Health Needs Assessment

Eye health and sight loss; statistics and information for developing a Joint Strategic Needs Assessment

By: Dr Kadhim Alabady, Principal Epidemiologist.

Date: May 2014.

Norfolk Public Health
Improving health and wellbeing,
Protecting the population
Preventing ill health
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<td>Age related Macular Degeneration</td>
</tr>
<tr>
<td>ARM</td>
<td>Age Related Maculopathy</td>
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<tr>
<td>APHO</td>
<td>Association of Public Health Observatories</td>
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<tr>
<td>BME</td>
<td>Black and Minority Ethnic</td>
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<tr>
<td>BMI</td>
<td>Body Mass Index</td>
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<tr>
<td>BP</td>
<td>Blood Pressure</td>
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<tr>
<td>CG</td>
<td>Clinical Guideline</td>
</tr>
<tr>
<td>CCG</td>
<td>Clinical Commissioning Group</td>
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<tr>
<td>CI</td>
<td>Confidence Interval</td>
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<tr>
<td>CVI</td>
<td>Certificate of Visual Impairment</td>
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<tr>
<td>DH</td>
<td>Department of Health</td>
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<tr>
<td>DM</td>
<td>Diabetes Mellitus</td>
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<tr>
<td>DSR</td>
<td>Directly age-Standardised Rate</td>
</tr>
<tr>
<td>DWP</td>
<td>The Department for Work and Pensions</td>
</tr>
<tr>
<td>EoE</td>
<td>East of England</td>
</tr>
<tr>
<td>ERPHO</td>
<td>East Region Public Health Observatory</td>
</tr>
<tr>
<td>GAMD</td>
<td>Geographical AMD (Dry AMD)</td>
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<tr>
<td>GDM</td>
<td>Gestational diabetes mellitus</td>
</tr>
<tr>
<td>GMS</td>
<td>General Medical Services</td>
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<tr>
<td>GP</td>
<td>General Practice</td>
</tr>
<tr>
<td>GY</td>
<td>Great Yarmouth</td>
</tr>
<tr>
<td>GYW W</td>
<td>Great Yarmouth and Waveney</td>
</tr>
<tr>
<td>HEA</td>
<td>Health Equity Audit</td>
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<tr>
<td>HES</td>
<td>Hospital Episode Statistics</td>
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<tr>
<td>HNA</td>
<td>Health Needs Assessment</td>
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<tr>
<td>HSCIC</td>
<td>Health and Social Care Information Centre</td>
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<tr>
<td>IC</td>
<td>Information Centre</td>
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<tr>
<td>ICD</td>
<td>International Classification of Disease</td>
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<tr>
<td>ID</td>
<td>Index of deprivation</td>
</tr>
<tr>
<td>IMD</td>
<td>Index of Multiple Deprivation</td>
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<tr>
<td>IOP</td>
<td>Intraocular pressure</td>
</tr>
<tr>
<td>JSNA</td>
<td>Joint Strategic Needs Assessment</td>
</tr>
<tr>
<td>KL &amp; WN</td>
<td>King's Lynn and West Norfolk</td>
</tr>
<tr>
<td>LA</td>
<td>Local Authority</td>
</tr>
<tr>
<td>LL</td>
<td>Lower Limit of confidence interval</td>
</tr>
<tr>
<td>LSOA</td>
<td>Lower Supper Output Area</td>
</tr>
<tr>
<td>MSOA</td>
<td>Middle Supper Output Area</td>
</tr>
<tr>
<td>N &amp; W</td>
<td>Norfolk and Waveney</td>
</tr>
<tr>
<td>NAB</td>
<td>Norwich Association for the Blind</td>
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<tr>
<td>NCHD</td>
<td>Norwich and Chichester Health District</td>
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<tr>
<td>NEHEM</td>
<td>National Eye Health Epidemiological Model</td>
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<tr>
<td>NHS</td>
<td>National Health Service</td>
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<tr>
<td>NICE</td>
<td>National Institute for Health and Clinical Excellence</td>
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<tr>
<td>NDESP</td>
<td>NHS Diabetic Eye Screening Programme</td>
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<tr>
<td>NMDP</td>
<td>Norfolk and Medway District Police Authority</td>
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<tr>
<td>NICE</td>
<td>National Institute for Health and Clinical Excellence</td>
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<tr>
<td>NNSP</td>
<td>National不得和 Sight Screening Programme</td>
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<tr>
<td>NPSG</td>
<td>National Primary Care Service Group</td>
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<tr>
<td>NNAB</td>
<td>Norwich Association for the Blind</td>
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<tr>
<td>NSF</td>
<td>National Service Framework</td>
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<tr>
<td>NVAMD</td>
<td>Neovascular AMD (Wet AMD)</td>
</tr>
<tr>
<td>ONS</td>
<td>Office of National Statistics</td>
</tr>
<tr>
<td>PANSI</td>
<td>Projecting Adult Needs and Service Information</td>
</tr>
<tr>
<td>PBC</td>
<td>Practice Based Commissioning</td>
</tr>
<tr>
<td>PBMA</td>
<td>Programme Budgeting and Marginal Analysis</td>
</tr>
<tr>
<td>PCHR</td>
<td>Personal Child Health Record</td>
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<tr>
<td>PHOF</td>
<td>Public Health Outcome Framework</td>
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<tr>
<td>POAG</td>
<td>Primary open-angle glaucoma</td>
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<tr>
<td>POPPI</td>
<td>Projecting Older People Population Information System</td>
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<tr>
<td>QMAS</td>
<td>Quality Management and Analysis System</td>
</tr>
<tr>
<td>QOF</td>
<td>Quality and Outcomes Framework</td>
</tr>
<tr>
<td>RD</td>
<td>Retinal detachment</td>
</tr>
<tr>
<td>RCP</td>
<td>Royal College of Physicians</td>
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<tr>
<td>RNIB</td>
<td>Royal National Institute of Blind People</td>
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<tr>
<td>RPE</td>
<td>Retinal Pigment Epithelium</td>
</tr>
<tr>
<td>RSA</td>
<td>Road Safety Authority</td>
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<tr>
<td>SHA</td>
<td>Strategic Health Authority</td>
</tr>
<tr>
<td>SMR</td>
<td>Standardised Mortality Ratio</td>
</tr>
<tr>
<td>SOA</td>
<td>Super Output Area</td>
</tr>
<tr>
<td>TIA</td>
<td>Transient Ischaemic Attacks</td>
</tr>
<tr>
<td>UL</td>
<td>Upper Limit of confidence interval</td>
</tr>
<tr>
<td>VA</td>
<td>Visual Acuity</td>
</tr>
<tr>
<td>VCM1</td>
<td>Vision related quality of life</td>
</tr>
<tr>
<td>WCC</td>
<td>World Class Commissioning</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>
Sources of Data

- Department of Health (DH)  
  http://www.dh.gov.uk/

- Dr Foster (provider of comparative information on health and social care services)  
  http://www.drfosterhealth.co.uk/

- Health and Social Care Information Centre (HSCIC), Registered Blind and Partially Sighted People  
  http://www.hscic.gov.uk/pubs/blindpartiallysighted11

- Index of Multiple Deprivation (IMD 2010)  
  http://data.gov.uk/dataset/index-of-multiple-deprivation

- Norfolk Insight  
  http://www.norfolkinsight.org.uk/

- Office for National Statistics (ONS)  
  http://www.statistics.gov.uk/

- Open Exeter  
  https://nww.openexeter.nhs.uk/nhsia/index.jsp

- Projecting Adult Needs and Service Information (PANSI)  
  http://www.pansi.org.uk/

- Projecting Older People Population Information (POPPI)  
  http://www.poppi.org.uk/

- Public Health Outcome Framework (PHOF)  
  http://www.phoutcomes.info/

- Quality and Outcomes Framework (QOF) data  
  http://www.qof.ic.nhs.uk/

- Royal National Institute of Blind People (RNIB)  
  www.rnib.org.uk/datatool

- The Health Profiles was published by Public Health England  

- The National Eye Health Epidemiological Model (NEHEM)  
  http://www.eyehealthmodel.org.uk/MainApplication/default.aspx#

- Yorkshire and Humber Health Intelligence, Public Health England PCT CCG Spend and Outcome Factsheets and Tool (SPOT)  
Aim

The aims of the Eye health and sight loss needs assessment are:

- To inform the planning and delivery of services for reducing inequalities related to eye disorders in Norfolk and Waveney.
- To gather information to plan, negotiate and change services for the better and to improve health in other ways.
- To build a picture of current services, i.e. a baseline.
- To encourage discussion on why services might need changing for the better?
- Supporting Evidence to the Joint Strategic Needs Assessment.

Objectives

- To assess the quality and usefulness of routinely available information about eye disorders in the local population.
- To provide a baseline to enable future audits to evaluate the effectiveness, acceptability and usefulness of the new policies in relation to reducing inequity in eye disorders.
### International Classification of Diseases (ICD10) - Chapter VII: Diseases of the eye, adnexa (H00–H59)

The International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) is a coding of diseases and signs, symptoms, abnormal findings, complaints, social circumstances and external causes of injury or diseases, as classified by the World Health Organization (WHO)\(^1\).

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Description</th>
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<tr>
<td>VII</td>
<td>Diseases of the eye, adnexa</td>
<td>H00–H59</td>
</tr>
<tr>
<td>VII</td>
<td>Disorders of eyelid, lacrimal system and orbit</td>
<td>H00–H06</td>
</tr>
<tr>
<td>VII</td>
<td>Disorders of conjunctiva</td>
<td>H10–H13</td>
</tr>
<tr>
<td>VII</td>
<td>Disorders of sclera and cornea</td>
<td>H15–H19</td>
</tr>
<tr>
<td>VII</td>
<td>Disorders of iris and ciliary body</td>
<td>H20–H22</td>
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<tr>
<td>VII</td>
<td>Disorders of lens</td>
<td>H25–H28</td>
</tr>
<tr>
<td>VII</td>
<td>Disorders of choroid and retina</td>
<td>H30–H36</td>
</tr>
<tr>
<td>VII</td>
<td>Glaucoma</td>
<td>H40–H42</td>
</tr>
<tr>
<td>VII</td>
<td>Disorders of vitreous body and globe</td>
<td>H43–H45</td>
</tr>
<tr>
<td>VII</td>
<td>Disorders of optic nerve and visual pathways</td>
<td>H46–H48</td>
</tr>
<tr>
<td>VII</td>
<td>Disorders of ocular muscles, binocular movement, accommodation and refraction</td>
<td>H49–H52</td>
</tr>
<tr>
<td>VII</td>
<td>Visual disturbances and blindness</td>
<td>H53–H54</td>
</tr>
<tr>
<td>VII</td>
<td>Other disorders of eye and adnexa</td>
<td>H55–H59</td>
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\(^1\) [http://en.wikipedia.org/wiki/ICD-10_Chapter_VII:_Diseases_of_the_eye,_adnexa]
Worldwide
- Globally, the number of people of all ages living with sight loss is estimated to be 285 million, of whom 39 million are blind.
- About 90% of the world's visually impaired live in developing countries.
- Globally, 80% of all sight loss can be prevented or cured.
- An estimated 19 million children worldwide have sight loss.
- 1.4 million children worldwide are irreversibly blind for the rest of their lives.

United Kingdom
- There are almost 2 million people in the UK who are living with sight loss that has a significant impact on their daily lives.
- There are 40,000 blind and partially sighted children and young people in the UK.
- One in every nine people aged over 60 are currently living with sight loss.
- Well over two fifths of blind and partially sighted people feel ‘moderately’ or ‘completely’ cut off from people and things around them.

Source: Fight for Sight²

² http://fightforsight.org.uk/statistics-about-blindness-and-eye-disease
Executive summary

The number of people in the UK with sight loss is set to increase dramatically. It is predicted that by 2050 the number of people with sight loss in the UK will double to nearly four million\(^3\). It is predicted that by 2020 the number of people with sight loss will rise to over 2,250,000.

The prevalence of sight loss increases with age, and the UK population is ageing. In addition there is a growing incidence in key underlying causes of sight loss such as obesity and diabetes. This means, that without action, the number of people with sight problems in the UK is likely to increase dramatically over the next 25 years.

Healthcare expenditure linked to eye health was at least £2.3 billion in 2009/10. This includes costs associated with inpatient treatments and outpatient attendances, and also the cost of NHS funded eye tests.

- £1.93 billion in England (DoH, 2011).
- £201 million in Scotland (ISD, 2010).

This is an underestimate because the figures do not take into account any costs associated with research and development or any overheads, such as management or building costs. Direct healthcare costs are not related to the almost two million people living with sight loss, as they include the costs of all eye tests in the UK and all outpatient appointments in eye clinics.

The indirect cost of sight loss on the UK economy was £4.6 billion in 2008\(^4\). This includes:

- £2 billion linked to the cost of providing informal care to someone with sight loss.
- £1.6 billion linked to the lower employment rates.
- £305 million linked to the provision of residential care and community care services.

Indirect costs are related to the almost two million people living with sight loss.

This is the first eye health and sight loss evaluating report for Norfolk and Waveney which assess the current and future needs. It is strategic as it will influence the Health and Wellbeing Strategy and commissioning plans. This piece of work is developed to identify the key priorities to improve eye health in Norfolk and Waveney.

The Royal National Institute of Blind People (RNIB) with other partners have developed a template with guidance to aid in the development of a Joint Strategic Needs Assessment (JSNA). The guidance allows for local data, where available, to be populated to provide a comprehensive local overview of eye health and sight loss. The template can be used in its entirety or in part to reflect local priorities.

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\(^4\) Access Economics, 2009
The relationship between eye health, sight loss and other health determinants are identified throughout the template, demonstrating how the prioritisation of eye health and sight loss interventions can help to meet locally identified strategic priorities and support service planning.

Each section of the guidance refers to relevant data sources that can assist with populating the template. The guidance focuses on the four leading causes of sight loss; age-related macular degeneration (AMD), glaucoma, cataracts and diabetic retinopathy. Information on low vision is also provided. The guidance does not include information on children's eye health and sight loss support needs; however, the inclusion of this information in JSNAs is encouraged.

This report has used the second Version 2 (July 2013) of the guidance where possible to assess eye health in Norfolk and Waveney. In addition to that we added other sources of information that are available locally such as hospital admissions data.

Finally, this piece of work is to serve as a baseline sight loss evaluation report for Norfolk and Waveney.
The number of people living with sight loss is set to increase over the coming decade. It is therefore important that when planning for local support and preventative services that Health and Wellbeing Board members consider the needs of people with sight loss and those at risk of losing their sight.

A Joint Strategic Needs Assessment (JSNA) enables Clinical Commissioning Groups (CCGs) and local authorities to describe the current and future health, care and wellbeing needs of the local populations and to identify the strategic direction of service delivery to meet those needs.

Local authorities and clinical commissioning groups (CCGs) have equal and joint duties to prepare JSNAs, through the Health and Wellbeing Board in accordance with the Health and Social Care Act (2012). The Health & Wellbeing Board will use the JSNA to agree overarching priorities in order to inform the development of the Joint Health & Wellbeing Strategy (JHWS). The strategy will, in turn, inform local health and social care commissioning plans.

Eye Health and Sight Loss JSNA Guidance updated to include children's eye health

The eye care and sight loss sector have produced a free resource for anyone involved with developing or influencing a Joint Strategic Needs Assessment (JSNA). Following feedback from Public Health professionals this guidance has now been updated to include a new children's eye health section (section 6 of the JSNA guidance document).

The guidance pulls together a number of datasets and information and should be approached as a 'menu of options', selecting those which are more relevant for the local authority and health area.

Strong links between sight loss and other health determinants are identified within the guidance to assist local authorities, clinical commissioning groups (CCG) and Health and Wellbeing Boards (HWB) to meet local health and wellbeing strategic priorities.

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5 http://www.commissioningforeyecare.org.uk/commhome.asp?section=175&sectionTitle=Health+and+Wellbeing+Boards

This report was based on UK vision Strategy - Eye health and sight loss; statistics and information for developing a Joint Strategic Needs Assessment, version 3 published December 2013.
Key Findings

Chapter I: Programme Budgeting

- The average Programme spend per head on problem of visions programmes in 2011/12 was £52.45 for (North Norfolk, Norwich, South Norfolk, West Norfolk CCGs) and £53.80 for Great Yarmouth and Waveney CCG compared to the England average £42.84. Therefore, expenditure in Norfolk and Waveney was comparatively higher than England. See page 28

Chapter 2: National frameworks

- Over two financial years 2010/11 and 2011/12, across Norfolk, the figures for new Certifications of Visual Impairment (CVI) due to age-related macular degeneration (AMD) aged 65+ has decreased from 228 to 216. There were rates of 124.64 in 2010/11 and 115.55 in 2011/12 per 100,000 population, which is higher than the England average rate of around 110 per 100,000 population recorded for both years. The rate is the second highest compared to other counties in the East of England. See page 32

- There was a substantial decrease in the number of people aged 40+ who have sight loss due to glaucoma. It has been a heated controversy over whether this is entirely due to chance or due to the preventative interventions or other factors. The number of people in Norfolk who had sight loss due to glaucoma in 2010/11 was 85 (18.01 per 100,000 residents) compared to 59 (12.37 per 100,000 residents) in 2011/12. See page 34

- During 2011/12 the number of people aged 12+ years registered with sight loss due to diabetic eye disease was 32 (4.25 per 100,000 residents) which is considerably lower than the 44 (5.88 per 100,000 residents) recorded in the previous financial year (2010/11). Norfolk is the fifth highest county in the East of England for the rate of sight loss due to diabetic eye disease in those aged 12+ per 100,000 residents. It is higher than the England average rate but does not differ significantly. See page 35

- During 2011/12 there were 435 new people certified with visual impairment in total at a rate of 50.62 per 100,000 residents in Norfolk which is lower than its previous figures seen in 2010/11; 521 at a rate of 61.08 per 100,000 residents. Norfolk is the second highest county in the East of England with people certified with visual impairment in 2011/12, and is significantly higher that England average rate. See page 36
Chapter 3: Prevalence of sight loss Royal National Institute of Blind People (RNIB)

- **Population profile (See page 38)**
  - 857,888 people live in Norfolk. The age profile of the area is: 19% people aged 0-17; 59% aged 18-64; and 22% aged 65 and over.
  - The ethnic background of people living in Norfolk is: 96.5% white; 1.2% mixed ethnicity; 1.5% Asian or Asian British; 0.5% Black or Black British; and 0.3% other ethnicities.
  - Norfolk is ranked as the 97th out of 149 most deprived local authority in England.

- **Living with sight loss (Estimated figures) See page 40**
  - There are an estimated 32,110 people living with sight loss in Norfolk during 2011. Of this total, 3,970 are living with severe sight loss (blindness).
  - In 2011, the estimated prevalence of sight loss in Norfolk is 3.7%, which compares to an estimated UK prevalence of 3%.
  - By 2020 the number of people living with sight loss in Norfolk is projected to have increased to 39,840; and the number of people with severe sight loss will have increased to 5,040.

- **Children and young people (See page 41)**
  - There are an estimated 309 blind and partially sighted children aged 0-16 in Norfolk.
  - There are an estimated 185 blind and partially sighted young people aged 17-25 in Norfolk.
  - There are 134 pupils with a statement of special education needs (SEN) or at School Action Plus with visual impairment as their primary SEN in Norfolk.

- **Older people (See page 43)**
  - There are an estimated 6,200 people aged 65 to 74; 9,192 people aged 75 to 84; and 10,596 people aged 85 and over living with sight loss in Norfolk.
  - In the general population, there are 6,958 people living in care homes, both with and without nursing. This represents 7.8% of people aged over 85.

- **Certification of Vision Impairment (CVI)**
  - 435 Certificates of Vision Impairment were issued in 2011/12 of which 201 were Severely Sight Impaired. See page 44
This represents a decrease of -17.1% when compared to the rate of certification in 2010/11. See page 44

The rate of Age related Macular Degeneration (AMD) CVIs for people aged 65 and over per 100,000 population was 115.6 for Norfolk in 2011/12 compared to 103.9 across East of England and 110.5 in England. See page 45

At 2011/12 the rate of glaucoma CVIs for people aged 40 and over per 100,000 population was 12.4 in Norfolk which was equivalent to East of England and slightly lower than England average rate of 12.8. See page 45

During 2011/12 the rate of diabetic retinopathy CVIs for people aged 12 and over per 100,000 people was 4.3 for Norfolk compared to 3.7 across East of England and 3.9 in England. See page 45

The rate of CVIs for all ages per 100,000 people was 50.6 for Norfolk in 2011/12 compared to 43.1 across East of England and 44.5 in England. See page 45

42,219 people are living with the early stages of AMD; 3,334 people are living with late stage dry AMD; and 6,833 people are living with late stage wet AMD. See page 46

10,507 people are living with cataract. See page 46

8,397 people are living with glaucoma. See page 46

58,478 people have diabetes; and 85.3% of those who were offered it attended retinal screening in 2012/13. See page 46

16,374 people are living with background diabetic retinopathy; and 1,871 people are living with non proliferative and prolivative diabetic retinopathy, which are later stages of the disease. See page 46

Registration 2010/11 (See page 48)

There were a total of 6,205 people registered as blind or partially sighted. 3,295 people are registered blind and 2,910 people are registered partially sighted.

There were 120 children and young people aged 0-17 recorded as blind and partially sighted during 2010/1.

There were an estimated 2,450 people aged 75 and over recorded as blind; 2,910 people aged 75 and over registered partially sighted during 2010/11.

The rate of registration was 723 per 100,000 people compared to 521 and 564 per 100,000 people in East of England and England respectively.
- 32% of registered blind and partially sighted people are also recorded as having an additional disability.

- **NHS Sight Tests (See page 50)**
  - There were a total of 221,384 NHS sight tests in Norfolk of which 86,082 among those aged 60+, 37,879 among those aged 15 or under.
  - The rate of NHS sight tests per 100,000 people was 25,806 compared to 25,142 across East of England, 23,276 in England.

- **Support (See page 51)**
  - 3 out of 4 hospitals providing outpatient ophthalmology appointments have some form of early intervention support available in the eye clinic.
  - A Social Care Association (SCA) survey estimated that the number of Rehabilitation Officers - Visual Impairment working in Norfolk was: 4 (this is a survey estimate the current number is 7).
  - In 2012/13, there were 395 (6.4%) blind and partially sighted people in receipt of adult social care services paid for or provided by the local authority.
  - 950 blind and partially sighted people are claiming Disability Living Allowance.

- **Cost of sight loss (See page 53)**
  - The total NHS programme budget spend on problems of vision in 2011/12 was £45,026,013.
  - This NHS programme budget spend on problems of vision equates to £51.96 per person in Norfolk.
  - The total estimated indirect cost of sight loss in 2011 was £90,757,000. This includes the cost of family and friends providing informal care to someone living with sight loss.
  - The estimated indirect cost of sight loss equates to £105.79 per person.

- **Other health conditions and disability (See page 54)**
  - 1,880 falls were directly attributable to sight loss; and 150 required hospital treatment.
  - 6,402 people are living with dementia.
  - 5,053 people are living with the consequences of a stroke.
  - 101,479 people are living with a moderate or severe hearing impairment; and 2,351 people are living with a profound hearing impairment.
Chapter 4: Modelled prevalence, The National Eye Health Epidemiological Model (NEHEM)

- The National Eye Health Epidemiological (NEHEM) model assumes that there were:
  - A total of 10,796 people in Norfolk with Glaucoma (primary open angle glaucoma OAG), and indicate that the true value could be between 6,695 and 15,423 people would be affected. See page 58
  - For Glaucoma Suspects cases, there may be 20,183 people aged 60 years or more would be affected. See page 58
  - The model assumes 7,174 people aged 65 years or more that have an ocular hypertension across Norfolk. See page 58
  - It is estimated that around 11,907 - 41,514 people aged 40 and over in Norfolk have a cataract. See page 62

Overall, in 2012/13 it is estimated that there is a total of 48,312 people with Drusen disorder and 10,890 people with Age Related Macular Degeneration (AMD) across Norfolk and Waveney. Virtually all of the estimated cases with AMD were Wet AMD (7,701 out of 10,890, 70%) or Dry AMD (3,809 out of 10,890, 39%). See page 65

Chapter 5: Registered Blind and Partially Sighted People - England, Year ending 31 March 2011

- There were 3,295 blind people registered with Norfolk County Council (NCC) at 31 March 2011, 74.4% (2,450) were aged 75 or over, 7.9% (260) were aged 18-49, 8.8% (290) were aged 50-64 and 7.1% (235) were aged 65 to 74. 6.5% (215 out of 3,295) of the blind people registered were new cases. See page 67

- At 31 March 2011, 72.7% of people registered as partially sighted were aged 75 and over. See page 68

- 1,155 (35.1%) of those registered blind also recorded an additional disability, which is higher than national rate (33%). 855 (29.4%) of those who registered as partially sighted have an additional disability, which is lower than national rate (33%). See page 69

Chapter 6: Adults and People aged 65 and over predicted to have visual impairment (PANSI and POPPI)

- It is estimated that during 2014 around 330 people in Norfolk aged 18-64 have a serious visual impairment, an increase of 7 (2 per cent) is predicted in 2020 from 2014. The highest number of people aged 18-64 have a serious visual impairment is expected to be in Norwich approximately 60 people. While the highest number of people to have a serious visual

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6 The low estimate was based on Frost et al study and the higher estimate was based on McCarty et al study.
impairment is among those aged 45-54 and 55-64, around 151 people for both age bands. See page 72

- In Norfolk, the number of people aged 65 and over with visual acuity VA of less than 6/18 who are registered severely sight impaired (blind) or registered sight impaired (partially sighted) was estimated to be 6,138 in 2014 and 7,245 in 2020. See page 74

Chapter 7: Populations where potential inequity may be present

- Evidence shows that there is a link between people on low incomes and living in deprivation and people living with sight loss; three out of four blind or partially sighted people are living in poverty or on its margins. Based on GP registration data for April 2013, there were 179,854 (18.2%) of the patients who are registered with a Norfolk and Waveney GP live in the most deprived deprivation quintile (IMD 2010). This is an important consideration with respect to eye disorders prevalence and access to services. See page 76

- The risk of developing glaucoma is higher in African and African-Caribbean populations. People from South-East Asia and China are at higher risk of angle-closure glaucoma. Evidence shows that people from the Asian population are at a higher risk of developing cataracts. African, African-Caribbean and Asian populations are at a higher risk of developing diabetic eye disease. In Norfolk, the percentage of White British was estimated to be 92.5% at the time of the 2011 Census (Office for National Statistics), 977 (0.1%) were African-Caribbean, 3,270 (0.4%) Chinese, and 5,938 (0.7%) Indian or British Indian, Pakistani, Bangladesh, and Other Asian. See page 77

- For prevalence rate of blind or partially sighted people amongst adults aged 18+ with learning disabilities, we estimated 454 sufferers, across Norfolk and Waveney. See page 79

Chapter 8: Health determinants

- Smokers not only double their risk of developing AMD but also tend to develop it earlier than non-smokers. Furthermore, smoking can make diabetes-related sight problems worse, and has been linked to the development of cataracts. In Norfolk the estimated percentage of smokers was 22% which is slightly higher than, but not significantly different from, the East of England and England average rates of around 20% for both. See page 81

- Obesity has been linked to several eye conditions including cataracts and AMD. Obesity also has a strong link to diabetes and an exacerbation of sight deterioration in diabetic retinopathy. It is estimated 25.5% of adults aged 16+ in Norfolk were obese over the three year period 2006-2008. See page 82

- Damage resulting from stroke can impact on the visual pathway of the eyes which can result in visual field loss, blurry vision, double vision and moving images. In 2012/13, there were 20,964 people diagnosed with stroke across Norfolk and Waveney at 2.1% which is higher than the England rate of 1.7%. See page 82

- Uncontrolled high blood pressure increases the risk of both retinal vein and retinal artery occlusion. Both conditions can cause sudden loss of vision in one eye and can lead to further
complications. The prevalence of hypertension during 2012/13 in Norfolk and Waveney was 15.8% compared to 13.7% in England. See page 84

- As the population ages an increasing number of people will experience dementia and sight loss, the prevalence of people with dementia for Norfolk and Waveney in 2012/13 was 0.7% compared to 0.6% in England. See page 85

- 47 per cent of all falls sustained by blind and partially sighted people were directly attributable to their sight loss. Between April 2013 and December 2013 (9 months), there were 4,507 people seen at hospital for assessment due to falls in Norfolk and Waveney, giving an average of 501 falls per month, the percentage of persons classified as blind and partially sighted among those who had medical assessments is unknown. See page 86

- During the period 2011/12, there were 103,264 people aged 18 + diagnosed with depression for Norfolk and Waveney. However, it is not possible to identify those people with sight loss and depression. See page 87

- The Department for Work and Pensions (DWP) classify claimants by disease categories and this includes; Nervous System, Respiratory or Circulatory, Musculoskeletal, Injury, poisoning and others. The database does not include information linking claimants registered as blind and partially sighted. People classified as blind and partially sighted could be registered under the other category. The number of claimants under the other category was 2,130 in Norfolk (295 in Breckland, 245 in Broadland, 290 in Great Yarmouth, 380 in King's Lynn and West Norfolk, 360 in North Norfolk, 345 in Norwich, 215 in South Norfolk, and 320 in Waveney). However the percentage of claimants under the other medical conditions registry can not provide an estimate of those who are blind and partially sighted. See page 88

- More subjective estimates from reported road casualty statistics for Norfolk show that in 2013 there were 5 accidents in which a driver/rider had “uncorrected, defective eyesight” recorded as a contributory factor to the collision (much less than 1% of total) – none of these collisions had fatally injured casualties. These figures may not be reliable as contributory factors are purely the opinion of the recording officer at the time the collision is attended/reported. See page 93

Chapter 9: Hospital admissions (April 2010 – March 2013)

- Over the last three financial years, 2010/2011 to 2012/2013, there were a total of 57,772 clinician spells for Norfolk and Waveney residents that had a primary diagnosis of eye disorders. The majority of eye disorder inpatient hospital admissions occurred at Norfolk and Norwich University Hospital 32,017 (55.94%), 15,623 (27%) of the admissions at James Paget University Hospital, and 8,299 (14.4%) of the admissions at The Queen Elizabeth Hospital, King's Lynn. See page 95 and 97

- The majority of admissions (around 90%) were among those aged 60+ in both males and females. Among the younger age groups from 0-39, the 0-4 year olds have the highest percentage. See page 99
Eye health and sight loss; statistics and information for developing a Joint Strategic Needs Assessment

- Over three years, April 2010 – March 2013, across Norfolk and Waveney the most common reason for someone to be admitted were:
  - Cataract 26,005 spells (432.4 per 100,000 residents, 426.8-438.0).
  - Glaucoma 1,754 (38.0, 36.1-40.0),
  - Inflammation or infection of eye 669 (22.1, 20.3-24.0),
  - Retinal disorders 22,709 (339.2, 334.4-343.9),
  - Other eye disorders 6,347 (164.7, 160.2-169.2).

