Does extending the provision of low vision services into primary care improve access?

EXECUTIVE SUMMARY OF A REPORT COMMISSIONED BY THE WELSH ASSEMBLY GOVERNMENT
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1.0 REPORT OVERVIEW

An 86 year old lady living on her own in Wales in 2003 has been told by her optometrist that the reason she can’t see to read her post or see the small print on packets anymore is that she has the dry form of Macular Degeneration in both eyes. She is advised that it is an extremely common eye condition that affects many older people and although there is no treatment, and her vision will deteriorate, she will never go completely blind. In order to ensure she is able to continue to lead an active life, still managing her finances and cooking for herself, the optometrist offers to refer her to the low vision service based at the nearest hospital eye department.

Two years later in the same practice another very similar 86 year old lady is given the same devastating news. However, this time the practitioner can refer her to a primary care based low vision service or the hospital based service.

Will the experience these two ladies encountered accessing a low vision service in Wales two years apart in time be any different? This report outlines the findings of a study carried out by the School of Optometry and the Institute of Vision in collaboration with the School of Planning, Cardiff University, to determine the impact that a Welsh Assembly Government funded community based all Wales Low Vision Service has had on the accessibility of NHS funded low vision services for people with a visual impairment in Wales.
2.0 EXECUTIVE SUMMARY

Introduction
Visual impairment is relatively common amongst older people in the UK, affecting approximately one in five people aged 65 years and over. Due to the growing number of older people, the Welsh Assembly Government took the radical step of extending low vision rehabilitation services for people with a visual impairment into a primary care setting throughout Wales in 2004. This innovation formed part of the Welsh Eye Care Initiative.

Like traditional hospital based low vision services, the primary care based all Wales Low Vision Service (WLVS) offers a range of interventions which aim to minimise disability for those with a visual impairment by making specific tasks such as reading instructions on packets or watching television easier to perform. The motivation for this development was to improve the accessibility of a service which was known to be difficult to access.

The key objectives for change stipulated that the new all-Wales Low Vision Service (WLVS) should:
1) increase the availability of appointments to provide for any unmet needs;
2) provide services closer to people’s homes;
3) reduce waiting times to less than 2 weeks for most people; and
4) open access by increasing the number of referral routes.

The aim of this study was to determine if the WLVS had changed these 4 aspects of access to low vision services in Wales.
Methodology

The number of low vision appointments, the travel time to the nearest low vision service, the referral routes into the service and waiting times for low vision appointments were determined for the low vision services in Wales for one year immediately prior to the establishment of the WLVS (first audit period, 1 April 2003 to 31 March 2004) and for one year immediately after it's establishment (second audit period, 1 April 2005 to 31 March 2006).

To determine service provision over the first audit period, a telephone questionnaire was administered between July and October 2005 to all potential providers of low vision service in Wales. Responses were received from 94.2% of those contacted.

To determine low vision service provision over the second audit period two methods were used. The number of appointments for those accessing the WLVS was derived from the low vision record cards which were held at Carmarthenshire LHB. The waiting times and postcodes were obtained for those who had given their consent. The same information for those not accessing the WLVS was obtained via telephone survey using the same questionnaire to that was used to quantify low vision service provision for the first audit period. This questionnaire was administered from July to October 2006 and responses were received from 87.1% of those contacted.

The waiting times, referral routes, number of appointments and postcodes were entered into an electronic database. Geographic Information Systems (GIS) was used to plot the location of each service provider. A Drive Time analysis derived a travel time along the network to the nearest low vision service provider for each person.
Results

The extension of low vision services into a primary care setting in Wales has dramatically improved access to low vision rehabilitation in Wales:

1) The WLVS was intended to increase the availability of appointments i.e. to meet any unmet needs. The number of NHS low vision appointments in Wales increased from 5692 to 8636 (i.e. a 50% increase).

2) It was intended that the WLVS should provide services closer to people’s homes. About 80% would have had shorter journey times; six times fewer people had a journey of 30 minutes or more and three times as many people would have had a journey time of less than 10 minutes to their nearest service provider.

3) The WLVS was required to reduce waiting times for an appointment. Prior to the introduction of the WLVS, over 50% of people waited 6 months or more for a low vision assessment whilst 11% waited for less than 2 months. Following the change in service delivery waiting times reduced: approximately 60% of people waited less than 2 months for a low vision assessment and over 70% of those who attended the WLVS waited less than 2 weeks.

