



# The State of the Nation Eye Health 2016

**RNIB**

**Specsavers**<sup>®</sup>

Transforming eye health

# Overview

## Summary

This report draws together the latest evidence on eye health. Definitions of sight loss fall into three broad categories:

- clinical (used by professionals such as optometrists and ophthalmologists)
- administrative (used by health and social care bodies)
- self-reported (used by people to describe their own sight loss)

We have used data from all of these sources in this report.

Information is presented at UK level throughout this report. In some instances data from individual countries is given because it has not been possible to derive UK-level data. The report specifies where this is the case. The table in Appendix B draws data from each chapter into a dashboard of indicators, with descriptions, sources of evidence and, where possible, trends. Further detail about the sources of evidence is given in each section of the report.

## Acknowledgements

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Doug and Dame Mary Perkins

## Transforming eye health

RNIB and Specsavers are working together to improve the nation's eye health. We are proud to present this report, containing the latest research and evidence on the state of eye health in the UK in 2016.

More than six million people in the UK live with uncorrected refractive error and sight-threatening conditions. Some may not yet be experiencing any symptoms and may have no idea that anything is wrong. And more than two million people are living with sight loss that has a significant impact on their daily lives. This includes people with uncorrected refractive error through not wearing the right prescription glasses or contact lenses, people waiting for cataract operations and people living with partial sight or blindness. Nearly half of all cases of sight loss in the UK could have been prevented.

Kenneth Carr is just one of the many people whose life has been transformed by wearing properly prescribed spectacles. He says: "I had been caring for my brother so took no notice of my own vision loss. When he passed away, my sight was so poor I couldn't read the newspaper. I was advised to go to my optician by a local sight loss charity and within a week I had glasses that changed my life. I could read, watch TV and it's made work easier. I had no idea that a sight test could make such a difference."

Loss of sight has a substantial impact on people's quality of life. This is reflected in the high cost to society – independent

research commissioned by RNIB estimates that the total cost of sight loss to our economy is in the region of £28 billion a year, a figure which has spiralled from £22 billion since 2008.

People at risk of losing their sight need more information and support to enable them to take an active role in looking after their eye health. Eye health advice needs to be an integral part of health and social care services with every commissioning body, service provider and professional playing their part.

Regular sight testing and early detection of eye conditions on the high street, followed by timely intervention and management can prevent sight loss and save the public purse millions of pounds each year. However, far too many people only have an eye test when they experience a problem with their eyes or their vision, which may be too late. Major changes are needed to embed eye health within health and social care policy and services and to raise public awareness of the importance of eye health.

This report contains the data and insight that commissioners, policy makers, service providers and professionals working in the health, care and voluntary sectors need in order to make a difference. Business as usual is not an option.

Eye health is everyone's business. Let's transform it together.

**Sally Harvey**  
RNIB CEO

**Doug Perkins**  
Joint Group CEO  
and Co-founder

**Dame Mary Perkins**  
Co-founder

# Eye health in the UK

## 1.1 The public view of eye health

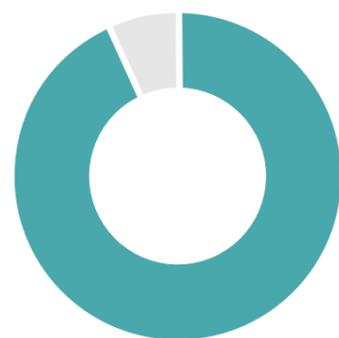
To find out what people think about eye health, in July 2016 RNIB and Specsavers commissioned YouGov Plc to carry out an online survey. Fieldwork was undertaken between 18 and 25 July 2016. The survey questions were asked of a UK-wide sample of more than 10,000 adult respondents aged 18 and above. The figures have been weighted and are representative of all UK adults aged 18 and above.

We know that people value sight more than any other sense [1]. However, not everyone takes steps to look after their eyes. Our YouGov poll suggests that although nearly three quarters (71%) of adults have had a sight test within the last two years, more than a quarter have not (27%). This is equivalent to nearly 14 million people [2]. This includes people at risk of preventable sight loss, such as

those with diabetes or a family history of glaucoma.

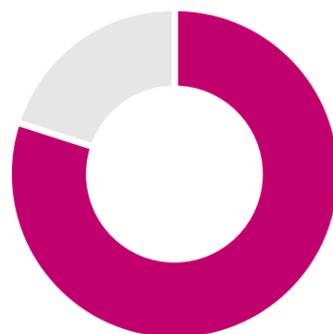
More than nine out of ten people agree with the statement that a routine sight test could save someone's sight (93%) and nine out of ten agree that an optometrist is someone who has eye health as their top priority. Eight out of ten people know that a typical high street optician offers checking for sight problems such as cataract, glaucoma or diabetes-related retinal problems.

Many are aware that they can detect wider health issues such as some tumours (61%) and high blood pressure (42%). Despite this, more could be made of appointments to promote eye health. Some older people may not discuss visual problems with an optometrist, and optometrists rarely discuss the impact of smoking on sight.



93%

Agree that a routine sight test could save someone's sight



80%

Know that an optician can check for sight problems such as cataract, glaucoma or diabetes related retinal problems



61%

Are aware an optician can detect some tumours



42%

Are aware an optician can detect high blood pressure

# Eye health in the UK

## Beverley and Jess Hall

When working mum-of-three Beverley Hall visited her local Specsavers store in 1998, she had no idea that the decision would save her life and ensure that she was around to watch her children grow up.

Beverley, then 45, booked an appointment with Specsavers in Barnstable, Devon, after experiencing flashes in her vision.

The optician – Bernard Joseph Brummage – who examined Beverley, quickly spotted an abnormality and she was referred to specialists at North Devon Hospital and Bristol Eye Hospital.

She was promptly diagnosed with an ocular tumour in her left eye. An operation followed and the tumour was removed.

**“Put simply, if I hadn’t gone to Specsavers the tumour would have grown and spread before ultimately killing me.” - Beverley Hall**

Doctors ran tests and determined that the tumour was malignant. Beverley is in no doubt that the procedure saved her life.

She said: “Put simply, if I hadn’t gone to Specsavers the tumour would have



grown and spread before ultimately killing me. Visiting the optician undoubtedly saved my life.

“My children were teenagers at the time and have since grown up and I am now very lucky to have a grandson, who I wouldn’t have been around to see otherwise.

“I still make regular visits to the same Specsavers store and would definitely encourage others to make regular eye tests a routine part of their general health check.”

Beverley’s daughter Jessica, 35, now works with RNIB in Policy and Campaigns and is also only too aware of the importance of regular eye examinations.

Jess said: “What happened to my mum has taught me the importance of having a regular eye test, to make sure that my eyes are healthy, and to make sure that I am healthy. It’s brilliant to work for an organisation committed to preventing sight loss and promoting eye health.”

# Eye health in the UK

## 1.2 Understanding eye health and sight loss

Some people are born with a sight condition. More commonly sight loss develops during adulthood or older age. Although most people in both groups have some sight, some experience further loss of vision over time and others have no useful vision.

Being told that you have an eye problem which will affect your vision can be difficult to come to terms with. Some people go through a process similar to a bereavement, where they experience a range of emotions, including shock, anger and denial, before eventually coming to accept the condition [3]. Any level of sight loss, including uncorrected refractive error, has a tangible influence on quality of life [4]. Many people who have sight loss find it hard to get and retain a job and they also find it difficult to make ends meet. Technology is making life easier for some, but only for those able to access and afford it. Inaccessible information, difficulties in getting around, and negative attitudes from the public can all contribute to making life more difficult [5, 6]. People with sight loss are at higher risk of depression; one recent UK study found that of patients attending a low vision clinic, 43% met the criteria for depression. This is only slightly less than people about to have chemotherapy treatment for cancer (45%) [7].

Regular eye tests are critical in the early detection, diagnosis and treatment of eye conditions to prevent unnecessary sight loss. Common sight-threatening conditions are:

### Refractive error

This term covers a number of eye conditions which can usually be corrected by glasses or contact lenses, for example myopia (short-sightedness) or hypermetropia (long-sightedness). Refractive error can prevent people from driving and reading, and daily tasks like making a cup of tea can be more difficult. Under-identification of refractive error remains a problem. People are living with sight loss that could be corrected by wearing properly prescribed glasses. Wearing correctly prescribed glasses can address this, reduce the risk of falls and injury [8] and improve independence and confidence.

Our UK-wide poll found that among people aged 65 and over, a number were experiencing problems related to refractive error but hadn't discussed them with an optometrist or other health professional; 15% were not seeing things close up, and 11% were not seeing things in the distance, as well as they used to.

### Age-related macular degeneration (AMD)

AMD affects central vision. Vision becomes increasingly blurred, reading becomes difficult, colours become less vibrant and people's faces become difficult to recognise.

There are two types of AMD – wet AMD and dry AMD. Most people with AMD (90%) develop dry AMD. The remaining one in ten people have wet AMD, which is treatable if detected early. There is currently no treatment for dry AMD.

# Eye health in the UK

### Cataracts

Having a cataract will cause things to look increasingly blurry and misty, especially on bright sunny days. Clear sight can be restored by an operation to replace the cloudy lens with an artificial lens.

**“After my cataract operation I was amazed and delighted to see leaves on the trees. My sight loss was gradual so I hadn't realised that all I could see was a sense of green in the trees and not the actual leaves.”**

- Pam Lee

### Glaucoma

People with early stage glaucoma experience no symptoms, but irreversible damage to the eye may be taking place. If untreated, glaucoma will cause blurred and misty sight and vision loss. Glaucoma affects peripheral vision. Someone with glaucoma might drive down a street and not see a pedestrian trying to cross the road at the periphery of their vision. Early detection and treatment can often prevent sight loss.

### Diabetic eye disease

Diabetic eye disease, such as diabetic retinopathy, is a leading cause of preventable sight loss among the working-age population in the UK.

The effects of diabetic retinopathy can vary and include blurring, wavy vision, flashes of light, floaters in the visual field, trouble with bright lights, difficulty in reading small print and for some, total visual distortion. Diabetic retinopathy can lead to complete loss of vision.

### Sight-threatening conditions in children

The main causes of vision impairment in children are cerebral vision impairment, disorders of the retina, and disorders of the optic nerve [9]. Sight plays a vital part in children's development of language, social and cognitive skills [10]. Vision impairment in children creates unique challenges to learning and development, which can have a profound impact on their education and wellbeing. Children and their parents need specialist support. Many children and young people have more than one sight condition and many have other special educational needs, disabilities or complex needs [11].



## Eye health in the UK

### 1.3 Eye health and sight loss in numbers

#### Data sources

- Information about the leading causes of preventable sight loss is taken from work commissioned from Deloitte Access Economics by RNIB [12]. The report provides a picture of UK eye health and prevalence of sight loss (based on visual acuity) drawing on a range of epidemiological studies which takes into account age, gender, ethnicity, level of sight loss and cause
- Information about the number of people in the UK has been taken from official population projections for the year 2016. Official statistics provide a detailed overview of the UK population and are the basis for public service funding allocations.

#### People living with sight loss

It is estimated that more than two million people in the UK have sight loss that is severe enough to have a significant impact on their daily lives.

