, however a balance could be achieved so that the best screening programme is provided using the available resources. I would envisage the Director of Community Care/Medical Officer of Health or the Specialist in Public Health Medicine in the future, playing a key role in the development of information systems relating to ophthalmology, and monitoring the effectiveness and efficiency of the existing screening programmes. Such a monitoring system would involve review of the number of children whose health had improved as a result of screening and the amount of work spent in

achieving this improvement. The Community Ophthalmic Physician should work closely with the Director of Community Care/Medical Officer of Health or Specialist in Public Health Medicine in carrying out this function. Consequently an understanding of the importance of epidemiology would be an advantage to the Community Ophthalmic Physician.

For clinics with a high turnover of patients at a major health centre a large amount of expensive equipment is required. Although the cost of this equipment may seem prohibitive many items can be obtained second-hand. In addition some clinics could be held at a hospital base which would reduce equipment costs.

The Community Ophthalmic Physician should also have a role in monitoring the usefulness of existing and new equipment in screening programmes i.e. the cost-effectiveness of autorefractors in screening for refractive errors.

Although evidence on the usefulness of orthoptists, in assessing young children with squints, is undisputed, the increase in the numbers of orthoptists recommended by the working party (28) has not been implemented. The employment of an orthoptist to work in conjunction with the Community Ophthalmic Physician would add greatly to the effectiveness of the community ophthalmic service.

It is desirable that referrals to the service would come from doctors in the community and the hospital services and also from general practitioners.

The Community Ophthalmic Physician appointed to North Dublin should have a role in the the following activities:

- assessment of referrals from pre-school and school vision screening

- screening for glaucoma and diabetic retinopathy
- involvement in community screening projects
- routine follow up of patients with cataracts, well controlled glaucoma, diabetic retinopathy and routine post operative follow up
- management of emergency cases referred by general practitioners.

CHAPTER 6

RECOMMENDATIONS

A summary of the major recommendations in this report is given below:-

1. One full-time Community Ophthalmic Physician should be appointed to the North Dublin area on a pilot basis.
2. The Community Ophthalmic Physician should be accountable to a designated Director of Community Care/Medical Officer of Health for community ophthalmology services provided in the North Dublin area.
3. The level of service provided by the Community Ophthalmic Physician should be reviewed periodically.
4. The Community Ophthalmic Physician should work principally in the community. At least one day per week should be spent in a hospital setting.
5. Greater attention should be given to information systems relating to the ophthalmology services.
6. The Community Ophthalmic Physician should work closely with the Specialist in Public Health Medicine in the development of ophthalmological information systems and in the evaluation

of screening programmes. This evaluation should be carried out at regular intervals and should reflect outcome measurements.

7. The Community Ophthalmic Physician should have an understanding of the importance of epidemiology
8. Referrals to the Community Ophthalmic Physician should come from doctors including general practitioners.
9. The employment of an orthoptist to work on a sessional basis in conjunction with the Community Ophthalmic Physician would significantly enhance the effectiveness of the community ophthalmic service. Consideration should be given to the employment of an orthoptist for this purpose.

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