4) It was intended that access be opened by increasing the number of referral routes. The proportion of referrals from social services, the person themselves, friends, relatives and others other than healthcare professionals rose from 25% to 44%.
Conclusion

The establishment of the all Wales Low Vision Service, and resultant extension of low vision services into a primary care setting, has dramatically improved access to low vision care in Wales. Since the establishment of the all Wales Low Vision Service people who are told that they are loosing their sight are more likely to be receive low vision care, wait less than 2 months for an assessment and have a shorter journey to their nearest service.
3.0 RECOMMENDATIONS

For future low vision service provision in Wales
- As the all Wales Low Vision Service has improved access to low vision services in Wales funding for the service should continue.

- Additional practitioners should be recruited to provide the WLVS in areas where people still have to travel more than half an hour to the service.

- The provision of specialist low vision equipment (such as spectacle mounted telescopes) in Wales should be determined and steps taken to ensure everyone who needs this type of equipment will have access to it.

- Information about the WLVS should be disseminated to GPs in Wales.

- Funding for the WLVS should be reviewed when studies on the effectiveness of the service have been completed.

For future ophthalmic service provision in Wales
- The possibility of using optometric practices to improve access to other ophthalmic services in Wales should be investigated.

For future healthcare provision in Wales
- Given the dramatic improvements in access to services found in this study and the long journey times to secondary health care facilities for some people, the extension of other healthcare
services into a primary healthcare setting (particularly for those who find it difficult to travel such as older people and people with disabilities) should be considered in Wales.

- This survey should be repeated in two years time to determine the medium term viability of such a service development.
4.0 INTRODUCTION

Visual Impairment is relatively common amongst older people\(^1\) and is known to be one of the most disabling conditions\(^2\). Due to the growing number of older people\(^3\), the Welsh Assembly Government (WAG) took the radical step of extending low vision rehabilitation services for people with a visual impairment into a primary care setting throughout Wales in 2004\(^4\). Like traditional hospital based low vision services, the primary care based all Wales Low Vision Service (WLVS) offers a range of interventions which aim to minimise disability for those with a visual impairment by making specific tasks such as reading instructions on packets or watching television easier to perform\(^5\). The motivation for this development was to improve the accessibility of a service which was known to be difficult to access\(^6\)\(^7\). It is essential that the effect of such a significant shift in service delivery should be measured\(^8\).

The concept of equity of access for all has been a cornerstone of the UK National Health Service since its inception in 1948 and improving access to healthcare remains a priority for our governments\(^9\)\(^10\). But, what is “accessibility” to healthcare and how can it be measured? Optimal access in health care can very simply be described as: ‘providing the right service, in the right place at the right time’\(^11\). Barriers that limit the use of a service will impede its effectiveness. Some of the factors that influence a person’s access to health care include acceptability, effectiveness\(^12\), awareness, need (due to factors such as health, age and socio-economic variation), interfaces between services\(^11\) and quality and cost to the patient\(^13\). Rurality, age\(^14\) and transport\(^7\)\(^15\) have been found to influence access to eyecare services in developed countries. This inter-relation of many factors has led Social Scientists to
develop a number of models to try to describe how to predict and measure access to health care\textsuperscript{16} but no single measure has been generally accepted and implemented.

When trying to achieve improved access the Welsh Assembly Government outlined 4 objectives for the WLVS\textsuperscript{17}:

1) to increase the availability of appointments i.e. to meet any unmet needs;
2) to provide services closer to people’s homes;
3) to reduce waiting times to less than 2 weeks for most people; and
4) to open access by increasing the number of referral routes.

The aim of this study was to determine if the WLVS had changed these 4 aspects of access to low vision services in Wales.

Waiting times, referral routes and number of appointments are routinely monitored in most modern NHS services. However, quantifying the journey people are required to make to access the service is not. Geographic Information Systems (GIS) are tools for analysing spatially referenced data, usually via postcode data. GIS has been embraced by those approaching the geography of health from a ‘spatial analysis’ tradition. One of the principle applications of GIS in terms of healthcare research has been concerned with geographical access to healthcare services \textsuperscript{18}. 
5.0 METHODS

To establish how the arrival of the WLVS has changed low vision service provision in Wales it was first necessary to define the characteristics of the service offered prior to its introduction.