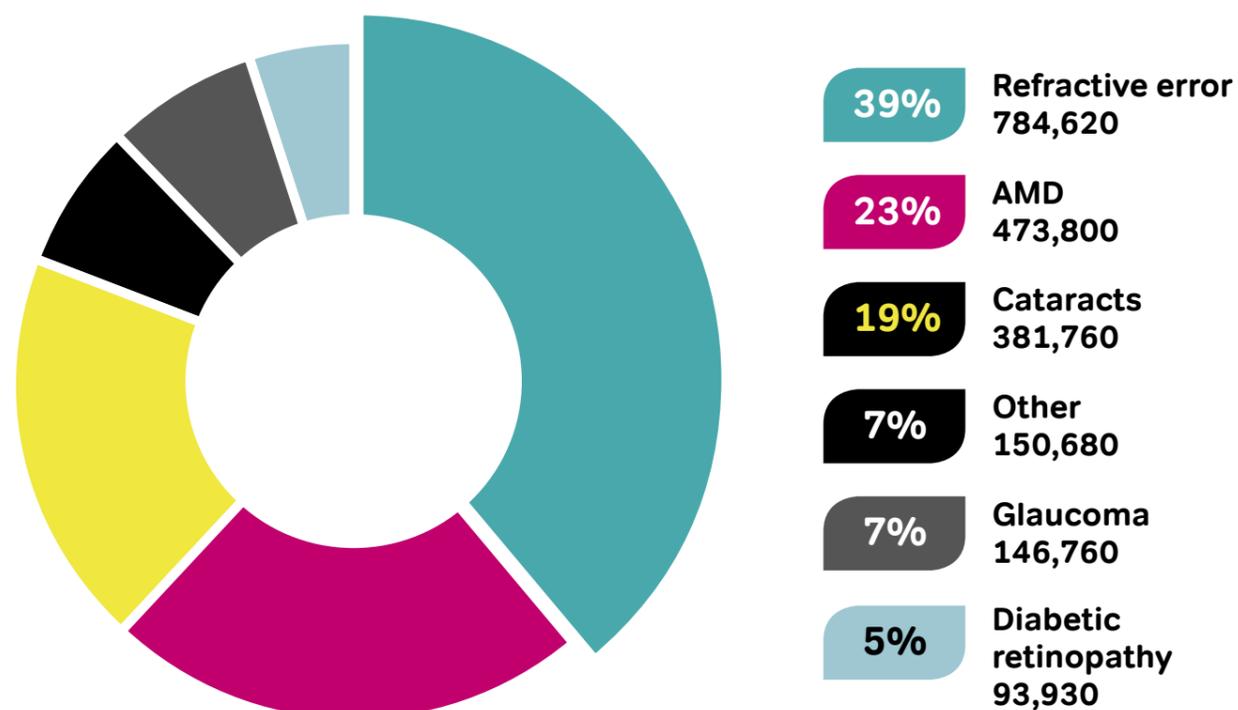
Severity of sight loss of these two million people:

- 270,000 have visual acuity less than 6/60 (guidance for certification as severely sight impaired or blind by an ophthalmologist if visual field is also reduced)
- 450,000 have visual acuity less than 6/18 but better than 6/60 (guidance for certification as partially sighted)
- 1.3 million have visual acuity less than 6/12 but better than 6/18 (below certification level yet still significantly affecting day-to-day activities)

[12, 13, 14, 15, 16] (Indicators 1 and 2).

# Eye health in the UK

## Cause of sight loss of these two million people:



These sight-threatening conditions can cause severe sight loss (blindness); around a quarter of people with AMD are blind, as are 11% of people with cataracts, 32% of people with glaucoma and 22% of people with diabetic retinopathy.

Projections suggest that the number of people living with sight loss will increase by a third between now and 2030 to more than 2.7 million [12, 13, 14, 15, 16]. This growth will be driven by an increase in the UK's older population.

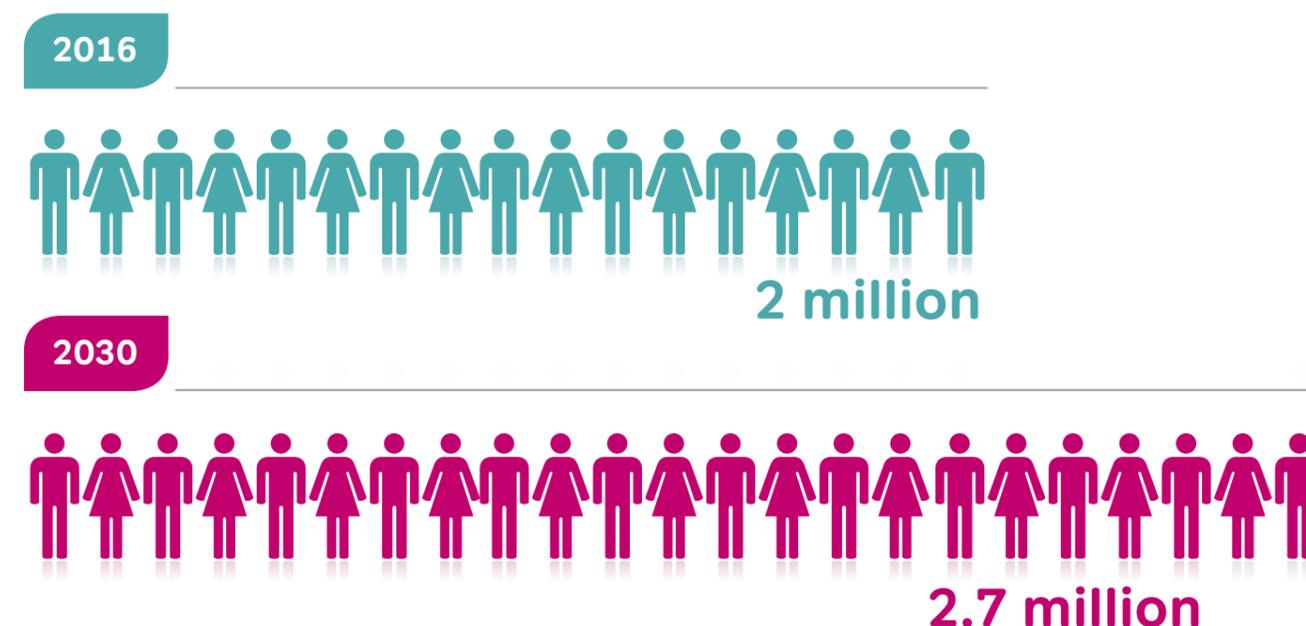
## People living with sight-threatening eye conditions

The number of people at risk of sight loss because they are living with sight-threatening eye conditions, including those who do not yet experience any symptoms, is even greater. The National Eye Health Epidemiological Model (NEHEM) [17] draws from a range of research studies on eye disease prevalence to estimate the number of people living with AMD, glaucoma and cataract. RNIB used NEHEM and an estimate of the number of people showing signs of diabetic retinopathy, based on a retinal screening study [18], to estimate that there are more than 5.7 million people living with sight-threatening eye conditions in the UK today (**Indicator 3**) [13, 14, 15, 16, 17, 18, 19].

# Eye health in the UK

## People living with sight loss

Projections suggest that the number of people living with sight loss will increase by a third between now and 2030 to more than 2.7 million.



## Indicators for preventable sight loss

The Public Health Outcomes Framework for England sets out the government's priorities for public health. It includes an indicator to highlight the rate of preventable sight loss in the population. This is based on the total number of new certificates issued per 100,000 people. The Framework also reports on certificates issued to people, in certain age groups, as a result of AMD, glaucoma and diabetic eye disease.

Forty-two Certificates of Vision Impairment (CVIs) per 100,000 people were issued by Ophthalmologists in England in 2014/15 (**Indicator 4**) [20].

This is just over 23,000 new CVIs. This included new certificates issued to:

- 118 out of every 100,000 people aged 65 and over as result of AMD (11,262

CVIs, almost half of all those issued)

- 13 out of every 100,000 people aged 40 and over as a result of glaucoma (3,458 CVIs)
- three out of every 100,000 people aged 12 and over as a result of diabetic eye disease (1,501 CVIs).

This means just over 16,200 certificates were given to people with these sight conditions.

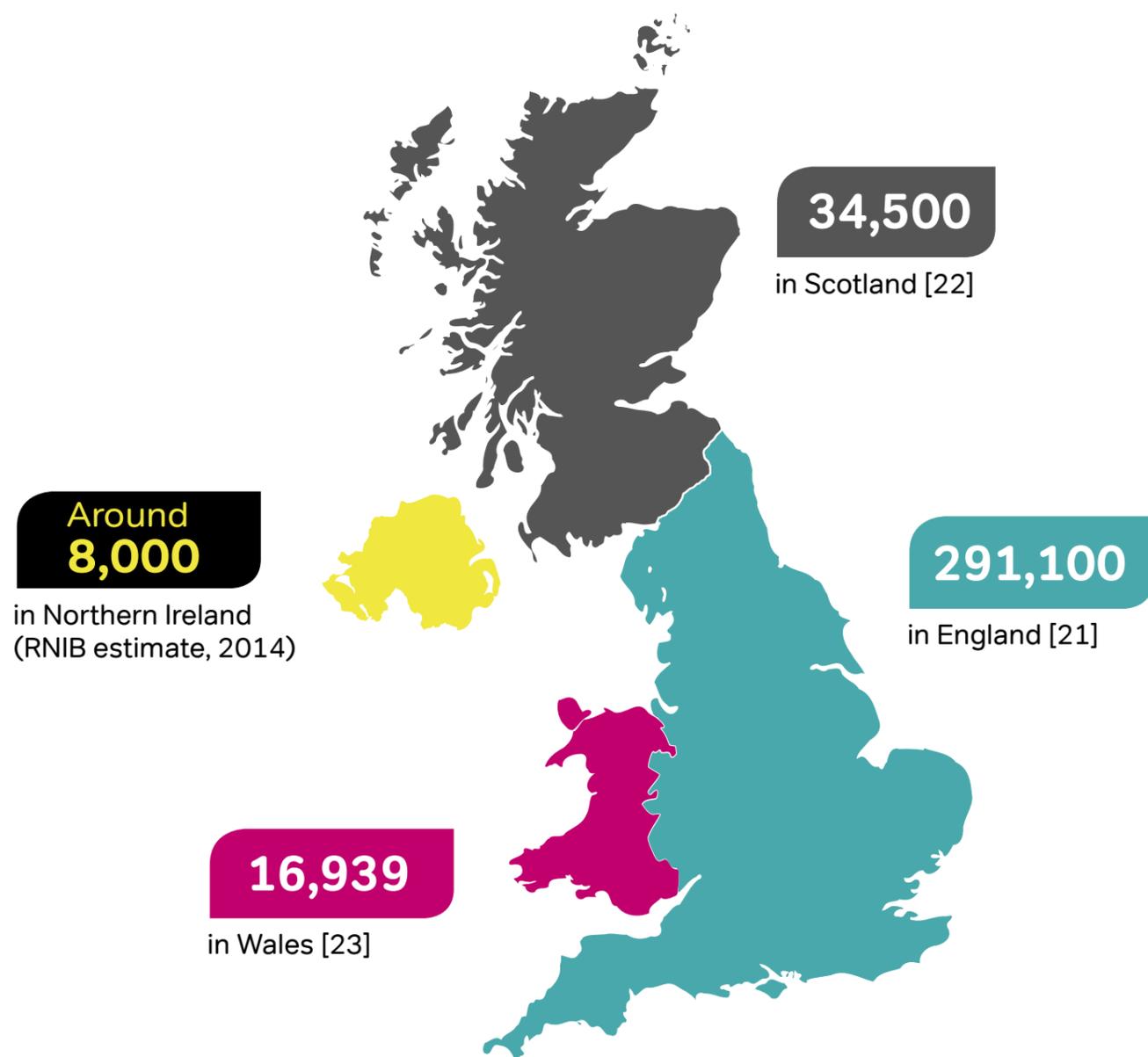
The Public Health Outcomes Framework Data Tool, available at [www.phoutcomes.info](http://www.phoutcomes.info), shows significant variation in rate of preventable sight loss for each local authority. Work is underway in England and the other UK nations to improve the certification process to ensure better data, reduce variations and deliver better outcomes for preventable sight loss.