See page 101

Chapter 10: Diabetic Retinopathy Screening Programme

- The highest national reported diabetic retinopathy screening uptake rate was 81% in 2011-2012. If this rate applied to the GP practice population aged 17+ with diabetes in 2012/13, about 35,781 persons aged 17+ received screening across Norfolk.

Chapter 11: Supporting People Services locally

- There are around 20,000 people affected by sight loss in Norfolk, The Norfolk & Norwich Association for the Blind (NNAB) estimates that only 20% of those (4,000) people use their services. The number of people using the Equipment Centres stands around 6,000 visits per year, but there is a big variation between individuals. Some people might show up three times per month and others could only visit the centre once per year. Around 30% of regular visitors will use the NNAB service once a month. See page 119

- People aged 55 and over with sight loss are more likely to use the facilities (around 90% of the total users are above 60). Most common eye sight problems were Macular Degeneration, Cataract and Glaucoma. See page 119

- The NNAB offers a 37 bed residential home for the care of people who have sight loss, a high proportion of which are nearing the end of their life. Furthermore, NNAB has 21 sheltered flats for those with eye sight problems of any age. People are referred through GPs, opticians, ophthalmologist, social services, local authorities, and by self-referral. See page 119

- Office for National Statistics census data in 2011 showed that less than 10% of the total Norfolk residents were from BME communities. BME groups with eyesight loss are still a target group for NNAB but these groups are hard to reach because of either language or cultural barriers. In the case of recent immigrant groups it appears that people with eye sight problems tend to return to their native countries for support. See page 119

- In Norfolk, at the beginning of 2014 there were 97 people using guide dogs of which 45 (46.4%) were in Norwich compared to the end of 2012 where 83 people were using guide dogs, of which 34 (41%) were in Norwich. See page 121

- The sensory support unit (SSU) receives around 500 referrals a year directly from the Norfolk hospitals following the diagnosis and certification of a permanent and substantial sight loss. A social care assessment is conducted in order to identify the impact on daily living needs; and where appropriate, a rehabilitation programme is provided. See page 122
Recommendations:
The following recommendations have been identified for Norfolk by the Royal National Institute of Blind People (RNIB) in April 2014 immediately after the publication of the Sight Loss Data Tool Version 2 (See Appendix 2B page 134). The Norfolk Vision Strategy group will outline the key priorities for different local partners to address over the next five years address key priorities.

Sight loss in Norfolk

Recommendation One: Public health, Health and Wellbeing Board members and commissioners should monitor data relating to the sight loss prevention indicator and take action to reduce avoidable sight loss in their area.

Information for public health professionals

Joint Strategic Needs Assessments and Health and Wellbeing Strategies

Recommendation Two: Norfolk council and Health and Wellbeing Board should include information on people with or at risk of sight loss in their Joint Strategic Needs Assessment. RNIB, as part of the UK Vision strategy, has produced guidance on eye health and sight loss information to include within a JSNA:

Older people and falls

Recommendation Three: A multi-disciplinary falls strategy is produced which clearly sets out a plan for both preventing falls in people with sight loss and supporting those who experience a fall.

Smoking cessation programmes

Recommendation Four: Smoking cessation programmes should include messages about the link between sight loss and AMD.

Diabetic eye screening

Recommendation Five: Local diabetic eye screening programmes should achieve 100 per cent rates of invitation to screening, and meet and maintain rates of 80 per cent and above take-up. Programmes should also monitor rates of exclusion and address any problems if the level is high.

Information for commissioners

Recommendation Six: Commissioners must have a clear picture of capacity issues in their area and they should ask themselves the following key questions to ensure patients have timely access to diagnosis and treatment: http://tinyurl.com/eyecarecommissioning.
What is health needs assessment?\(^7\)

Health needs assessment is a systematic method for reviewing the health issues facing a population, leading to agreed priorities and resource allocation that will improve health and reduce inequalities. Health needs assessments are:

- A recommended public health tool to provide evidence about a population on which to plan services and address health inequalities.
- Able to provide an opportunity to engage with specific populations and enable them to contribute to targeted service planning and resource allocation.
- Able to provide an opportunity for cross-sectorial partnership working and developing creative and effective interventions.

Potential benefits subsequent to undertaking health needs assessment are:

- Strengthened community involvement in decision making.
- Improved team and partnership working.
- Professional development of skills and experience.
- Improved communication with other agencies and the public.
- Better use of resources.

The challenges of undertaking a health needs assessment include:

- Working across professional boundaries that prevent information sharing
- Developing a shared language between sectors.
- Obtaining commitment from ‘the top’.
- Accessing relevant data.
- Accessing the target population.
- Maintaining team impetus and commitment.
- Translating findings into effective action.

It is important to acknowledge these challenges.

Approaches to health needs assessments are:

- Epidemiological- which focuses on the quantitative needs of the population in line with the available evidence base.
- Comparative- which compares services available locally with those in other areas of the country.
- Corporate which is based on the views of interest groups including health organisations, health professionals, politicians, the media, users and carers.
- Participatory Appraisal which seeks to incorporate the values of the wider community in setting priorities.

This report focuses on the epidemiological approach using currently available data.

Population of Norfolk and Waveney

A: Norfolk

A1: Population structure:
Norfolk’s population was estimated to be 859,400 in mid-2011; an increase of 60,800 (7.6%) since mid-2001, compared to an 8.6% rise in the East of England. Population density in 2011 was 1.6 people per hectare, the sixth lowest of the 27 English counties.

Over this ten year period:

In terms of broad age groups, the number of children (aged 0-14 years) fell marginally whereas numbers of working age adults (aged 15-64 years) increased by 35,900, and older people (aged 65 years and over) increased by 27,300.

In terms of five-year age groups, the most significant change was the rising number of 60-64 and 65-69 year olds.

Estimates for mid-2011 confirm that Norfolk’s population has a much older age profile than England as a whole. 21.7% of Norfolk’s population in 2011 were aged 65 and over and 10.4% were aged 75 and over, compared with 16.4% and 7.8% in England respectively. The current peak is seen in the 60-64 year olds in Norfolk (due to the post-war baby boom in the late-1940s and net migration) and to a lesser extent in 45-49 year olds, largely due to the high birth rate years of the 1960s.

These changes would have a significant impact on local demand for health and social services as the prevalence of conditions such as dementia and disabling life events, such as heart attack and stroke, increase with age. For example, about one in four people aged over 85 develop dementia and this age group is projected to increase by around 42,600 (174%) over 25 years (2008 to 2033). The total number of older people with dementia in Norfolk is therefore expected to increase significantly.

2011-based interim sub-national population projections to 2021 were published in September 2012. These were produced to meet the needs of users who require projections which take account of the Census but are only required to 2021.

A2: Life Expectancy:
The 2008-2010 three-year rolling average life expectancy at birth in Norfolk is 79.5 years for men and 83.3 years for women. The comparative rates for the region are 77.6 years and 83.2 years, whilst for England they are 78.6 and 82.6 respectively; this demonstrates that the County’s averages are very close to the regional values.

A3: Ethnicity:
The county’s ethnic composition has changed significantly since the 2001 Census, which recorded a minority ethnic population of 30,000 (3.8%). By 2011, this is estimated to have risen to 64,800.
(7.6%). Similarly, numbers in ethnic groups other than white rose from 1.5% of the population in 2001 to around 3.5% in 2011.

Some of new topics in the 2011 Census were:

Language: The Census indicated that there were almost 8,000 households in Norfolk where no-one had English as a main language, plus another 6,000 households where at least one but not all people aged 16 years and over had English as a main language.

Around 41,400 people (4.8%) had a national identity other than English, Welsh, Scottish, Northern Irish or British.

Passports held: The Census also gave an indication of the diversity of passports held by Norfolk residents. Of the 651,200 who held a passport in Norfolk there were 22,900 passports held for EU countries outside the UK and Ireland, plus a further 18,500 held for countries in the Middle East and Africa (6,600), and North America and the Caribbean (5,500).

A4: Deprivation:
In March 2011 the Department for Communities and Local Government (CLG) published the English Indices of Deprivation 2010 (ID 2010). This includes county and district summary measures, and a series of separate domains and other measures at the level of Lower Super Output Area (LSOA). An estimated 47,400 people in Norfolk (5.6 % of the area’s population) were living in the most deprived ten per cent of LSOAs in England. This amounted to 29 LSOAs out of the 530 in Norfolk.

People who live in the most deprived areas generally have the poorest health and wellbeing outcomes. On average people living in deprived areas, and of lower socio-economic groups and marginalised groups, have poorer health and poorer access to healthcare than people resident in affluent areas and from higher socio-economic groups. There are hidden pockets of deprivation scattered across some of the smaller towns and the more rural parts of Norfolk.
B: Waveney

B1: Population structure:
Waveney is the most easterly district in Britain situated in north-east Suffolk and within the East of England region. Waveney is relatively remote from the rest of Britain but has the advantage of being close to mainland Europe accessible by the two seaport harbours at Lowestoft and neighbouring Great Yarmouth, and by air via Norwich International Airport.

The district covers 37,041 hectares (143sq miles) with an attractive beach coastline stretching for over 16 miles. It is a mixed urban and rural district, with a density of 3.03 persons per hectare, substantially above the Suffolk average of 1.76.

Population profile for Waveney:

According to the 2011 Census there were 115,300 people resident in Waveney. Lowestoft, the second largest town in Suffolk, has a population of 58,560 (2010) which increases to 71,010 if the growing parishes of Carlton Colville and Oulton are included. The rural part of the district gains its identity from the four historic market towns of Beccles (with Worlingham), Bungay, Halesworth and Southwold (with Reydon) with a total population of 28,310.

Outside these towns are a few villages, Kessingland being the largest with a population of 4,390. Beyond these villages, the countryside is characterised by small hamlets and scattered communities with 31 out of 58 parishes having a population of fewer than 300 people (2010).

B2: Life Expectancy:
The 2008-2010 three-year rolling average life expectancy at birth in Waveney is 79.5 years for men and 83.3 for women. The comparative rates for the region are 77.6 and 83.6, and for England 78.6 and 82.6 respectively.

B3: Ethnicity:
Waveney has a predominantly white population with 93.03% classing themselves as white (2009), which is a higher proportion than the East of England and England.

B4: Deprivation:
In the Indices of Deprivation 2010, Waveney was ranked at 112 out of 354 local authorities in England (1 being the most deprived area and 354 being the least deprived area).

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C: General Practitioners GPs patient’s registration

There are different estimates of population available from different sources. In addition to the Office of National Statistics (ONS) the population estimates can be also obtained from the General Practitioners GPs patient’s registration which includes the number of patients registered with each GP practice. This can be extracted from the Exeter system, which is one of the largest population databases in operation in the UK. This database includes of all patients registered with an NHS GP in England and Wales.

A patient can be assigned to a geographical location (e.g. MSOA, district, or ward) based on the postcode of their residence or the postcode of their GP practice. Norfolk and Waveney population estimates are available from both sources, and the number of residents from the GP registrations is usually slightly higher than the figures from ONS. In this report, population figures and analyses involving the calculation of rates, for instance, hospital admissions or mortality rates will generally use the GP registration. (Table 1 below provides information on the GP practice population registry by Clinical Commissioning Group CCG, April 2013).

Table 1: Estimated registered and resident population as at April 2013

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<th>North Norfolk</th>
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<th>South Norfolk</th>
<th>West Norfolk</th>
<th>Norfolk and Waveney</th>
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</table>

| **Females** |        |               |         |               |              |                     |
| 0-9    | 11,800 | 7,320         | 11,027  | 11,049        | 8,071        | 49,267              |
| 10-19  | 12,410 | 8,385         | 11,042  | 11,983        | 8,498        | 52,318              |
| 20-29  | 12,857 | 7,149         | 19,913  | 10,767        | 8,681        | 59,367              |
| 30-39  | 12,036 | 7,642         | 14,550  | 11,772        | 8,589        | 54,589              |
| 40-49  | 15,789 | 11,556        | 13,440  | 15,871        | 11,151       | 67,807              |
| 50-59  | 15,068 | 12,081        | 11,561  | 14,471        | 11,132       | 64,313              |
| 60-69  | 16,426 | 14,175        | 10,560  | 15,111        | 12,261       | 68,533              |
| 70-79  | 11,342 | 9,839         | 7,470   | 10,008        | 8,940        | 47,599              |
| 80+    | 9,066  | 7,932         | 6,689   | 7,582         | 6,612        | 37,881              |
| **Total** | **116,794** | **86,079** | **106,252** | **108,614** | **83,935** | **501,674** |

http://www.eguidelines.co.uk/eguidelinesmain/gip/vol_5/apr_02/watson_exeter_apr02.htm
Chapter 1: Programme Budgeting

The Department of Health produced the "2011-2012 Programme Budgeting PCT Benchmarking Tool" to enable commissioners to identify how spend is allocated over 23 disease categories, including “Problems of Vision”.

The average Programme spend per head on problems of vision programmes in 2011/12 was £52.45 for NHS Norfolk and £53.80 for NHS Great Yarmouth and Waveney compared to the England average £42.84. Spend is within two standard deviation of the England average for the two PCTs, indicating no significant difference (for Programme Budgeting categories and descriptions see Appendix 1 page 132).

The outcome is better for NHS Norfolk and NHS Great Yarmouth and Waveney compared to England in terms of total sight tests per 100,000 population in 2011/12. For 2011/12 the total number of sight tests was 25,430 and 28,900 per 100,000 for NHS Norfolk and NHS Great Yarmouth and Waveney respectively, compared to the England average of 23,632 per 100,000.

The CCGs have since submitted a programme budget return which assesses investment in health programmes. Every main disease area is assigned a budget code. Total sight test expenditure is one of the main programmes within all budget programmes.

The Yorkshire and Humber Public Health Observatory has produced a factsheet for each CCG based on its spend and outcomes (where outcomes for that health programme are defined). The factsheets examine spend and outcomes in relation to England and other CCGs.

The results are given in a quadrant chart which categorises each programme into four quadrants in terms of expenditure and outcome relative to a comparator area. However, four of the CCGs within Norfolk and Waveney (North Norfolk, Norwich, South Norfolk and West Norfolk) all have similar figures for problems of vision programme spend per head and outcome in terms of total sight tests per 100,000 population. This is because the Department of Health gave to each of the four CCGs the equivalent NHS Norfolk average figures.

Each dot within the quadrant chart represents a programme budget category. The three largest spending programmes nationally (mental health, circulatory diseases and cancer) are represented by larger dots. A programme outside the solid ±1.96 z-scores box indicates that the data is statistically significantly different from the comparator average. Approximately 5% of outcomes and expenditures will be outside this box. If the programme lies to the left or right of the box, the programme is significantly different on spend and if it lies outside the top or bottom of the box the programme is significantly different on outcome.

Programmes outside the box at the corners are significantly different from the England average for both spend and outcome. Programmes outside the dotted ±1 z-score box, may warrant further exploration. Approximately 30% of outcomes and expenditure will be outside this box.

Figures 1-2 show the programme budgeting - spend and outcomes (total sight tests per 100,000 population in 2011/12) for Norfolk and Waveney CCGs relative to England.
Figure 1: Problems of Vision Spend and Outcome relative to other CCGs - total sight tests per 100,000 residents for Great Yarmouth and Waveney CCG, 2011/12

Figure 2: Problems of Vision Spend and Outcome relative to others - total sight tests per 100,000 residents for NHS Norfolk, 2011/12

North Norfolk, Norwich, South Norfolk, West Norfolk CCGs have equivalent figures to the average NHS Norfolk figure.
Chapter 2: National frameworks

Prevention of avoidable sight loss is recognised as a key priority for the WHO’s global initiative for the elimination of avoidable blindness by 2020 – Vision 2020 – The Right to Sight, to which the UK is a signatory and which is also a key priority for Vision 2020UK and the UK Vision Strategy. It is a particularly important issue in the context of an ageing population.

Research by the Royal National Institute for Blind People (RNIB)\(^\text{12}\) suggests that 50% of cases of blindness and serious sight loss could be prevented if detected and treated in time. Prevention of sight loss will help people maintain independent lives as far as possible and reduce needs for social care support, which would be necessary if sight was lost permanently.

The Public Health Outcome Framework (PHOF)\(^\text{13}\) concentrates on two high level outcomes to be achieved across the public health system; increased healthy life expectancy and reduced differences in life expectancy, and healthy life expectancy between communities.

The sight loss indicator measures the rate of preventable sight loss by measuring the numbers of all people who are certified sight impaired (partially sighted) or severely sight impaired (blind) and the numbers of these who have lost their sight from one of the three major causes of preventable sight loss: glaucoma, age-related macular degeneration and diabetic retinopathy.

Tackling these three conditions is the primary public health challenge in eye care. They are the biggest causes of certifiable blindness in England but with the right care, at the right time, in the right place, people can be treated effectively and, in many cases, their sight saved.

Addressing issues of eye health and sight loss will also help to meet other outcome frameworks, including those measuring outcomes of falls, strokes and diabetes.

Proportion of Certificate of Visual Impairment (CVI) registrations that are due to age related macular degeneration (AMD), glaucoma and diabetic retinopathy

The indicator relates to three of the main eye diseases, which can result in blindness or partial sight if not diagnosed and treated in time. These are AMD, glaucoma and diabetic retinopathy. Therefore "Preventable Sight Loss", as a new indicator definition, would be those who are classified as blind or partially sighted, due to one of these three eye conditions.

This would be measured by taking the proportion of partially sighted/blind registration for these preventable eye diseases, against the total number of registrations. Numerator: The number of CVI registrations that are due to AMD, glaucoma and diabetic retinopathy. Denominator: Total number of CVI registrations.

\(^{12}\) The Database for Epidemiological data on Visual Impairment Certificates (DEVICE), the Certifications Office, the Royal College of Ophthalmologists, at Moorfields Eye Hospital NHS Foundation Trust, supported by a grant from RNIB. The Department of Health and the Royal College of Ophthalmologists have jointly contracted Moorfields to be responsible for the data.

\(^{13}\) The PHOF data tool, which is recognised by the Department of Health (DH), can be found at: http://www.phoutcomes.info/. It must be noted that there are some limitations with the data, for example the complexity of certification process and variability across the UK. The UK Vision Strategy is working with DH colleagues to improve the certification process and data collection.
The CVI form includes date of birth so it is possible to separate or combine age groups. This would be particularly important as AMD and glaucoma are age prevalent. The form would also distinguish between blind or partially sighted registrations, so this also can be reported and/or assessed separately. By providing data on blindness due to diabetic retinopathy the indicator would also provide valuable information for the national diabetic retinopathy screening programme.

The Public Health Outcome Framework (PHOF) indicator 4.12 relates to one of the three main eye diseases, which can result in blindness or partial sight if not diagnosed and treated in time. These are age related macular degeneration (AMD), glaucoma and diabetic retinopathy. Prevention of sight loss will help people maintain independent lives as far as possible and reduce needs for social care support, which would be necessary if sight was lost permanently.14

Table 2: Number and Crude rate per 100,000 residents aged 65+ for the new Certifications of Visual Impairment (CVI) due to Age related macular degeneration (AMD) for Norfolk, East of England local authorities and England, 2011/12

<table>
<thead>
<tr>
<th></th>
<th>2010/11</th>
<th></th>
<th>2011/12</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>Lower CI</td>
<td>Upper CI</td>
<td>Count</td>
</tr>
<tr>
<td>Norfolk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.12i - Preventable sight loss - age related macular degeneration (AMD)</td>
<td>124.64</td>
<td>108.98</td>
<td>141.91</td>
<td>228</td>
</tr>
<tr>
<td>4.12ii - Preventable sight loss - glaucoma</td>
<td>18.01</td>
<td>14.38</td>
<td>22.26</td>
<td>85</td>
</tr>
<tr>
<td>4.12iii - Preventable sight loss - diabetic eye disease</td>
<td>5.88</td>
<td>4.27</td>
<td>7.9</td>
<td>44</td>
</tr>
<tr>
<td>4.12iv - Preventable sight loss - sight loss certifications</td>
<td>61.08</td>
<td>55.95</td>
<td>66.56</td>
<td>521</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>England</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.12i - Preventable sight loss - age related macular degeneration (AMD)</td>
<td>109.97</td>
<td>107.76</td>
<td>112.21</td>
<td>9417</td>
</tr>
<tr>
<td>4.12ii - Preventable sight loss - glaucoma</td>
<td>11.83</td>
<td>11.41</td>
<td>12.25</td>
<td>3047</td>
</tr>
<tr>
<td>4.12iii - Preventable sight loss - diabetic eye disease</td>
<td>3.56</td>
<td>3.39</td>
<td>3.74</td>
<td>1611</td>
</tr>
<tr>
<td>4.12iv - Preventable sight loss - sight loss certifications</td>
<td>42.74</td>
<td>42.19</td>
<td>43.31</td>
<td>22501</td>
</tr>
</tbody>
</table>

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14 http://www.phoutcomes.info/public-health-outcomes-framework#gid/1000044/pat/6/ati/102/page/1/par/E12000006/are/E10000020
2.1 Preventable sight loss - age related macular degeneration AMD (4.12i)

The age related macular degeneration AMD\(^{15}\) indicator given by Public Health outcomes Framework is the crude rate of sight loss due to age related macular degeneration (AMD) in those aged 65+ per 100,000 population.

The numerator is defined as New Certifications of Visual Impairment (CVI) due to age related macular degeneration (AMD) aged 65+, rate per 100,000 residents. The numerator counts for this indicator includes sight loss due to AMD as the main cause or if no main cause as a contributory cause. The Office for National Statistics Mid year population estimates for the relevant year is used as denominator.

It was thought previously that dry (geographical) AMD is the most common and least serious type of AMD, accounting for around nine out of 10 cases, and an estimated one in 10 people with dry AMD will then go on to develop wet (neovascular) AMD\(^{16}\).

However, a recent study\(^{17}\) estimated that there are currently 172 000 people (95% CI 106 000 to 279 000) with geographical AMD in the United Kingdom, and 245 000 (95% CI 163 000 to 364 000) with neovascular AMD.

The apparent greater prevalence of neovascular AMD compared to geographical AMD (although not statistically significant) has been corroborated by a recent pooled analysis of three studies used in this study (C G Owen et al). In addition, neovascular AMD has been shown to be a more common cause of blind registration compared to the geographical variety. Disparity in population prevalence and clinical presentation of AMD type could be due to difficulties in distinguishing between late stages of either disease or sample bias in those who present to hospital eye departments.

NVAMD progresses more rapidly to visual loss than GAMD. Despite patients being less likely to perceive age related visual changes associated with GAMD, hospital eye departments may accumulate large numbers of patients with slowly progressing disease, increasing the proportion seen with GAMD compared to those with acute NVAMD. Patients with NVAMD are more likely to present acutely with irremediable late stage disease, and might not be seen in hospital eye service clinics for the same period of time as those with GAMD. If the population prevalence of visual loss caused by GAMD and NVAMD are similar, then the natural history of the disease determines that larger numbers with early stage GAMD must exist. This may explain the historic view that nearly four fifths of all AMD cases have GAMD, when a definition of GAMD including an early stage of disease was used (that is, macular drusen or pigmentary disturbance without exudation of fluid or proliferation of scar tissue).

\(^{15}\) Definitions of age related macular degeneration. Ideally the ICD 16 definition of AMD, including Geographical AMD (GAMD) and neo-vascular AMD (NVAMD), should be used. However, as some studies were conducted before the existence of this definition, “geographical/dry/atrophic/nonexudative/late” AMD was used to denote GAMD, and “neovascular/exudative/wet,” NVAMD. (Source: How big is the burden of visual loss caused by age related macular degeneration in the United Kingdom? C G Owen, A E Fletcher, M Donoghue, A R Rudnicka).

\(^{16}\) http://www.nhs.uk/conditions/macular-degeneration/Pages/Introduction.aspx

\(^{17}\) How big is the burden of visual loss caused by age related macular degeneration in the United Kingdom? C G Owen, A E Fletcher, M Donoghue, A R Rudnicka
Over two financial years 2010/11 and 2011/12, across Norfolk, the figures for new Certifications of Visual Impairment (CVI) due to age related macular degeneration (AMD) aged 65+ decreased from 228 to 216 at a rate of 124.64 in 2010/11 and 115.55 in 2011/12 per 100,000 population, which is higher than the England average rate of around 110 per 100,000 population recorded for the same period of time (Table 2). Figure 3 shows that Norfolk is the second highest rate for age related macular degeneration (AMD) aged 65+ rate per 100,000 persons in 2011/12 compared to other counties in the East of England.

Figure 3: Crude rate per 100,000 residents aged 65+ Age related macular degeneration (AMD) for Norfolk, East of England local authorities and England, 2011/12
2.2 Preventable sight loss – glaucoma (4.12ii)

The preventable sight loss – glaucoma indicator is defined as the crude rate of sight loss due to glaucoma in those aged 40+ per 100,000 residents.

The numerator is defined as completion of a CVI (certificate of visual impairment) by a consultant ophthalmologist, which initiates the process of registration with a local authority and leads to access to services. Count of certifications with a main cause of sight loss of glaucoma or where no main cause is attributed but where glaucoma is a contributory cause. Office for National Statistics Mid year population estimates for the equivalent year is used to calculate the rate.

Table 2 shows in the two financial years 2010/11 and 2011/12, there was a substantial decrease in the number of people aged 40+ who have sight loss due to glaucoma. It has been a heated controversy over whether this entirely due to chance or due to the preventative interventions or other factors. The number of people in Norfolk who have sight loss due to glaucoma in 2010/11 were 85^18 (18.01 per 100,000 residents) compared to 59 (12.37 per 100,000 residents) in 2011/12.