5.1 Low vision service provision in Wales in 2003/4

A retrospective survey of all potential NHS providers of low vision care was conducted to establish service provision for the first audit period (1 April 2003 to 31 March 2004), just prior to the establishment of the new service.

5.1.1 Identification of potential providers of services

Three groups of potential providers of low vision services in Wales were identified and their details sought. These included hospitals with eye departments or eye clinics (HED); optician/optometry practices (OP); and a university with an undergraduate optometry clinic (UC).

5.1.2 Survey Questionnaire Design

In April 2004, all questionnaires that had been used to survey low vision service provision in the UK and/or Wales were reviewed. One of the previous surveys was targeted at a different target audience which included social care, education and voluntary sector providers whereas this survey was intended to only determine the changes in NHS low vision service provision i.e. services provided by hospitals, optometry practices and University Eye Clinics. The other survey was nearly 40 years old and low vision service provision had changed considerably since then. Therefore, a new questionnaire was designed. When possible, wording and response categories from the previous surveys were used.
In order to ensure a high response rate, the questionnaire had eight closed questions which included questions about where low vision services were provided (including postcode to allow GIS mapping), how people were referred to the service, how long people had to wait for an initial low vision assessment, how many people were seen each year and who funded the service.

5.1.3 Questionnaire Administration

A previous survey reported experiencing difficulties obtaining information from low vision services using postal administration. Therefore, to maximise response rates and because Wales had only just over 400 potential providers of low vision services, it was decided to administer the questionnaire over the telephone.

The baseline questionnaire was administered by telephone to all OP and UC in Wales between July and October 2005. All providers were asked to consult appointment records for that period rather than relying on recall. Those not able to respond straight away were contacted at a convenient time. Occasionally practices asked for a paper copy of the questionnaire which was provided.

All hospitals with an eye department or outreach eye clinic were contacted by telephone to ascertain if a low vision service was provided and who the best person to answer the questionnaire was. Generally this was the service provider or the person responsible for the low vision service. No hospital service provider was able to complete the survey over the telephone and they all asked for a request in writing with a copy of the questionnaire. All hospital providers were asked to ensure they consulted with the appointment records
for that period rather than relying on recall and a fee of £50 was offered for the administration cost of doing this.

Information from all the questionnaires was entered into an SPSS Version 12.0 database.

5.2 Low vision service provision in Wales in 2005/6
To determine low vision service provision in Wales for the second audit period (1 April 2005 to 31 March 2006), two methods were used:

1) From the start of the service all practitioners providing the WLVS used a standard record card. Signed consent was sought from everyone using the service to use the information from these record cards for service evaluation purposes. Following an assessment, the record cards were faxed to a secure fax in the central administration based in Carmarthenshire Local Health Board (LHB) were information from them was entered onto a computer database and addresses were checked using a Royal Mail BPH Enhanced Postcode Address Checker (UK Street/Postcode Flat File). Practitioners who provided the WLVS were informed of the research/audit protocol during their training and a copy was included in the service manual.

The record cards were designed alongside the questionnaire used in this survey so that the information available from them included the same information as the questionnaires: i.e. the postcode of the service, how people got referred to the service, how long people had to wait for an initial low vision assessment and how many people were seen each year at each practice.

2) Data about the performance of other potential providers of low vision services in 2005/6 (HEDs, UCs and OPs where there were no practitioners
accredited to provide the WLVS) was obtained via a follow-up questionnaire. The follow-up questionnaire was identical to the baseline questionnaire but the wording reflected the fact this was a follow-up questionnaire for the second audit period. The follow-up questionnaire was administered from July to October 2006.

Information from all the questionnaires was entered into an SPSS Version 12.0 database.

5.3 Mapping people with low vision
In order to determine if there was any change in travel distance or journey time to low vision services in Wales following commencement of the WLVS it was necessary to map the location of service providers and people with low vision. This was achieved using postcodes of service providers and postcodes of people with low vision who used the WLVS during the second audit period.

All procedures adhered to the tenents of the Declaration of Helsinki and ethical approval was obtained from the all Wales Research Ethical Committee.

5.4 Analysis
In order to establish the geographical distribution of NHS Low Vision Services in Wales and the distance and journey time patients were required to travel to attend services a Geographical Information System (GIS) analysis was undertaken. This analysis was implemented using ArcGIS version 9.
Data on the location of services in the first and second audit periods and patients seen in the community based WLVS in the second audit period were mapped using GIS based on postcode locations.