# Eye health in the UK

## Information from local authority registers

Certification is a route for an individual to access services from their local authority. People are invited by their local authority to register as severely sight impaired (blind) or sight impaired (partially sighted).

In the UK around 350,500 people are registered as blind or partially sighted. Half are registered as blind and half as partially sighted. This is reported at country level as follows:



# Eye health in the UK

## 1.4 Who is at risk of sight loss?

Some groups of people are at greater risk of losing their sight [24].

### Older people

Today there are 11.8 million people in the UK aged 65 and above. Of these, more than 1.6 million are aged 85 or over [13, 14, 15, 16] (**Indicator 5**).

The number of people aged 65 and over is projected to rise by nearly 50% in the next twenty years to over 17 million [25].

Around 79% of people living with sight loss are over the age of 64. The 'oldest old' are at greatest risk – one in every three people aged 85 and over is living with sight loss [12, 13, 14, 15, 16].

### Kenneth Carr

The 'beautiful game' took on a whole new meaning for football fan Kenneth Carr, when new glasses brought his sight back into focus and turned his life around.

Kenneth was working for a parcel delivery company 11 years ago when he noticed that he was struggling to read the consignment numbers on the packages.

"My boss told me to get some glasses, so I bought a cheap pair from a chemist," Kenneth says. "They didn't help much and it turned out that the prescription was too strong. I bought some different ones and made do with them for quite a while."

However, he was still unable to read a newspaper and television was a blur. He was put in touch with Janice from Sight Support Ryedale by a carer's organisation, having cared for his brother until he died.



"Janice screened my vision and recommended I visit the opticians – the last time I did that was 20 years ago. The optician said I needed varifocals. I didn't realise how much of a difference they would make!

With my new glasses I can follow the scores of my favourite teams on the TV. I have another pair I take with me to watch my local football team so I can see the action in more detail," says Kenneth.

"I'm as useless as a bat without wings without my glasses and can't believe I managed so long without them. I hope my story encourages more people to get their eyes checked."

## Eye health in the UK

Older people living in care homes are at particular high risk of poor eye health; estimates suggest up to half of this group have some form of sight loss [26].

### Children and young people

Children at higher risk of vision impairment:

- very premature and very low birth weight babies [11, 27]
- children from the most economically deprived backgrounds [11, 27]
- children and young people from some South Asian ethnic groups [11, 27]
- children with learning difficulties [28]



Estimates suggest that there are more than 25,000 blind and partially sighted children under 16 in the UK, and around 15,000 aged 17-25 [13, 29, 30].

### People on low incomes

Prevalence of sight loss is associated with having a lower income [31, 32]. Children and older people living in poverty are less likely to go for sight tests despite being eligible for free NHS-funded eye tests [33].

Difficulty in getting to an optometrist and concerns about the cost of glasses can result in people not going for eye tests as often as they want, or delaying visits until they experience symptoms [24, 34].

### People from certain ethnic communities

People from certain ethnic communities are at greater risk of some of the leading causes of sight loss yet many are unaware of this [1]:

- Black African and Caribbean people are four to eight times more at risk of developing certain forms of glaucoma compared to white people [35, 36, 37]
- The risk of diabetic eye disease is around three times greater in South Asian people compared to white people
- Black African and Caribbean people are also at a higher risk of diabetic eye disease [38]

Evidence suggests that people from these communities do not receive the same level of access to eye care services as most white people [39]. A recent study found uncorrected refractive error was associated independently with non-white ethnicity, increasing deprivation, younger age and male sex [4].

AMD, a leading cause of sight loss in the UK, is more prevalent among the white population [40].

### People living with diabetes

There are 3.5 million people in the UK with diagnosed diabetes (**Indicator 6**) [18]. People with diabetes are at increased risk of diabetic eye disease as well as glaucoma [41] and cataracts [42].

Within 20 years of being diagnosed, nearly all people with type 1 diabetes and almost two thirds of people with type 2 diabetes will have developed some form of diabetic retinopathy [43].

## Eye health in the UK

Just under half (47%) of people with sight loss due to diabetic retinopathy are of working age (25 to 64 years) [12, 13, 14, 15, 16].

Our YouGov poll included responses from around 800 people with diabetes:

- 17% did not know that they need to have a standard sight test regularly
- 4% had never been to a diabetic eye screening
- in total 7% had not gone for a diabetic eye screening during the last two years

These people are at particular risk of developing diabetic eye disease that goes undetected.

### People with learning disabilities

There are estimated to be more than one million adults aged 20 and over in the UK with a learning disability. Adults with learning disabilities are 10 times more likely to experience sight loss than the general population. Research indicates more than half a million people with a learning disability experience refractive error, yet they face particular barriers in accessing sight tests [44].

### People living with dementia

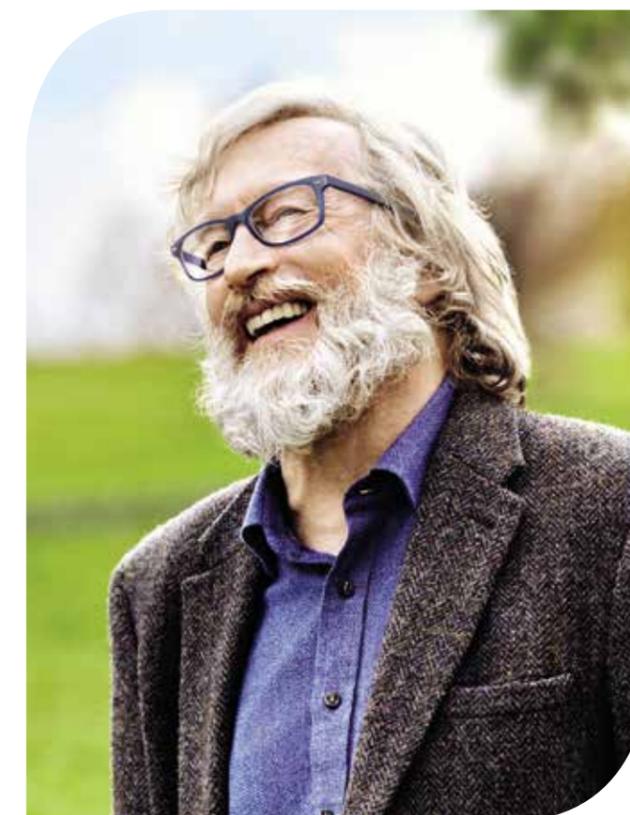
Up to 850,000 people in the UK have some form of dementia [45]. Trends based on data from the Alzheimer's Society show this number is increasing (**Indicator 8**) [46]. Prevalence of sight loss is higher among people with dementia, especially those living in care homes [47]. Sight loss may exacerbate confusion caused by some of forms of dementia.

### People who smoke

There are nearly 10 million people in the UK who smoke (19% of the population) (**Indicator 9**) [48]. Smoking increases the risk of AMD [49]. There is also an increased risk of AMD for non-smokers exposed to passive smoking [50]. The good news is that the risk of developing AMD is reduced over a period of years after smoking or exposure to smoke is stopped.

### Stroke survivors

The number of people with long-standing health conditions due to a stroke is increasing (**Indicator 10**). Estimates suggest that around 60% of stroke survivors experience some form of visual problems immediately after their stroke, and that these problems remain for around 20% of people three months after [51].





# The cost of eye health and sight loss

## Data sources

Data published by the NHS in England, Scotland and Wales provides us with the total expenditure for eye or vision problems. In England budget data can be broken down into specific elements, for example prescription costs and hospital costs. This gives an indication of how expenditure on eye health is allocated.

RNIB commissioned Deloitte Access Economics [52] to estimate the economic impact of sight loss using sight loss prevalence data, official population statistics, demographic data, data on indirect costs and from healthcare cost databases. This provides information on both direct and indirect costs.

## 2.1 NHS expenditure

NHS expenditure attributed to eye or vision problems is currently available for England, Scotland and Wales.

In Scotland, spend on vision is estimated at £127 million, which is 3% of the total NHS Scotland expenditure, with a cost per head of £24 [53]. In Wales, comparative expenditure totals £124 million, which is 2% of the total NHS Wales expenditure, with a cost per head of £40 [54].

In England, reported vision expenditure in 2013/14 was £1.6 billion. This is 2.6% of the total Clinical Commissioning Group (CCG) budget expenditure. This represented a decrease of 29% on the previous year (£2.3 billion) [55]. Up until 2013/14, when definitions changed due to the move from Primary Care Trusts to CCGs, NHS England's spend on vision was considerably higher. Based on trends from 2011/12, we would expect NHS England's expenditure for 2013/14 to be around £2.4 billion [56, 57].

# The cost of eye health and sight loss

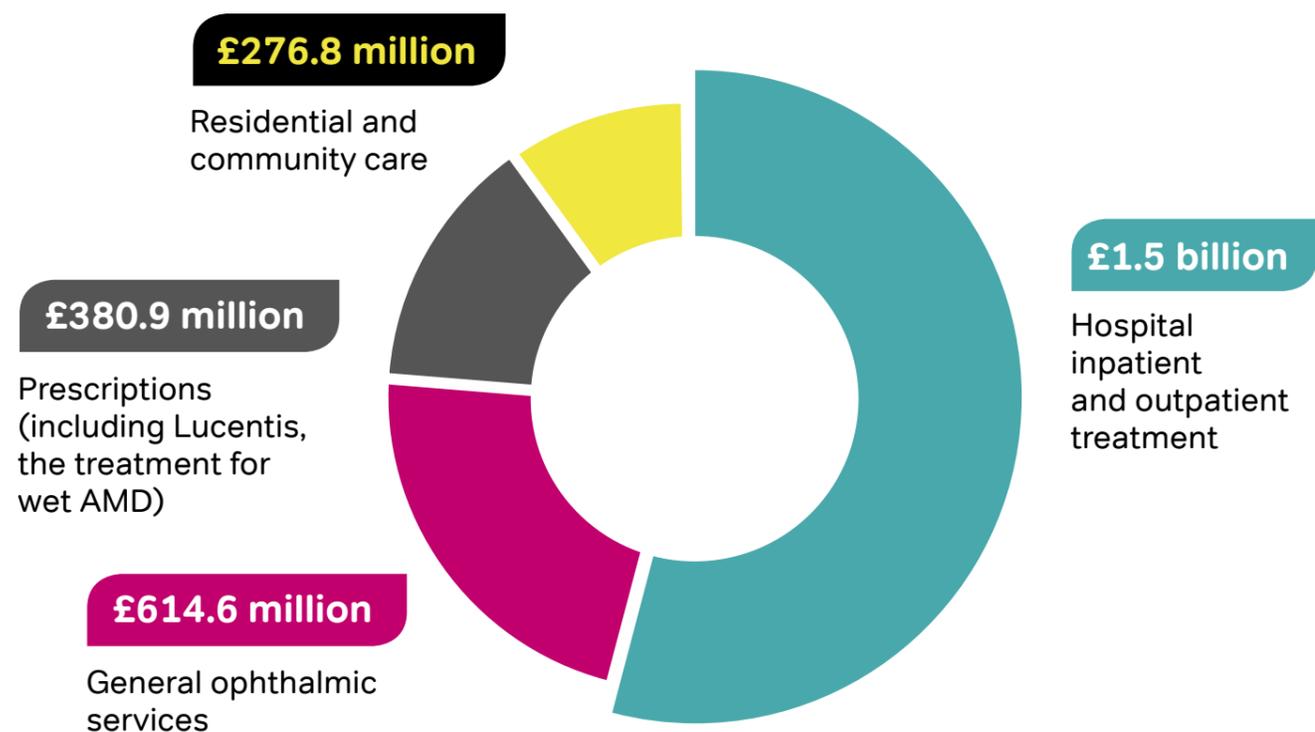
## 2.2 The economic impact of sight loss

Research commissioned by RNIB from Deloitte Access Economics [12] estimates that the cost to the UK economy of sight loss in the adult population of the UK totalled £28.1 billion in 2013 [12]. This

figure comprises both direct and indirect costs and costs associated with reduced health and wellbeing due to sight loss. This total is a huge increase from £22 billion reported in 2008 [58].