Figure 4 illustrates that Norfolk in 2011/12 is the fourth highest county in East of England for people who have sight loss due to glaucoma and has a slightly higher rate, but not statistically significant, when compared to England.

Figure 4: Crude rate per 100,000 residents for glaucoma in those aged 40+ per 100,000 residents for Norfolk, East of England local authorities and England, 2011/12

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^18 This is only new registered cases the figures could be low because un-registered cases are not included. Incidence data only includes new cases occurring in a specific period of time.
2.3 Preventable sight loss - diabetic eye disease (4.12iii)

The third Public Health Outcomes Framework indicator relates to diabetic eye disease, one of the three main eye diseases which can result in blindness or partial sight if not diagnosed and treated in time. The indicator is defined as the crude rate of sight loss due to diabetic eye disease in those aged 12+ per 100,000 residents.

The numerator data is defined as completion of a CVI (certificate of visual impairment) by a consultant ophthalmologist, which initiates the process of registration with a local authority and leads to access to services. Count of certifications with a main cause of sight loss of diabetic eye disease or where no main cause is attributed but where diabetes is a contributory cause. The Office for National Statistics Mid year population estimates for the equivalent year is used to calculate the crude rate of sight loss due to diabetic eye disease in those aged 12+ per 100,000 residents.

During 2011/12 the number of people aged 12+ years registered with sight loss due to diabetic eye disease was 32 (4.25 per 100,000 residents) which is considerably lower that than the figures seen in the previous financial year 2010/11 which was 44 (5.88 per 100,000 residents) Table 2.

Norfolk is the fifth highest county in the East of England for the rate of sight loss due to diabetic eye disease in those aged 12+ per 100,000 residents. It is higher than the England average rate but does not differ significantly (Figure 5).

Figure 5: Crude rate per 100,000 for sight loss due to diabetic eye disease in those aged 12+ per 100,000 residents in Norfolk, East of England local authorities and England, 2011/12

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2.4 Preventable sight loss - sight loss certifications (4.12iv)

The fourth Public Health Outcomes Framework indicator relates to the sight loss certifications which count all new certifications of visual impairment (all causes - preventable and non-preventable), and for all ages rather than certain high risk age groups.

The indicator is defined as the rate per 100,000 residents for new Certifications of Visual Impairment (CVI), the indicator relates to completions of CVI for residents of all ages (all causes - preventable and non-preventable) by a consultant ophthalmologist.

During 2011/12 there were 435 new people certified with visual impairment in total at a rate of 50.62 per 100,000 residents in Norfolk which is lower than its previous figures seen in 2010/11; 521 at a rate of 61.08 per 100,000 residents Table 2.

Norfolk is the second county in East of England with people certified with visual impairment in 2011/12 which is significantly higher that England average rate (Figure 6).

Figure 6: Crude rate per 100,000 for new certifications of visual impairment (all causes - preventable and non-preventable) for all ages per 100,000 residents in Norfolk, East of England local authorities and England, 2011/12
Chapter 3: Royal National Institute of Blind People (RNIB) Sight Loss Data Tool

Royal National Institute of Blind People (RNIB) Sight Loss Data Tool provides a range of indicators related to blind and partially sighted people and those at risk of sight loss at a local level in throughout the UK.

The data tool is aimed at supporting expert knowledge by providing a range of different indicators, which are either based on official statistics or modelled estimates. This data can support a number of different activities including influencing, fundraising and service development\(^{19}\).

This chapter will present all relevant indicators to blind and partially sighted people for Norfolk with comparison to the relevant region extracted from the Royal National Institute of Blind People (RNIB) Sight Loss Data Tool (version 2, published April 2014)\(^{20}\).

This sight loss data tool gives factual information about sight loss for each region and local authority in England. Information for Norfolk, East of England and England presented in this chapter.

Examples of information from the RNIB sight loss data tool include:

- Estimated number of people living with sight loss in Norfolk in 2011 and how this will change by 2020.

- Number of eye clinics in Norfolk, and what proportion have some form of early reach support in place.

- Estimated number of people living with age-related macular degeneration in Norfolk.

\(^{19}\) There is also a separate guidance notes document that outlines evidence for all the indicators used in the data tool. Both of the user guide and guidance notes can be downloaded from the RNIB website [www.rnib.org.uk/datatool](http://www.rnib.org.uk/datatool).

3.1 Norfolk population profile

This section provides information about the characteristics of a local area. This includes the age and ethnicity of the residents of the area, and information about the average level of deprivation.

These indicators provide an overview of the age profile of the general population. Data is provided on specific age bands covering both number and proportion of the area population in each age band.

The deprivation indicators provide information on the extent of deprivation in a local area. For some areas, there is also information on how the local authority ranks in terms of overall deprivation when compared to others in the same country\(^2\).

- 857,888 people live in Norfolk. The age profile of the area is: 19% people aged 0-17; 59% aged 18-64; and 22% aged 65 and over (Table 3 and Figure 7).

- The ethnic background of people living in Norfolk is: 96.5% white; 1.2% mixed ethnicity; 1.5% Asian or Asian British; 0.5% Black or Black British; and 0.3% other ethnicities (Table 4 and Figure 8).

- Norfolk is ranked as the 97th out of 149 most deprived local authority in England.

<table>
<thead>
<tr>
<th>Age band</th>
<th>Total population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>0-4</td>
<td>46,531</td>
</tr>
<tr>
<td>5-17</td>
<td>118,576</td>
</tr>
<tr>
<td>18-29</td>
<td>121,563</td>
</tr>
<tr>
<td>30-49</td>
<td>214,854</td>
</tr>
<tr>
<td>50-64</td>
<td>171,133</td>
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<tr>
<td>65-74</td>
<td>96,126</td>
</tr>
<tr>
<td>75-84</td>
<td>63,291</td>
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<tr>
<td>85+</td>
<td>25,814</td>
</tr>
<tr>
<td>Total</td>
<td>857,888</td>
</tr>
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</table>


Figure 7: Number and percentage of resident population by age band for Norfolk, 2011

![Population by age group](image-url)

Table 4: Number and percentage of resident population by BME ethnic group for Norfolk, East of England, and England, 2011

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Number</th>
<th>%</th>
<th>Number</th>
<th>%</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Norfolk</td>
<td>East</td>
<td>England</td>
<td>Norfolk</td>
<td>East</td>
<td>England</td>
</tr>
<tr>
<td>White</td>
<td>828,018</td>
<td>5,310,194</td>
<td>45,281,142</td>
<td>96.5</td>
<td>90.8</td>
<td>85.4</td>
</tr>
<tr>
<td>Mixed ethnicity</td>
<td>10,027</td>
<td>112,116</td>
<td>1,192,879</td>
<td>1.2</td>
<td>1.9</td>
<td>2.3</td>
</tr>
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<td>Asian / Asian British</td>
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<td>278,372</td>
<td>4,143,403</td>
<td>1.5</td>
<td>4.8</td>
<td>7.8</td>
</tr>
<tr>
<td>Black / Black British</td>
<td>4,609</td>
<td>117,442</td>
<td>1,846,614</td>
<td>0.5</td>
<td>2</td>
<td>3.5</td>
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<tr>
<td>Other ethnic group</td>
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<td>28,841</td>
<td>548,418</td>
<td>0.3</td>
<td>0.5</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 8: Percentage of resident population by BME ethnic group for Norfolk, East of England, and England, 2011

![Proportion of population from BME groups](image-url)
3.2 Living with sight loss (Estimated figures)

Almost two million people in the UK are living with sight loss that has a significant impact on their daily lives. This figure includes people who are registered blind or partially sighted and those whose sight is just better than the level which qualifies for registration. It also includes people who are awaiting or having treatment and people whose vision could be improved by wearing correctly prescribed glasses²².

- There are an estimated 32,110 people living with sight loss in Norfolk during 2011. Of this total, 3,970 are living with severe sight loss (blindness) Tables 5 and 6.

- In 2011, the estimated prevalence of sight loss in Norfolk is 3.7%, which compares to an estimated UK prevalence of 3% Table 5.

- By 2020 the number of people living with sight loss in Norfolk is projected to have increased to 39,840; and the number of people with severe sight loss will have increased to 5,040 Tables 5 and 6.

Table 5: Number and % of people living with sight loss in 2011, and number and % Projected number of people living with sight loss in 2020 and 2030 for Norfolk, East of England and England

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Prevalence (%)</th>
<th></th>
<th>Number</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Norfolk</td>
<td>East</td>
<td>England</td>
<td>Norfolk</td>
<td>East</td>
</tr>
<tr>
<td>2011</td>
<td>32,110</td>
<td>184,170</td>
<td>1,564,340</td>
<td>3.7</td>
<td>3.2</td>
</tr>
<tr>
<td>2020</td>
<td>39,840</td>
<td>230,170</td>
<td>1,903,330</td>
<td>4.3</td>
<td>3.6</td>
</tr>
<tr>
<td>2030</td>
<td>51,410</td>
<td>299,590</td>
<td>2,419,730</td>
<td>5.2</td>
<td>4.4</td>
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</table>

Table 6: Number of people living with blindness in 2011 and projected and Projected number of people living with blindness in 2020 and 2030

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of people living with blindness in 2011</td>
<td>3,970</td>
</tr>
<tr>
<td>Projected number of people living with blindness in 2020</td>
<td>5,040</td>
</tr>
<tr>
<td>Projected number of people living with blindness in 2030</td>
<td>6,810</td>
</tr>
</tbody>
</table>

3.2.1 Children and young people

RNIB estimated that there are around 25,000 blind and partially sighted children and young people aged 0-16 in the UK, and 15,000 aged 17-25. Around half of these will have additional disabilities and/or special educational needs. Many of these children and young people will need help and support in order to maximise their potential in education and in other activities.

Children with special educational needs (SEN) who are known to Visual Impairment (VI) services are recorded by the local authority. In England and Scotland this information is published annually, and provides an overview of the number and proportion of pupils who are recorded as having a primary SEN of visual impairment.

- There are an estimated 309 blind and partially sighted children aged 0-16 in Norfolk (Table 7).
- There are an estimated 185 blind and partially sighted young people aged 17-25 in Norfolk (Table 7).
- There are 134 pupils with a statement of special education needs (SEN) or at School Action Plus with visual impairment as their primary SEN in Norfolk (Table 8).

Table 7: Population profile and estimated number of children and young adult as blind and partially sighted, 2011

<table>
<thead>
<tr>
<th></th>
<th>General population²⁴</th>
<th>Blind and partially sighted population²⁵</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Proportion</td>
</tr>
<tr>
<td>0-16</td>
<td>154,903</td>
<td>18.1%</td>
</tr>
<tr>
<td>17-25</td>
<td>92,514</td>
<td>10.8%</td>
</tr>
</tbody>
</table>

Note: The base prevalence of visual impairment in children and young people was estimated to be: 0.05 per cent for blind and 0.15 per cent for partially sighted

Table 8: Number and percentage of pupils with visual impairment as primary SEN by type of school for Norfolk and East of England and England, 2013

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Norfolk</td>
<td>East</td>
</tr>
<tr>
<td>Primary school</td>
<td>61</td>
<td>440</td>
</tr>
<tr>
<td>Secondary school</td>
<td>65</td>
<td>480</td>
</tr>
<tr>
<td>Special school</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>134</td>
<td>940</td>
</tr>
</tbody>
</table>

The Estimated number of Blind and partially sighted population (BPS) children with additional needs in Norfolk were 155 during 2013.

Proportion of visually impaired children and young people aged 0-16 with primary a SEN of visual impairment during 2013 in Norfolk was 43.4% compared to 39.8% across East of England and 42.5% in England. This indicator uses data on the number of blind and partially sighted children and young people (RNIB estimate) which is 134 and compares this to pupils who have a primary SEN of visual impairment (official statistics) which is 309 (Figure 9).

Figure 9: The Proportion of visually impaired children and young people aged 0-16 with primary a SEN of visual impairment in Norfolk, East of England and England, 2013
3.2.2 Older people
The older the person is, the most likely the chances to be living with sight loss. One in five people aged 75 and over are living with sight loss; compared to one in two aged 90 and over. Older people with sight loss are also much more likely to have additional health conditions or disabilities.

- There are an estimated 6,200 people aged 65 to 74; 9,192 people aged 75 to 84; and 10,596 people aged 85 and over living with sight loss in Norfolk (Table 9).

Table 9: Estimated number of people ages 65 and over living with sight loss across Norfolk, 2011

<table>
<thead>
<tr>
<th>Number of people aged 65 to 74</th>
<th>General population</th>
<th>Living with sight loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>96,126</td>
<td>6,200</td>
</tr>
<tr>
<td>Proportion</td>
<td>11.2</td>
<td>6.5</td>
</tr>
<tr>
<td>Number of people aged 75 to 84</td>
<td>63,291</td>
<td>9,192</td>
</tr>
<tr>
<td>Proportion</td>
<td>7.38</td>
<td>14.5</td>
</tr>
<tr>
<td>Number of people aged 85 and over</td>
<td>25,814</td>
<td>10,596</td>
</tr>
<tr>
<td>Proportion</td>
<td>3.01</td>
<td>41.0</td>
</tr>
</tbody>
</table>

Data from the 2011 Census allows us to identify what proportion of the general population live in different types of residence identifies the number of people living in care homes.

- In the general population, there are 6,958 people living in care homes, both with and without nursing. This represents 7.8% of people aged over 85 (Table 10 and Figure 10).

Table 10: Number of older people living in care homes across Norfolk, 2011

| Number of people living in a care home without nursing | 4,864 |
| Number of people living in a care home with nursing   | 2,094 |
| Total number of people living in care homes           | 6,958 |

Figure 10: Proportion of population aged 85 and over living in care homes across Norfolk, East of England and England, 2011

---

3.3 Certification of Vision Impairment (CVI)

A Certification of Vision Impairment (CVI) formally certifies a person as either sight impaired (partially sighted) or severely sight impaired (blind). Each CVI form is completed by a consultant ophthalmologist in an eye clinic, with a copy sent to the local social services department and providing a formal route to social care services.\(^{28}\)

### 3.3.1 Number of Certifications of Vision Impairment\(^{29}\)

These indicators provide an overview of the number of new Certifications of Vision Impairment issued in 2011/12.

The rate of CVIs shows us how many people have experienced sight loss as a result of a specific eye conditions out of every 100,000 people at risk.

- 435 Certificates of Vision Impairment were issued in 2011/12 of which 201 were Severely Sight Impaired (Table 11).
- This represents a decrease of -17.1% when compared to the rate of certification in 2010/11 (Figure 11).

<table>
<thead>
<tr>
<th>Table 11: Severely and slight Sight Impaired Certification of Vision Impairment CVIs in Norfolk, 2011/12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severeley Sight Impaired CVIs</td>
</tr>
<tr>
<td>Sight Impaired CVIs</td>
</tr>
<tr>
<td>Total number of CVIs (including visual status not stated)</td>
</tr>
</tbody>
</table>

Figure 11: Percentage change in CVI rate in Norfolk, 2010/11 to 2011/12 for Norfolk, East of England and England.

---

\(^{28}\) Cause of sight loss, age of patient and location are taken from the Certification of Vision Impairment form, a copy of which is sent to Moorfields Eye Hospital.

\(^{29}\) Source: Moorfields Eye Hospital (2013) Number of Severely Sight Impaired and Sight Impaired Certificates of Vision Impairment by local areas in England and Wales.
3.3.2 Rate of Certifications of Vision Impairment by specific Sight threatening eye conditions

The rate of CVIs provides information on how many people have experienced sight loss as a result of a specific eye conditions out of every 100,000 people at risk.

The specific indicators are:

- The rate of Age related Macular Degeneration (AMD) CVIs for people aged 65 and over per 100,000 population was 115.6 for Norfolk in 2011/12 compared to 103.9 across East of England and 110.5 in England.

- At 2011/12 the rate of glaucoma CVIs for people aged 40 and over per 100,000 population was 12.4 in Norfolk which was equivalent to East of England and slightly lower than England average rate of 12.8.

- During 2011/12 the rate of diabetic retinopathy CVIs for people aged 12 and over per 100,000 people was 4.3 for Norfolk compared to 3.7 across East of England and 3.9 in England.

- The rate of CVIs for all ages per 100,000 people was 50.6 for Norfolk in 2011/12 compared to 43.1 across East of England and 44.5 in England.

Table 12: Rate of Certifications of Vision Impairment by specific Sight threatening eye conditions per 100,000 people for Norfolk, East of England and England, 2011/12

<table>
<thead>
<tr>
<th></th>
<th>Norfolk</th>
<th>East</th>
<th>England</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of AMD CVIs per 100k people over 65</td>
<td>115.6</td>
<td>103.9</td>
<td>110.5</td>
</tr>
<tr>
<td>Rate of Glaucoma CVIs per 100k people over 40</td>
<td>12.4</td>
<td>12.4</td>
<td>12.8</td>
</tr>
<tr>
<td>Rate of diabetic retinopathy CVIs per 100k people over 12</td>
<td>4.3</td>
<td>3.7</td>
<td>3.9</td>
</tr>
<tr>
<td>Overall rate of CVI per 100k people (all ages)</td>
<td>50.6</td>
<td>43.1</td>
<td>44.5</td>
</tr>
</tbody>
</table>

3.3.3 Number of people who are living with a sight threatening eye condition

There are a number of people who are living with a sight threatening eye condition. This includes people who have experienced sight loss as a result of age-related macular degeneration, cataract, glaucoma and diabetic retinopathy. It also includes people with the early stages of these diseases who have not experienced any reduction in their vision at this point.

Aged-related macular degeneration is the leading cause of blindness in the UK, and is the most common cause of sight loss recorded on Certification of Vision Impairment forms. Many more people receive a diagnosis of AMD and are living either with the early or late stages of the disease.

Cataract surgery is the most common surgical procedure performed in the NHS. There are around 400,000 cataract operations in the UK each year. This indicator provides information on the number of people who are estimated to be living with a cataract in either or both eyes.

Glaucoma is one of the leading causes of avoidable sight loss; and was the main or contributory cause in around 15 per cent of Certifications of Vision Impairment in 2011/12.

Diabetes is a common life-long health condition, where the amount of glucose in the blood is too high because the body cannot use it properly. Diabetes can lead to sight loss caused by diabetic eye disease, including diabetic retinopathy.

For Norfolk, it is estimated that:
- 42,219 people are living with the early stages of AMD; 3,334 people are living with late stage dry AMD; and 6,833 people are living with late stage wet AMD.
- 10,507 people are living with cataract.
- 8,397 people are living with glaucoma.
- 58,478 people have diabetes; and 85.3% of those who were offered it attended retinal screening in 2012/13.
- 16,374 people are living with background diabetic retinopathy; and 1,871 people are living with non proliferative and prolitative diabetic retinopathy, which are later stages of the disease.

Table 13: Number of people who are living with a sight threatening eye condition in Norfolk

<table>
<thead>
<tr>
<th>Condition</th>
<th>2011</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early stage AMD</td>
<td>42,219</td>
<td>45,718</td>
<td>50,945</td>
</tr>
<tr>
<td>Late stage dry AMD</td>
<td>3,334</td>
<td>3,654</td>
<td>4,129</td>
</tr>
<tr>
<td>Late stage wet AMD</td>
<td>6,833</td>
<td>7,513</td>
<td>8,513</td>
</tr>
<tr>
<td>Total late stage AMD (any type)</td>
<td>9,643</td>
<td>10,599</td>
<td>11,999</td>
</tr>
<tr>
<td>Number of people living with cataract</td>
<td>10,507</td>
<td>11,676</td>
<td>13,409</td>
</tr>
<tr>
<td>Number of people with glaucoma</td>
<td>8,397</td>
<td>8,713</td>
<td>9,164</td>
</tr>
<tr>
<td>Number of people with ocular hypertension</td>
<td>18,279</td>
<td>18,966</td>
<td>19,949</td>
</tr>
<tr>
<td>Number of people with diabetes</td>
<td>58,478</td>
<td>61,722</td>
<td>65,188</td>
</tr>
</tbody>
</table>

Table 14: Number of people who are living with non proliferative and proliferative diabetic retinopathy

<table>
<thead>
<tr>
<th>Condition</th>
<th>2011</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background diabetic retinopathy</td>
<td>16,374</td>
<td>17,282</td>
<td>18,253</td>
</tr>
<tr>
<td>Non proliferative and proliferative diabetic retinopathy</td>
<td>1,871</td>
<td>1,975</td>
<td>2,086</td>
</tr>
</tbody>
</table>
Figure 12: Number of people who are living with a sight threatening eye condition in Norfolk, 2011

Figure 13: Number of people who are living with cataract, glaucoma, ocular hypertension and diabetes (sight threatening eye condition) in Norfolk, 2011
3.4 Registration 2010/11

Upon receipt of a completed Certification of Vision Impairment (CVI) form, the social services department offer registration and other relevant advice and support. Registers of blind and partially sighted people are maintained by all local authorities to help them plan and deliver services.\(^{31}\)

In Norfolk, during 2011/12:

- There were a total of 6,205 people registered as blind or partially sighted. 3,295 people are registered blind and 2,910 people are registered partially sighted (Table 15).

- There were 120 children and young people aged 0-17 recorded as blind and partially sighted during 2010/11 (Table 15).

- There were an estimated 2,450 people aged 75 and over recorded as blind; 2,910 people aged 75 and over registered partially sighted during 2010/11 (Table 15).

- The rate of registration was 723 per 100,000 people compared to 521 and 564 per 100,000 people in East of England and England respectively\(^{32}\) (Figure 14).

- 32% of registered blind and partially sighted people are also recorded as having an additional disability (Table 16).

Table 15: Number of People registered blind or partially sighted by age band for Norfolk, 2011/12

<table>
<thead>
<tr>
<th>Age Band</th>
<th>Registered blind</th>
<th>Registered partially sighted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>5-17</td>
<td>55</td>
<td>55</td>
<td>110</td>
</tr>
<tr>
<td>18-49</td>
<td>260</td>
<td>250</td>
<td>510</td>
</tr>
<tr>
<td>18-49</td>
<td>290</td>
<td>250</td>
<td>540</td>
</tr>
<tr>
<td>65-74</td>
<td>235</td>
<td>240</td>
<td>475</td>
</tr>
<tr>
<td>75 and over</td>
<td>2,450</td>
<td>2,115</td>
<td>4,565</td>
</tr>
<tr>
<td>Overall total</td>
<td>3,295</td>
<td>2,910</td>
<td>6,205</td>
</tr>
</tbody>
</table>

\(^{31}\) Registration as blind or partially sighted is voluntary, however it can lead to some benefits and concessions such as blind person’s tax allowance, access to loan equipment and help with the cost of travel. The individual should be contacted by the local authority once a Certification of Vision Impairment (CVI) form is received to invite them to receive an assessment of need. If the person consents, and even if the assessment does not lead to provision of service, the registration should be affected.

Figure 14: Rate of blind or partially sighted registration per 100,000 people for Norfolk, EoE, and England,

![Graph showing rate of registration per 100k people for Norfolk, EoE, and England.]

Table 16: Proportion of registered blind or partially sighted recorded as having an additional disability

<table>
<thead>
<tr>
<th>Proportion of registered blind or partially sighted recorded as having an additional disability</th>
<th>Norfolk</th>
<th>East</th>
<th>England</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>32.4%</td>
<td>30.8%</td>
<td>33.4%</td>
</tr>
</tbody>
</table>
3.5 NHS Sight Tests

Sight tests paid for by the NHS are provided primarily by optometrists to eligible patients, such as children, people aged 60 and over, people on low incomes and some people suffering from or predisposed to eye disease. The exception is Scotland, where NHS sight tests are universally available to all patients.

Data on NHS sight tests is obtained from forms completed by providers, which are a payment mechanism. The nature of the way this data is collected has an impact on the quality of the data, and patients may be eligible for a NHS sight test under multiple eligibility criteria but only one will be recorded.

People are eligible for an NHS sight test under a number of different criteria, for example aged 60+, aged 16 and under, in receipt of certain benefits, and in Scotland they are universally available to everyone. Published data on sight tests only highlights those paid by the NHS. Some eye tests are privately funded, and these are not included in this data.

- There were a total of 221,384 NHS sight tests in Norfolk of which 86,082 among those aged 60+, 37,879 among those aged 15 or under (Table 17).
- The rate of NHS sight tests per 100,000 people was 25,806 compared to 25,142 across East of England, 23,276 in England (Table 17).

Table 17: NHS Sight Tests (numbers and rate per 100,000 residents across Norfolk, East of England and England, 2012/13)

<table>
<thead>
<tr>
<th></th>
<th>Rate of NHS sight tests per 100k people in 2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Norfolk</td>
</tr>
<tr>
<td>Total</td>
<td>221,384</td>
</tr>
<tr>
<td>Aged 60+</td>
<td>86,082</td>
</tr>
<tr>
<td>Aged 15 or under</td>
<td>37,146</td>
</tr>
<tr>
<td>Student aged 16-18</td>
<td>7,410</td>
</tr>
<tr>
<td>Income Support</td>
<td>37,879</td>
</tr>
</tbody>
</table>

3.6 Support

The provision of emotional and practical support at the right time can help people who are experiencing sight loss to retain their independence and access the support they need. Patient experience in the eye clinic is crucial. It is there where people receive their diagnosis, undergo treatment and potentially go through the process of receiving a Certificate of Vision Impairment. Equally, when someone experiences sight loss it is vital for them to have support in their homes and communities, including social care paid for or provided by local authorities.

Equally, when someone experiences sight loss it is vital for them to have appropriate information and support to manage their daily lives in their home and in the community. Local Authorities have a responsibility to assess the level of need and provide these, including financial support where appropriate.

Visual impairment rehabilitation is an intervention delivered by specialist professionals. Rehabilitation Officers help people to maximise their functional vision and skills for confident daily living. A survey conducted by the Social Care Association in 2012 mapped the provision of this support in England.

Social care involves the provision of help with personal care and domestic tasks to enable people to live as independently as possible. This care can be provided in people's own homes or in a residential setting. This indicator relates to social care provided or paid for by councils with responsibilities for social care.

Personal Independence Payment (PIP) formally Disability Living Allowance (DLA) is a benefit paid to help people with the extra costs incurred as a result of a disability, and it is paid at different rates depending on the level of need.

- 3 out of 4 hospitals providing outpatient ophthalmology appointments have some form of early intervention support available in the eye clinic\(^{34}\) (Table 18).
- A Social Care Association (SCA) survey\(^ {35}\) estimated that the number of Rehabilitation Officers - Visual Impairment working in Norfolk was: 4\(^ {36}\).
- In 2012/13, there were 395 (6.4%) blind and partially sighted people in receipt of adult social care services paid for or provided by the local authority\(^ {37}\) (Figure 15).
- 950 blind and partially sighted people are claiming Disability Living Allowance\(^ {38}\).

\(^{34}\) RNIB (2013) Eye clinic mapping data. Unpublished

\(^{35}\) This a result from a survey but the current actual of the number of Rehabilitation Officers figures in Norfolk are 7.


Table 18: Number of hospitals providing ophthalmic outpatient clinics and early intervention support in place for Norfolk, East of England and England

<table>
<thead>
<tr>
<th></th>
<th>Norfolk</th>
<th>East</th>
<th>England</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of hospitals providing ophthalmic outpatient clinics</td>
<td>4</td>
<td>29</td>
<td>328</td>
</tr>
<tr>
<td>Number with early intervention support in place</td>
<td>3</td>
<td>20</td>
<td>164</td>
</tr>
</tbody>
</table>

Figure 15: Proportion of registered blind and partially sighted people in receipt of social care, 2012/13
3.7 Cost of sight loss

There are a number of different costs associated with the provision of eye health services, such as inpatient procedures, outpatient appointments and the on-going treatment of eye conditions. There are also indirect costs caused by sight loss, including the provision of informal care by family and friends to those with sight loss.

NHS Programme Budgets provide detailed information on how money was spent on healthcare in England and Wales. This data is a key resource allowing commissioners to see where money is being spent, and it is increasingly being linked to outcome data in order to assess the value for money of outcomes, prioritise and drive reform and quality improvement initiatives. Hence the amount of Programme Budget expenditure related to problems of vision per person can be calculated as a percentage of overall budgets spent of all other programmes.

It is estimated that the total indirect cost of sight loss to the UK economy is £5.3 billion each year. This indicator apportions this figure to all the local authorities in the UK based on the prevalence of sight loss in each area. For more details see Chapter 1 page 28.