Road network data has been obtained for Wales and areas of England that border Wales using OS Strategi, 1:250000 from Digimap (Ordnance Survey). The actual distances that needed to be covered along the network in order to access the nearest service by road was calculated for each of the patients.

Each road type was assigned a speed using the methodology adopted by the Scottish Executive in their Urban and Rural Classification study which was based upon access to particular services\textsuperscript{20}. These road speeds were further enhanced depending on whether the road was within an urban area – if this was the case then a congestion factor was added to the urban road speeds. Further modelling of the network data was undertaken in non-urban areas to indicate waiting time at junctions and distance to ‘start points’ or nodes on the network. Urban areas were denoted by employing the National Statistics Urban Area 2001 classification\textsuperscript{21}.

A Drive Time analysis was then performed for low vision services at different time frames. This involved locating areas around each service that could be accessed using the road network at given lengths of time. A travel time along the network, of 5, 10 and 15 minutes were then calculated for these services. This drive time analysis builds on the work of Christie and Phone\textsuperscript{22}, using a selection of services within rural Wales.
6.0 RESULTS

Following a description of the data quality (response rate etc.) this section characterises low vision service provision in Wales according to the number and type of providers, the number and type of appointments, waiting times, distance and journey time to services and referral routes in the first audit period (2003/4) and the second audit period (2005/6).

6.1 Data Quality

Questionnaires were administered to 412 services that could potentially have been providing NHS funded low vision services in 2003/4 and 263 services which were not providing the WLVS but could potentially have been providing NHS funded low vision services in 2005/6. The responses received are shown in Table 1.

In 2005/6, 168 optometry practices had accredited practitioners registered to provide the WLVS and 140 (83.33%) of these provided low vision assessments from 1 April 2005 to 31 March 2006. Of the practices that were not providing the WLVS, 19 had practitioners that were only accredited and equipped to provide the service in February 2006.

6.2 Number, type and funding of low vision services in Wales in 2003/4 and 2005/6

The principal source of funding of low vision services in Wales in 2003/4 and 2005/6 is shown in Table 2. The number and type of base in which NHS low vision services were provided in Wales in 2003/4 and in 2005/6 is shown in Table 3. The location of NHS funded low vision services in Wales in 2003/4 and 2005/6 is shown in Figure 1 and Figure 2 respectively.
6.3 Number and funding source of low vision appointments in Wales in 2003/4 and 2005/6

The number and type of low vision appointments in Wales in 2003/4 and 2005/6 is shown in Table 4. Responses indicate that the number of NHS low vision consultations offered annually in Wales increased by 52% (2944) from 2003/4 to 2005/6.

<table>
<thead>
<tr>
<th>Year</th>
<th>Type of provider</th>
<th>Number of services contacted</th>
<th>Responses received n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003/4</td>
<td>Hospitals</td>
<td>33</td>
<td>33 (100.0)</td>
</tr>
<tr>
<td></td>
<td>Optometry Practices</td>
<td>378</td>
<td>354 (93.7)</td>
</tr>
<tr>
<td></td>
<td>University Eye Clinics</td>
<td>1</td>
<td>1 (100.0)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>412</td>
<td>388 (94.2)</td>
</tr>
<tr>
<td>2005/6</td>
<td>Hospitals</td>
<td>33</td>
<td>33 (100.0)</td>
</tr>
<tr>
<td></td>
<td>Optometry Practices</td>
<td>229</td>
<td>195 (85.2)</td>
</tr>
<tr>
<td></td>
<td>University Eye Clinics</td>
<td>1</td>
<td>1 (100.0)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>263</td>
<td>229 (87.1)</td>
</tr>
</tbody>
</table>

Table 1 Questionnaire response rates from potential providers of low vision services in Wales in 2003/4 and 2005/6
### Table 2. The principal source of funding of low vision services in Wales in 2003/4 and 2005/6