### Direct costs

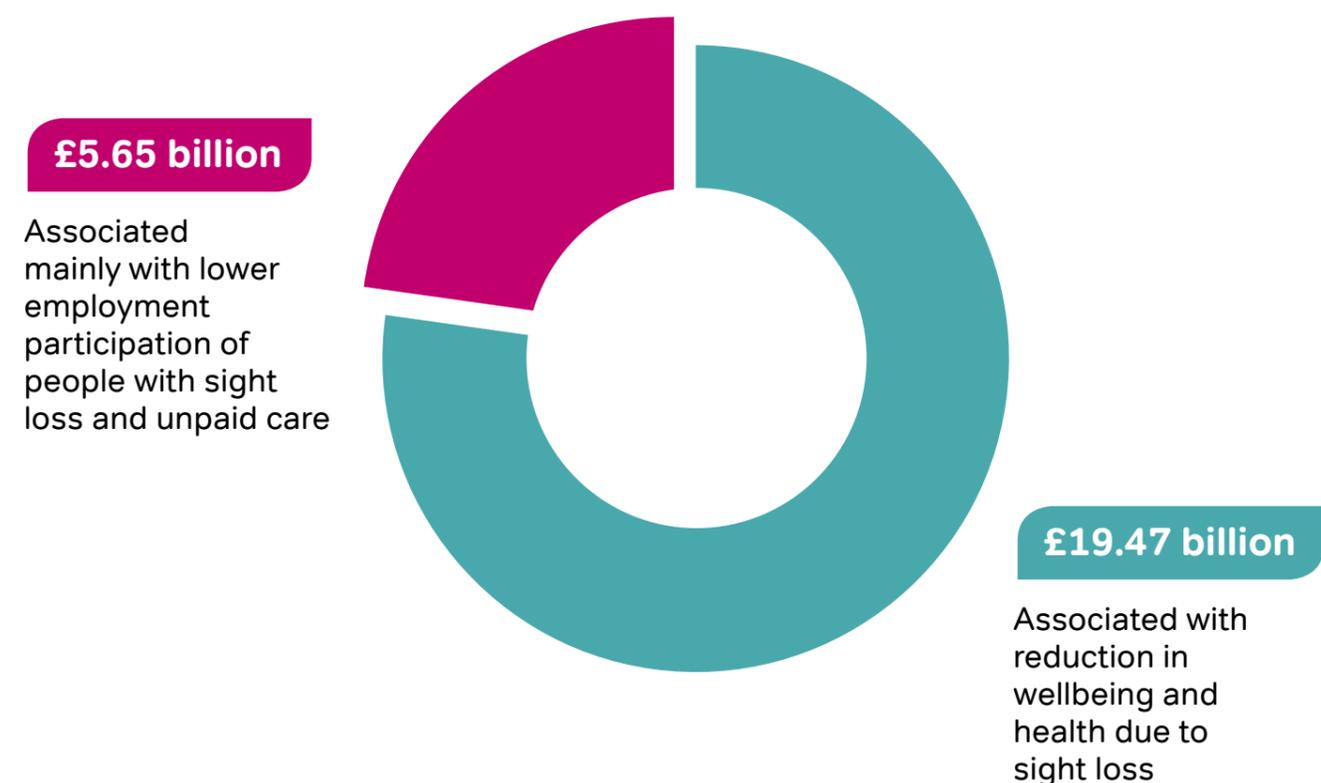
The UK's direct healthcare cost linked to eye health is estimated to be at least £3 billion each year (**Indicator 11**) [12]. The main elements of these direct costs are:



# The cost of eye health and sight loss

## Indirect costs

The estimated indirect cost of sight loss is £25.1 billion (**Indicator 12**). This figure comprises:



## Reducing preventable sight loss

Thousands of people are losing their sight unnecessarily every year [20]. Preventable sight loss could be reduced by taking action in these key areas:

### 3.1 Enabling people to access routine eye tests

Increasing the uptake of eye tests can help address under-corrected refractive error and detection of eye disease. The College of Optometrists recommends a minimum of a two-year interval for eye tests for adults over 16, unless there are specific clinical indicators requiring more frequent examination [59].

However, our YouGov poll showed that more than a quarter (27%) of people have not had an eye test in the last two years. We know that there are a number of barriers to accessing tests.

People with low income and those in areas of high socio-economic deprivation are less likely to go for an eye test compared to those living in more affluent areas [33, 60, 61]. There is evidence of a mismatch between populations of greatest need and location of optometry services. In urban settings, people, particularly the elderly, appear less likely to go for a sight test if the local optometrist is more than a 15-minute walk away [33]. Lack of access and concerns about the cost of glasses can result in those who are poorer delaying attendance until they experience symptoms [24, 33]. These barriers can prevent early detection and timely referral, resulting in people being diagnosed at the later stages of eye disease [62, 63, 64]. A positive experience with an optometrist appears to alleviate some of these barriers [24, 33, 65].

In our YouGov poll, a third of UK adults who hadn't been for a sight test in the last two years said that they would have an eye test if it was free (34%), one fifth if they knew glasses were affordable, eg from £25 (21%) and one fifth if they knew that they were eligible for free glasses on the NHS (19%)

Some people are entitled to free NHS-funded eye tests. In England, Wales and Northern Ireland, this includes people on certain welfare benefits, people aged 60 or over, aged under 16, or under 19 and in full-time education [66]. Free eye tests for all were introduced in Scotland in 2006, but 25% of Scottish adults in our YouGov poll did not know that they are eligible for free NHS sight tests. Some evidence suggests that this policy has widened rather than eliminated inequality in eye care as demand only increased among high income households [60].

Offering non-retail optometry services in healthcare settings in deprived areas could increase uptake of eye tests and the detection of preventable sight loss among black and minority ethnic (BME) communities and people living in poverty. Alternative settings could include GP practices or health centres [24].

RNIB have been carrying out a number of innovative projects with local communities to improve the uptake of eye tests among communities particularly at risk of sight loss. To find out more, visit [www.rnib.org.uk/preventsightloss](http://www.rnib.org.uk/preventsightloss)

## Reducing preventable sight loss

Some people need support to access optometry services, for example those who are frail or elderly, with learning disabilities or dementia, and people living in residential care settings. All of these groups are at increased risk of sight loss, so there is a need to ensure that they have access to regular eye tests. This might be through a domiciliary eye test, for those unable to attend an optometrist's practice unaccompanied. Providing support to wear the right glasses, to keep them clean and to be on the lookout for deterioration in vision between tests is important.

### Next steps

- The Department of Health should consider funding innovative work to enable people from BME communities and those living in poverty to access routine eye tests.
- All staff in residential care settings should be able to identify the signs of sight loss and support residents with eye health and care.
- All professionals providing services for people with sight loss and dementia need to acknowledge the specific needs of people with both conditions.
- Care and support services need to ensure that people with sight loss and a learning disability are enabled to have routine eye tests. Eye tests should be tailored according to an individual's needs.

### 3.2 Promoting eye health for children and young people

Two thirds of sight loss in children is present from birth or diagnosed in the first year of life [11], and a number of checks need to take place in the first few months of life [67]. Sight loss and vision problems can continue to occur throughout childhood and parents and carers need to respond by taking children for eye tests [68]. It is estimated that around 20% of school-age children have an undiagnosed vision problem [69]. If there is a history of a squint or lazy eye in the family, parents are encouraged to have their child's eyes tested by an optometrist as soon as possible. NHS eye tests are free for children under 16 (and free to all in Scotland) and children do not have to be able to read or talk to have an eye test [70].

The UK National Screening Committee recommends that universal vision screening should take place in schools for children aged between four and five, led by orthoptists [71], in order to detect amblyopia, refractive error and strabismus. Currently just over half of English local authorities commission such a service, with no consistent approach to commissioning [72].

Our YouGov poll included around 2,000 parents of children aged three to 16. We found that:

- Almost two thirds of parents said that their children had an eye test before the age of eight (62%). A similar proportion say that their children have had a test in the last two years (63%), however, 16% have **never** had a test. This timing is

# Reducing preventable sight loss

important as, if problems are not picked up at an early age, a child may have permanently reduced vision in one or both eyes

- Asian parents surveyed were less likely than white parents to say that their children have had a test before the age of eight (45% compared to 63%), and are more likely to have never had a test (28% compared to 16%).

Specsavers offers free vision software to all schools to identify children with problems that need referring to an optometrist.

## Next steps

- Local authorities should implement the NSC recommendation and commission vision screening in schools for children aged between four and five
- Optometrists should ask parents about their family history, inform parents about the symptoms to look out for and who to contact if they have any concerns about their child's sight, and encourage uptake of screening services if available.

## 3.3 Promoting a healthy lifestyle

Improved detection and treatment of eye health conditions can have a positive effect on other health outcomes, including reducing social isolation and falls [73]. Obesity can increase the risk of developing diabetes, which in turn can cause sight loss [74]. Smoking doubles the chances of developing AMD [49].

Aligning eye health and sight loss prevention strategies with other health

priorities and broader initiatives aimed at tackling health inequalities could reduce duplication and improve outcomes for people with or at risk of sight loss.

Citing the risk to visual health could be a powerful addition to general public health and health promotion campaigns. For example, studies have shown that health campaigns which highlight the link between sight loss and smoking increase the number of people who quit [75].

RNIB recently supported a short educational initiative which successfully enabled community optometrists to ask people about their smoking histories and give advice about smoking cessation [76].

## Next steps

- Commissioners and service providers should make eye health and sight loss prevention an integral part of public health initiatives on smoking cessation, falls prevention and reducing loneliness.
- Optometrists should routinely promote awareness of the link between sight loss and smoking, consistently ask patients about their smoking history and give advice about smoking cessation.

# Reducing preventable sight loss

## 3.4 Supporting people with diabetes

Effective self-management of diabetes is crucial to prevent the development of diabetic eye disease [77]. Detection of early stage eye disease through regular diabetic eye screening and eye tests and swift referral for treatment can help to prevent sight loss.

A national programme to screen for diabetic eye disease has been in place throughout the UK since 2006. Everyone diagnosed with diabetes over the age of 12 is invited for annual screening. On average, 84% of those offered diabetic eye screening in England attended their appointments (**Indicator 7**) [78] and it is estimated that the programme saves the sight of just over 400 people in England each year [79]. There is significant geographical and socio-economic variation in screening uptake [80].

There is some evidence that people who do not go regularly for screening are confused about the difference between eye tests and screening [81, 78] and that finding time to attend all the health appointments associated with diabetes is a challenge. Ideally, diabetes care would be more integrated [34] so that people could have an eye test, diabetic eye screening, foot care, and receive advice about maintaining a healthy weight and managing diabetes all on the same day.