The Indirect cost of sight loss per person indicator provides data on the estimated indirect cost of sight loss per person.

- The total NHS programme budget spend on problems of vision in 2011/12 was £45,026,013\textsuperscript{39}.
- This NHS programme budget spend on problems of vision equates to £51.96 per person in Norfolk (Table 19).
- The total estimated indirect cost of sight loss in 2011 was £90,757,000. This includes the cost of family and friends providing informal care to someone living with sight loss\textsuperscript{40}.
- The estimated indirect cost of sight loss equates to £105.79 per person\textsuperscript{41}.

Table 19: Healthcare expenditure per person and Proportion (%) of overall budget spent on problems of vision for Norfolk, East of England and England, 2011/12

<table>
<thead>
<tr>
<th></th>
<th>Norfolk</th>
<th>East</th>
<th>England</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare expenditure per person</td>
<td>£51.96</td>
<td>£41.98</td>
<td>£42.10</td>
</tr>
<tr>
<td>Proportion of overall budget spent on problems of vision</td>
<td>3.13%</td>
<td>2.65%</td>
<td>2.40%</td>
</tr>
</tbody>
</table>

\textsuperscript{39} Department for Health DH (2013) Programme Budgeting Benchmarking Tool, 2011/12.

\textsuperscript{40} Access Economics (2009) Future Sight Loss UK 1: The economic impact of partial sight and blindness.

\textsuperscript{41} Access Economics (2009) Future Sight Loss UK 1: The economic impact of partial sight and blindness.
3.7 Other health conditions and disability

There are other health conditions and/or disabilities that are relevant when thinking about services for blind and partially sighted people. Sight loss is linked to age, and as people get older they may be living with a number of different conditions at the same time.

The falls indicators provide estimates on the number of people aged 65 and over who suffer at least one fall each year. Further estimates are provided for the number of serious falls that require hospital admission. Data on falls within the general population was used to estimate the number of blind and partially sighted people who fall each year and how many falls were directly attributable to sight loss.

The dementia indicators provide estimates on the number of people aged 65 and over in the general population who are living with some form of dementia.

Stroke indicators provide estimates on the number of people aged 65 and over who have a longstanding health condition caused by a stroke.

Hearing impairment indicators provide an overview of the number of people living with hearing impairment by severity in the UK.

It is estimated that:

- 1,880 falls were directly attributable to sight loss; and 150 required hospital treatment\(^{42}\) (Table 20).
- 6,402 people are living with dementia\(^{43}\) (Table 21).
- 5,053 people are living with the consequences of a stroke\(^{44}\) (Table 22).
- 101,479 people are living with a moderate or severe hearing impairment; and 2,351 people are living with a profound hearing impairment\(^{45}\) (Table 23).

---


### Table 20: Falls indicators for Norfolk, East of England and England, 2011

<table>
<thead>
<tr>
<th></th>
<th>Norfolk</th>
<th>East</th>
<th>England</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of falls</td>
<td>49,480</td>
<td>273,847</td>
<td>2,310,251</td>
</tr>
<tr>
<td>Falls amongst blind and partially sighted people</td>
<td>3,978</td>
<td>22,017</td>
<td>185,744</td>
</tr>
<tr>
<td>Falls directly attributable to sight loss</td>
<td>1,880</td>
<td>10,406</td>
<td>87,790</td>
</tr>
<tr>
<td>Total number of falls that required hospital admission</td>
<td>3,951</td>
<td>21,846</td>
<td>183,032</td>
</tr>
<tr>
<td>Falls amongst blind and partially sighted people that required hospital admission</td>
<td>318</td>
<td>1,756</td>
<td>14,716</td>
</tr>
<tr>
<td>Falls directly attributable to sight loss that required hospital admission</td>
<td>150</td>
<td>830</td>
<td>6,955</td>
</tr>
</tbody>
</table>

### Table 21: Estimated number of people aged 65 and over in the general population who are living with some form of dementia, for Norfolk East of England and England, 2011

<table>
<thead>
<tr>
<th></th>
<th>Norfolk</th>
<th>East</th>
<th>England</th>
</tr>
</thead>
<tbody>
<tr>
<td>74-85</td>
<td>4,482</td>
<td>24,870</td>
<td>209,492</td>
</tr>
<tr>
<td>85 and over</td>
<td>1,920</td>
<td>10,894</td>
<td>90,782</td>
</tr>
<tr>
<td>Total</td>
<td>6,402</td>
<td>35,764</td>
<td>300,275</td>
</tr>
</tbody>
</table>

### Table 22: Estimated number of people aged 65 and over who have a longstanding health condition caused by a stroke for Norfolk, East of England and England, 2011

<table>
<thead>
<tr>
<th></th>
<th>Norfolk</th>
<th>East</th>
<th>England</th>
</tr>
</thead>
<tbody>
<tr>
<td>65-74</td>
<td>1,908</td>
<td>10,489</td>
<td>89,602</td>
</tr>
<tr>
<td>75 and over</td>
<td>3,145</td>
<td>17,298</td>
<td>143,366</td>
</tr>
<tr>
<td>Total</td>
<td>5,053</td>
<td>27,787</td>
<td>232,968</td>
</tr>
</tbody>
</table>

### Table 23: Estimated number of people living with hearing impairment by severity Norfolk, East of England and England, 2011

<table>
<thead>
<tr>
<th></th>
<th>Moderate or severe</th>
<th>Profound</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-64</td>
<td>21,784</td>
<td>131</td>
</tr>
<tr>
<td>65-74</td>
<td>18,433</td>
<td>585</td>
</tr>
<tr>
<td>75-84</td>
<td>39,350</td>
<td>395</td>
</tr>
<tr>
<td>85 and over</td>
<td>21,912</td>
<td>1,109</td>
</tr>
<tr>
<td>Total</td>
<td>101,479</td>
<td>2,351</td>
</tr>
</tbody>
</table>

**Note:** Tables 21, 22 and 23 were estimated using Projecting Older People Population Information System POPPI (2013) prevalence data and then applied to the ONS Census 2011 population figures.

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Chapter 4: Modelled prevalence, The National Eye Health Epidemiological Model (NEHEM)

The National Eye Health Epidemiological (NEHEM)\(^{48}\) has produced a new online prevalence model for four major eye conditions promises to help UK health planners and clinicians improve patient services and anticipate changes when new treatments become available.

The prevalence models estimated the number of persons who have a specific condition in an area, for people have one or more of four visual conditions-Age-related Macular Degeneration (AMD), Glaucoma, Cataract or Low Vision-in specific geographical areas. The model provides information on Government Office Regions, Strategic Health Authorities, Local Authorities, Local Health Authorities, Boards or Primary Care Trusts areas.

The models apply age/sex/ethnic group-specific prevalence rate estimates, derived from epidemiological (community-based) population studies, to 2001 Census resident populations. The 2001 Census populations were used because only they provide consistent age, sex and ethnic group specific population estimates for all the various specific geographical areas in the four countries of the UK. The age/sex specific prevalence rates were multiplied by the age/sex/ethnic group specific populations to give the numbers of persons with the eye care condition in the specific geographical area.

The National Eye Health Epidemiological Model (NEHEM) can be used to identify disparities between locally-held figures for the provision of care and evidence-based estimates of the number of people suffering from one of the four eye conditions in a particular area\(^{49}\).

The model can get a very clear indication of the likely number of people affected by that condition in the area. It’s very interesting to compare that with how many surgical procedures are being done, how many prescriptions are being written and how many community optometrists are working in the area\(^{50}\).

Interpreting data outputs
There are various groups of users, who want to use these data for different purposes and in different ways.

- Individual clinicians, for example optometrists or ophthalmologists, or local groups such as a local association for the blind, who might want to know how many people have disease requiring care. They might want quickly to find the number of such persons in their local geographical area.

- Service commissioners or planners in health authorities or boards might want to extract data from many local areas and regions simultaneously to make comparisons and so all the data needs to be downloadable in one go.

There is no one agreed ‘true’ value for any of the prevalence rates for any one of the four eye conditions. The values chosen for use in the prevalence models were the result of expert

\(^{48}\) http://www.eyehealthmodel.org.uk/MainApplication/default.aspx#

\(^{49}\) http://www.ehi.co.uk/news/primary-care/4231

\(^{50}\) This was explained in an event by Dr Steve Hajioff of the Public Health Action Support Team (PHAST), which produced the model for the Eye Health Alliance, explained how the model worked using the example of cataracts.
judgement, and considered the use to be made of the outputs. For example, where possible, rates from various studies in a variety of specific places have been combined. Some of these studies were not in the UK. Further, the definitions of ‘the severity threshold for ‘a case’ varied between studies, as did the age groups studied (and of course, prevalence in eye conditions is very age-dependent). Therefore, in any eye care prevalence estimation it is all too easy to provide spurious precision.

In many cases relevant to estimating need for eye care, the number of people with existing cases is the appropriate measure, for example, low vision, glaucoma and in practice, untreated cataract (since many people with untreated cataract have had their condition a long time and progression takes place at a varying rate for different people and types of cataract).

Sources of estimates of prevalence
The data are based on estimates from research studies of eye disease prevalence. The NEHEM commissioned eye epidemiology experts to assemble all known relevant studies and critically examine them for quality and relevance. These studies were used to obtain best estimates appropriate to UK of numbers of people in each age/sex group of the populations (prevalence rate) and these were applied to the population numbers in each local population.

Epidemiological issues
The number of people estimated to have a specific condition very much depends on the level chosen as the minimum appropriate severity. This appropriate level varies a lot between individual eye conditions and the user’s requirements.

- For example, if a person is defined as having cataract (lens opacity) if they have any degree of opacity, the vast majority of people over age 80 will be counted. However, for cataract, users of these data are interested in knowing the number of people with clinically observable cataract who have impairment in their daily living activities. This is far fewer in every age group.

- The opposite is true for example, for glaucoma and AMD. Any sign of glaucoma (or even a raised risk of glaucoma) or AMD is important to assess in order prevent or delay sight loss.

General Modelling Approach
The models were based on expert systematic review of epidemiological population-based studies of the prevalence of glaucoma, age-related macular degeneration, low vision and cataracts. Local prevalence estimates were obtained by applying prevalence rates from combinations of the relevant research studies to age/sex population estimates in local areas. Where prevalence rate estimates from the studies were significantly different between sub-groups such as the black or Asian populations, appropriate adjustments were also made, in every case as guided by the literature.

Together with the experts who reviewed the research evidence, NEHEM chose those studies that best reflected the latest evidence most relevant to the UK population.

Population data for England and Wales were derived from the Census 2001, Office for National Statistics (ONS). Population data are supplied at the local authority, primary health organisation (Primary Care Trust or Health Board), Region and Country level using 2001 boundaries, except for England and Wales which use 2002 boundaries.
Some studies reported prevalence in only a limited number of age groups and/or did not conform to the age groupings of published population data. In these cases statistical regression techniques were used to estimate prevalence for these ages, e.g. middle age, where there was a dearth of published information in population compatible age bands. Further estimates were required for older age groups where the published source only produced prevalence for open-ended age ranges e.g. 80+.

All areas of the UK were modelled in the Glaucoma and Cataracts models, but the Age-related Macular Degeneration (AMD) and Low Vision models required five year age bands with gender and ethnicity splits. This might have allowed identification of individuals in small population areas and these data were not released for Northern Ireland, so it had to be excluded from these two models.

### 4.1 Glaucoma

The aim was to develop models which provided estimates of glaucoma, glaucoma suspects and ocular hypertension for England, Wales, Scotland and Northern Ireland in those aged 30 and over.

For the purpose of the model NEHEM considered studies, which assessed the prevalence of primary open angle glaucoma (OAG). Chronic narrow angle glaucoma was not included as the prevalence is very low in Europe and most studies did not have any standardised criteria for angle closure definition. Similarly, secondary glaucoma was excluded, as it is very uncommon.

Glaucoma was defined as being present in someone who had an absolute field defect and either a cup/disc ratio of 0.7 or larger or substantial asymmetry of the cups (a difference in cup/disc ratio of 0.3 or larger) between the two eyes.

Having thoroughly assessed the literature for glaucoma prevalence studies the following four prevalence studies were considered for inclusion when developing the model:

- A fitted regression model by Quigley-Vitale.
- A meta analysis by Rudnicka et al.
- A best fit logistic model by Tuck-Crick.
- A meta analysis by Reidy-Minassian.

The Quigley-Vitale study was not chosen, as the estimates were very different from the findings in the other studies. Also, the source material includes a multitude of studies, some of which had epidemiological or clinical (case-definition) problems. Tuck-Crick was excluded as it was confined to the white population and the validity of the estimates for age groups younger than 50 is uncertain given that they are largely based on extrapolation beyond the age-range of the source material. The Reidy-Minassian study estimates were not included as it had a limited age range (60-85). Finally, the estimates from the Rudnicka et al study were chosen as the study covered a wide age range as well as Asian, Black and White populations (Table 24).

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51 Glaucoma suspect describes a person with one or more risk factors that may lead to glaucoma, but this individual does not have definite glaucomatous optic nerve damage or visual field defect (http://emedicine.medscape.com/article/1205421-overview). Another definition for “glaucoma suspect,” which includes both ocular hypertensive and persons with large cup/disc ratios who may have early normal-tension glaucoma but still have normal visual fields (http://www.glaucoma.net/gany/about/definition.asp).
Rudnicka et al’s study was based on a systematic review and a Bayesian meta analysis. Forty-six published observational studies of OAG prevalence (103,567 participants with 2509 cases of OAG) were identified for inclusion. Data on the number of people and the number of cases of OAG by age, race, and gender were sought for each study. Table 6 below summarises the Rudnicka et al’s study findings.

Table 24: Rudnicka et al. Prevalence of Open-Angle Glaucoma

<table>
<thead>
<tr>
<th>Age group</th>
<th>Predicted prevalence of Open Angle Glaucoma (95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White</td>
</tr>
<tr>
<td>30-39</td>
<td>......</td>
</tr>
<tr>
<td>40-49</td>
<td>0.4 (0.3-0.6)</td>
</tr>
<tr>
<td>50-59</td>
<td>0.8 (0.5-1.2)</td>
</tr>
<tr>
<td>60-69</td>
<td>1.6 (1.1-2.5)</td>
</tr>
<tr>
<td>70-79</td>
<td>3.3 (2.2-4.9)</td>
</tr>
<tr>
<td>80-89</td>
<td>6.6 (4.4-9.7)</td>
</tr>
<tr>
<td>90-95</td>
<td>10.8 (7.2-15.8)</td>
</tr>
</tbody>
</table>

The Glaucoma model prevalences are based on the above findings. NEHEM added a table for mixed and other races which is based on a population weighted average of White, Black and Asian prevalences. NEHEM also adjusted the age bands, again using weighted averages, so that they are consistent with the base population age categories.

In the model, the last two age categories in the above table are combined into a 80+ age range, as no population breakdowns at a local level were available for these age categories using national age splits. Any missing prevalence, e.g. Asian age 90-95, was extrapolated based on the assumption of an exponential trend and weighted averages. Similarly for young age prevalence estimates, e.g. white age 30-39.

Glaucoma Suspect

There was a paucity of studies on the prevalence of glaucoma suspect. This was defined as those who had an absolute field defect and either a cup/disc ratio of >=0.5 but <0.7 or asymmetry of >=0.2 but <0.3. The only study in the UK was the North London Eye Study. The objective of that study was to estimate the magnitude of serious eye disorders and of visual impairment in a defined elderly population of a typical metropolitan area in England, and to assess the frequency they were in touch with, or known to, the eye care services. It was a cross sectional survey using two-stage cluster random sampling. It included a random sample of people aged 65 and older, drawn from a defined population of elderly people registered with 17 general practice groups. In total, 1,547 of 1,840 (84%) eligible people were examined Table 25.

This study covered the over-65 age group but did not break down prevalence by ethnicity.

There was no significant difference in the prevalence between men and women and there was very little prevalence difference in older age groups. As there was no suitable information on glaucoma suspects for under 65s and in order to fit in with the population age categories in the population data base, a judgment was therefore made to estimate prevalence as: younger than age 60, prevalence = 5%, aged 60+, prevalence = 7%.

52 http://www.eyehealthmodel.org.uk/MainApplication/Default.aspx#
Table 25: The prevalence of glaucoma suspect in the over 65s (Reidy et al).

<table>
<thead>
<tr>
<th>Age group</th>
<th>Prevalence per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>65-69</td>
<td>69.9</td>
</tr>
<tr>
<td>70-74</td>
<td>52.6</td>
</tr>
<tr>
<td>75-79</td>
<td>59.3</td>
</tr>
<tr>
<td>80-84</td>
<td>105.9</td>
</tr>
<tr>
<td>85-100</td>
<td>88.2</td>
</tr>
<tr>
<td>All</td>
<td>70.5</td>
</tr>
</tbody>
</table>

**Ocular Hypertension**

Ocular hypertension is defined as intraocular pressure greater than 21 mm mercury in one or both eyes, without the matching disc and field changes that would classify the case as POAG. Only two studies were found which estimated the prevalence of ocular hypertension. The North London Eye Study (Reidy et al) estimated prevalence at 3.2% (confidence interval 2.4 to 4.3) for those aged 65 years or above. This was slightly lower than that reported by the Blue Mountains Study, which estimated prevalence at 3.7% for the Australian population aged 49 and older. Neither study broke down its findings by ethnicity or sex. Because the data were being applied to the United Kingdom, the prevalence estimate of 3.2% from the North London Study was used.

Table 26 summarises the prevalence of Glaucoma, Glaucoma Suspects, Ocular Hypertension cases by local authority for Norfolk. These estimates of the prevalence conditions have been calculated using a model developed by The National Eye Health Epidemiological (NEHEM).

Table 26: Percentage of people estimated to be Glaucoma, Suspects, Ocular Hypertension cases by local authority for Norfolk (This is the best estimate from the available evidence).

<table>
<thead>
<tr>
<th></th>
<th>Glaucoma Cases (30+ years)</th>
<th>Glaucoma Suspects</th>
<th>Ocular Hypertension 65+ or more</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Breckland</td>
<td>1.6</td>
<td>1.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Broadland</td>
<td>1.5</td>
<td>0.9</td>
<td>2.2</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>1.6</td>
<td>1.0</td>
<td>2.3</td>
</tr>
<tr>
<td>King's Lynn and West</td>
<td>1.6</td>
<td>1.0</td>
<td>2.3</td>
</tr>
<tr>
<td>Norfolk</td>
<td>1.8</td>
<td>1.1</td>
<td>2.6</td>
</tr>
<tr>
<td>Norwich</td>
<td>1.6</td>
<td>1.0</td>
<td>2.2</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>1.5</td>
<td>0.9</td>
<td>2.2</td>
</tr>
<tr>
<td>Waveney</td>
<td>1.7</td>
<td>1.1</td>
<td>2.4</td>
</tr>
</tbody>
</table>

These local authority estimates were re-calculated to produce average estimates at Clinical Commissioning Group CCG an applied to the 2012/13 GP registers population to estimate the number of people with glaucoma, glaucoma suspects, and Ocular Hypertension. The prevalence rates for each CCG are based on local authority rates calculated by NEHEM. If a CCG cover two local authorities as in Norwich CCG an average rate was calculated using the Broadlband and Norwich rates.

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53 Norwich CCG covers Broadland LA and Norwich LA, South CCG covers South Norfolk LA and Breckland LA, Health East covers Great Yarmouth LA and Waveney LA. The cataract prevalence rates were re-calculated (an average weighted rate is calculated and applied to provide the prevalence estimate).
The National Eye Health Epidemiological (NEHEM) model assumes that there were a total of 10,796 people in Norfolk and Waveney with Glaucoma (primary open angle glaucoma OAG), and indicate that the true value could be between 6,695 and 15,423 people would be affected.

For Glaucoma Suspects cases, there may be 20,183 people aged 60 years or more in Norfolk and Waveney would be affected.

The model assumes 7,174 people aged 65 years or more that have an ocular hypertension across Norfolk and Waveney (Table 27).

<table>
<thead>
<tr>
<th></th>
<th>Glaucoma Cases (30+ years)</th>
<th>Glaucoma Suspects 60 or more</th>
<th>Ocular Hypertension 65 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Health East</td>
<td>2,570</td>
<td>1,636</td>
<td>3,661</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>2,184</td>
<td>1,334</td>
<td>3,154</td>
</tr>
<tr>
<td>Norwich</td>
<td>1,983</td>
<td>1,215</td>
<td>2,814</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>2,249</td>
<td>1,379</td>
<td>3,193</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>1,810</td>
<td>1,131</td>
<td>2,601</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>10,796</td>
<td>6,695</td>
<td>15,423</td>
</tr>
</tbody>
</table>
4.2 Cataract

NEHEM designed a model to estimate the prevalence of surgical cataracts, i.e. cataracts which were affecting the patient’s vision sufficiently to consider surgery. Cataract prevalence, defined as any opacity of the lens, is very common in older people and not useful for our purpose, as most people with a little suffer no or minimal visual problems. Laitner (2002) found a wide range of cataract prevalence estimates from relevant population-based vision surveys, from a high of 29% down to 3%. This wide range was mainly due to:

- Differences in definitions used by the various studies for ‘visual impairment from cataract’ and
- Differences in age ranges in the surveys.

For example, the case definition used in Reidy et al is based on presence of a visual acuity of worse than 6/12 in either eye (or both) (See Appendix 3 page 154 Snellen scale). Visual disability from both eyes from cataract is not closely related to visual acuity in one eye, which has a higher prevalence. Glare and colour rendition, which also cause visual disability from cataract, are not well captured by visual acuity.

Because of the wide range of case definitions of cataract prevalence in the various studies, NEHEM provide two cataract estimates, a higher and lower, based on two well designed population prevalence studies and which broke down their results according to different age groups (McCarty et al, 1999 and Frost et al, 2001). The McCarty et al study was based on 3,271 residents in Melbourne, Australia and defined prevalence of cataracts as ‘presence of cataract’ (as defined by them) in one or both eyes and (crucially) ‘dissatisfaction with vision.’ Anyone who had had cataract surgery in both eyes was excluded.

The upper estimate in the model uses the McCarty case definition of ‘presence of cataract’ together with ‘dissatisfaction with vision.’ The number of people with ‘dissatisfaction with vision’ was about a third of the total number with ‘presence of cataract’.

The Frost et al study was based on 2,783 residents in Somerset and Avon, England and defined prevalence using three criteria (visual acuity, vision related quality of life and whether the patients complained of poor vision) in conjunction with five lens opacity types. The criteria for defining the presence of a cataract were stricter if ocular co-morbidity was present. Frost et al provided three different prevalence rates depending on the level of impaired visual acuity and vision related quality of life which one deemed to merit cataract surgery. Frost’s prevalence rates were much lower than those of McCarty. This is not surprising, given that they included factors such as co-morbidity, vision related quality of life and severity of the cataract.

The model’s lower estimate, using Frost’s highest prevalence figure, was defined as follows:

Self reported poor vision in the affected eye, visual acuity 6/6 or worse, vision related quality of life (VCM1) score >1.0 (ranges from 0-5) and posterior sub-capsular cataract, anterior sub-capsular cataract or cortical cataracts affecting greater than a third of the central lens or nuclear colour.

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54 Most cataracts are age-related and cause no physical harm to the eye. The decision to offer cataract surgery is typically dependent on the degree to which the cataract is impacting on a patient’s quality of life and how keen s/he is to have it removed.
greater than 2 or nuclear opalescence greater than 3 (Oxford Clinical Cataract Classification and Grading System).

In cases of co-morbidity the cataract would need to occupy greater than two thirds of the central lens area or should have colour greater than 2.5 or nuclear opalescence greater than 4 to be defined as a surgical cataract.

Both Frost and McCarty adopted different age categories and age ranges (both in 10-year steps) in reporting their results. Frost et al included patients over the age of 55 whereas McCarty et al included those aged 40 or over. In order to have comparable figures with McCarty NEHEM fitted curves to both series and used these estimates on which to base prevalence rates.

In both cases the number of data points were limited (effectively only three in the case of Frost) and the extrapolations to older ages are subject to uncertainty as both studies used open ended upper age brackets to report prevalence at oldest ages (Frost 75+ and McCarty 90+). Table 28 illustrates the low and high estimates for cataract prevalence for people aged 40+ years by local authority within Norfolk and Waveney derived by NEHEM from the Frost and McCarty surveys.

Table 29 presents the number and prevalence (%) of cataract for people aged 40 years and over in Norfolk and Waveney by Clinical Commissioning Groups (CCG) for 2012/13. The lower estimate and the higher estimates are taken from Frost and McCarty surveys and applied to local General Practice local population 2012/13. The prevalence rates for each CCG are based on local authority rates calculated by NEHEM. If a CCG covers two local authorities, as in Norwich CCG, an average rate is calculated using the Broadlband and Norwich rates.

It is estimated that around 11,907 - 41,514 people aged 40 and over in Norfolk have a cataract. The low estimate was based on Frost et al study and the higher estimate was based on McCarty et al study.

**Table 28: Cataract prevalence rate among people aged 40+ years by local authority in Norfolk, 2001**

<table>
<thead>
<tr>
<th>Local Authority</th>
<th>Low Estimate</th>
<th>High Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breckland</td>
<td>2.05</td>
<td>7.24</td>
</tr>
<tr>
<td>Broadland</td>
<td>1.99</td>
<td>7.09</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>2.10</td>
<td>7.36</td>
</tr>
<tr>
<td>King’s Lynn and West Norfolk</td>
<td>2.12</td>
<td>7.49</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>2.35</td>
<td>8.05</td>
</tr>
<tr>
<td>Norwich</td>
<td>2.23</td>
<td>7.57</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>1.95</td>
<td>6.99</td>
</tr>
<tr>
<td>Waveney</td>
<td>2.29</td>
<td>7.81</td>
</tr>
</tbody>
</table>

**Note:** two cataract estimates, a higher and lower, based on two well designed population prevalence studies (Frost et al study and McCarty et al study).
Table 29: Cataract prevalence among people aged 40+ years by CCG in Norfolk, 2012/13

<table>
<thead>
<tr>
<th>CCG</th>
<th>Prevalence (%)</th>
<th>Numbers</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low Estimate</td>
<td>High Estimate</td>
<td>Low Estimate</td>
<td>High Estimate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health East</td>
<td>2.20</td>
<td>7.59</td>
<td>2,877</td>
<td>9,942</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Norfolk</td>
<td>2.35</td>
<td>8.05</td>
<td>2,497</td>
<td>8,553</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norwich</td>
<td>2.11</td>
<td>7.33</td>
<td>2,059</td>
<td>7,154</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Norfolk</td>
<td>2.00</td>
<td>7.12</td>
<td>2,438</td>
<td>8,672</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Norfolk</td>
<td>2.12</td>
<td>7.49</td>
<td>2,036</td>
<td>7,193</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>2.20</td>
<td>7.59</td>
<td>11,907</td>
<td>41,514</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Weighted average prevalence rates were calculated for each CCG based on the local authority rates given by the NEHEM (Frost et al study and McCarty et al study).
4.3 Age Related Macular Degeneration (AMD)

NEHEM developed a model which provides an estimate for the prevalence of dry (geographic) and wet (neo-vascular) age related macular degeneration and drusen in England, Scotland and Wales at a country, district, primary care trust and strategic health authority level in women and men aged 50 and over.

For the purposes of the model, the following International Age Related Maculopathy (ARM) Epidemiological Study definitions were used.

**Drusen:**
Discrete whitish yellowish spots external to the neuro-retina or the retinal pigment epithelium (RPE). They may be soft and confluent, with indistinct borders. Soft distinct drusen have uniform density with sharp edges, soft indistinct drusen have decreasing density from centre outwards with fuzzy edges. Isolated hard drusen in the absence of any other features outlined above do not characterise ARM.

**Dry AMD (geographic atrophy):**
Any sharply delineated roughly round or oval area of hyperpigmentation or depigmentation or apparent absence of the RPE in which choroidal vessels are more visible than in surrounding areas that must be at least 175 mm in diameter.

**Wet AMD (neovascular or exudative AMD):**
This includes one or more of the following:
- Retinal pigment epithelium RPE detachments.
- Sub retinal or Sub RPE neo-vascular membranes.
- Epi-retinal, intra-retinal, sub retinal, or sub pigment epithelial scar/glial tissue or fibrin-like deposits.
- Sub retinal haemorrhages that may be nearly black, bright red, or whitish-yellow and that are not related to other retinal vascular disease.
- Hard exudates (lipids) within the macular area related to any of the above, and not related to any other retinal vascular disease.