<table>
<thead>
<tr>
<th>Principal source of funding</th>
<th>Low vision services 2003/4</th>
<th></th>
<th>Low vision services 2005/6</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td></td>
<td></td>
<td>n (%)</td>
</tr>
<tr>
<td>NHS Hospital Contract</td>
<td>26 (22.8)</td>
<td></td>
<td>21 (10.9)</td>
<td></td>
</tr>
<tr>
<td>NHS Primary Care</td>
<td>16 (14.0)</td>
<td></td>
<td>148 (77.1)</td>
<td></td>
</tr>
<tr>
<td>Charity or voluntary</td>
<td>4 (3.5)</td>
<td></td>
<td>0 (0.0)</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>65 (57.0)</td>
<td></td>
<td>20 (10.4)</td>
<td></td>
</tr>
<tr>
<td>Free bee/ Goodwill</td>
<td>3 (2.6)</td>
<td></td>
<td>3 (1.6)</td>
<td></td>
</tr>
<tr>
<td><strong>Total NHS</strong></td>
<td><strong>42</strong></td>
<td></td>
<td><strong>169</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>114</strong></td>
<td></td>
<td><strong>192</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 3 The number and type of base in which NHS low vision services were provided in Wales in 2003/4 and in 2005/6

<table>
<thead>
<tr>
<th>Type of Service Base</th>
<th>Low Vision Services 2003/4</th>
<th></th>
<th>Low Vision Services 2005/6</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td></td>
<td></td>
<td>n (%)</td>
</tr>
<tr>
<td>Optometry Practice</td>
<td>21 (50.0)</td>
<td></td>
<td>148 (87.6)</td>
<td></td>
</tr>
<tr>
<td>Hospital Eye Clinic</td>
<td>20 (47.6)</td>
<td></td>
<td>20 (11.8)</td>
<td></td>
</tr>
<tr>
<td>University Eye Clinic</td>
<td>1 (2.4)</td>
<td></td>
<td>1 (0.6)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>42</strong></td>
<td></td>
<td><strong>169</strong></td>
<td></td>
</tr>
</tbody>
</table>
Table 4. The number and principal source of funding of low vision appointments in Wales in 2003/4 and 2005/6

<table>
<thead>
<tr>
<th>Principal source of funding</th>
<th>Low vision appointments 2003/4</th>
<th></th>
<th>Low vision appointments 2005/6</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHS Hospital Contract</td>
<td>5472 (79.5)</td>
<td></td>
<td>4704 (51.7)</td>
<td></td>
</tr>
<tr>
<td>NHS Primary Care</td>
<td>220 (3.2)</td>
<td></td>
<td>3932 (43.2)</td>
<td></td>
</tr>
<tr>
<td>Charity or voluntary</td>
<td>46 (0.7)</td>
<td></td>
<td>0 (0.0)</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>1122 (16.3)</td>
<td></td>
<td>437 (4.8)</td>
<td></td>
</tr>
<tr>
<td>Free bee/ Goodwill</td>
<td>21 (0.3)</td>
<td></td>
<td>26 (0.3)</td>
<td></td>
</tr>
<tr>
<td>Total NHS</td>
<td>5692</td>
<td></td>
<td>8636</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6881</td>
<td></td>
<td>9099</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1 NHS Low Vision Service Provision in Wales 2003/4

Legend

NHS Provider

☆ Optometry Practice (Hospital Trust Funding)
★ Optometry Practice (Primary Care)
✚ University Eye Clinic (Hospital Trust Funding)
レン Hospital Eye Department (Hospital Trust Funding)

Height Value

High: 1079 m
Low: 0 m
Figure 2 NHS Low Vision Service Provision in Wales 2005/6

Legend
NHS Provider
- Optometry Practice (Primary Care)
- Hospital Eye Department (Secondary Care)
- University Eye Clinic (Primary and Secondary)

Height Value
- High: 1079 m
- Low: 0 m
6.4 Waiting times for low vision appointments in Wales in 2003/4 and 2005/6

Waiting times for a low vision appointment in Wales prior to the introduction of the WLVS (in 2003/4) and 9 to 21 months from the time the WLVS started (2005/6) are shown in figure 3a and 3b respectively.

![Figure 3a: Waiting Times for 2003/4](image1)

![Figure 3b: Waiting Times for 2005/6](image2)

Figure 3. Waiting times for an NHS funded low vision appointment in Wales in a) 2003/4 and b) 2005/6. If people were only able to access the service by being referred by an ophthalmologist the waiting time for a routine ophthalmology outpatient appointment at the hospital was added to the low vision service waiting time. In 2005/6, of the 3932 people who accessed the WLVS, 2453 adults (> 17 years) agreed for information from their records to be used for audit/research purposes hence information about waiting times was only available for these people.