RNIB has been funded by the Department of Health and local health commissioners to work with communities and health services to explore ways of improving uptake of diabetic eye screening and self-management of diabetes. This whole-systems approach appears to have a positive impact on take up of eye care services [82]. This work received the national Quality in Care 2015 Diabetes Award.

## Next steps

- Optometrists and other health professionals should support and coach patients to encourage self-management of diabetes and advise patients that they need to have diabetic retinopathy screening as well as an eye test
- Health service commissioners and primary care professionals should ensure that there are effective programmes for early detection of undiagnosed diabetes and referral for treatment.

## Reducing preventable sight loss

### Dr. Elizabeth Wilkinson

Dr. Elizabeth Wilkinson is a consultant ophthalmologist who specialises in diabetic retinopathy. She shares the story about one of her patients, Norman.

“Norman is a 65-year-old gentleman who I first saw in 2014. He had severe diabetic macular oedema, bad enough to require laser treatment in one eye and an injection in the other. He was very overweight with high blood sugars, blood pressure and cholesterol. He didn’t go out very much and was very down.

I showed him the pictures of the back of his eyes, where the blood had leaked into his macula. I explained that his high blood sugar levels were causing this. Then we talked about how to control his diabetes.

Norman started taking up exercise and has lost five stone. He no longer requires insulin. I haven’t had to treat him for 12 months and his eye disease has actually regressed. I have been able to discharge him back to



diabetic eye screening as a low risk patient. I am extremely proud of Norman.

We’ve come a long way from the days when diabetics were sent to eye units and diabetes was not even mentioned to the patient, let alone their blood pressure and blood sugar checked. And, we have some miraculous drugs, fantastic new lasers and very powerful images which may help people to understand what is going on within their bodies.

But I still feel like there is so much to do. We need to get patients to start controlling their diabetes much earlier.”

unnecessarily despite the condition being detected and treated. [83].

#### Next steps

- Primary care health professionals, such as optometrists and pharmacists, should support people to take medication and attend regular follow up appointments.

### 3.5 Supporting people with glaucoma

People with glaucoma and ocular hypertension often require regular monitoring and treatment regimes that involve eye drops. Up to 50% of patients fail to correctly comply with their treatment [39]. As a result, people still lose their sight

## Reducing preventable sight loss

### 3.6 Supporting stroke survivors

Around 60% of people who experience strokes will also experience some form of visual impairment immediately after their stroke [51]. Despite national guidelines recommending specialist vision assessment for stroke survivors who have a suspected visual problem, this is not routine. Care pathways are also not routinely used. Integrating orthoptists into stroke teams is seen as best practice.

#### Next step

- Commissioners and health professionals should ensure vision problems are considered within stroke care. Vision screening tests and care pathways should be implemented.

### 3.7 Capacity challenges in hospitals

More than 16 million NHS eye tests were conducted in 2013/14 (**Indicator 13**) [84, 85, 86, 87]. Some 27% of people registered as blind or partially sighted (who lost their sight as adults) said that it was an optometrist who first noticed a serious problem with their eyesight [6]. Most referrals to hospital eye care are via an eye test conducted by a high street optometrist [88, 89], yet there are already capacity problems in some clinics.

In 2014/15 there were 7.9 million eye clinic outpatient attendances (**Indicator 14**). Two million of these attendances were new patients (**Indicator 15**). Ophthalmology has the second highest outpatient attendance of any speciality (only trauma and orthopaedics are higher) and this is growing year on year:

during the past seven years, the UK has seen a 37% increase [90, 91, 92, 93].

Research indicates that patients are losing their sight unnecessarily because of capacity problems in eye clinics [94, 95].

- Wet AMD progresses quickly and can lead to serious changes to central vision in a short period of time. Ophthalmologists have expressed strong concern about the potential impact on clinical outcomes as a result of delays in the subsequent treatment of patients with wet AMD [96]
- Damage caused by glaucoma is irreversible so timely treatment is essential. Clinicians are identifying appropriate monitoring times for patients with glaucoma but hospital rescheduling of appointments due to capacity demands are delaying these appointments by several months [97]
- Almost 400,000 cataract surgeries were carried out in England in 2014/15 (Indicator 16). Some policies to delay cataract surgery have recently attracted negative media attention. In addition, patients have told RNIB that long waits between their first and second eye surgery leads to problems with having to pay for new glasses after surgery on the first eye and another pair following second surgery [98].

## Reducing preventable sight loss

### 3.8 Innovation to link eye health with eye care

The NHS Five Year Forward View emphasises the need for a multi-disciplinary approach to prevention and care [99]. However, commissioning and delivery of eye health and eye care services is complex. Pathways frequently cut across geographical boundaries and involve many providers [100]. Separation of primary care, community services and hospitals can be a barrier to personalised care and co-ordinated health services [101]. Patients find the system chaotic and confusing [100].

Integrated care pathways are a way of ensuring that all health and care services are co-ordinated around people's needs. There is some integration in Scotland and Wales, where optometrists are funded for repeat measurements, follow-up appointments and the management of minor eye conditions through their main national contracts.

In response to the urgent need for change, the Clinical Council for Eye Health Commissioning (CCEHC) has designed frameworks for primary eye care and for community ophthalmology [101] and endorsed a portfolio of eye health indicators designed by the Vision 2020 UK Ophthalmic Public Health Committee [102]. The CCEHC believes that implementing this “collaborative integrated model of care” will allow local community and hospital providers of NHS services to deliver more joined-up services, particularly managing lower risk patients in the community.

There is emerging evidence for this approach. Recent research found that after appropriate training, community-based optometrists were as good as ophthalmologists in classifying retinal damage due to wet AMD, and that shared care with optometrists in the community to monitor patients with AMD, has the potential to reduce workload in hospitals [103]. Another study found that the Scottish Eyecare Integration Project (which introduced electronic connection of community optometrists to hospitals), along with the General Ophthalmic Service (GOS) contract, is a significant step change towards meeting demand for a multi-disciplinary approach, bringing ophthalmic care closer to home and into the community [104].

New models of care, which enable primary and community care to reduce referrals to eye clinics, need to be tested to scale. Optometrists can have an enhanced role supporting patient self-management if local provision is linked through better integrated eye care pathways.

## Reducing preventable sight loss

### Dawn Caney

Last winter, the South Yorkshire Fire and Rescue service was called to an incident at Dawn Caney's flat. A home safety officer visited shortly after to talk about smoke alarms. Because he had taken part in a local eye health initiative, he spotted that Dawn had symptoms of sight loss.

**“I used to go out to the shops every day, but it got too difficult to manage the steps down from my first floor flat.”**

Dawn, who is in her 60s, says: “I noticed that my eyes were getting bad about three years ago – things started blurring. I used to go out to the shops every day, but it got too difficult to manage the steps down from my first floor flat. I was frightened of slipping, so I stopped going out.”

Dawn was referred to the Sheffield Royal Society for the Blind (SRSB) and to their Community Advice Officer, Carolyn Green. Carolyn supported Dawn to have physiotherapy for chronic back

problems, obtain help from a carer and complete benefits forms, which Dawn finds difficult.

“I've been able to tell Carolyn all my problems and she always listens,” says Dawn.

Carolyn also arranged for Dawn to visit the eye clinic at Hallamshire Hospital, where Dawn was diagnosed with severe cataracts. Dawn was initially too frightened to have surgery, but overcame this with support from Carolyn and the ophthalmology team.

**“I've been able to tell Carolyn all my problems and she always listens.”**

Dawn experienced improvements to her eye sight following her cataract surgery. As a final step, the eye clinic recommended that Dawn should have an eye test so she visited her local Specsavers.

Reflecting on the months since she first came into contact with SRSB, Dawn said: “There have been lots of positive changes in my life.”

## Reducing preventable sight loss

### Innovation in practice

In Wolverhampton three new integrated pathways have been created to improve the quality of ophthalmology referrals, reduce attendance at Accident and Emergency, and provide care closer to home:

- Cataract referral refinement – prior to referral for cataract surgery, patients undergo a more detailed cataract assessment by an optometrist in high street practice. This includes a health and lifestyle questionnaire to assess suitability for surgery
- Minor Eye Conditions Service (MECS) – people with recently occurring eye conditions such as red eye or flashes and floaters are seen by an optometrist for assessment, and only referred to the hospital eye clinic if necessary. New pathways facilitate emergency referrals
- Glaucoma repeat readings – optometrists repeat high eye pressure readings with specific equipment to prevent unnecessary referrals to the hospital eye clinic.

These schemes are supported and funded by Wolverhampton CCG. Optometrists receive additional fees and the quality of the services is audited.

Excellent ongoing ophthalmology co-operation and two grants from NHS England have enabled Wolverhampton LOC to develop novel training for local optometrists. Practical workshops aim to improve clinical skills and decision making. The intended result is that the quality of current services will improve and that they can expand further.

“We could not be making the progress we have without the enlightened approach of Wolverhampton CCG and the amazing support from both management and consultants at Wolverhampton Eye Infirmary” said Peter Rockett, Secretary of Wolverhampton Local Optical Committee and Clinical Lead for the services.



## Our agenda for action

This report sets out a challenging context: rapidly growing demand for eye health and care services, capacity problems in some clinics, and high costs for both individuals and society at a time of growing budget deficits. Indicators in our dashboard show that too many eye health trends are moving in the wrong direction. Improving the nation's eye health is an enormous challenge, but we must rise to it and take action now because people are needlessly losing their sight.

It is imperative that people understand that many eye conditions can be corrected or treated, and that others can be managed in a way that will reduce their adverse impact on day to day life. Nearly half of sight loss is preventable. Having an eye test can be the first step.

**RNIB and Specsavers are working together to transform the nation's eye health and stop people needlessly losing their sight. We want to make sure that eye health is everyone's business.**

We need:

### Leadership

Strong direction that drives forward the dialogue between different parts of the eye care system – hospital eye departments, primary and community eye care – uniting us behind common goals. This requires political leaders, senior decision makers within health and social care, and local champions to work together on developing eye care pathways to meet patient need.

### Integrated services

Pathways that focus on early detection, prompt access and treatment for eye problems can help reduce unnecessary sight loss. For conditions that cannot be treated, effective community-based services, such as vision rehabilitation, can help people successfully adapt to a life with sight loss. By working together, there are many opportunities for greater efficiency in commissioning and procurement.

New and innovative models of care need to be tested at greater scale to have maximum impact. In order for this to happen, a range of stakeholders need to collaborate to bring about effective referrals and carry out active planning that considers the eye health needs of local populations.

## Our agenda for action

### Reduced inequality

We need to tackle inequalities in eye health by reducing barriers for people. We must ensure services are targeted at the groups who need them most and are located where there is most need. A focus on specific population groups to tackle inequality in eye health outcomes will include promoting healthy diet and lifestyle, as well as improving access to sight tests and treatment. Improved detection and treatment of eye health conditions can have a positive effect on other health and wellbeing outcomes. So eye health and sight loss strategies should be aligned to wider health determinants and existing health and care strategies.

### Improvement in eye health data

Significant amounts of data are collected through General Ophthalmic Service eye test claims, but these are not designed to support improvements in eye health services. Also, Hospital Eye Service activity data by sub-speciality is not reported to commissioners. Improved data and better sharing of information among all professionals at each stage of the patient's pathway would improve service planning and efficiency.