**Geographic and Neo-vascular AMD**
Of all the UK studies, the North London Eye Study (Reidy et al) and the meta analysis by Owen et al were considered most suitable for inclusion, particularly given their focus on the UK population. However both only assessed the prevalence of visually impairing age related macular disease, restricted their assessment to those aged 75 or older and did not specifically look for drusen.

The EUREYE study was considered to be the most appropriate one to use as it was a large (>5000 participants) multicentre, population-based cross-sectional study with retrospective and current exposure measurements. It included seven study centres from Norway, Estonia, Northern Ireland, United Kingdom, France, Italy, Greece and Spain.

As the prevalences of AMD are much lower in the Black Population, adjustments were made to the prevalences using data from the American Eye Diseases Prevalence Research Group. Prevalence

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55 Note: This is quite a broad, inclusive definition of wet ARMD, much of which would not be deemed treatable by laser or surgery. Also, it is independent of the degree of visual impairment.
was adjusted according to the percentage of the population which is made up of black ethnic groups in each local area based on census data. As the source data (from the Eureye study) only provides prevalence for those aged 65 and over, back projections were needed to provide estimates for those aged 50-65.

NEHEM estimated the prevalence rate for Age Related Macular Degeneration (AMD) using the above survey after adjustments Table 30.

Table 31 summarises the number of people aged 50+ years (model prevalence) with Age Related Macular Degeneration (AMD). The models calculate the expected number of patients aged 50+ years who have had Drusen and Geographic and Neo-vascular across Norfolk and Waveney.

These figures based on different models, as discussed above, and are applied to the 2012/13 GP practice registers population. The prevalence rates for the three AMD types were calculated by NEHEM at local authority level and we have re-calculated these rates into CCG level.

Overall, In 2012/13 it is estimated that a total of 48,312 people with Drusen disorder and 10,890 people with Age Related Macular Degeneration (AMD) across Norfolk and Waveney. Virtually all of the estimated cases with AMD were Wet AMD (7,701 out of 10,890, 70%) or Dry AMD (3,809 out of 10,890).56

Table 30: Estimated prevalence among people aged 50+ years with Drusen disorder and Age Related Macular Degeneration AMD (Wet AMD and Dry AMD) across Norfolk and Waveney, 2001

<table>
<thead>
<tr>
<th>Local authority</th>
<th>AMD</th>
<th>Wet AMD</th>
<th>Dry AMD</th>
<th>Drusen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breckland</td>
<td>2.5</td>
<td>1.8</td>
<td>0.9</td>
<td>11.4</td>
</tr>
<tr>
<td>Broadland</td>
<td>2.5</td>
<td>1.7</td>
<td>0.9</td>
<td>11.2</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>2.6</td>
<td>1.8</td>
<td>0.9</td>
<td>11.5</td>
</tr>
<tr>
<td>King's Lynn and West Norfolk</td>
<td>2.5</td>
<td>1.8</td>
<td>0.9</td>
<td>11.6</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>2.7</td>
<td>1.9</td>
<td>1.0</td>
<td>11.9</td>
</tr>
<tr>
<td>Norwich</td>
<td>2.9</td>
<td>2.0</td>
<td>1.0</td>
<td>12.1</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>2.4</td>
<td>1.7</td>
<td>0.8</td>
<td>11.1</td>
</tr>
<tr>
<td>Waveney</td>
<td>2.8</td>
<td>2.0</td>
<td>1.0</td>
<td>11.9</td>
</tr>
</tbody>
</table>

Table 31: Estimated number of people aged 50+ years with Drusen disorder and Age Related Macular Degeneration AMD (Wet AMD and Dry AMD) across Norfolk and Waveney, 2012/13

<table>
<thead>
<tr>
<th>Number</th>
<th>AMD</th>
<th>Wet-AMD</th>
<th>Dry-AMD</th>
<th>Drusen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health East</td>
<td>2,660</td>
<td>1,881</td>
<td>933</td>
<td>11,624</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>2,286</td>
<td>1,619</td>
<td>801</td>
<td>9,963</td>
</tr>
<tr>
<td>Norwich</td>
<td>1,844</td>
<td>1,303</td>
<td>648</td>
<td>8,048</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>2,234</td>
<td>1,578</td>
<td>778</td>
<td>10,162</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>1,865</td>
<td>1,320</td>
<td>649</td>
<td>8,515</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>10,890</td>
<td>7,701</td>
<td>3,809</td>
<td>48,312</td>
</tr>
</tbody>
</table>

More details on NEHEM model prevalence are given in Appendix 4 page 156.

56 The total percentages for Wet and Dry AMD do not add to 100, the total AMD prevalence is slightly lower than the sum of the two prevalences.
Chapter 5: Registered Blind and Partially Sighted People - England, Year ending 31 March 2011

5.1 Registered people as Blind or Partially Sighted
This chapter provides detailed statistics of persons registered with Councils with Adult Social Services Responsibilities in England as being Blind or Partially Sighted.

Upon completion of Certificate of Visual Impairment (CVI) registrations by an ophthalmologist, a copy is sent to the relevant local social service departments to initiate the process of registering the person as blind or partially sighted. Councils with adult social services responsibilities in England are mandated to maintain a register of the number of blind and partially sighted people. Data is reported on a triennial basis based on returns submitted by councils to the NHS for Health and Social care Information Centre (HSCIC).

The register of blind and partially people is voluntary; however it is a precondition for the receipt of certain financial benefits. Registration is not a prerequisite for all social services concessions and this factor means that the number of people registered in an area may under-represent the number of people eligible for registration.

There are also a large number of people with sight loss below registrable levels whose specific needs will need to be considered in service planning. These will include people identified as having low vision (sight loss that is not correctable by spectacles).

<table>
<thead>
<tr>
<th>Table 32: Number of blind or partially sighted people registered with Norfolk county council by age group at 31 March 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Blind people registered</strong></td>
</tr>
<tr>
<td>Number of Partially sighted people registered</td>
</tr>
<tr>
<td>Blind people registered as new cases by age group, during the year</td>
</tr>
<tr>
<td>Partially sighted people registered as new cases by age group, during the year</td>
</tr>
</tbody>
</table>

There were 3,295 blind people registered with Norfolk County Council (NCC) at 31 March 2011, 74.4% (2,450) were aged 75 or over, 7.9% (260) were aged 18-49, 8.8% (290) were aged 50-64, 7.1% (235) were aged 65 to 74 (Table 32). It can be seen that 6.5% (215 out of 3,295) of the blind people were registered as new cases during 2010/11.

The number of partially sighted people registered with Norfolk County Council (NCC) at 31 March 2011 was 2,910. Almost 10.5% (305 out of 2,910) of the partially sighted people were registered as new cases during 2010/11 (Table 32).
5.1.1 Distribution of registered people as Blind or Partially Sighted by age

Table 32 and Figure 16-17 show the distribution by age group during 2010/11 for both the blind and partially sighted groups registered with Norfolk County Council (NCC). At 31 March 2011 72.7 per cent of people registered as partially sighted were aged 75 and over, compared to 74.4 per cent of people registered as blind. The overall age distribution of the partially sighted register is similar to that for blind registrations.

Figure 16: % of Blind people registered with Norfolk County Council by age group at 31 March 2011

Figure 17: % of partially sighted people registered with Norfolk County Council by age group at 31 March 2011
5.2 Registered people as Blind or Partially Sighted with an additional disability

This section provides information about those people who have an additional disability recorded and how this differs between the two groups. Where a person has multiple additional disabilities, any hearing disability takes priority.

1,155 (35.1%) of those registered blind recorded an additional disability, which is higher than national rate (33%), and 855 (29.4%) of those registered as partially sighted have an additional disability, which is lower than national rate (33%), Table 15.

Table 33: Number and percentage (%) of blind or partially sighted people registered with an additional disability within Norfolk county council at 31 March 2011

<table>
<thead>
<tr>
<th></th>
<th>Blind people registered with / who are</th>
<th>Partially Sighted people registered with / who are</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Mental health</td>
<td>75</td>
<td>6.5</td>
</tr>
<tr>
<td>Learning disability</td>
<td>50</td>
<td>4.3</td>
</tr>
<tr>
<td>Physical disability</td>
<td>320</td>
<td>27.7</td>
</tr>
<tr>
<td>Deaf with speech</td>
<td>530</td>
<td>45.9</td>
</tr>
<tr>
<td>Deaf without speech</td>
<td>120</td>
<td>10.4</td>
</tr>
<tr>
<td>Hard of hearing</td>
<td>55</td>
<td>4.8</td>
</tr>
<tr>
<td>Norfolk</td>
<td>1,155</td>
<td>35.1*</td>
</tr>
<tr>
<td>England</td>
<td>49,300</td>
<td>33*</td>
</tr>
</tbody>
</table>

Note: the total percentages given are a fraction of those disabled blind or partially sighted people of the total blind or partially sighted people.

Figure 18 illustrates the most common additional disability was related to hearing which accounted for 61% and 54% of blind and partially sighted registrations with additional disabilities respectively compared to 22% for both blind and partially sighted registrations in England.

The next most common additional disability was physical disability which accounted for 27.7% and 32.7% of blind and partially sighted registrations respectively compared to 66% of blind and 68% of partially sighted registrations in England.

The figures suggest there is an issue with classification rather than real differences.
5.2.1 Distribution of people as Blind or Partially Sighted with an additional disability by age

The distribution by age of those with additional disabilities does vary slightly between the blind and partially sighted as shown in Table 34 and Figure 19.

In Norfolk at 31 March 2011, 81 per cent of blind registrations and 80.7 per cent of partially sighted registrations with additional disabilities were aged 65 or over compared to 73 per cent of blind registrations and 77 per cent of partially sighted registrations with additional disabilities for England during the same time period.

17.3 per cent of blind registrations and 17.5 per cent of partially sighted registrations with additional disabilities were aged 18 to 64 in Norfolk which is slightly lower than England average 25 per cent and 21 of blind registrations and partially sighted registrations with additional disabilities respectively at 31 March 2011.

The under 18 age group accounts for around 1.3 per cent of those with additional disabilities for both registers compared to 2 per cent for both registries in England, at 31 March 2011.
Table 34: Number and percentage (%) of blind or partially sighted people registered with an additional disability by age band within Norfolk County Council, at 31 March 2011

<table>
<thead>
<tr>
<th></th>
<th>Blind people registered who have additional disabilities</th>
<th>Number of Partially Sighted people registered who have additional disabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>0 to 4</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>5 to 17</td>
<td>15</td>
<td>1.3</td>
</tr>
<tr>
<td>18 to 64</td>
<td>200</td>
<td>17.3</td>
</tr>
<tr>
<td>65 or over</td>
<td>935</td>
<td>81.0</td>
</tr>
<tr>
<td>All ages</td>
<td>1,155</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Figure 19: Percentage (%) of blind or partially sighted people registered with an additional disability by age band within Norfolk County Council, at 31 March 2011
Chapter 6: Adults and People aged 65 and over predicted to have visual impairment (PANSI and POPPI)⁵⁸

6.1 People aged 18-64 predicted to have a serious visual impairment, by age, projected to 2020 (PANSI)

A literature review on the prevalence of visual impairment in the UK by The Royal National Institute of Blind People (RNIB) the Tate study⁵⁹ in 2005 reported that most studies have been done in the older population and there is a scarcity of data in younger adult age groups in the UK.

A review by Nissen et al of epidemiological studies performed in Western Europe, North America and Australia covering the age group 20 to 59 years found the prevalence of blindness was 0.08 and of visual acuity 6/24 to 6/48 was 0.07%.

The (RNIB) - the Tate study stated that these figures agree well with the prevalence of registrations in a similar age range and concluded that registration data provide reasonably accurate estimates of the prevalence of serious vision impairment in the younger adult age groups in the UK.

The RNIB suggest a lower figure of 1 in 500 as an estimated basis of people who would be registrable. The Tate study also argues, as do others, that estimates of less than severe visual impairment are unreliable with a high degree of variance reported in self report studies. A mean of the three figures, 0.065%, has been used as an estimate of the numbers of people with a severe visual impairment.

The prevalence rates have been applied to ONS population projections for the 18-64 population to give estimated numbers predicted to have a serious visual impairment and require help with daily activities, projected to 2020.

Based on the above figures Table 35 provides information on the number of People aged 18-64 predicted to have a serious visual impairment, by local authority, projected 2014 to 2020 for Norfolk.

It is estimated that during 2020 around 337 people in Norfolk aged 18-64 have a serious visual impairment, an increase of 7 (2 per cent) is predicted in 2020 from 2014.

The highest number of people aged 18-64 with a serious visual impairment is expected in Norwich; approximately 60 people. While the highest number of people to have a serious visual impairment is among those aged 45-54 and 55-64; around 151 people for both age bands Table 36.

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⁵⁹ A review of the literature, by Tate, Smeeth, Evans, Fletcher, Owen and Rudnicka, RNIB, 2005.
Table 35: Total population aged 18-64 predicted to have a serious visual impairment, projected 2014 to 2020

<table>
<thead>
<tr>
<th>Local Authority</th>
<th>2014</th>
<th>2016</th>
<th>2018</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breckland</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>51</td>
</tr>
<tr>
<td>Broadland</td>
<td>47</td>
<td>47</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>37</td>
<td>37</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>King’s Lynn and West Norfolk</td>
<td>55</td>
<td>55</td>
<td>56</td>
<td>56</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Norwich</td>
<td>60</td>
<td>61</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>47</td>
<td>47</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Waveney</td>
<td>42</td>
<td>42</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td><strong>Norfolk</strong></td>
<td><strong>330</strong></td>
<td><strong>333</strong></td>
<td><strong>335</strong></td>
<td><strong>337</strong></td>
</tr>
<tr>
<td><strong>Norfolk and Waveney</strong></td>
<td><strong>372</strong></td>
<td><strong>375</strong></td>
<td><strong>377</strong></td>
<td><strong>379</strong></td>
</tr>
</tbody>
</table>

Table 36: People aged 18-64 predicted to have a serious visual impairment, by age, projected 2014 to 2020

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2014</th>
<th>2016</th>
<th>2018</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-24</td>
<td>48</td>
<td>47</td>
<td>46</td>
<td>44</td>
</tr>
<tr>
<td>25-34</td>
<td>66</td>
<td>68</td>
<td>69</td>
<td>70</td>
</tr>
<tr>
<td>35-44</td>
<td>66</td>
<td>65</td>
<td>65</td>
<td>67</td>
</tr>
<tr>
<td>45-54</td>
<td>79</td>
<td>80</td>
<td>79</td>
<td>76</td>
</tr>
<tr>
<td>55-64</td>
<td>72</td>
<td>73</td>
<td>76</td>
<td>79</td>
</tr>
<tr>
<td><strong>18-64</strong></td>
<td><strong>330</strong></td>
<td><strong>333</strong></td>
<td><strong>335</strong></td>
<td><strong>337</strong></td>
</tr>
</tbody>
</table>
6.2 People aged 65 and over predicted to have a moderate or severe visual impairment by age, and people aged 75 and over predicted to have registrable eye conditions, projected 2014 - 2020 (PANSI)

The overall prevalence of all causes of visual impairment in those aged 65-74 years and over with visual acuity (VA) of less than 6/18 (moderate or severe) is 5.6%, and 12.4% for those aged over 75. VA of less than 6/18 is largely used as the point which approximates to the statutory threshold for qualifying as registered severely sight impaired (blind) or registered sight impaired (partially sighted).\(^{60}\)

Of those aged 75 and over, approximately half have cataracts or refractive error (i.e. correctable sight loss) and if these are excluded, the prevalence estimate of those with ‘registrable’ eye conditions is 6.4% in this age group. A small proportion has both cataracts and some other registrable cause of vision impairment and these are included within this figure.

Age related macular degeneration is the most common cause of registrable sight loss in older people.

The Projecting Older People Population Information System (POPPI) has applied the above prevalence rates to ONS population projections of the 65 and over population to give estimated numbers of people predicted to have visual impairment to 2020 by local authority and age group.

The overall number of people aged 65-74 predicted to have a moderate or severe visual impairment for Norfolk in 2014 is estimated around 6,171 people, to be increased to 6,524 in 2020. While the figures for people aged 75 years and over in 2014 is much higher around 11,892 people, an increase of 5,721 (92.7 per cent) compared to people aged 65-74. The figures for people aged 75 and over are estimated to increase by 2,145 people in 2020 compared to 2014.

In Norfolk, the number of people aged 65 and over with visual acuity VA of less than 6/18 who are registered severely sight impaired (blind) or registered sight impaired (partially sighted) was estimated to be 6,138 in 2014 and 7,245 in 2020 (Table 37 and Figure 20).

\(^{60}\) Figures are taken from ‘The number of people in the UK with a visual impairment: the use of research evidence and official statistics to estimate and describe the size of the visually impaired population’, Nigel Charles, RNIB, July 2006.
Table 37: People aged 65 and over predicted to have a moderate or severe visual impairment by age, and people aged 75 and over predicted to have registrable eye conditions, projected 2014 - 2020

<table>
<thead>
<tr>
<th></th>
<th>People aged 65-74 predicted to have a moderate or severe visual impairment</th>
<th>People aged 75 and over predicted to have a moderate or severe visual impairment</th>
<th>People aged 75 and over predicted to have registrable eye conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breckland</td>
<td>963</td>
<td>1,025</td>
<td>1,835</td>
</tr>
<tr>
<td>Broadland</td>
<td>930</td>
<td>974</td>
<td>1,786</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>706</td>
<td>734</td>
<td>1,265</td>
</tr>
<tr>
<td>King's Lynn and West Norfolk</td>
<td>1,120</td>
<td>1,187</td>
<td>2,145</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>952</td>
<td>1,014</td>
<td>1,922</td>
</tr>
<tr>
<td>Norwich</td>
<td>577</td>
<td>616</td>
<td>1,277</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>930</td>
<td>980</td>
<td>1,674</td>
</tr>
<tr>
<td>Waveney</td>
<td>890</td>
<td>918</td>
<td>1,810</td>
</tr>
<tr>
<td>Norfolk</td>
<td>6,171</td>
<td>6,524</td>
<td>11,892</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>7,061</td>
<td>7,442</td>
<td>13,702</td>
</tr>
</tbody>
</table>

Figure 20: People aged 65 and over predicted to have a moderate or severe visual impairment by age, and people aged 75 and over predicted to have registrable eye conditions, projected 2014 - 2020
Chapter 7: Populations where potential inequity may be present

7.1 Socio-economic considerations
Evidence shows that there is a link between people on low incomes and living in deprivation and people living with sight loss; three out of four blind or partially sighted people are living in poverty or on its margins. Based on GP registration data for April 2013 (Table 38), it can be seen that 179,854 (18.2) of the patients who are registered with a Norfolk and Waveney GP live in the most deprivation quintile (IMD 2010). This is an important consideration with respect to eye disorders prevalence and access to services.

Table 38: Estimated registered and resident population as at April 2013

<table>
<thead>
<tr>
<th>Age band</th>
<th>Local deprivation quintile (IMD 2010)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>0-4</td>
<td>11,618</td>
<td>10,974</td>
</tr>
<tr>
<td>5-9</td>
<td>10,461</td>
<td>10,196</td>
</tr>
<tr>
<td>10-14</td>
<td>9,195</td>
<td>9,940</td>
</tr>
<tr>
<td>15-19</td>
<td>10,635</td>
<td>10,737</td>
</tr>
<tr>
<td>20-24</td>
<td>12,993</td>
<td>11,452</td>
</tr>
<tr>
<td>25-29</td>
<td>14,578</td>
<td>12,533</td>
</tr>
<tr>
<td>30-34</td>
<td>13,239</td>
<td>12,418</td>
</tr>
<tr>
<td>35-39</td>
<td>11,370</td>
<td>11,772</td>
</tr>
<tr>
<td>40-44</td>
<td>12,748</td>
<td>13,401</td>
</tr>
<tr>
<td>45-49</td>
<td>12,634</td>
<td>14,178</td>
</tr>
<tr>
<td>50-54</td>
<td>11,187</td>
<td>13,777</td>
</tr>
<tr>
<td>55-59</td>
<td>9,630</td>
<td>12,742</td>
</tr>
<tr>
<td>60-64</td>
<td>9,253</td>
<td>13,663</td>
</tr>
<tr>
<td>65-69</td>
<td>9,614</td>
<td>14,563</td>
</tr>
<tr>
<td>70-74</td>
<td>6,929</td>
<td>10,714</td>
</tr>
<tr>
<td>75-79</td>
<td>5,421</td>
<td>9,028</td>
</tr>
<tr>
<td>80-84</td>
<td>4,257</td>
<td>6,852</td>
</tr>
<tr>
<td>85+</td>
<td>4,092</td>
<td>6,883</td>
</tr>
<tr>
<td></td>
<td><strong>179,854</strong></td>
<td><strong>205,823</strong></td>
</tr>
</tbody>
</table>

Note: 1 being the most deprived quintile and 5 being the least deprived quintile

---

7.2 Ethnicity

The risk of developing glaucoma is higher in African and African-Caribbean populations\textsuperscript{62}. People from South-East Asia and China are at higher risk of angle-closure glaucoma\textsuperscript{63}.

Evidence shows that people from the Asian population are at a higher risk of developing cataracts. African, African-Caribbean and Asian populations are at a higher risk of developing diabetic eye disease\textsuperscript{64}.

People from black and minority ethnic communities are at greater risk of some of the leading causes of sight loss\textsuperscript{65}. The Action for blind people\textsuperscript{66} provided a number of important statistics for use from a variety of referenced sources, including figures regarding BME communities and sight loss as follows\textsuperscript{67}:

- The black population aged under sixty has a greater risk of developing age-related macular degeneration (AMD) compared to the white population of the same age, whereas the white population has a greater risk of developing AMD in the later years of life.
- Overall Asian people are at lower risk than white people of developing AMD.
- Asian people have a greater risk of developing cataracts compared to the black population and white population.
- Black and Asian populations have a greater risk of developing diabetic eye disease compared to the white population.
- The risk of glaucoma is much higher for the black population compared to the white population.
- The white population has the greater risk in developing refractive error compared to the black population.

Evidence indicates that targeting preventative sight loss amongst people from black and ethnic minority (BME) communities can form part of a cost effective prevention programme\textsuperscript{68}. it may be appropriate to look at local data for areas with BME communities to identify where there may be people at higher risk of sight loss and what provision is available in that locality.

The numbers of people from Black and Minority Ethnic (BME) groups in Norfolk is relatively low in relation to some other areas in England. However, the percentage of the population from different BME groups has slightly increased in the last few years, and this could have an influence on the prevalence of eye conditions.

\textsuperscript{64} Access Economics 2009. Future Sight Loss UK 1: Economic Impact of Partial Sight and Blindness in the UK adult population. RNIB
\textsuperscript{65} Access Economics, 2009
\textsuperscript{66} Action for Blind People is a national charity with local reach, providing practical help and support to blind and partially sighted people of all ages.
In Norfolk, the percentage of White British was estimated to be 92.5% at the time of the 2011 Census (Office for National Statistics), 977 (0.1%) were African-Caribbean, 3,270 (0.4%) Chinese, and 5,938 (0.7%) Indian or British Indian, Pakistani, Bangladesh, and Other Asian (Tables 39-40).

Ethnicity could be a risk factor for eye conditions, or it could be due to differences in risk factors, such as diabetes, hypertension, smoking prevalence, socio-economic factors or obesity, etc. For the majority of these risk factors, information is not available for different ethnic groups.

Table 39: Number of residents across Norfolk and Waveney by certain ethnic group, census data 2011 (Office for National Statistics ONS)

<table>
<thead>
<tr>
<th></th>
<th>Irish</th>
<th>Chinese</th>
<th>Caribbean</th>
<th>Indian or British Indian, Pakistani, Bangladeshi, and Other Asian</th>
<th>White</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breckland</td>
<td>602</td>
<td>202</td>
<td>235</td>
<td>504</td>
<td>119,083</td>
<td>130,491</td>
</tr>
<tr>
<td>Broadland</td>
<td>406</td>
<td>290</td>
<td>69</td>
<td>571</td>
<td>119,618</td>
<td>124,646</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>393</td>
<td>197</td>
<td>89</td>
<td>617</td>
<td>90,315</td>
<td>97,277</td>
</tr>
<tr>
<td>King's Lynn and West Norfolk</td>
<td>609</td>
<td>397</td>
<td>123</td>
<td>907</td>
<td>136,012</td>
<td>147,451</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>354</td>
<td>149</td>
<td>78</td>
<td>192</td>
<td>98,017</td>
<td>101,499</td>
</tr>
<tr>
<td>Norwich</td>
<td>885</td>
<td>1,708</td>
<td>297</td>
<td>2,571</td>
<td>112,340</td>
<td>132,512</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>455</td>
<td>327</td>
<td>86</td>
<td>576</td>
<td>118,049</td>
<td>124,012</td>
</tr>
<tr>
<td>Waveney</td>
<td>411</td>
<td>326</td>
<td>101</td>
<td>371</td>
<td>110,418</td>
<td>115,254</td>
</tr>
<tr>
<td>Norfolk</td>
<td>3,704</td>
<td>3,270</td>
<td>977</td>
<td>5,938</td>
<td>793,434</td>
<td>857,888</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>4,115</td>
<td>3,596</td>
<td>1,078</td>
<td>6,309</td>
<td>903,852</td>
<td>973,142</td>
</tr>
</tbody>
</table>

Table 40: Percentage of residents across Norfolk and Waveney by certain ethnic group, census data 2011 (Office for National Statistics ONS)

<table>
<thead>
<tr>
<th></th>
<th>Irish</th>
<th>Chinese</th>
<th>Caribbean</th>
<th>Indian or British Indian, Pakistani, Bangladeshi, and Other Asian</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breckland</td>
<td>0.5</td>
<td>0.2</td>
<td>0.2</td>
<td>0.4</td>
<td>91.3</td>
</tr>
<tr>
<td>Broadland</td>
<td>0.3</td>
<td>0.2</td>
<td>0.1</td>
<td>0.5</td>
<td>96.0</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>0.4</td>
<td>0.2</td>
<td>0.1</td>
<td>0.6</td>
<td>92.8</td>
</tr>
<tr>
<td>King's Lynn and West Norfolk</td>
<td>0.4</td>
<td>0.3</td>
<td>0.1</td>
<td>0.6</td>
<td>92.2</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>0.3</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
<td>96.6</td>
</tr>
<tr>
<td>Norwich</td>
<td>0.7</td>
<td>1.3</td>
<td>0.2</td>
<td>1.9</td>
<td>84.8</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>0.4</td>
<td>0.3</td>
<td>0.1</td>
<td>0.5</td>
<td>95.2</td>
</tr>
<tr>
<td>Waveney</td>
<td>0.4</td>
<td>0.3</td>
<td>0.1</td>
<td>0.3</td>
<td>95.8</td>
</tr>
<tr>
<td>Norfolk</td>
<td>0.4</td>
<td>0.4</td>
<td>0.1</td>
<td>0.7</td>
<td>92.5</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>0.4</td>
<td>0.4</td>
<td>0.1</td>
<td>0.6</td>
<td>92.9</td>
</tr>
</tbody>
</table>
7.3 Learning disabilities
There is a high prevalence rate of sight loss amongst adults with learning disabilities. There are estimated to be over one million adults aged 20+ in the UK with a learning disability. An estimated 96,500\(^{69}\) adults with learning disabilities in the UK, including 42,000 known to the statutory services, are blind or partially sighted. This means that nearly one in ten adults with learning disabilities is blind or partially sighted. Adults with learning disabilities are 10 times more likely to be blind or partially sighted than the general population\(^{70}\).

The Action for blind people estimated\(^{71}\):
- People with learning disabilities are 10 times more likely to have serious sight problems than other people. People with severe or profound learning disabilities are most likely to have sight problems.
- People with learning disabilities may not know they have a sight problem and may not be able to tell people. Many people who know a person with a learning disability think that they can see perfectly well.
- 6 in 10 people with learning disabilities need glasses and often need support to get used to them.
- People with learning disabilities need to have a sight test every two years, sometimes more often. Regular sight tests and wearing glasses helps people stay healthy and get the most from life.