6.5 Distance and journey time to low vision services

In the first audit period, 3932 people accessed the WLVS. Of those who had an assessment in that time, 2453 adults (> 17 years) agreed for information from their records to be used for audit/research purposes. Valid postcodes were available for 2451 people. These corresponded to 2273 discrete locations.
The network distance to the nearest low vision service in 2003/4 and 2005/6 from these locations is shown in Figure 4a and b respectively.

![Figure 4](image1)

Figure 4 The network distance that the people who used the WLVS in 2005/6 would have travelled to the nearest low vision service from their home in a) 2003/4 and b) 2005/6.

The journey time to the nearest low vision service is shown in Figure 5. However, this masks the improvement for those living in rural locations whose journeys would have been the longest (Figure 6).

![Figure 5](image2)

Figure 5 The journey time that the people who used the WLVS in 2005/6 would have taken to travel to the nearest low vision service in a) 2003/4 and b) 2005/6.
Figure 6 The journey time that the 519 people living in rural locations who used the WLVS in 2005/6 would have taken to travel to the nearest low vision service in a) 2003/4 and b) 2005/6.

6.6 Referral Routes

The number of referral routes to low vision services is shown in Figure 7 and the source of those referrals in Figure 8.

Figure 7 The number of referral routes to low vision services in Wales in a) 2003/4 and b) 2005/6.
Figure 8 The source of referrals to low vision services in Wales in a) 2003/4 and b) 2005/6.
The extension of low vision services into a primary care setting in Wales has dramatically improved access to low vision rehabilitation in Wales in a relatively short space of time. In less than 2 years the four objectives the Welsh Assembly Government outlined for the WLVS appear to have been met:

1) The number of low vision appointments in Wales has increased by more than 50%;

2) The number of people who had to travel for 30 minute or more to access services reduced by 600%;

3) The waiting time for the WLVS was less than 2 weeks for over 70% of people. This study found that in addition to this, in 2005/6, about 60% of people would have waited less than 2 months to access any low vision services in Wales (in primary care or secondary care) whereas in 2003/4 (prior to the establishment of the WLVS) only 11% of people were seen within 2 months and over 50% of people waited over 6 months

4) The proportion of referrals from community based people and professionals increased.

As Donabedian stated, “the proof of access [to services] is use of the service, not simply the presence of a facility” 23. The most convincing evidence that the service has improved access is that people all over Wales, most of whom had not previously used a low vision service, have been using the primary care low vision service.
The dramatic rise in the number of people using NHS low vision services in Wales (more than 50% in less than 2 years), and the drop in the number of privately and charitably funded appointments, would indicate that the primary care service is enabling access for a considerable number of people for whom there was previously an unmet need for statutory provision of care. It is possible that the open referral to the primary care service has enabled people to use both primary and secondary care services, but as only about one fifth of people attending the primary care service report having had a low vision assessment previously, and people need to revisit low vision services as their vision and/or circumstances change, this is unlikely to be the case for a significant number. Rather this increase would support the view that there is significant unmet need for low vision services throughout the UK and globally. Indeed, the number of people using the services may continue to rise as the 8638 NHS consultations in Wales in 2005/6 was still less than half the 19964 people on the partially sighted and blind register in Wales (which is known to underestimate the extent of those with registerable visual impairment) in the same period.

Increased distance between where people live and health care providers is commonly thought to decrease utilisation of health care. This reduction in access is known as distance decay. People differ in their ability to overcome distance and in how locational constraints affect their service use. For example, it has been found that greatest reductions in hospital outpatient attendances have been found for older people and people with long-standing illness. The people who use low vision services have a visual impairment and would find travel difficult. The level of visual acuity at which the WHO defines a person as having Low
Vision (6/18)\textsuperscript{34} is just below that required to drive legally in the UK\textsuperscript{35} and people with a visual impairment are known to encounter difficulties using public transport and are less likely than others their age to be confident about getting about independently\textsuperscript{36}. Therefore, one would imagine that the closer geographic location of services found in this study is likely to be an important influence in the increased service use.