### Raising awareness

We need to raise greater awareness about the importance of eye health. Optometrists are ideally placed to promote essential eye health messages as part of their routine practice. Greater education about risk factors and symptoms, as well as what to do if a problem is detected, could mean issues are identified more quickly. It is vital that professionals throughout the eye health and care network are equipped to give consistent eye health messages. We need to ensure that everyone can play their part in spotting undiagnosed sight loss, supporting people to wear the right glasses, and linking people into eye care.

## Appendix A: References

- [1] The College of Optometrists (2013). Britain's eye health in focus: A snapshot of consumer attitudes and behaviour towards eye health. The College of Optometrists.
- [2] RNIB calculation based on Office for National Statistics (ONS) (2015). Annual Mid-year Population Estimates: 2014. ONS. Calculation: UK population 18 and over= 51,339,161 x 0.27= 13.8 million
- [3] NHS Choices (2015, July 8). Blindness and vision loss. NHS. Retrieved from [www.nhs.uk/Conditions/Visual-impairment/Pages/Introduction.aspx](http://www.nhs.uk/Conditions/Visual-impairment/Pages/Introduction.aspx)
- [4] Cumberland P.M., and Rahi J.S. (2016). Visual Function, Social Position, and Health and Life Chances. The UK Biobank Study. *JAMA Ophthalmol.* doi:10.1001/jamaophthalmol.2016.1778.
- [5] Flynn K., and Lord C. (2015). Living with Sight Loss: Updating the National Picture. RNIB and NatCen Social Research. Available from [rnib.org.uk/knowledge-and-research-hub-research-reports-general-research/living-sight-loss](http://rnib.org.uk/knowledge-and-research-hub-research-reports-general-research/living-sight-loss)
- [6] Slade J., and Edwards R. (2015). My Voice 2015: The views and experiences of blind and partially sighted people in the UK. RNIB.
- [7] Nollett C.L., Bray N., Bunce C., Casten R.J., Edwards R.T., Hegel MT., ... Margrain TH. (2016). High prevalence of untreated depression in patients accessing low-vision services. *Ophthalmology*, 123(2), 440-441.
- [8] Day L., Fildes B., Gordon I., Fitzharris M., Flamer H., and Lord S. (2002). Randomised factorial trial of falls prevention among older people living in their own homes. *BMJ*, 325 (7356).
- [9] Mity D., Bunce C., Wormald R., Leamon S., Simkiss P., Cumberland P., ... Bowman R. (2013). Causes of certifications for severe sight impairment (blind) and sight impairment (partial sight) in children in England and Wales. *British Journal of Ophthalmology*, 97, 1431-1436.
- [10] Harris J., Keil S., Lord C., and Lloyd C. (2014). Sight impairment at age eleven. Secondary analysis of the Millenium Cohort Survey. RLSB, RNIB and NatCen Social Research.
- [11] Rahi J.S., Cable N., and the British Childhood Visual Impairment Study Group (2003). Severe visual impairment and blindness in children in the UK. *Lancet*, 25;362(9393):1359-65.

## Appendix A: References

- [12] Pezzullo L., Streatfield J., Simkiss P., and Shickle D. (2016). The economic impact of sight loss and blindness in the UK adult population. RNIB and Deloitte Access Economics. Manuscript submitted for publication.
- [13] Office for National Statistics (ONS) (2016). Subnational Population Projections, 2014-based projections release [data file]. ONS. Available from [ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2014basedprojections](http://ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2014basedprojections)
- [14] Stats Wales (2013). Population projections by local authority and year, 2011-based local authority population projections for Wales [data file]. Welsh Government. Retrieved from [statswales.gov.wales/Catalogue/Population-and-Migration/Population/Projections/Local-Authority/2011-Based/PopulationProjections-By-LocalAuthority-Year](http://statswales.gov.wales/Catalogue/Population-and-Migration/Population/Projections/Local-Authority/2011-Based/PopulationProjections-By-LocalAuthority-Year)
- [15] Information Services Division (2014). Council Area Population Projections, 2012-based projections release [data file]. NHS Scotland. Available from [isdscotland.org/Products-and-Services/GPD-Support/Population/Projections](http://isdscotland.org/Products-and-Services/GPD-Support/Population/Projections)
- [16] Northern Ireland Statistics and Research Agency (NISRA) (2016). Population projections for areas within Northern Ireland, 2014-based projections release [data file]. NISRA. Available from [www.nisra.gov.uk/demography/default.asp47.htm](http://www.nisra.gov.uk/demography/default.asp47.htm)
- [17] National Eye Health Epidemiological Model (NEHEM) (2013). Data and models by Public Health Action Support Team [data file]. Local Optical Committee Support Unit. NEHEM. Available from [eyehealthmodel.org](http://eyehealthmodel.org)
- [18] Diabetes UK (2016, January 5). Number of people with diabetes reaches over 4 million. Diabetes UK. Retrieved from [diabetes.org.uk/About\\_us/News/Number-of-people-with-diabetes-reaches-over-4-million](http://diabetes.org.uk/About_us/News/Number-of-people-with-diabetes-reaches-over-4-million)
- [19] Minassian D., and Reidy A. (2009). Future Sight Loss UK 2: An epidemiological and economic model for sight loss in the decade 2010-2020. EpiVision and RNIB.
- [20] Public Health England (PHE) (2016). Public health outcomes framework data tool: Preventable sight loss indicator 4.12. PHE. Retrieved from [www.phoutcomes.info/search/sight#pat/6/ati/102/par/E12000004](http://www.phoutcomes.info/search/sight#pat/6/ati/102/par/E12000004)
- [21] Health and Social Care Information Centre (HSCIC) (2014). Registered blind and partially sighted people – Year ending 31 March 2014, England [data file]. HSCIC. Retrieved from [www.hscic.gov.uk/catalogue/PUB14798](http://www.hscic.gov.uk/catalogue/PUB14798)

## Appendix A: References

- [22] Scottish Government (2010). Registered blind and partially sighted persons, Scotland 2010 [data file]. Scottish Government. Retrieved from [www.gov.scot/Publications/2010/10/26094945/0](http://www.gov.scot/Publications/2010/10/26094945/0)
- [23] Statistics for Wales (2015). Local authority registers of people with disabilities at 31 March 2014 [data file]. Welsh Government. Available from [gov.wales/statistics-and-research/local-authority-registers-people-disabilities/?lang=en](http://gov.wales/statistics-and-research/local-authority-registers-people-disabilities/?lang=en)
- [24] Leamon S., Hayden C., Lee H., Trudinger D., Appelbee E., Hurrell D.L., and Richardson I. (2014). Improving access to optometry services for people at risk of preventable sight loss: a qualitative study in five UK locations. *Journal of Public Health (Oxford England)*, 36(4), 667-73.
- [25] Office for National Statistics (ONS) (2013). National population projections, 2012-based [data file]. ONS. Available from [ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2013-11-06](http://ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2013-11-06)
- [26] Watson J., and Bamford S.M. (2012). Undetected Sight Loss in Care Homes. International Longevity Centre – UK.
- [27] Cumberland P.M., Pathai S., and Rahi J.S. (2010). Prevalence of eye disease in early childhood and associated factors: Findings from the Millennium Cohort Study. *Ophthalmology*, 117(11), 2184-2190.
- [28] Woodhouse J.M., Davies N., McAvinchey A., and Ryan B. (2014). Ocular and visual status among children in special schools in Wales: the burden of unrecognised visual impairment. *Archives of Diseases in Childhood*, 99, 500-504.
- [29] Morris M., and Smith P. (2008). Educational provision for blind and partially sighted children and young people in Britain: 2007. RNIB.
- [30] Keil S. (2013). Key facts about vision impairment in children and young people. RNIB.
- [31] Davies S. (2014). Annual Report of the Chief Medical Officer, Surveillance Volume, 2012: On the State of the Public's Health. Department of Health.
- [32] Ullidemolins A.R., Lansingh V.C., Valencia L.G., Carter M.J., and Eckert K.A. (2012). Social inequalities in blindness and visual impairment: A review of social determinants. *Indian Journal of Ophthalmology*, 60(5), 368-375.
- [33] Shickle D., and Farragher T.M. (2015). Geographical inequalities in uptake of NHS-funded eye examinations: small area analysis of Leeds, UK. *Journal of Public Health*, 37(2), 337-345.

## Appendix A: References

- [34] Hayden C., Trudinger D., Niblett V., Hurrell D.L., Donohoe S., Richardson I., and Applebee, E. (2012). The barriers and enablers that affect access to primary and secondary eye care across the UK. RNIB and Shared Intelligence.
- [35] Wormald P., Basauri E., Wright L.A., and Evans J.R. (1994). The African Caribbean Eye Survey: Risk factors for glaucoma in a sample of African Caribbean people living in London. *Eye (London, England)*, 8(3), 315-320.
- [36] Cross V., Shah P., Bativala R., and Spurgeon P. (2007) ReGAE 2: glaucoma awareness and the primary eye-care service: some perceptions among African Caribbeans in Birmingham UK. *Eye* 21, 912–920
- [37] Pardhan S., Gilchrist J., and Mahomed I. (2004). Impact of age and duration on sight threatening retinopathy in South Asians and Caucasians attending a diabetic clinic. *Eye (London, England)*, 18(3), 233-240.
- [38] Sivaprasad S., Gupta B., Gulliford M.C., Dодhia H., Mohamed M., Nagi D., and Evans J.R. (2012). Ethnic Variations in the Prevalence of Diabetic Retinopathy in People with Diabetes Attending Screening in the United Kingdom (DRIVE UK). *PLoS One*, 7(3): e32182.
- [39] Johnson M., Cross V., Scase M., Szczepura A., Clay D., Wesley H., ... Leamon S. (2011). A review of evidence to evaluate the effectiveness of current models and intervention strategies to promote primary and secondary eye health care. RNIB.
- [40] Klein R., Klein B.E., Knudtson M.D., Wong T.Y., Cotch M.F., Liu K., ... Jacobs D.R. Jr. (2006). Prevalence of age-related macular degeneration in four racial/ethnic groups in the multi-ethnic study of atherosclerosis. *Ophthalmology*, 113(3), 373-380.
- [41] Newman-Casey P.A., Talwar N., Nan B., Musch D.C., and Stein J.D. (2011). The Relationship between Components of Metabolic Syndrome and Open-Angle Glaucoma. *Ophthalmology*, 118(7), 318-326.
- [42] Javadi M-A., and Zarei-Ghanavati S. (2008). Cataracts in Diabetic Patients: A Review Article. *J Ophthalmic Vis Res*, 3(1): 52–65.
- [43] Jones S., and Edwards, R.T. (2010). Diabetic retinopathy screening: a systematic review of the economic evidence. *Diabetic Medicine*, 27(3), 249-56.
- [44] Emerson E., and Robertson J. (2011). The Estimated Prevalence of Visual Impairment among People with Learning Disabilities in the UK. RNIB.
- [45] Alzheimer's Society (2014). Dementia UK: Update. Alzheimer's Society.