Further consideration: data on the number of people with a learning disability and the number of those that are registered as blind or partially sighted. If a disparity is shown between the numbers of people with learning disability that are registered blind or partially sighted compared to prevalence levels it may indicate that some targeted work needs to be undertaken.

In Norfolk and Waveney the GP practice disease registers for people aged 18+ diagnosed with learning disabilities showed that the trend prevalence over four years remains the same around 0.5%-0.6%. The numbers of people with learning disabilities increased from 3,851 in 2009/10 to 4,541 in 2012/13 (Table 41).

Table 42 gives the estimated number of people aged 18+ with learning disabilities across Norfolk and Waveney who might be blind or partially sighted if the national prevalence is applied to Norfolk; one in ten adults with learning disabilities is blind or partially sighted, this can be applied to GP practice learning disabilities registers. It is estimated in 2012/13 there were around 454 people with learning disabilities and sight loss, across Norfolk and Waveney. If the rate of 6 in 10 people with learning disabilities need glasses is applied to GP practice learning disabilities registers, it is estimated around 2,725 people needed glasses in Norfolk and Waveney in 2012/13.

\(^{69}\) Emerson and Robertson, 2011


Table 41: Diagnosed prevalence of Learning Disabilities Register (ages 18+) on Norfolk and Waveney General Practice registers, trends over time by CCG (number and percentage on registers), 2009/10 – 2012/13

<table>
<thead>
<tr>
<th>CCG</th>
<th>2009/10</th>
<th></th>
<th>2010/11</th>
<th></th>
<th>2011/12</th>
<th></th>
<th>2012/13</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>GY&amp;W</td>
<td>839</td>
<td>0.5</td>
<td>922</td>
<td>0.5</td>
<td>1,032</td>
<td>0.6</td>
<td>1,091</td>
<td>0.6</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>862</td>
<td>0.6</td>
<td>876</td>
<td>0.6</td>
<td>894</td>
<td>0.6</td>
<td>963</td>
<td>0.7</td>
</tr>
<tr>
<td>Norwich</td>
<td>848</td>
<td>0.6</td>
<td>846</td>
<td>0.5</td>
<td>899</td>
<td>0.5</td>
<td>932</td>
<td>0.6</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>729</td>
<td>0.4</td>
<td>760</td>
<td>0.4</td>
<td>805</td>
<td>0.5</td>
<td>873</td>
<td>0.5</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>573</td>
<td>0.4</td>
<td>602</td>
<td>0.5</td>
<td>654</td>
<td>0.5</td>
<td>682</td>
<td>0.5</td>
</tr>
<tr>
<td>N&amp;W</td>
<td>3,851</td>
<td>0.5</td>
<td>4,006</td>
<td>0.5</td>
<td>4,284</td>
<td>0.5</td>
<td>4,541</td>
<td>0.6</td>
</tr>
<tr>
<td>East of England</td>
<td>18,506</td>
<td>0.4</td>
<td>19,578</td>
<td>0.4</td>
<td>21,079</td>
<td>0.4</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>England</td>
<td>179,064</td>
<td>0.4</td>
<td>188,819</td>
<td>0.4</td>
<td>198,877</td>
<td>0.5</td>
<td>206,132</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Table 42: Estimated number of blind or partially sighted people and those who require glasses amongst adults aged 18+ with learning disabilities by CCG across Norfolk and Waveney, 2012/13

<table>
<thead>
<tr>
<th>CCG</th>
<th>2012/13, 18+</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of people with learning disabilities</td>
<td>Estimated number of people with learning disabilities that might have sight loss (1/10)</td>
<td>Estimated number of people with learning disabilities who need glasses (6/10)</td>
<td></td>
</tr>
<tr>
<td>GY&amp;W</td>
<td>1,091</td>
<td>109</td>
<td>655</td>
<td></td>
</tr>
<tr>
<td>North Norfolk</td>
<td>963</td>
<td>96</td>
<td>578</td>
<td></td>
</tr>
<tr>
<td>Norwich</td>
<td>932</td>
<td>93</td>
<td>559</td>
<td></td>
</tr>
<tr>
<td>South Norfolk</td>
<td>873</td>
<td>87</td>
<td>524</td>
<td></td>
</tr>
<tr>
<td>West Norfolk</td>
<td>682</td>
<td>68</td>
<td>409</td>
<td></td>
</tr>
<tr>
<td>N&amp;W</td>
<td>4,541</td>
<td>454</td>
<td>2,725</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 8: Health determinants

The impact of sight loss, both from uncorrected refractive error and eye conditions, coupled with other health determinants can dramatically increase risk and demand on health and social care services. The links between sight loss and other health determinants include:

8.1 Smoking

The link between smoking and AMD, the UK’s leading cause of blindness, is as strong as the link between smoking and lung cancer. Smokers not only double their risk of developing AMD but also tend to develop it earlier than non-smokers. Furthermore, smoking can make diabetes-related sight problems worse, and has been linked to the development of cataracts.

Research has shown that cessation programmes which link sight loss and smoking provide a motivation for people to reduce or give up smoking.

Health Profiles were published by Public Health England in 2013, the profiles include 32 health or health related indicators at local authority, county, regional and national levels. The profiles provides information on the prevalence (%) of adults smoking (aged 18+) for 2011/12. In Norfolk the estimated percentage of smokers was 22% which is slightly higher but not significantly different from the East of England and England average rates of around 20% for both. However, the rates were significantly lower in North Norfolk and significantly higher in Norwich (see Table 43).

Table 43: Estimated percentage of adults smoking (aged 18+), 2011/12

<table>
<thead>
<tr>
<th>Local authority</th>
<th>Percentage of adults smoking 18+ (2011/12)</th>
<th>95% CI</th>
<th>Significant difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breckland</td>
<td>20.0</td>
<td>15.8 24.1</td>
<td>Not significantly different from England average</td>
</tr>
<tr>
<td>Broadland</td>
<td>18.2</td>
<td>14.0 22.4</td>
<td>Not significantly different from England average</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>24.9</td>
<td>18.6 31.3</td>
<td>Not significantly different from England average</td>
</tr>
<tr>
<td>King’s Lynn and West Norfolk</td>
<td>19.3</td>
<td>15.3 23.4</td>
<td>Not significantly different from England average</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>14.6</td>
<td>10.3 18.8</td>
<td>Significantly better than England average</td>
</tr>
<tr>
<td>Norwich</td>
<td>26.3</td>
<td>21.5 31.2</td>
<td>Significantly worse than England average</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>18.4</td>
<td>14.4 22.5</td>
<td>Not significantly different from England average</td>
</tr>
<tr>
<td>Waveney</td>
<td>22.9</td>
<td>18.0 27.9</td>
<td>Not significantly different from England average</td>
</tr>
<tr>
<td>Norfolk</td>
<td>20.3</td>
<td>18.6 22.0</td>
<td>Not significantly different from England average</td>
</tr>
<tr>
<td>East of England</td>
<td>19.6</td>
<td>19.0 20.1</td>
<td>Not significantly different from England average</td>
</tr>
<tr>
<td>England</td>
<td>20.0</td>
<td>19.8 20.1</td>
<td>n/a</td>
</tr>
</tbody>
</table>

72 http://www.rnib.org.uk/eyehealth/lookingafteryourseyes/pages/smoking.aspx
73 AMD Alliance International campaign report 2005; Awareness of Age related Macular Degeneration and Associated Risk Factors
8.2 Obesity
Obesity has been linked to several eye conditions including cataracts and AMD. Obesity also has a strong link to diabetes and an exacerbation of sight deterioration in diabetic retinopathy.\(^\text{75}\)

Table 44 gives the prevalence of obese adults aged 16+ years in Norfolk, East of England and England in 2006-2008. Overall, it is estimated 25.5% of adults in Norfolk were obese over the three year period (2006-2008) which is equivalent to East of England and England average rates. However, the rate was significantly higher in Great Yarmouth and significantly lower in Norwich.

<table>
<thead>
<tr>
<th>Local authority</th>
<th>Estimated prevalence of obesity, percentage of resident population, adults, 2006-2008, persons</th>
<th>Significant difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>95% CI LL UL</td>
</tr>
<tr>
<td>Breckland</td>
<td>25.7</td>
<td>24.0 27.5 Not significantly different from England average</td>
</tr>
<tr>
<td>Broadland</td>
<td>25.1</td>
<td>23.4 26.9 Not significantly different from England average</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>28.1</td>
<td>26.0 30.3 Significantly worse than England average</td>
</tr>
<tr>
<td>King's Lynn and West Norfolk</td>
<td>24.9</td>
<td>23.3 26.5 Not significantly different from England average</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>24.4</td>
<td>22.5 26.4 Not significantly different from England average</td>
</tr>
<tr>
<td>Norwich</td>
<td>21.7</td>
<td>19.9 23.5 Significantly better than England average</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>24.5</td>
<td>22.6 26.3 Not significantly different from England average</td>
</tr>
<tr>
<td>Waveney</td>
<td>27.0</td>
<td>25.1 29.0 Significantly worse than England average</td>
</tr>
<tr>
<td>Norfolk</td>
<td>24.8</td>
<td>24.1 25.5 Not significantly different from England average</td>
</tr>
<tr>
<td>East of England</td>
<td>23.6</td>
<td>21.8 25.5 Not significantly different from England average</td>
</tr>
<tr>
<td>England</td>
<td>24.2</td>
<td>23.6 24.7 n/a</td>
</tr>
</tbody>
</table>

8.3 Stroke prevention
Damage resulting from stroke can impact on the visual pathway of the eyes which can result in visual field loss, blurry vision, double vision and moving images. In addition there may be inability to read (alexia) or to write (agraphia).

Around 60 per cent of stroke survivors have some sort of visual dysfunction following stroke. The most common condition is homonymous hemianopia, a loss of half a person's visual field, which occurs in 30 per cent of all stroke survivors.\(^\text{76}\)

As part of the GP GMS contract introduced in 2004, General Practices obtain points for achievements against a range of indicators. The system is known as the Quality and Outcomes Framework (QOF) and is used for calculating financial payment. One of the achievements is forming registers of patients with specific diseases, including stroke.

The QOF General Practices clinical registers only include total numbers of individuals who are included on the stroke or TIA register and the information is not broken down by age group or gender and therefore it is not possible to examine the differences by age and gender at a CCG.

\(^{75}\)http://www.rnib.org.uk/eyehealth/lookingafteryoureyes/pages/obesity.aspx
\(^{76}\)http://www.stroke.org.uk/media_centre/press_releases/stroke_survivors.html
Table 45 shows the stroke or TIA Prevalence (%) by CCG and for England between 2009/10 – 2012/13. These rates did not change substantially during this period. At 2012/13 the average rates varied between 1.7% in Norwich CCG and 2.5% in North Norfolk CCG, compared to 1.7% across England.

Given the fact that stroke is incurable and is more prevalent in the older population, this could explain the higher prevalence 2.5% in the older population of North Norfolk.

The higher prevalence areas of Great Yarmouth and Waveney, and West Norfolk have more deprived residents who are more likely to smoke, be obese, have uncontrolled hypertension, not exercise and therefore have stroke. For more details about Stroke or Transient Ischaemic Attacks (TIA) on Norfolk see the Stroke or Transient Ischaemic Attacks (TIA) needs assessment which was conducted recently and published on the JSNA (Norfolk Insight)⁷⁷.

During 2012/13, there were 12,578 people with stroke or TIA that may have visual dysfunction in Norfolk and Waveney. This figure was estimated by applying rate of the 60 per cent of stroke survivors have some sort of visual dysfunction following stroke to the Stroke or Transient Ischaemic Attacks (TIA) on the Norfolk and Waveney General Practice registers (see Table 46)⁷⁸.

Table 45: Diagnosed prevalence of Stroke or Transient Ischaemic Attacks (TIA) on Norfolk and Waveney General Practice registers, trends over time by CCG (number and percentage on registers), 2009/10 – 2012/13

<table>
<thead>
<tr>
<th>CCG</th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>GY&amp;W</td>
<td>4,707</td>
<td>2.0</td>
<td>4,882</td>
<td>2.1</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>4,082</td>
<td>2.5</td>
<td>4,207</td>
<td>2.5</td>
</tr>
<tr>
<td>Norwich</td>
<td>3,430</td>
<td>1.8</td>
<td>3,497</td>
<td>1.7</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>4,188</td>
<td>1.9</td>
<td>4,274</td>
<td>2.0</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>3,617</td>
<td>2.2</td>
<td>3,744</td>
<td>2.3</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>20,024</td>
<td>2.1</td>
<td>20,604</td>
<td>2.1</td>
</tr>
<tr>
<td>East of England</td>
<td>97,550</td>
<td>1.6</td>
<td>100,406</td>
<td>1.7</td>
</tr>
<tr>
<td>England</td>
<td>921,819</td>
<td>1.7</td>
<td>944,099</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Table 46: Estimated number of people with visual dysfunction among those who were on the Stroke or Transient Ischaemic Attacks (TIA) on Norfolk and Waveney General Practice registers, 2012/13

<table>
<thead>
<tr>
<th>CCG</th>
<th>Number of people with stroke or TIA</th>
<th>Estimated number of people with visual dysfunction following stroke or TIA (60%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GY&amp;W</td>
<td>4,931</td>
<td>2,959</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>4,183</td>
<td>2,510</td>
</tr>
<tr>
<td>Norwich</td>
<td>3,501</td>
<td>2,101</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>4,344</td>
<td>2,606</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>4,005</td>
<td>2,403</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>20,964</td>
<td>12,578</td>
</tr>
<tr>
<td>England</td>
<td>951,469</td>
<td>570,881</td>
</tr>
</tbody>
</table>


⁷⁸ More details about Stroke or TIA in Norfolk and Waveney needs assessment report, January 2014, JSNA, can be find at [http://www.norfolkinsight.org.uk/resource/view?resourceId=897]
8.4 Blood pressure/hypertension

In addition to increasing the risk of stroke, uncontrolled high blood pressure increases the risk of both retinal vein and retinal artery occlusion. Both conditions can cause sudden loss of vision in one eye and can lead to further complications\(^79\).

As part of the Quality and Outcomes Framework (QOF), GP practices compile disease and medical condition registers which include hypertension. From these registers, the prevalence of hypertension can be estimated. However, there will be a number of patients who have undiagnosed hypertension and will not be included on the register.

Table 47 shows the hypertension prevalence by Clinical Commissioning Group (CCG) and for England between 2009/10 – 2012/13. These rates did not change substantially during this period. At 2012/13 the average rates varied between 12% in Norwich CCG and 18.3% in West Norfolk CCGs, compared to 15.8% across Norfolk and 13.7% in England.

Table 47: Diagnosed prevalence of Hypertension on Norfolk and Waveney General Practice registers, trends over time by CCG (number and percentage on registers), 2009/10 – 2011/12

<table>
<thead>
<tr>
<th>CCG</th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>GY&amp;W</td>
<td>36,561</td>
<td>15.9</td>
<td>37,854</td>
<td>16.4</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>27,022</td>
<td>16.2</td>
<td>27,777</td>
<td>16.7</td>
</tr>
<tr>
<td>Norwich</td>
<td>24,731</td>
<td>12.9</td>
<td>24,995</td>
<td>12.2</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>32,176</td>
<td>15.0</td>
<td>33,135</td>
<td>15.3</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>29,260</td>
<td>18.0</td>
<td>29,741</td>
<td>18.3</td>
</tr>
<tr>
<td>N&amp;W</td>
<td>149,750</td>
<td>15.5</td>
<td>153,502</td>
<td>15.6</td>
</tr>
<tr>
<td>East of England</td>
<td>815,739</td>
<td>13.7</td>
<td>834,662</td>
<td>13.9</td>
</tr>
</tbody>
</table>

8.5 Dementia
At least 123,000 people in the UK have both dementia and serious sight loss\textsuperscript{80}. Most are aged over 65 and, among everyone of that age, normal ageing of the eye will reduce their vision to some extent. As the population ages an increasing number of people will experience both dementia and sight loss\textsuperscript{81}.

Sight loss among people with dementia can be caused by\textsuperscript{82}:

- An eye condition, such as cataract.
- Another health condition, such as stroke.
- Normal ageing of the eye.
- The dementia itself.

Families, health care providers, community workers should support people with dementia to do eye examinations because the symptoms of dementia may mask the symptoms of sight loss. If people have dementia, additional sight loss may also increase the risk of falls or sense of disorientation. RNIB recommends that people have regular eye examinations\textsuperscript{83}.

The Dementia and Sight Loss Interest Group\textsuperscript{84} was set up in 2008 as part of Vision 2020 UK, to develop and promote better understanding of the issues facing people affected by dementia and sight loss. The aim of the group is to develop and disseminate materials, resources and tools that contribute to good practice. People who work or provide care for people with dementia should be aware of this group and how can they help the local people.

Table 48 gives the number of patients on dementia register and the prevalence for Norfolk and Waveney over the period 2009/10 to 2012/13. The number and prevalence are given for the totals (Norfolk and Waveney) and for each one of the five local CCGs. For the most recent financial year 2012/2013, there were 7,077 people on the dementia register giving a prevalence of 0.7\%. It is not known the percentage of people with dementia that suffer from serious sight loss\textsuperscript{85}.

Table 48: Diagnosed prevalence of Dementia on Norfolk and Waveney General Practice registers, trends over time by CCG (number and percentage on registers), 2009/10 – 2011/12

<table>
<thead>
<tr>
<th>CCG</th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>GY&amp;W</td>
<td>1,524</td>
<td>0.7</td>
<td>1,703</td>
<td>0.7</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>1,073</td>
<td>0.6</td>
<td>1,167</td>
<td>0.7</td>
</tr>
<tr>
<td>Norwich</td>
<td>952</td>
<td>0.5</td>
<td>986</td>
<td>0.5</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>1,231</td>
<td>0.6</td>
<td>1,275</td>
<td>0.6</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>839</td>
<td>0.5</td>
<td>879</td>
<td>0.5</td>
</tr>
<tr>
<td>N&amp;W</td>
<td>5,619</td>
<td>0.6</td>
<td>6,010</td>
<td>0.6</td>
</tr>
<tr>
<td>East of England</td>
<td>27,591</td>
<td>0.5</td>
<td>29,578</td>
<td>0.5</td>
</tr>
<tr>
<td>England</td>
<td>249,463</td>
<td>0.5</td>
<td>266,697</td>
<td>0.5</td>
</tr>
</tbody>
</table>

\textsuperscript{80} Access Economics 2009. Future Sight Loss UK 1: Economic Impact of Partial Sight and Blindness in the UK adult population. RNIB

\textsuperscript{81} Thomas Pocklington 2007 (Feb), Dementia and Sight Loss

\textsuperscript{82} http://www.rnib.org.uk/livingwithsightloss/otherconditions/Pages/dementia.aspx

\textsuperscript{83} Biannual sight tests are free if a person is over the age of 60

\textsuperscript{84} The group consists of Alzheimer’s Society, Thomas Pocklington, RNIB, ARUP and the Macular Disease Society.

8.6 Falls
The NICE Guidance (2013) ‘Falls: Assessment and prevention of falls in older people’ states: The accepted standard of care for patients at risk of falls includes the following:

- Patients presenting for medical attention following a fall or who give a history of recurrent falls should be offered a multifactorial falls risk assessment (including vision assessment, bone health assessment and medication review).
- Successful multifactorial intervention programmes should include: strength and balance training and home hazard assessment/intervention (although only been shown to be effective if carried out in combination with other interventions such as the multifactorial assessment).
- Specialist Falls Prevention services should be linked to both osteoporosis and cardiac pacing services.

A recent review of evidence on the link between falls and sight loss found that almost half (47 per cent) of all falls sustained by blind and partially sighted people were directly attributable to their sight loss\textsuperscript{86}. On average, the estimated medical cost of falls nationally is £269 million. Of the total cost of treating all accidental falls in the UK, 21 per cent was spent on the population with visual impairment\textsuperscript{87}.

It is difficult to obtain reliable estimates of the prevalence of falls caused by blind and partially sighted people in the local population. The total number of falls in Norfolk and Waveney among persons aged 65 and over during April 2013 and December 2013 (nine months) were 4,507, an average of 501 per month, the percentage of persons classified as blind and partially sighted among those who had medical assessments is unknown (see Table 49 for more details at CCG level)\textsuperscript{88}.

<table>
<thead>
<tr>
<th>Falls Assessments (April 2013 - December 2013 / 9 months)</th>
<th>Number of falls Assessments</th>
<th>Average per month</th>
<th>Crude rate per 1,000 residents aged 65+</th>
</tr>
</thead>
<tbody>
<tr>
<td>GY&amp;W</td>
<td>1,673</td>
<td>186</td>
<td>3.45</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>472</td>
<td>52</td>
<td>1.12</td>
</tr>
<tr>
<td>Norwich</td>
<td>619</td>
<td>69</td>
<td>1.96</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>705</td>
<td>78</td>
<td>1.64</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>1,038</td>
<td>115</td>
<td>2.84</td>
</tr>
<tr>
<td>N&amp;W</td>
<td>4,507</td>
<td>501</td>
<td>2.23</td>
</tr>
</tbody>
</table>

**Note:** Accidental falls defined by the external cause field ICD10 codes W00-W19


\textsuperscript{87} Scuffham's formula can be used to calculate the number of falls that can be attributed to sight loss. For further information see Tammy Boyce, Falls - costs, numbers and links with visual impairment, August 2011 RNIB: http://www.rnib.org.uk/aboutus/research/reports/complexneeds/pages/falls_costs.aspx.

\textsuperscript{88} This data is from the Norfolk Public Health Fall Data Dashboard, please contact Claire Gummerson (Advanced Public Health Information Officer) for more details on Claire.gummerson@norfolk.gov.uk
8.7 Depression

Older people with sight loss are almost three times more likely to experience depression than people with good vision\textsuperscript{89, 90, 91}. The Royal College of Psychiatrists estimates that 85 per cent of older people with depression receive no help at all from the NHS\textsuperscript{92}.

The General Practice QOF registries from 2006/7 were extended to include diagnoses of depression. In the first two financial years the disease registers included all people with depression but from 2009/10 the depression indicators were redefined to include only those above 18+ years of age with depression.

For different reasons, it is anticipated that these identify only 30% to 50% of depression in the community that would come to the notice of a GP.

The Depression Register used to count anyone who has a record of unresolved depression, regardless of when it was diagnosed. For 2012/13 it counted anyone who had a record of unresolved depression, diagnosed since 1 April 2006.

The number of patients aged 18+ with diagnosed depression and the prevalence as recorded on the GP QOF disease registers over time is illustrated in Table 50 for Norfolk and Waveney CCGs, along with the figures for East of England and for England. The prevalence figures for the first three financial years 2009/10, 2010/11 and 2011/12 cannot be compared to 2012/13 due to reasons explained earlier\textsuperscript{93}.

It can be seen during the period 2012/13, there were 47,120 people aged 18+ diagnosed with depression for Norfolk and Waveney (it counted anyone who had a record of unresolved depression, diagnosed since 1 April 2006). However, it is not possible to identify those people with sight loss and depression. With exception of North Norfolk and Norwich CCGs, all other CCGs had an equal or higher depression rate than England average rate.

Table 50: Diagnosed prevalence of depression 18+ on Norfolk and Waveney General Practice registers, trends over time by CCG (number and percentage on registers), 2009/10 – 2011/12

<table>
<thead>
<tr>
<th>CCG</th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>GY&amp;W</td>
<td>26,582</td>
<td>14.5</td>
<td>27,548</td>
<td>14.8</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>16,045</td>
<td>11.8</td>
<td>17,128</td>
<td>12.4</td>
</tr>
<tr>
<td>Norwich</td>
<td>14,580</td>
<td>9.6</td>
<td>15,972</td>
<td>9.7</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>19,854</td>
<td>11.6</td>
<td>20,402</td>
<td>11.7</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>16,145</td>
<td>12.4</td>
<td>16,565</td>
<td>12.5</td>
</tr>
<tr>
<td>N&amp;W</td>
<td>93,206</td>
<td>12.1</td>
<td>97,615</td>
<td>12.3</td>
</tr>
<tr>
<td>East of England</td>
<td>485,089</td>
<td>10.4</td>
<td>517,660</td>
<td>10.9</td>
</tr>
<tr>
<td>England</td>
<td>4,648,287</td>
<td>10.9</td>
<td>4,878,188</td>
<td>11.2</td>
</tr>
</tbody>
</table>

\textsuperscript{90} https://www.actionforblindpeople.org.uk/about-us/media-centre/facts-and-figures-about-issues-around-sight-loss/
\textsuperscript{91} http://www.rnib.org.uk/aboutus/Research/statistics/Pages/statistics.aspx
\textsuperscript{92} Age UK, 2012. Later Life in the United Kingdom.
\textsuperscript{93} For more details about depression in Norfolk and Waveney see mental health needs assessment, JSNA, 2013 http://www.norfolkinsight.org.uk/jsna/mentalhealth
8.8 Diabetes-related eye conditions

Diabetes occurs when the body doesn't produce enough of the hormone "insulin" or because the insulin that is produced has a reduced effect. Insulin regulates the way the body uses the food the person has eaten. The people with diabetes cannot cope in the usual way with sugar and other carbohydrates that they are eating.

Nearly one person in 25 in the UK has diabetes mellitus. Some children have diabetes but developing diabetes is much more common later in life. Diabetes can cause complications which affect different parts of the body, including the eye. The two main types of diabetes mellitus are known as Type 1 and Type 2 diabetes.

8.8.1 Type 1 diabetes
This type of diabetes commonly occurs before the age of 30 and is the result of the body producing little or no insulin. Type 1 diabetes is primarily controlled by insulin injections so it is sometimes called insulin dependent diabetes.

8.8.2 Type 2 diabetes
This type of diabetes commonly occurs after the age of 40. In this type of diabetes the body does produce some insulin, but the amount is either not sufficient or the body is not able to make proper use of it. Type 2 diabetes is generally controlled by diet, exercise and/or tablets. Although some people in this group will use insulin injections it is sometimes referred to as non-insulin dependant diabetes.

8.8.3 South Asian communities and diabetes
People from India, Pakistan, Bangladesh and Sri Lanka (South Asian communities) have a four or five times greater risk of developing diabetes than someone from a European community. Around 20 to 25 per cent of South Asian adults aged 50 or over in the UK develop Type 2 diabetes.

At the moment the reasons why people from these communities are more at risk of Type 2 diabetes are not fully understood. There are thought to be a number of factors involved. As well as genetic make up these include diet, being overweight and not doing enough exercise.

People from South Asian communities can also have problems using the insulin their bodies produce, making it more difficult for them to regulate the sugar in their blood. It also appears that they are more likely to put on weight around their middles, known as central obesity. This can put stress on the parts of the body that produce insulin meaning it isn't able to work properly.

8.8.4 Gestational diabetes mellitus (GDM)
GDM is a type of diabetes that sometimes arises during the second or third trimester of pregnancy. For most women this diabetes goes away after pregnancy but it increases the chances of developing type 1 or type 2 diabetes in later life.

8.8.5 Local GP practice QOF diabetes disease registries, 2012/13

As part of the GP GMS contract introduced in 2004, General Practices obtain points for achievements against a range of indicators. The system is known as the Quality and Outcomes Framework (QOF) and is used for calculating financial payment. One of the achievements is forming registers of patients with specific diseases, including diabetes.

The information for the QOF is extracted from the GP systems using the Quality Management and Analysis System (QMAS), and is provided at GP level for all practices throughout England via the Health and Social Care Information Centre (HSCIC). The information is available in the September after the end of the financial year. As it is a financial payment system to allow payments to be made by the end of April following the end of the financial year, the list size is taken as at 1st January. The register indicators are extracted from the QMAS on the 14th February, and the ongoing care indicators are extracted on the 31st March. Patients who have joined the practice within the last three months of the financial year are automatically excluded from the register and ongoing care indicators. The prevalence is calculated as at 14th February (based on the list size on 1st January). It has been assumed that the difference between the denominator for a specific ongoing care indicator and the number of patients on the register are the number of exceptions.

The practice list size and number of persons on the stroke register is known for all practices, but the resulting prevalence from QOF is not adjusted for age in any way. Therefore, practices with particularly young patients such as those predominantly serving student populations, as in UEA Medical Centre, will have a much lower prevalence rate than those serving older populations such as practices with a high number of nursing home patients.