The problems faced by those without access to private transport are compounded by dwindling public transport services in rural Wales. A Cochrane Collaboration Review\textsuperscript{37} found that, although evidence is poor, in rural areas outreach services reduced the distance to the service and reduced the time getting to the service. This study found that extending services into primary care would appear to reduce the distance and journey time for everyone, but the reduction is greatest for people living in rural areas of Wales. More than half of those with a visual impairment living in a rural areas of Wales (who are also likely to be over 80 years\textsuperscript{1}) would have had to travel over half an hour each way to a low vision service in 2003/4 and over 10\% more than an hour each way. Following establishment of the WLVS over 80\% of people living in rural locations were within half an hour of a service and less than 1\% had to travel over an hour. Additional practitioners should be recruited to provide the WLVS in areas where people still have to travel more than half an hour to the service.

Although the new service may be more ‘user friendly’ than traditional UK hospital based services at this time it is not clear whether it is effective. Although all of the practitioners providing the service have been trained and accredited the increased number of locations means that the service
is spread more thinly and some will assess less than 20 people a year. Consequently, there may be variations in the effectiveness of the service in different locations. There is continuing tension and debate about whether improved geographically accessible care is as safe, effective and efficient as larger more centralised provision. However, contrary to common perception, a review of the literature found that the best evidence suggests there is no general relationship between volume and quality. In some specialities for some procedures there appear to be quality gains associated with increased hospital and/or clinician volume but for many services no such gain has been found. For example, no statistically significant association has been found in cataract surgery outcomes between volume and visual acuity. No studies have yet reported the influence of volume on the effectiveness of low vision care but a study is underway to look at this in the WLVS. However, it is unlikely that no intervention is more effective than providing the service as improvements in VA have been found and the vast majority of people use the devices prescribed from modern low vision services.

Another problem with spreading the service so thinly is that the community care service only provides basic low vision aids such as hand and stand magnifiers because the capital cost of holding specialist fitting sets for infrequently prescribed devices in so many service bases is prohibitive. Near spectacle-mounted telescopes have traditionally been provided by hospital low vision services and although the number of these devices being prescribed is falling, for a small number, they can enable some people to do tasks they would not normally perform. With the increasing reliance on primary care provision for low vision services in Wales it is important that the provision of very specialist equipment is not lost.
People with a visual impairment in Wales appear to be able to access low vision rehabilitation services in less than two months in most cases. Although there is no evidence that earlier intervention changes the outcome of the service it is widely accepted that rehabilitative support should be initiated at the earliest opportunity\textsuperscript{44} to ensure skills are retained. Therefore, the WLVS may improve low vision outcomes simply on the basis that the service is accessed relatively promptly.

Referral routes to low vision services in Wales appear to have increased as the proportion of referrals from social services, the person themselves, friends, relatives and others other than healthcare professionals rose from 25\% to 44\% and proportion of services receiving referrals from only one source dropped from 50\% to 30\% from 2003/4 to 2005/6. However, this was the least impressive of all the changes in access as prior to the introduction of the WLVS it seems that referrals were accepted from a considerable number of routes. The finding that 17\% of services had referrals from the person, relatives and friends in 2005/6 suggests that public awareness of the service is good. However, the drop in the proportion of services receiving referrals from GPs suggests that awareness is poor amongst this group of practitioners. Improving referral from GPs is important as they are likely to come into contact with people who are not known to other services.

There are just over 20 hospitals with eye departments or clinics and 392 optometric practices in Wales\textsuperscript{45}. Optometric practices have much of the specialist equipment found in hospital eye departments and optometrists have shown themselves willing to come forward in large numbers to provide additional services. With the proven benefits of improved access
that this study has demonstrated, the use of optometric practices to improve access to other ophthalmic services should be considered by health care planners given the expected increase in the older population and the already long waiting times for routine ophthalmology outpatient appointments in Wales\textsuperscript{46}.
8.0 CONCLUSION

The establishment of the all Wales Low Vision Service, and resultant extension of low vision services into a primary care setting, has dramatically improved access to low vision care in Wales. In 2003/4, a person living in Wales who was told that they were losing their sight may not have received any low vision rehabilitation care. If they had been referred it is likely they would have experienced a wait of over 6 months for a low vision assessment and had a considerable journey to get to the service. In 2005/6, a person experiencing sight loss would have been more likely to be referred for a low vision assessment, would have waited just a few weeks and have had a much shorter journey to the nearest service.
9.0 REFERENCES


38. Hospital volume and health care outcomes, costs and patient access. Effective Health Care: NHS Centre for Reviews and Dissemination and Nuffield Institute for Health 1996.