## Appendix A: References

- [46] Alzheimer's Society (2012). Alzheimer's Society Dementia 2012- full report. Alzheimer's Society.
- [47] Bowen M., Edgar D.F., Hancock B., Haque S., Shah R., Buchanan S., ... O'Leary N. (2016). The Prevalence of Visual Impairment in People with Dementia (the PrOVIDe study): a cross sectional study of 60-89 year old people with dementia and qualitative exploration of individual, carer and professional perspectives. NIHR.
- [48] Action on Smoking and Health (ASH) (2016). Smoking statistics. ASH.
- [49] Chakravarthy U., Augood C., Bentham G. C., de Jong P.T., Rahu M., Seland J., ... Fletcher A.E. (2007). Cigarette smoking and age-related macular degeneration in the EUREYE Study. *Ophthalmology*, 114(6), 1157-63.
- [50] Khan J.C., Thurlby D.A., Shahid H., Clayton D.G., Yates J.R., Bradley M., ... Bird, A.C. (2006). Smoking and age related macular degeneration: the number of pack years of cigarette smoking is a major determinant of risk for both geographic atrophy and choroidal neovascularisation. *The British Journal of Ophthalmology*, 90(1), 75-80.
- [51] Rowe F. (2013). Care provision and unmet need for post stroke visual impairment: Final report. Stroke Association and Thomas Pocklington Trust.
- [52] Deloitte Access Economics (2016). The economic impact of sightloss and blindness in the UK adult population, 2013. RNIB. Manuscript submitted for publication.
- [53] Information Services Division (2014). Scotland National Statistics release, R04x: All specialty (exc long stay) summary – by patient type 2013/14, Ophthalmology [data file]. NHS Scotland. Available from [www.isdscotland.org/Health-Topics/Finance/Costs/File-Listings-2014.asp](http://www.isdscotland.org/Health-Topics/Finance/Costs/File-Listings-2014.asp)
- [54] Statistics for Wales (2016). NHS expenditure programme budgets, 2013-14, Eye/vision problems. Welsh Government. Retrieved from [statswales.gov.wales/Catalogue/Health-and-Social-Care/Health-Finance/NHS-Programme-Budget/nhsexpenditure-by-budgetcategory-year](http://statswales.gov.wales/Catalogue/Health-and-Social-Care/Health-Finance/NHS-Programme-Budget/nhsexpenditure-by-budgetcategory-year)
- [55] NHS England (n.d.). 2013-2014 Programme Budgeting Benchmarking Tool, Indicator 8. Problems of Vision. NHS England. Available from [www.england.nhs.uk/resources/resources-for-ccgs/prog-budgeting](http://www.england.nhs.uk/resources/resources-for-ccgs/prog-budgeting)
- [56] Department for Health (DH) (2013). Programme Budgeting Benchmarking Tool, 2011/12 [data file]. DH. Available from [www.networks.nhs.uk/nhs-networks/health-investment-network/news/2012-13-programme-budgeting-data-is-now-available](http://www.networks.nhs.uk/nhs-networks/health-investment-network/news/2012-13-programme-budgeting-data-is-now-available)

## Appendix A: References

- [57] Department for Health (DH) (2014). Programme Budgeting Benchmarking Tool, 2012/13. [data file]. DH. Available from [www.networks.nhs.uk/nhs-networks/health-investment-network/news/2012-13-programme-budgeting-data-is-now-available](http://www.networks.nhs.uk/nhs-networks/health-investment-network/news/2012-13-programme-budgeting-data-is-now-available)
- [58] Access Economics (2009). Future Sight Loss 1: The economic impact of partial sight and blindness in the UK adult population. RNIB
- [59] The College of Optometrists (2016, n.d.). Frequency of eye examinations. The College of Optometrists. Retrieved from [guidance.college-optometrists.org/guidance-contents/knowledge-skills-and-performance-domain/the-routine-eye-examination/frequency-of-eye-examinations](http://guidance.college-optometrists.org/guidance-contents/knowledge-skills-and-performance-domain/the-routine-eye-examination/frequency-of-eye-examinations)
- [60] Dickey H., Ikenwilo D., Norwood P., Watson V., and Zangelidis A. (2016). "Doctor my eyes": A natural experiment on the demand for eye care services. *Social Science and Medicine*, 150, 117-127.
- [61] Reilly R., and Humphreys C. (2011). Cwm Taf eye health equity profile. NHS Wales. Retrieved from [www.wales.nhs.uk/news/21605](http://www.wales.nhs.uk/news/21605)
- [62] Day F., Buchan J., Cassells-Brown A., Fear J., Dixon R., and Wood F. (2010). A glaucoma equity profile: correlating disease distribution with service provision and uptake in a population in Northern England, UK. *Eye (London, England)*, 24, 1478-1485.
- [63] Fraser S., Bunce C., Wormald R., and Brunner E. (2001). Deprivation and late presentation of glaucoma: case-control study. *BMJ*, 322, 639-43.
- [64] Ng W.S., Agarwal P.K., Sidiki S., McKay L., Townend J. and, Azuara-Blanco A. (2010). The effect of socio-economic deprivation on severity of glaucoma at presentation. *British Journal of Ophthalmology*, 94, 85-7.
- [65] Biddyr S., and Jones A. (2015). Preventing sight loss in older People. A qualitative study exploring barriers to the uptake of regular sight tests of older people living in socially deprived communities in South Wales. *Public Health*, 129(2), 110-6.
- [66] NHS Choices (2014, September 25). Am I entitled to a free NHS sight test? NHS England. Retrieved from [www.nhs.uk/chq/pages/895.aspx?CategoryID=68andSubCategoryID=157](http://www.nhs.uk/chq/pages/895.aspx?CategoryID=68andSubCategoryID=157)
- [67] NHS Choices (2015, June 30). Eye tests for children. Retrieved from [www.nhs.uk/conditions/eye-tests-for-children/Pages/Introduction.aspx](http://www.nhs.uk/conditions/eye-tests-for-children/Pages/Introduction.aspx)
- [68] British and Irish Orthoptic Society (BIOS) (2015, August 25). Children's eye care – Reinforcing national guidelines for vision screening in schools for all 4-5 year olds. BIOS. Retrieved from [www.orthoptics.org.uk/news/3495013](http://www.orthoptics.org.uk/news/3495013)

## Appendix A: References

- [69] Association of Optometrists (n.d.). Children's eye health: Why Vision Matters. Retrieved from [aop.org.uk/advice-and-support/for-patients/childrens-eye-health/why-vision-matters](http://aop.org.uk/advice-and-support/for-patients/childrens-eye-health/why-vision-matters)
- [70] The College of Optometrists (July, n.d.). A short guide to your child's eyes. The College of Optometrists. Retrieved from [lookafteryoureyes.org/eye-care/children](http://lookafteryoureyes.org/eye-care/children)
- [71] Public Health England (PHE) (2013). The UK NSC recommendation on Vision defects screening in children. PHE. Retrieved from [legacy.screening.nhs.uk/vision-child](http://legacy.screening.nhs.uk/vision-child)
- [72] Clinical Council for Eye Health Commissioning (2015). Community Ophthalmology framework. Clinical Council for Eye Health Commissioning. Retrieved from [rcophth.ac.uk/wp-content/uploads/2015/07/Community-Ophthalmology-Framework.pdf](http://rcophth.ac.uk/wp-content/uploads/2015/07/Community-Ophthalmology-Framework.pdf)
- [73] Boyce T., Stone M., Johnson S., and Simkiss P. (2013). Projecting number of falls related to visual impairment. *British Journal of Healthcare Management*, 19(6).
- [74] Gatineau M., Hancock C., Holman N., Outhwaite H., Oldridge L., Christie A. and Ells L. (2014). Adult obesity and type 2 diabetes. Public Health England.
- [75] Thornton J., Edwards R., Harrison R.A., Elton P., Astbury, N., and Kelly S.P. (2007). 'Smoke gets in your eyes': a research-informed professional education and advocacy programme'. *Journal of Public Health (Oxford, England)*, 29(2), 142-146.
- [76] Lawrenson J.G., and Evans J.R. (2013). Advice about diet and smoking for people with or at risk of age-related macular degeneration: a cross-sectional survey of eye care professionals in the UK. *BMC Public Health*, 13, 564.
- [77] The Royal College of Ophthalmologists (2013). RCOphth guidance on managing diabetic retinopathy. Diabetic Retinopathy Guidelines December 2012, update to section 14.3.4 in July 2013 in accordance with College Statement on Intravitreal Injections. The Royal College of Ophthalmologists. Retrieved from [rcophth.ac.uk/wp-content/uploads/2014/12/2013-SCI-301-FINAL-DR-GUIDELINES-DEC-2012-updated-July-2013.pdf](http://rcophth.ac.uk/wp-content/uploads/2014/12/2013-SCI-301-FINAL-DR-GUIDELINES-DEC-2012-updated-July-2013.pdf)
- [78] Public Health England (PHE) (2016). NHS Screening programmes: KPI reports 2015-2016. PHE. Available from [www.gov.uk/government/publications/nhs-screening-programmes-kpi-reports-2015-to-2016](http://www.gov.uk/government/publications/nhs-screening-programmes-kpi-reports-2015-to-2016)
- [79] Scanlon P.H. (2008). The English national screening programme for sight threatening diabetic retinopathy. *Journal of Medical Screening*, 15(1), 1-4.

## Appendix A: References

- [80] Knight A., and Linfield R. (2015). The relationship between socio-economic status and access to eye health services in the UK: a systematic review. *Public Health*, 129(2), 94-102.
- [81] Simons M. (2009). Public Health Action Support Team (PHAST) project report. Care Needs Assessment: Eye Health. Findings and recommendations. NHS Tower Hamlets. Retrieved from [www.towerhamlets.gov.uk/Documents/Public-Health/JSNA/Eye-health-JSNA-2009.pdf](http://www.towerhamlets.gov.uk/Documents/Public-Health/JSNA/Eye-health-JSNA-2009.pdf)
- [82] Lee H. (2015). Service innovation to help people live well with diabetes and reduce sight loss. RNIB. Retrieved from [rnib.org.uk/knowledge-and-research/hub-research-reports/prevention-sight-loss/bradford-eyecare](http://rnib.org.uk/knowledge-and-research/hub-research-reports/prevention-sight-loss/bradford-eyecare)
- [83] Reardon G., Kotak S., and Schwartz G.F. (2011). Objective assessment of compliance and persistence among patients treated for glaucoma and ocular hypertension: a systematic review. *Patient Preference Adherence*, 5, 441-463. Retrieved from [ncbi.nlm.nih.gov/pmc/articles/PMC3191921](http://ncbi.nlm.nih.gov/pmc/articles/PMC3191921)
- [84] Health and Social Care Information Centre (HSCIC) (2014). General Ophthalmic Services, Activity Statistics, England, 2013-14 [data file]. HSCIC. Available from [digital.nhs.uk/catalogue/PUB14494](http://digital.nhs.uk/catalogue/PUB14494)
- [85] Information Services Division (2014). Ophthalmic Workload Statistics, Scotland, 2013-14 [data file]. NHS Scotland. Available from [isdscotland.org/Health-Topics/Eye-Care/Publications](http://isdscotland.org/Health-Topics/Eye-Care/Publications)
- [86] Statistics for Wales (2014). NHS ophthalmic statistics by Local Health Board, Wales, 2013-14 [data file]. Welsh Government. Available from [statswales.gov.wales/Catalogue/Health-and-Social-Care/NHS-Primary-and-Community-Activity/Sight-Tests-and-Vouchers](http://statswales.gov.wales/Catalogue/Health-and-Social-Care/NHS-Primary-and-Community-Activity/Sight-Tests-and-Vouchers)
- [87] Health and Social Care Northern Ireland (HSCNI) (2015). General Ophthalmic Service Statistics in Northern Ireland 2013-14 [data file]. HSCNI.
- [88] Bowling B., Chen S.D., and Salmon J.F. (2005). Outcome of referrals by community optometrists to a hospital glaucoma service. *British Journal of Ophthalmology*, 89(11), 1102-4.
- [89] Davey C.J., Green C., and Elliott D.B. (2011). Assessment of referrals to the hospital eye service by optometrists and GPs in Bradford and Airedale. *Ophthalmic and Physiological Optics*, 31(1), 23-8.