Royal National Institute of Blind People (RNIB) has estimated 58,478 adults with diabetes in Norfolk. It estimated 16,374 people living with background diabetic retinopathy. This would translate to 28% of all people with diabetes. RNIB also estimated around 1,871 people living with non proliferative and proliferative diabetic retinopathy; 3.2% of all people with diabetes (See Chapter 3 Tables 13-14 page 46).

While the GP practice QOF diabetes disease registries for 2012/13 shows that only 44,174 (6.2%) patients aged 17+ years diagnosed with diabetes in Norfolk which is slightly higher than England average (6%). Rates of diabetes show variations within CCGs, the highest in West Norfolk CCG 7.6% (10,421 people) and lowest in Norwich CCG 4.7% (8,138 people) among persons aged 17+ years diagnosed with diabetes (Table 51).

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95 Patients can be made exceptions from a particular indicator if it is medically inappropriate for that particular person or if that particular patient did not attend a particular review. This was introduced so that practices are not penalised, as some of the ongoing care indicators depend on achieving a specified percentage of patients receiving the designated level of care.
### Table 51: Diagnosed prevalence of Diabetes on Norfolk’s General Practice registers, 2012/13

<table>
<thead>
<tr>
<th></th>
<th>Estimated number of persons 17+</th>
<th>Diabetes Mellitus prevalence (17+)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Great Yarmouth and Waveney CCG</td>
<td>190,385</td>
<td>13,261</td>
<td>7.0</td>
</tr>
<tr>
<td>* Great Yarmouth</td>
<td>83,534</td>
<td>6,027</td>
<td>7.2</td>
</tr>
<tr>
<td>North Norfolk CCG</td>
<td>141,742</td>
<td>9,025</td>
<td>6.4</td>
</tr>
<tr>
<td>Norwich CCG</td>
<td>171,972</td>
<td>8,138</td>
<td>4.7</td>
</tr>
<tr>
<td>South Norfolk CCG</td>
<td>181,914</td>
<td>10,563</td>
<td>5.8</td>
</tr>
<tr>
<td>West Norfolk CCG</td>
<td>137,287</td>
<td>10,421</td>
<td>7.6</td>
</tr>
<tr>
<td>Norfolk And Waveney</td>
<td>823,300</td>
<td>51,408</td>
<td>6.2</td>
</tr>
<tr>
<td>Norfolk</td>
<td>716,449</td>
<td>44,174</td>
<td>6.2</td>
</tr>
<tr>
<td>Midlands and East of England Commissioning Region</td>
<td>850,280</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td>England</td>
<td>2,703,044</td>
<td></td>
<td>6.0</td>
</tr>
</tbody>
</table>

* Great Yarmouth and Waveney (Health East) CCG consists of 27 practices of which 13 located in Great Yarmouth (Norfolk) and 14 located in Waveney (Suffolk). In this category we only looked at prevalence of diabetes among the 13 practices located in Great Yarmouth as it is part of Norfolk.
8.9 Employment
66 per cent of registered blind and partially sighted people of working age are not in paid employment\(^{96}\). People registered as blind or partially sighted are nearly five times more likely to have been not in paid employment for five years or more than the general population\(^{97}\).

Factors affecting employment
"Age, additional disability or health problems, severity of sight loss, educational level and ethnicity are all factors that influence the employment status of blind and partially sighted people"\(^{98}\).

Job retention
"27 per cent of the registered blind and partially sighted people report that the main reason for leaving their last job was the onset of sight loss or deterioration of their sight" (Douglas et al, 2009)

Employers' attitudes
"9 out of 10 employers rate blind and partially sighted people as either 'difficult' or 'impossible' to employ" (DWP, 2004)

Statistics on the number of benefit claimants are available at Lower Super Output areas (LSOA – see Glossary page 128) and ward level from the Department for Work and Pensions (DWP)\(^99\). The data relate to all counts of benefit claimants, disaggregated to LSOA and ward level. They can be merged to Middle Super Output area (MSOA) and to local authority level (LA).

DWP provides the number of claimants by main reason for claim by LSOA and ward for people claiming benefits who are working age. There is also information at ward level for the number of claimants of specific benefits such as Attendance Allowance, Disability Living Allowance, Incapacity Benefit and Severe Disablement Allowance, Income Support, Jobseekers Allowance, Pension Credit and State Pension. All this information is updated quarterly; the latest available quarter refers to claimants as at May 2013.

Using the information provided by DWP on all claimants of working age, and using resident population estimates from the GP registration files, it is possible to calculate the percentage of claimants as well as the absolute number of claimants at LSOA, MSOA, LA, and ward level.

Incapacity Benefit (IB) is paid to people who are too sick or disabled to work. It is available for people who are over 16 and under State Pension age, who have made enough National Insurance contributions, and are not able to work. There are three different rates payable depending on the duration of the illness:

- 3 days to 28 weeks.
- 29 weeks to 52 weeks.
- Over 52 weeks.

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\(^{97}\) Clements B and Douglas G (2009) Network 1000 survey 1: Comparing the general and registered visually impaired populations. Visual Impairment Centre for Teaching and Research, School of Education, University of Birmingham for RNIB.

\(^{98}\) Douglas et al, 2009

Severe Disablement Allowance (SDA) has not been available for new claims since April 2001, but people who were previously in receipt of SDA continued to receive it if they have not been able to work for at least 28 weeks in a row because of ill health or disability.

Table 52 gives the number of claimants as well as the rate of claimants per 100 resident population of working-age as at May 2012. There were 9,960 persons receiving benefit in Norfolk of which 6,730 (67.6%) people received Incapacity Benefit and 3,230 (32.4%) people received Severe Disablement Allowance.

The DWP classify claimants by disease categories and this include; Nervous System, Respiratory or Circulatory, Musculoskeletal, Injury, Poisoning and others. The database does not include information linking claimants registered as blind and partially sighted. People classified as blind and partially sighted could be registered under the ‘other’ category. The number of claimants under the ‘other’ category was 2,130 in Norfolk (295 in Breckland, 245 in Broadland, 290 in Great Yarmouth, 380 in King’s Lynn and West Norfolk, 360 in North Norfolk, 345 in Norwich, 215 in South Norfolk, and 320 in Waveney). However the percentage of claimants under the other medical conditions registry cannot provide an estimate of those who are blind and partially sighted.

Table 52: Number of claimants of Incapacity Benefit and Severe Disablement Allowance by local authority, May 2013

<table>
<thead>
<tr>
<th>Local Authority</th>
<th>Incapacity Benefit</th>
<th>Severe Disablement Allowance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breckland</td>
<td>880</td>
<td>385</td>
<td>1,265</td>
</tr>
<tr>
<td>Broadland</td>
<td>710</td>
<td>480</td>
<td>1,190</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>1,060</td>
<td>425</td>
<td>1,485</td>
</tr>
<tr>
<td>King’s Lynn and West Norfolk</td>
<td>1,180</td>
<td>555</td>
<td>1,735</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>725</td>
<td>500</td>
<td>1,225</td>
</tr>
<tr>
<td>Norwich</td>
<td>1,495</td>
<td>515</td>
<td>2,010</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>680</td>
<td>370</td>
<td>1,050</td>
</tr>
<tr>
<td>Waveney</td>
<td>825</td>
<td>455</td>
<td>1,280</td>
</tr>
<tr>
<td>Norfolk</td>
<td>6,730</td>
<td>3,230</td>
<td>9,960</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>7,555</td>
<td>3,685</td>
<td>11,240</td>
</tr>
</tbody>
</table>
8.10 Poor vision and road casualties

Good vision is essential for safe driving and motorcycling. The law sets minimum eyesight standards that drivers and motorcyclists must meet. There are no official estimates of the number of drivers and motorcyclists on the road with eyesight that fails to meet the minimum legal standards. However, some studies suggest 2% to 3% of drivers have vision below the minimum legal standards. The Road Safety Observatory published the Eyesight and Driving Review, the review was compiled during December 2012 to February 2013. The main key findings from this report were:

- Poor vision is only recorded as a contributory factor in less than 1% of reported road deaths and injuries, although this may be an under-estimate due to the difficulties in assessing whether poor eyesight played a role in accidents.

- In 2011, 5,285 drivers and motorcyclists had their licences revoked because they could not pass a standard eye test, an increase of 8% since 2010.

- There is only weak evidence of a link between poor vision and increased accident risk. However, research establishes how vision defects impair driving, and potentially increase crash risk.

- Eyesight problems become more prevalent as we grow older, and the driving of older people is more likely to be impaired by eyesight problems.

- Field of View Defects have been associated with impaired driving, although the impairment varies between individuals.

- Cataracts cause more significant driving impairment than most other forms of poor vision, but cataract surgery can solve these problems.

- Poor vision causes greater impairment at night. Particular difficulties include the ability to see pedestrians, road signs, hazards in the road and glare from oncoming vehicle headlights.

- Some drivers who pass the driving eyesight test still exhibit impaired driving due to poor eyesight. There are calls for the Number Plate Test to be replaced with a proper assessment of visual acuity performed under controlled conditions.

A new report has found that road crashes caused by poor driver vision resulted in nearly 2,900 casualties and cost the UK an estimated £33 million each year\(^{100}\). The report was commissioned by the insurer, The Road Safety Authority (RSA)\(^{101}\), as part of its ‘Fit to Drive’ campaign to raise awareness of the dangers of driving with poor vision.

RSA is calling for the current number plate test to be scrapped, claiming it does not provide an accurate assessment of a drivers’ vision. Instead, RSA wants all learner drivers to have their vision tested by a qualified professional prior to applying for a provisional driving licence. In addition, it wants eye tests to be mandatory every 10 years, linked to driving licence renewal, with drivers


\(^{101}\) [http://www.rsa.ie/](http://www.rsa.ie/)
encouraged to voluntarily have their eyes tested every two years (in line with NHS recommendations).

The report recommended drivers to have an eye test at least every two years, in order to make the roads safer and ensure everyone is fit to drive and urged people to do a scientific eyesight test at the start of driving career and compulsory re-tests at least every 10 years thereafter.

Locally, there are no official estimates of the number of drivers and motorcyclists on the road with eyesight that fails to meet the minimum legal standards. However, the Norfolk Network Management, Analysis & Safety team with Directorate of Public Health and other partners including Norfolk Constabulary, Norfolk Fire and Rescue Service and the East of England Ambulance Service recently produced the Road Casualties in Norfolk: Baseline Evaluation Report for 2013. The report looked at wider aspects of road casualties and associated risk factors in the county102.

More subjective estimates from reported road casualty statistics for Norfolk show that in 2013 there were 5 accidents in which a driver/rider had “uncorrected, defective eyesight” recorded as a contributory factor to the collision (much less than 1% of total) – none of these collisions had fatally injured casualties (Table 53). These figures may not be reliable as contributory factors are purely the opinion of the recording officer at the time the collision is attended/reported.

Table 53: Number of reported road accidents and casualties with a contributory factor of “uncorrected, defective eyesight” compared with total accidents and casualties in 2013

<table>
<thead>
<tr>
<th>Severity</th>
<th>Accidents</th>
<th>Casualties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Defective eyesight contributory factor</td>
<td>2013 total</td>
</tr>
<tr>
<td>Fatal</td>
<td>0</td>
<td>37</td>
</tr>
<tr>
<td>Serious</td>
<td>3</td>
<td>297</td>
</tr>
<tr>
<td>Slight</td>
<td>2</td>
<td>1,433</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>1,767</td>
</tr>
</tbody>
</table>

Chapter 9: Hospital admissions (April 2010 – March 2013)

Inpatient hospital admission rates, reported through Hospital Episodes Statistics (HES)\textsuperscript{103}, due to eye disorder provide useful information on use of acute hospital services. Numbers of admissions to these services are likely to be affected by how willing people are to make use of routine care for their eye conditions, that would reduce the risk of an acute admission. Rates could also be affected by differences in referral patterns and practices within primary and secondary care across Norfolk and Waveney. Numbers of hospital admissions indicate resources that were required.

In this chapter, data is shown as:

- Numbers of inpatient admissions, and type of admissions by gender and CCG.
- Numbers and percentages of inpatient admissions by provider and type of admissions and gender.
- Directly age standardised rate per 100,000 residents, and type of admissions by gender and CCG.
- Admissions are defined as spells, and a person could be admitted more than once.

The coding of eye disorder includes International Classification of Diseases (ICD) version 10 codes as follows:

<table>
<thead>
<tr>
<th>Eye disorder</th>
<th>ICD codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blindness and vision defects</td>
<td>H52-H54, H581</td>
</tr>
<tr>
<td>Cataract</td>
<td>H25, H26, H280-H282</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>H40, H420, H428</td>
</tr>
<tr>
<td>Retinal detachments, defects, vascular occlusion, and retinopathy\textsuperscript{104}</td>
<td>G453, H33-H36</td>
</tr>
</tbody>
</table>


The data relates to records showing a primary diagnosis of Blindness and vision defects, Cataracts, Glaucoma, Inflammation or infection of eye, Retinal disorders (Retinal detachments, defects, vascular occlusion, and retinopathy), and other eye disorders.

\textsuperscript{103} Hospital Episode Statistics (HES) is the national database for the care provided to patients of NHS hospitals in England. This database is used by NHS organisations, the Government and many other organisations and individuals. Information is available for all day-case and inpatient hospital admissions between April 2001 and March 2012 for patients living in Norfolk and Waveney.

\textsuperscript{104} This includes other retinal detachment or defect, other retinal disorders, and retinal detachment with defect.
Some patients might have been included more than once as they have contributed to the count in different ways. For example, a patient could have been admitted on two separate occasions with the same diagnoses, or with differing admission methods.

The data source is the Hospital Episode Statistics (HES) database extracted from Dr Foster system or database.

Data is presented on all Norfolk and Waveney residents who have been admitted to a District General Hospital over three financial years (2010/11 to 2012/13). We have looked at elective and emergency hospital admissions as a combined category in this chapter because the number of events for the eye disorders is too small to analyse and does not provide beneficial findings.

Inpatient admission rates provide useful information about the general level of illness and the use of hospital services within geographical areas. It is very important to note that admission rates depend on how willing people are to make use of medical services, the location and accessibility of services, as well as differences in referral patterns and practices within primary and secondary care.
9.1: Hospital admissions by provider

The number and percentages of inpatient admissions classified as eye disorder as primary diagnosis by provider is given in Tables 54-55. It can be seen that the majority of admissions occurred at Norfolk and Norwich University Hospital 54.4% (32,017 spells of which 13,291 55.7% were males and 18,726 were females 55.2%) during April 2010 and March 2013.

27% of the admissions were at James Paget University Hospital, mainly from Great Yarmouth and Waveney CCG, 92.7% of their registered patients referred to James Paget University Hospital and 6.4% were admitted to Norfolk and Norwich University Hospital.

14.4% of the hospital admissions due to eye disorders were at The Queen Elizabeth Hospital. 87% of registered patients with West Norfolk CCG admitted to The Queen Elizabeth Hospital, 4.6% were admitted at Norfolk and Norwich University Hospital.

Table 54: Number of all eye disorders hospital admissions by provider and gender for Norfolk, April 2010 - March 2013

<table>
<thead>
<tr>
<th>Males</th>
<th>Norfolk and Norwich University Hospitals</th>
<th>James Paget University Hospitals</th>
<th>The Queen Elizabeth Hospital, King's Lynn</th>
<th>West Suffolk</th>
<th>Cambridge University Hospitals</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health East</td>
<td>387</td>
<td>6,038</td>
<td>0</td>
<td>9</td>
<td>10</td>
<td>59</td>
<td>6,503</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>4,392</td>
<td>219</td>
<td>132</td>
<td>5</td>
<td>8</td>
<td>27</td>
<td>4,783</td>
</tr>
<tr>
<td>Norwich</td>
<td>3,841</td>
<td>35</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>24</td>
<td>3,911</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>4,464</td>
<td>26</td>
<td>83</td>
<td>280</td>
<td>31</td>
<td>46</td>
<td>4,930</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>207</td>
<td>0</td>
<td>3,210</td>
<td>29</td>
<td>92</td>
<td>177</td>
<td>3,715</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>13,291</td>
<td>6,318</td>
<td>3,430</td>
<td>325</td>
<td>145</td>
<td>333</td>
<td>23,842</td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health East</td>
<td>647</td>
<td>8,915</td>
<td>1</td>
<td>14</td>
<td>10</td>
<td>46</td>
<td>9,633</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>6,042</td>
<td>328</td>
<td>212</td>
<td>2</td>
<td>6</td>
<td>26</td>
<td>6,616</td>
</tr>
<tr>
<td>Norwich</td>
<td>5,597</td>
<td>16</td>
<td>20</td>
<td>2</td>
<td>6</td>
<td>16</td>
<td>5,657</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>6,236</td>
<td>44</td>
<td>85</td>
<td>434</td>
<td>19</td>
<td>37</td>
<td>6,855</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>204</td>
<td>2</td>
<td>4,551</td>
<td>42</td>
<td>81</td>
<td>289</td>
<td>5,169</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>18,726</td>
<td>9,305</td>
<td>4,869</td>
<td>494</td>
<td>122</td>
<td>414</td>
<td>33,930</td>
</tr>
<tr>
<td>Persons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health East</td>
<td>1,034</td>
<td>14,953</td>
<td>1</td>
<td>23</td>
<td>20</td>
<td>105</td>
<td>16,136</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>10,434</td>
<td>547</td>
<td>344</td>
<td>7</td>
<td>14</td>
<td>53</td>
<td>11,399</td>
</tr>
<tr>
<td>Norwich</td>
<td>9,438</td>
<td>51</td>
<td>25</td>
<td>4</td>
<td>10</td>
<td>40</td>
<td>9,568</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>10,700</td>
<td>70</td>
<td>168</td>
<td>714</td>
<td>50</td>
<td>83</td>
<td>11,785</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>411</td>
<td>2</td>
<td>7,761</td>
<td>71</td>
<td>173</td>
<td>466</td>
<td>8,884</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>32,017</td>
<td>15,623</td>
<td>8,299</td>
<td>819</td>
<td>267</td>
<td>747</td>
<td>57,772</td>
</tr>
</tbody>
</table>
Table 55: Percentage of all eye disorders hospital admissions by provider and gender for Norfolk, April 2010 - March 2013

<table>
<thead>
<tr>
<th></th>
<th>Norfolk and Norwich University Hospitals NHS Foundation Trust</th>
<th>James Paget University Hospitals NHS Foundation Trust</th>
<th>The Queen Elizabeth Hospital, King’s Lynn, NHS Foundation Trust</th>
<th>West Suffolk NHS Foundation Trust</th>
<th>Cambridge University Hospitals NHS Foundation Trust</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Males</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health East</td>
<td>6.0</td>
<td>92.8</td>
<td>0.0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.9</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>91.8</td>
<td>4.6</td>
<td>2.8</td>
<td>0.1</td>
<td>0.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Norwich</td>
<td>98.2</td>
<td>0.9</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.6</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>90.5</td>
<td>0.5</td>
<td>1.7</td>
<td>5.7</td>
<td>0.6</td>
<td>0.9</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>5.6</td>
<td>0.0</td>
<td>86.4</td>
<td>0.8</td>
<td>2.5</td>
<td>4.8</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>55.7</td>
<td>26.5</td>
<td>14.4</td>
<td>1.4</td>
<td>0.6</td>
<td>1.4</td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health East</td>
<td>6.7</td>
<td>92.5</td>
<td>0.0</td>
<td>0.1</td>
<td>0.1</td>
<td>0.5</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>91.3</td>
<td>5.0</td>
<td>3.2</td>
<td>0.0</td>
<td>0.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Norwich</td>
<td>98.9</td>
<td>0.3</td>
<td>0.4</td>
<td>0.0</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>91.0</td>
<td>0.6</td>
<td>1.2</td>
<td>6.3</td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>3.9</td>
<td>0.0</td>
<td>88.0</td>
<td>0.8</td>
<td>1.6</td>
<td>5.6</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>55.2</td>
<td>27.4</td>
<td>14.4</td>
<td>1.5</td>
<td>0.4</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Persons</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health East</td>
<td>6.4</td>
<td>92.7</td>
<td>0.0</td>
<td>0.1</td>
<td>0.1</td>
<td>0.7</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>91.5</td>
<td>4.8</td>
<td>3.0</td>
<td>0.1</td>
<td>0.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Norwich</td>
<td>98.6</td>
<td>0.5</td>
<td>0.3</td>
<td>0.0</td>
<td>0.1</td>
<td>0.4</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>90.8</td>
<td>0.6</td>
<td>1.4</td>
<td>6.1</td>
<td>0.4</td>
<td>0.7</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>4.6</td>
<td>0.0</td>
<td>87.4</td>
<td>0.8</td>
<td>1.9</td>
<td>5.2</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>55.4</td>
<td>27.0</td>
<td>14.4</td>
<td>1.4</td>
<td>0.5</td>
<td>1.3</td>
</tr>
</tbody>
</table>
9.2: Hospital admissions by age band

Table 56 and Figure 21 show inpatient admissions with a primary diagnosis of eye disorders by age band. Admissions become more common with increasing age, rising slowly to a peak among 80 - 84 year olds for males and 85+ for females.

The majority of admissions (around 90%) were among those aged 60+ in both males and females. For females the admission percentage was only higher than males after the age of 80 while males had higher rates in all other age bands.

Among the younger age groups from 0-39, the 0-4 year olds have the highest percentage.

Table 56: Number and percentage of eye disorders hospital admissions by age band and gender for Norfolk and Waveney, April 2010 to March 2013

<table>
<thead>
<tr>
<th>Age band</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>0-4</td>
<td>214</td>
<td>185</td>
</tr>
<tr>
<td>5-9</td>
<td>168</td>
<td>121</td>
</tr>
<tr>
<td>10-14</td>
<td>79</td>
<td>111</td>
</tr>
<tr>
<td>15-19</td>
<td>78</td>
<td>107</td>
</tr>
<tr>
<td>20-24</td>
<td>81</td>
<td>106</td>
</tr>
<tr>
<td>25-29</td>
<td>103</td>
<td>113</td>
</tr>
<tr>
<td>30-34</td>
<td>119</td>
<td>112</td>
</tr>
<tr>
<td>35-39</td>
<td>157</td>
<td>157</td>
</tr>
<tr>
<td>40-44</td>
<td>255</td>
<td>269</td>
</tr>
<tr>
<td>45-49</td>
<td>373</td>
<td>415</td>
</tr>
<tr>
<td>50-54</td>
<td>487</td>
<td>506</td>
</tr>
<tr>
<td>55-59</td>
<td>738</td>
<td>926</td>
</tr>
<tr>
<td>60-64</td>
<td>1,498</td>
<td>1,749</td>
</tr>
<tr>
<td>65-69</td>
<td>2,277</td>
<td>2,955</td>
</tr>
<tr>
<td>70-74</td>
<td>3,143</td>
<td>4,303</td>
</tr>
<tr>
<td>75-79</td>
<td>4,574</td>
<td>6,173</td>
</tr>
<tr>
<td>80-84</td>
<td>4,754</td>
<td>7,495</td>
</tr>
<tr>
<td>85+</td>
<td>4,738</td>
<td>8,126</td>
</tr>
<tr>
<td>Total</td>
<td>23,842</td>
<td>33,930</td>
</tr>
</tbody>
</table>

Note: age was missing in 7 spells
9.3: Hospital admissions by type of admission (elective versus emergency)

There were 57,772 admissions recorded over the three financial years, of which 56,915 (98.5%) were elective admissions and 823 (1.4%) emergency. Some admissions could be the same person being admitted more than once in the reporting period Table 57.

Table 57: Number and percentage of eye disorders hospital admissions by type of admission by CCG for Norfolk and Waveney, April 2010 – March 2013

<table>
<thead>
<tr>
<th>CCG</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elective</td>
<td>Emergency</td>
</tr>
<tr>
<td>Health East</td>
<td>15,885</td>
<td>240</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>11,268</td>
<td>128</td>
</tr>
<tr>
<td>Norwich</td>
<td>9,413</td>
<td>154</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>11,630</td>
<td>138</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>8,719</td>
<td>163</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>56,915</td>
<td>823</td>
</tr>
</tbody>
</table>
9.4: Hospital admissions by eye disorder

9.4.1: Blindness and vision defects

There are almost two million people in the UK living with sight loss\(^{105}\). This figure includes around 360,000 people registered as blind or partially sighted in the UK, who have severe and irreversible sight loss. Over 50% of sight loss can be avoided\(^{106}\).

There are almost 25,000 blind and partially sighted children in Britain. That is equal to 2 in 1,000 children, as many as half of these children may have other disabilities\(^{107}\).

The number of people in the UK with sight loss is set to increase dramatically. It is predicted that by 2050 the number of people with sight loss in the UK will double to nearly four million. Sight loss affects people of all ages but especially older people: 1 in 5 people aged 75 and 1 in 2 aged 90 and over are living with sight loss\(^{108}\). 63 per cent of people with sight loss are female, 37 per cent are male.

Two-thirds of registered blind and partially sighted people of working age are not in paid employment\(^{109}\).

Nearly half of blind and partially sighted people feel ‘moderately’ or ‘completely’ cut off from people and things around them\(^{110}\).

Blindness is the partial or complete loss of vision. The leading causes of blindness are glaucoma, cataracts, and diabetic retinopathy. Blindness can also result from eye diseases, optic nerve disorders, or brain diseases involving visual pathways or the occipital lobe of the brain. The patterns of visual field reduction depend on the area that is being affected by disease. Damage to visual pathways as a result of macular degeneration, retinal detachment, or optic nerve atrophy can affect one or both eyes. In contrast, damage to the optic nerve chiasm or the pathway beyond it affects both eyes. There are many eye diseases that can cause visual abnormalities or/and blindness, including retinal detachment, cataracts, retinal disorders (often inherited), and macular degeneration\(^{111}\).

Macular degeneration is the leading cause of blindness for those over age 55 in the United States. The macula is the central portion of the retina that records images and sends them from the eye to the brain via the optic nerve. If the macula deteriorates, the eye loses the ability to see in fine detail.

The cause of macular degeneration is not fully understood, but risks for the disorder increase with age. Other abnormalities in the central retina can lead to blurry vision or can affect colour perception. Colour blindness can also originate from the lack of one or more type of cones, a type of light receptor on the eye. Total colour blindness (monochromatic vision) is very rare; most

\(^{106}\) Access Economics, 2009
\(^{107}\) Morris and Smith, Educational Provision, 2008
\(^{108}\) Access Economics, 2009
\(^{109}\) Douglas et al, Network 1000, 2006
\(^{110}\) Pey, Nzegwu and Dooley, 2006
\(^{111}\) http://health.yahoo.net/galecontent/visual-disturbances/3
commonly, varying levels of single colour deficits are found among people with colour blindness. Central vision can also be destroyed by small haemorrhages in the retina as a result of the aging process or diabetic retinopathy.

The neuronal diseases affecting the optic nerve and causing blindness can result from developmental abnormalities (hereditary or sporadic), abnormalities in the blood vessels causing an insufficient blood supply to the eyes or optic nerve, glaucoma, and demyelinating and inflammatory diseases such as multiple sclerosis, tumours, toxic agents, and trauma.

**The main causes of blindness in adults**

It is estimated that 218,000 people had severe sight loss (blindness) in the UK in 2008\(^{112}\). The leading causes of severe sight loss are\(^{113}\):

- 50.5 per cent of people were blind due to AMD.
- 12.5 per cent due to cataract.
- 16.6 per cent due to glaucoma.
- 8.7 per cent due to diabetic retinopathy.
- 2.1 per cent due to refractive error.
- 9.7 per cent due to other eye diseases.

**The main causes of sight loss in children**

The causes of visual impairment in children in the UK are numerous, complex and often part of a wider picture of childhood disability\(^{114}\). The three most common causes of severe visual impairment and blindness in children are cerebral visual impairment, disorders of the optic nerve, and disorders of the retina\(^{115}\).

**Hospital admissions**

During April 2010 – March 2013, there were 288 admissions to hospital among Norfolk residents due to Blindness and vision defects, with around a rate of 9.7 per 100,000 persons (of which 8.8 were males and 10.6 were females per 100,000 residents) Table 58.

The directly age standardised rate per 100,000 residents for blindness and vision defects for hospital admissions over the three financial years (2010-2013) was 8.2 (CI, 7.2-9.3). The rate was higher among females 9.5 (CI, 7.9-11.3) compared to males 6.9 (CI, 5.7-8.3).