## Appendix A: References

- [90] Health and Social Care Information Centre (HSCIC) (2015). Outpatients – Provider level analysis 2014/15 and 2007/08 Table 8: Hospital provider attendances broken down by main specialty [data file]. HSCIC. Available from [digital.nhs.uk/catalogue/PUB19608](http://digital.nhs.uk/catalogue/PUB19608)
- [91] Information Services Division (2014). Scotland National Statistics release, Specialty Group Costs – Consultant Outpatients 2014/15 and 2007/08 [data file]. NHS Scotland.
- [92] Statistics for Wales (2016). Information for Eye Care, 2015-16, Table 9: Number of outpatient appointments (new and follow up) for ophthalmology by year and Health Board 2014/15 and 2007/08 [data file]. Welsh Government.
- [93] Department of Health, Social Services and Public Safety (DHSSPS) (2014). Hospital Statistics: Outpatient Activity Statistics 2014/15; 2013-14 and 2007/08. DHSSPS.
- [94] Boyce T. (2014). Real patients coming to real harm Ophthalmology services in Wales. RNIB. Retrieved from [rnib.org.uk/wales-cymru/news/real-patients-coming-real-harm](http://rnib.org.uk/wales-cymru/news/real-patients-coming-real-harm)
- [95] National Reporting and Learning System (NRLS) reported by Professor Carrie MacEwen, President of RCOphth (2016). Retrieved from [rcophth.ac.uk/2016/03/increasing-demand-on-hospital-eye-services-risks-patients-losing-vision](http://rcophth.ac.uk/2016/03/increasing-demand-on-hospital-eye-services-risks-patients-losing-vision)
- [96] RNIB (2016). Improving AMD care in England. Manuscript in preparation.
- [97] Tatham A., and Murdoch I. (2012). The effect of appointment rescheduling on monitoring interval and patient attendance in the glaucoma outpatient clinic. Eye (London, England), 26, 729-733. doi:10.1038/eye.2012.22.
- [98] RNIB (2016). Improving cataract care in England. Manuscript in preparation.
- [99] NHS England (2013, n.d.). NHS Five Year Forward View. NHS England. Retrieved from [england.nhs.uk/ourwork/futurenhs](http://england.nhs.uk/ourwork/futurenhs)
- [100] NHS England (2015). Eye Health Network for London: Achieving better outcomes. NHS England. Retrieved from [www.college-optometrists.org/en/utilities/document-summary.cfm?docid=5E4C8137-DDD1-4043-B02414C2B129B3E6](http://www.college-optometrists.org/en/utilities/document-summary.cfm?docid=5E4C8137-DDD1-4043-B02414C2B129B3E6)
- [101] Clinical Council for Eye Health Commissioning (2016). Primary eye care framework for first contact care. Clinical Council for Eye Health Commissioning. Retrieved from [rcophth.ac.uk/wp-content/uploads/2016/07/Primary-eye-care-framework-final-1.0.pdf](http://rcophth.ac.uk/wp-content/uploads/2016/07/Primary-eye-care-framework-final-1.0.pdf)

## Appendix A: References

- [102] Vision 2020 (2015). UK Ophthalmic Public Health Committee: Portfolio of indicators for eye health and care. [data file]. Vision 2020. Available from [www.vision2020uk.org.uk/vision-2020-uk-ophthalmic-public-health-committee-portfolio-of-indicators-for-eye-health-and-care](http://www.vision2020uk.org.uk/vision-2020-uk-ophthalmic-public-health-committee-portfolio-of-indicators-for-eye-health-and-care)
- [103] Reeves B.C., Scott L.J., Taylor J., Harding S.P., Peto T., Muldrew A., ... Chakravarthy U. (2016). Effectiveness of Community versus Hospital Eye Service follow-up for patients with neovascular age-related macular degeneration with quiescent disease (ECHOES): a virtual non-inferiority trial. *BMJ Open*, 6:e010685. doi:10.1136/bmjopen-2015-010685
- [104] Cheng M., Henderson C., Sinclair A., and Sanders R. (2015). Visual health awareness, the Scottish community optometry service and Eye care Integration Project: Breaking barriers in preventing visual impairment. *British Journal of Visual Impairment*, 33(3), 220-226.
- [105] Health and Social Care Information Centre (HSCIC). (2012). Disease prevalence: Quality and Outcomes Framework (QOF) for April 2011-March 2012, England. HSCIC.
- [106] Welsh Government (2012). Patients on Quality and Outcomes Framework (QOF) by local health board and disease registers. Welsh Government.
- [107] Information Services Division (2012). Quality and Outcomes Framework (QOF) for April 2011-March 2012, Scotland. NHS National Services Scotland.
- [108] Department of Health, Social Services and Public Safety (DHSSPS) (2012). Prevalence Data in the Quality and Outcomes Framework, 2011/12, Northern Ireland. DHSSPS.
- [109] Office for National Statistics (ONS) (2016). Adult smoking habits in Great Britain: 2014. ONS. Retrieved from [ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/adultsmokinghabitsingreatbritain/2014](http://ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/adultsmokinghabitsingreatbritain/2014)
- [110] Health and Social Care Information Centre (HSCIC) (2015). Hospital Episode Statistics, Admitted Patient Care – England, 2014-15. HSCIC.
- [111] Health and Social Care Information Centre (HSCIC) (2012). Hospital Episode Statistics, Admitted Patient Care - England, 2011-12. HSCIC.
- [112] Stroke Association (2016). State of the Nation: stroke statistics. Stroke Association.
- [113] Stroke Association (2013). Stroke Statistics. Stroke Association.

## Appendix A: References

[114] Office for National Statistics (ONS) (2013). 2011 Census: Population Estimates by five-year age bands, and Household Estimates, for Local Authorities in the United Kingdom. ONS. Retrieved from [ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimatesfortheunitedkingdom/2011-03-21/relateddata](https://ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimatesfortheunitedkingdom/2011-03-21/relateddata)

[115] Health and Social Care Information Centre (HSCIC) (2012). Outpatients – Provider level analysis 2011/12 Table 8: Hospital provider attendances broken down by main specialty [data file]. HSCIC.



## Appendix B: Eye health indicators

Indicator	Latest estimate	Previous estimate (year stated)	Trend	Area	Source
<b>1. Sight Loss</b> Number of people in the UK living with sight loss that has a significant impact on their lives	2.03 million (2016)	1.87 million (2011)	Increase	UK	Pezzullo et al (2016) [12] Access Economics (2009) [58] *See note
<b>2. Blindness</b> Number of people in the UK living with severe sight loss	270,000 (2016)	224,000 (2011)	Increase	UK	Pezzullo et al (2016) [12] Access Economics (2009) [58] *See note
<b>3. Living with sight-threatening conditions</b> Number of people in the UK living with sight threatening conditions	5.7 million (2016)	5.3 million (2011)	Increase	UK	NEHEM (2013) [17] Diabetes UK (2016) [18] Minassian and Reidy (2009) [19] *See note
<b>4. Rate of certification</b> Number of new CVIs per 100,000 people					
a) AMD for those aged 65 and over	a) 118.1 per 100,000	a) 129.2 per 100,000	Decrease (except for glaucoma which remains the same)	England	PHE (2016) [20]
b) Glaucoma for those aged 40 and over	b) 12.8 per 100,000	b) 12.8 per 100,000			
c) Diabetic eye disease for those aged 12 and over	c) 3.2 per 100,000	c) 3.9 per 100,000			
d) All causes for all age groups	d) 42.4 per 100,000 (2014/15)	d) 44.5 per 100,000 (2011/12)			

## Appendix B: Eye health indicators

Indicator	Latest estimate	Previous estimate (year stated)	Trend	Area	Source
<b>5. Older people</b>					
a) Number of people in the UK aged 65 and over	a) 11.8 million	a) 10.8 million	Increase	UK	ONS (2016) [13] Stats Wales (2013) [14] ISD (2014) [15] NISRA (2016) [16] ONS (2013) [25]
b) Number of people in the UK aged 85 and over	b) 1.6 million (2016)	b) 1.4 million (2012)			
<b>6. Diabetes</b> Number of people in the UK who are diagnosed as having diabetes	3.5 million (2014/15)	3.0 million (2011/12)	Increase	UK	Diabetes UK (2016) [18] HSCIC (2012) [105] Welsh Government (2012) [106] ISD (2012) [107] DHSSPS (2012) [108]
<b>7. Diabetic retinopathy: uptake</b> Proportion of people offered screening who were screened	83.6% (2015, quarter 3)	82.8% (2013, quarter 1)	Increase	England	PHE (2016) [78]
<b>8. Dementia</b> Estimated number of people living with dementia in the general population	850,000 (2015)	800,000 (2012)	Increase	UK	Alzheimer's Society (2014) [45] Alzheimer's Society (2012) [46]
<b>9. Smoking</b> Proportion of adults (16 and over) in the UK that smoke	19% (2014)	20% (2011)	Decrease	UK	ONS (2016) [109]

## Appendix B: Eye health indicators

Indicator	Latest estimate	Previous estimate (year stated)	Trend	Area	Source
<b>10. Stroke</b> Estimated number of stroke survivors in the UK	1.2 million (2016)	1.1 million (2013)	Increase	UK	Stroke Association (2016) [112] Stroke Association (2013) [113]
<b>11. Direct cost of sight loss</b> Cost through NHS expenditure	£3 billion (2013)	£2.1 billion (2008)	Increase	UK	Pezzullo et al (2016) [12] Access Economics (2009) [58]
<b>12. Indirect cost of sight loss</b> Cost through loss of healthy years of life and unpaid care	£25.1 billion (2013)	£ 19.9 billion (2008)	Increase	UK	Pezzullo et al (2016) [12] Access Economics (2009) [58]
<b>13. Sight tests</b> Number of NHS sight tests per year	Over 16 million (2013/14)	15.4 million (2011/12)	Increase	UK	HSCIC (2014) [84] ISD (2014) [85] Stats Wales (2014) [86] HSCNI (2015) [87]
<b>14. Outpatients</b> Total number of NHS outpatient ophthalmology appointments	7.9 million (2014/15)	7.7 million (2011/12)	Increase	UK	HSCIC (2015) [90] ISD (2014) [91] Stats Wales (2016) [92] DHSSPS (2014) [93] HSCIC (2012) [115]

## Appendix B: Eye health indicators

Indicator	Latest estimate	Previous estimate (year stated)	Trend	Area	Source
<b>15. New outpatients</b> Number of NHS outpatient ophthalmology appointments for new patients	2 million (2014/15)	1.9 million (2011/12)	Increase	UK	HSCIC (2015) [90] ISD (2014) [91] Stats Wales (2016) [92] DHSSPS (2014) [93] HSCIC (2012) [115]
<b>16. Cataract</b> Number of NHS cataract operations	396,000 (2014/15)	337,000 (2011/12)	Increase	England	HSCIC (2015) [110] HSCIC (2012) [111]

### \*Note

These indicators are based on prevalence estimates. The estimates were applied to population data for the relevant year.

The population data references for 2016 are:  
ONS (2016) [13], Stats Wales (2013) [14], ISD (2014) [15], NISRA (2016) [16].

The population data reference for 2011 is ONS (2013) [114].



**State of the Nation: Eye Health 2016** provides the latest evidence on eye health across the UK. We hope it supports strategic thinking as we work together to transform eye health and take steps to stop people losing their sight unnecessarily.

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