The highest admission rate for Blindness and vision defects was seen in West Norfolk CCG which has an admission rate of 11.1 (CI, 8.2-14.6) per 100,000 persons, and lowest in North Norfolk CCG 6.2 (CI, 4.1-8.7). However, the two rates do not differ significantly from Norfolk average or other CCGs rates Table 59.

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\(^{112}\) Access Economics, 2009


\(^{114}\) Bodeau-Livinec et al, 2007

\(^{115}\) Rahi and Cable, 2003
Table 58: Blindness and vision defects hospital admissions (spells) crude rate per 100,000 residents by CCG for Norfolk, April 2010 – March 2013

<table>
<thead>
<tr>
<th>CCG</th>
<th>Blindness or vision defects April 2010 - March 2013</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Numbers</td>
<td>rate per 100,000 residents</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Health East</td>
<td>30</td>
<td>41</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Norwich</td>
<td>21</td>
<td>30</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>29</td>
<td>40</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>29</td>
<td>27</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>129</td>
<td>159</td>
</tr>
</tbody>
</table>

Table 59: Directly age standardised rate per 100,000 residents for Blindness and vision defects hospital admissions by CCG for Norfolk, April 2010 – March 2013

<table>
<thead>
<tr>
<th>CCG</th>
<th>Males</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95% CI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DSR</td>
<td>LL</td>
</tr>
<tr>
<td>Health East</td>
<td>6.6</td>
<td>4.3</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>5.2</td>
<td>2.9</td>
</tr>
<tr>
<td>Norwich</td>
<td>6.3</td>
<td>3.8</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>6.2</td>
<td>4.0</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>10.7</td>
<td>6.9</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>6.9</td>
<td>5.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CCG</th>
<th>Females</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95% CI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DSR</td>
<td>LL</td>
</tr>
<tr>
<td>Health East</td>
<td>9.8</td>
<td>6.7</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>7.3</td>
<td>4.1</td>
</tr>
<tr>
<td>Norwich</td>
<td>8.4</td>
<td>5.4</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>10.2</td>
<td>7.1</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>11.6</td>
<td>7.4</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>9.5</td>
<td>7.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CCG</th>
<th>Persons</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95% CI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DSR</td>
<td>LL</td>
</tr>
<tr>
<td>Health East</td>
<td>8.1</td>
<td>6.2</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>6.2</td>
<td>4.1</td>
</tr>
<tr>
<td>Norwich</td>
<td>7.4</td>
<td>5.4</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>8.2</td>
<td>6.2</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>11.1</td>
<td>8.2</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>8.2</td>
<td>7.2</td>
</tr>
</tbody>
</table>
9.4.2: Cataracts

Annual rates of admission for cataract surgery in England rose 10-fold between 1968 and 2003: from 62 episodes per 100,000 population in 1968, through 173 in 1989, to 637 in 2004\textsuperscript{116}. The overall increase in cataract surgery was reflected by increases in every age group for both men and women. Geographical analysis showed that there was wide variation across local authority areas in annual rates of cataract surgery, from 172 to 548 people per 100,000 population in 1998–2003. The rate of surgery by local authority was positively correlated with the index of multiple deprivation.

In Norfolk, between April 2010 and March 2013 there were 26,005 spells (876.7 per 100,000 persons) classified cataract as primary diagnosis, the admission could be for diagnostic reasons or intervention i.e. cataract surgery or follow up. The rate per 100,000 residents among females is 1013.8, but higher by 38% compared to males 735.5 (see Table 60).

The directly age standardised hospital admissions rate per 100,000 persons for cataract was 432.4 (CI, 426.8-438.0). Again the rate was higher in females 466.8 (CI, 458.7-475.0) compared to males 397.2 (CI, 389.4-405.1). The highest rate was seen in South Norfolk CCG of 446.6 (CI, 434.5-459.1) which only differs significantly from Great Yarmouth and Waveney CCG, 416.2 (CI, 404.9-427.7), which has the lowest rate. The difference is mainly due to females rather than males (Table 61).

Table 60: Cataract hospital admissions (spells) crude rate per 100,000 residents by CCG for Norfolk, April 2010 – March 2013

<table>
<thead>
<tr>
<th>CCG</th>
<th>Cataracts April 2010 - March 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Numbers</td>
</tr>
<tr>
<td></td>
<td>Males</td>
</tr>
<tr>
<td>Health East</td>
<td>2,410</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>2,247</td>
</tr>
<tr>
<td>Norwich</td>
<td>1,710</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>2,397</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>1,988</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>10,752</td>
</tr>
</tbody>
</table>

Table 61: Directly age standardised rate per 100,000 residents for cataract hospital admissions by CCG for Norfolk, April 2010 – March 2013

<table>
<thead>
<tr>
<th>CCG</th>
<th>Males</th>
<th>Females</th>
<th>Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DSR 95% CI</td>
<td>DSR 95% CI</td>
<td>DSR 95% CI</td>
</tr>
<tr>
<td>Health East</td>
<td>381.2 365.5 397.5</td>
<td>449.0 432.9 465.7</td>
<td>416.2 404.9 427.7</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>401.4 383.9 419.5</td>
<td>470.9 452.9 489.3</td>
<td>436.2 423.7 449.0</td>
</tr>
<tr>
<td>Norwich</td>
<td>403.3 383.7 423.6</td>
<td>446.4 427.1 466.3</td>
<td>426.5 412.7 440.5</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>407.7 390.8 425.0</td>
<td>487.9 470.2 506.1</td>
<td>446.6 434.5 459.1</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>395.5 377.3 414.3</td>
<td>477.1 458.0 496.7</td>
<td>436.8 423.6 450.2</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>397.2 389.4 405.1</td>
<td>466.8 458.7 475.0</td>
<td>432.4 426.8 438.0</td>
</tr>
</tbody>
</table>

\textsuperscript{116} http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955650/
**9.4.3: Glaucoma**

In England, about 480,000 people have chronic open-angle glaucoma. Among white Europeans, about 1 in 50 people over 40 years of age and 1 in 10 people over 75 years of age have chronic open-angle glaucoma. The risk of developing open-angle glaucoma is increased among black-African or black-Caribbean origin groups.

The other types of glaucoma, such as acute angle-closure glaucoma, are much less common. However, people of Asian origin are more at risk of getting this type of glaucoma compared with those from other ethnic groups (more details about glaucoma can be found in Chapter 3 page 46 and Chapter 4 page 62).

Glaucoma can be treated with eye drops, laser treatment or surgery. However, early diagnosis is important because any damage to the eyes cannot be reversed. Treatment aims to control the condition and minimise future damage. If left untreated glaucoma can cause visual impairment, but if it is diagnosed and treated early enough further damage to vision can be prevented. Hospital inpatients data could provide information on the amount of people admitted for laser treatment or surgery, and those patients who were re-admitted due to complications.

**Table 62** gives the total number of hospital admissions and the crude rate per 100,000 residents for glaucoma diagnoses over the three financial years 2010/11 and 2012/13 where at least one clinician spell involved a primary diagnosis of glaucoma.

Some patients will have been included more than once as they have contributed to the count in different ways. For instance, a patient could have been admitted on two separate occasions with differing admission methods.

**Table 63** gives the directly age standardised rate per 100,000 residents of hospital admissions due to glaucoma over three financial years.

Not surprisingly a high rate of the admissions with a primary diagnosis of glaucoma were from North Norfolk CCG or South Norfolk CCG (around 70 per 100,000 residents) due to high proportion of elderly people living in the North and South local authorities and we have seen earlier that glaucoma prevalence is more common with age increase (Table 62).

After standardisation the rate in North Norfolk CCG drops down (around 40 per 100,000 residents compared to the crude rate of 70 per 100,000 residents) but remains higher than Great Yarmouth and Waveney CCG and West Norfolk CCG. The directly age standardised rate of the admissions with a primary diagnosis of glaucoma in the county were highest in South Norfolk CCG (around 47 per 100,000 residents) and Norwich CCG (around 45 per 100,000 residents). The directly age standardised rate in South Norfolk was equal for males compared to females, while the rate in Norwich CCG was high due to elevated rates among males (around 51 per 100,000 residents) compared to females (around 39.5 per 100,000 residents) (Table 63).

---

117 [http://www.nhs.uk/conditions/glaucoma/Pages/Introduction.aspx](http://www.nhs.uk/conditions/glaucoma/Pages/Introduction.aspx)
Table 62: Glaucoma hospital admissions (spells) crude rate per 100,000 residents by CCG for Norfolk, April 2010 – March 2013

<table>
<thead>
<tr>
<th>CCG</th>
<th>Numbers</th>
<th>rate per 100,000 residents</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Persons</td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Health East</td>
<td>105</td>
<td>120</td>
<td>225</td>
<td>30.5</td>
<td>34.4</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>177</td>
<td>192</td>
<td>369</td>
<td>72.0</td>
<td>74.7</td>
</tr>
<tr>
<td>Norwich</td>
<td>187</td>
<td>178</td>
<td>365</td>
<td>60.5</td>
<td>56.5</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>226</td>
<td>245</td>
<td>471</td>
<td>70.1</td>
<td>73.6</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>111</td>
<td>213</td>
<td>324</td>
<td>46.3</td>
<td>85.1</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>806</td>
<td>948</td>
<td>1,754</td>
<td>55.1</td>
<td>63.0</td>
</tr>
</tbody>
</table>

Table 63: Directly age standardised rate per 100,000 residents for Glaucoma hospital admissions by CCG for Norfolk, April 2010 – March 2013

<table>
<thead>
<tr>
<th>CCG</th>
<th>Males</th>
<th>Females</th>
<th>Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DSR</td>
<td>95% CI</td>
<td>DSR</td>
</tr>
<tr>
<td>Health East</td>
<td>22.4</td>
<td>18.0 - 27.5</td>
<td>19.4</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>41.4</td>
<td>35.0 - 48.6</td>
<td>40.2</td>
</tr>
<tr>
<td>Norwich</td>
<td>51.1</td>
<td>43.8 - 59.3</td>
<td>39.5</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>47.5</td>
<td>41.2 - 54.5</td>
<td>47.2</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>26.4</td>
<td>21.4 - 32.2</td>
<td>51.0</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>37.4</td>
<td>34.7 - 40.3</td>
<td>38.6</td>
</tr>
</tbody>
</table>
9.4.4: Inflammation or infection of eye

An inflammation of the eye generally occurs in response to viral or bacterial infection, allergies, environmental irritants, surgery or trauma. While most cases of eye inflammation are not too serious, it is important to control the severity of the inflammation as well as the duration to be sure to avoid any scarring and permanent damage.

Eye inflammations can be caused by a variety of factors, and sometimes it takes a professional diagnosis for insight into the source. Common Causes of Eye Inflammations:

- **Allergies:** A fairly common cause of eye inflammation, allergies can cause persistent eye irritation. Allergic rhinitis triggered by pollen, seasonal changes, house dust-mites, moulds or pets can often result in itchy and inflamed eyes.

- **Bacterial and viral infections:** The most common bacterial infection is conjunctivitis, a highly contagious viral infection also known as pink eye. Blepharitis, or chronic inflammation of the eyelid caused by infection, is also a common problem. Styes, or tiny painful infections that form in the oil glands around the eyelash, can also be a bothersome problem. Most commonly, these problems occur from improper contact lens wear, surgery, trauma, injury to the eye, or touching the eyes with unclean hands.

- **Overuse of prescription and over the counter eye drops:** Many people use eye drops to soothe mildly irritated eyes and prolonged use can cause a “rebound affect”. This is when eyes become sore and irritated until the use the drops again, thus creating a kind of dependency on the eye drop affect.

- **A deficiency of vitamin A:** This may make more susceptible to eye infections and other eye problems.

- **Improper contact lens use:** A common cause of inflammation or infection if hygienic measures are not taken or are worn past their intended period of use (allowing bacteria overgrowth). Hands should be washed before putting in and taking contact lenses, the correct solution should be used and proper storage methods kept. Problems also occur when particles get trapped between the lens and the eye, causing irritation, or the lenses are worn too long.

- **Illness and disease:** Measles, herpes, and diabetes may cause eye inflammation. Sexually transmitted diseases are also easily spread to the eye area. Inflammatory conditions such as lupus, arthritis and irritable bowel syndrome can also be causes.

- **Foreign matter or foreign substances:** Dust, grit or plant-sap can get trapped under the eyelid, causing inflammation and discomfort.

- **Cosmetics:** Certain eye cosmetics can cause irritation, whether from personal sensitivity or if they have exceeded their expiration date.

In Norfolk and Waveney, there were 669 spells of hospital admissions of inflammation or infection of eye at a rate of 21.7 per 100,000 residents for the most recent financial years (2010/2011 and 2012/13). The highest rates were in South Norfolk CCG (around 30.7 per 100,000 residents) and Great Yarmouth and Waveney CCG (around 23.5 per 100,000 residents) see Table 64.

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119 Blepharitis is inflammation of the rims of the eyelids, which causes them to become red and swollen. Blepharitis is common, accounting for an estimated 1 in 20 eye problems reported to GPs. It is more common in people over 50, although it can develop at any age. [http://www.nhs.uk/conditions/blepharitis/Pages/Introduction.aspx](http://www.nhs.uk/conditions/blepharitis/Pages/Introduction.aspx)

120 A stye is a small abscess (painful collection of pus) on the eyelid. It appears as a painful lump on the outside or inside of the eyelid. [http://www.nhs.uk/Conditions/stye/Pages/introduction.aspx](http://www.nhs.uk/Conditions/stye/Pages/introduction.aspx)
The directly age standardised rate were again highest in Great Yarmouth and Waveney CCG (around 27.9 per 100,000 residents) and in South Norfolk CCG (around 24.8 per 100,000 residents). The hospital admissions standardised rate in South Norfolk CCG was twice as high as for males compared to females, but the rate in Great Yarmouth and Waveney CCG was one and a half times higher for females than males (Table 65).

**Table 64: Inflammation or infection of eye hospital admissions (spells) crude rate per 100,000 residents by CCG for Norfolk, April 2010 – March 2013**

<table>
<thead>
<tr>
<th>CCG</th>
<th>Numbers</th>
<th>Inflammation or infection of eye April 2010 - March 2013</th>
<th>rate per 100,000 residents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
<td>Persons</td>
</tr>
<tr>
<td>Health East</td>
<td>81</td>
<td>123</td>
<td>204</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>45</td>
<td>64</td>
<td>109</td>
</tr>
<tr>
<td>Norwich</td>
<td>51</td>
<td>62</td>
<td>113</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>99</td>
<td>52</td>
<td>151</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>41</td>
<td>51</td>
<td>92</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>317</td>
<td>352</td>
<td>669</td>
</tr>
</tbody>
</table>

**Table 65: Directly age standardised rate per 100,000 residents for Inflammation or infection of eye hospital admissions by CCG for Norfolk, April 2010 – March 2013**

<table>
<thead>
<tr>
<th>CCG</th>
<th>Males 95% CI</th>
<th>Females 95% CI</th>
<th>Persons 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DSR</td>
<td>LL</td>
<td>UL</td>
</tr>
<tr>
<td>Health East</td>
<td>21.8</td>
<td>17.0</td>
<td>27.5</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>14.0</td>
<td>9.4</td>
<td>19.7</td>
</tr>
<tr>
<td>Norwich</td>
<td>15.9</td>
<td>11.5</td>
<td>20.3</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>33.9</td>
<td>27.3</td>
<td>41.6</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>17.4</td>
<td>12.1</td>
<td>24.2</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>21.5</td>
<td>19.0</td>
<td>24.2</td>
</tr>
</tbody>
</table>
9.4.5: Retinal detachments, defects, vascular occlusion, and retinopathy

Retinal detachments and defects:
Retinal detachment (RD) often is a preventable cause of vision loss. There are three types of retinal detachments: exudative, tractional, and rhegmatogenous. The most common type is rhegmatogenous, which results from retinal breaks caused by vitreoretinal traction. Risk factors for retinal detachment include advancing age, previous cataract surgery, myopia, and trauma. Patients typically will present with symptoms such as light flashes, floaters, peripheral visual field loss, and blurred vision. Early intervention facilitates prevention of retinal detachment after formation of retinal breaks and improves visual outcomes of retinal detachment surgery. Patients with acute onset of flashes or floaters should be referred to an ophthalmologist.

Retinal detachment is relatively uncommon, affecting only one in 10,000 people per year, or approximately one in 300 patients in the course of a lifetime. Retinal detachment often is repaired with little or no vision loss; therefore, it is a much less significant cause of irreversible blindness than other retinal diseases, such as diabetic retinopathy and macular degeneration. Retinal detachment should be considered in the differential diagnosis of vision loss, however, it is more prevalent in defined subpopulations and may require urgent surgical repair.

The epidemiology of retinal detachments (RD) is:

- Incidence is about 10-15 in 100,000 with a prevalence of about 0.3% of the general population and a lifetime risk of 3% by the age of 85.
- There are an estimated 7,300 new cases in the UK every year.
- It most commonly occurs in the 40-70 year-old age group (the average age is 60 years) although traumatic RD is more frequently seen in younger patients, particularly males.
- There has recently been an increase in presentation of much younger individuals and in children associated with paintball injuries.
- It is more frequent in men, in right eyes and with increasing affluence.
- There is anecdotal evidence that it is more common in people of Jewish descent and less common in patients of African origin.

Retinal vein occlusion is when one of the tiny retinal veins becomes blocked by a blood clot. It usually leads to a painless decrease in vision in one eye. Risk factors include high blood pressure, high cholesterol levels, diabetes, smoking and glaucoma (raised pressure in the eye). Treatment includes treating any possible risk factors and also treating any complications.

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124 http://www.patient.co.uk/doctor/retinal-detachment
125 Management of Acute Retinal Detachment; Royal College of Ophthalmologists (June 2010)
128 http://www.patient.co.uk/health/retinal-vein-occlusion
Retinal vein occlusion
Retinal vein occlusion is when one of the tiny retinal veins becomes blocked by a blood clot. This means that blood cannot drain away from the retina as easily and there is a backlog of blood in the blood vessels of the retina. This can lead to a build-up of pressure in the blood vessels. As a result, fluid and blood start to leak from the blood vessels, which can damage and cause swelling of the retina, affecting the eyesight.

There are two main types of retinal vein occlusion:

- Branch retinal vein occlusion - the blockage occurs somewhere along the course of one of the four retinal veins (one retinal vein drains each quarter of the eye).
- Central retinal vein occlusion - the blockage occurs in the main vein formed by the four retinal veins coming together.

Branch retinal vein occlusion is two to three times more common than central retinal vein occlusion.

Retinal vein occlusion is a fairly common cause of loss of vision in the UK. It is most common in people over the age of 60 and it seems to affect both sexes equally.

The exact reason why a blood clot may form in one of the retinal veins is not clear. However, there are some things that are thought to increase the risk of developing retinal vein occlusion. They include the following:

Having risk factors for cardiovascular disease
Cardiovascular diseases are diseases of the heart or blood vessels caused by atheroma. Patches of atheroma are like small fatty lumps that develop within the inside lining of arteries (blood vessels). Atheroma is also known as atherosclerosis or hardening of the arteries. A patch of atheroma makes an artery narrower.

The risk of developing retinal vein occlusion seems to be increased if with risk factors for cardiovascular disease. These include:

- High blood pressure - between 6 and 7 in every 10 people with retinal vein occlusion have high blood pressure. If high blood pressure is not well-controlled, it can also increase the risk of having another episode of retinal vein occlusion (either in the same eye or the other eye).
- High cholesterol.
- Diabetes.
- Smoking.

The retinal arteries and veins run very closely together. If someone has narrowing of their retinal artery blood vessels due to atherosclerosis, this can make the artery blood vessels very rigid. It is thought that a rigid artery may then press on a close-by vein and disturb the blood flow in the vein. This turbulent blood flow means that a clot is more likely to form in the vein, leading to retinal vein occlusion.

Other possible risk factors
A blood clotting problem such as antiphospholipid antibody syndrome, can increase the risk of developing retinal vein occlusion. Having glaucoma also seems to be a risk factor.
Diabetic retinopathy
Diabetic retinopathy is a common complication of diabetes. It occurs when high blood sugar levels damage the cells at the back of the eye, known as the retina. If it is not treated, it can lead to blindness.

Therefore, it is important for people with diabetes to keep their blood sugar levels under control. Everyone with diabetes who is 12 years old or over should have their eyes examined once a year for signs of damage.

How diabetes can damage the retina
The retina is the light-sensitive layer of cells at the back of the eye. It converts light into electrical signals. The signals are sent to the brain through the optic nerve and the brain interprets them to produce the images. To work effectively, the retina needs a constant supply of blood, which it receives through a network of tiny blood vessels.

Over time, a continuously high blood sugar level can cause the blood vessels to become blocked or to leak. This damages the retina and stops it from working.

Screening for diabetic retinopathy
As retinopathy can cause blindness, it is very important that it is identified and treated as early as possible. The NHS Diabetic Eye Screening Programme aims to reduce the risk of vision loss in people with diabetes. This is done by identifying retinopathy at an early stage and, if necessary, ensuring that appropriate treatment is given. Everyone with diabetes who is 12 years of age or over is invited for screening once a year.

Table 66 gives the total number and crude rate per 100,000 residents of hospital admissions for different retinal disorders as primary diagnoses over the three year period 2010/2011 and 2012/2013 where at least one clinician spell involved a primary diagnosis of retinal disorder. Some retinal diagnoses categories (retinal detachments, defects, vascular occlusion, and retinopathy) have been combined so that the total number within a group is enough for the analysis.

Some patients might have been included more than once as they have contributed to the count in different ways. For example, a patient could have been admitted on two separate occasions with the same diagnoses, or with differing admission methods.

A total of 22,709 residents (at a rate of 765.5 persons per 100,000 population) of Norfolk and Waveney were admitted to hospital (8,827 men and 13,882 women at a rate of 603.8 and 922.7 for men and women respectively per 100,000 population). The highest admission rate was seen in Great Yarmouth and Waveney CCG (1208.7 per 100,000 persons) and North Norfolk CCG (871.9 per 100,000 persons).

As expected, given the higher prevalence of lifestyle and behavioural risk factors, people living in the most deprived areas such as Great Yarmouth and Waveney have a higher hospital admission rate for retinal disorders. However, this relationship has not been seen in West Norfolk CCG and Norwich CCG where the level of deprivation is higher compared to the other local CCGs. For North Norfolk the elevated rate of admissions is mainly due to the high proportion of elderly people rather than deprivation.

Table 67 gives the average annual standardised inpatient admission rates with a primary diagnosis of retinal disorders per 100,000 population standardised to the European Standard
Population together with 95% confidence intervals (over the period 2010/11 to 2012/13). Not surprisingly Great Yarmouth and Waveney CCG and Norwich CCG had the highest rate of admissions (around 516.7 and 323.8 per 100,000 population for Great Yarmouth and Waveney CCG and Norwich CCG respectively). The high proportion of people admitted to hospital with a primary diagnosis of retinal disorders in North Norfolk and South Norfolk CCGs are among elderly people, this is not the case for Great Yarmouth and Waveney CCG and Norwich CCG. The rate of admissions for Great Yarmouth and Waveney CCG differ significantly when compared to Norfolk and Waveney average rate and all other local CCGs, this applies for men and women.

Table 66: Retinal detachments, defects, vascular occlusion, and retinopathy hospital admissions (spells) crude rate per 100,000 residents by CCG for Norfolk, April 2010 – March 2013

<table>
<thead>
<tr>
<th>CCG</th>
<th>Retinal detachments, defects, vascular occlusion, and retinopathy April 2010 - March 2013</th>
<th>Numbers</th>
<th>rate per 100,000 residents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Health East</td>
<td></td>
<td>3,202</td>
<td>5,184</td>
</tr>
<tr>
<td>North Norfolk</td>
<td></td>
<td>1,760</td>
<td>2,625</td>
</tr>
<tr>
<td>Norwich</td>
<td></td>
<td>1,408</td>
<td>2,357</td>
</tr>
<tr>
<td>South Norfolk</td>
<td></td>
<td>1,591</td>
<td>2,582</td>
</tr>
<tr>
<td>West Norfolk</td>
<td></td>
<td>866</td>
<td>1,134</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td></td>
<td>8,827</td>
<td>13,882</td>
</tr>
</tbody>
</table>

Table 67: Directly age standardised rate per 100,000 residents for retinal detachments, defects, vascular occlusion, and retinopathy hospital admissions by CCG for Norfolk, April 2010 – March 2013

<table>
<thead>
<tr>
<th>CCG</th>
<th>Males</th>
<th>95% CI</th>
<th>Females</th>
<th>95% CI</th>
<th>Persons</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DSR</td>
<td>LL</td>
<td>UL</td>
<td>DSR</td>
<td>LL</td>
<td>UL</td>
</tr>
<tr>
<td>Health East</td>
<td>472.2</td>
<td>455.3</td>
<td>489.6</td>
<td>551.8</td>
<td>535.4</td>
<td>568.5</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>292.4</td>
<td>277.9</td>
<td>307.3</td>
<td>341.3</td>
<td>326.5</td>
<td>356.5</td>
</tr>
<tr>
<td>Norwich</td>
<td>304.0</td>
<td>287.7</td>
<td>321.0</td>
<td>335.4</td>
<td>320.5</td>
<td>350.8</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>269.4</td>
<td>255.8</td>
<td>283.6</td>
<td>315.7</td>
<td>302.6</td>
<td>329.2</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>194.0</td>
<td>180.4</td>
<td>208.3</td>
<td>204.7</td>
<td>191.4</td>
<td>218.6</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>314.2</td>
<td>307.4</td>
<td>321.2</td>
<td>360.2</td>
<td>353.6</td>
<td>366.9</td>
</tr>
</tbody>
</table>
9.4.6: Other eye disorders

During the three year period 2010/11 to 2012/13, there were 6,347 inpatient clinician spells in total for other eye disorders not defined or given in this section. This is around 11% of the total eye related disorders admissions (6,347 out of 57,738 admissions).

Tables 68-69 provide information on total numbers, crude rate per 100,000 population and directly age standardised rate per 100,000 population. It can be seen that West Norfolk CCG has an elevated rate which is statistically significant when compared to Norfolk and Waveney average rate and all other local CCGs.

Table 68: Other eye disorders hospital admissions (spells) crude rate per 100,000 residents by CCG for Norfolk, April 2010 – March 2013

<table>
<thead>
<tr>
<th>CCG</th>
<th>Other eye disorders April 2010 – March 2013</th>
<th>rate per 100,000 residents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Numbers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Health East</td>
<td>675</td>
<td>688</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>534</td>
<td>530</td>
</tr>
<tr>
<td>Norwich</td>
<td>534</td>
<td>580</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>588</td>
<td>651</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>680</td>
<td>887</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>3,011</td>
<td>3,336</td>
</tr>
</tbody>
</table>

Table 69: Directly age standardised rate per 100,000 residents for other eye disorders hospital admissions by CCG for Norfolk, April 2010 – March 2013

<table>
<thead>
<tr>
<th>CCG</th>
<th>Males</th>
<th>Females</th>
<th>Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DSR</td>
<td>95% CI</td>
<td>DSR</td>
</tr>
<tr>
<td></td>
<td>LL</td>
<td>UL</td>
<td>LL</td>
</tr>
<tr>
<td>Health East</td>
<td>155.0</td>
<td>142.6</td>
<td>168.2</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>154.6</td>
<td>139.5</td>
<td>170.7</td>
</tr>
<tr>
<td>Norwich</td>
<td>153.5</td>
<td>140.2</td>
<td>167.7</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>141.3</td>
<td>129.2</td>
<td>154.2</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>199.2</td>
<td>182.8</td>
<td>216.6</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>158.9</td>
<td>152.8</td>
<td>165.2</td>
</tr>
</tbody>
</table>
Chapter 10: Screening

10.1 Diabetic Retinopathy Screening Programme

The NHS Diabetic Eye Screening Programme (NDESP) aims to reduce the risk of sight loss among people with diabetes by the early detection and treatment, if needed, of sight-threatening retinopathy. More than 80 local programmes deliver screening across England. Local programmes are accountable to the National Programme Team and submit an annual report containing general information about the service and information to support an assessment against the NDESP Service Objectives and Quality Assurance Standards.

The NHS Diabetic Eye Screening Programme is co-ordinated and led from the NHS Adult (non-cancer) Screening Programmes Centre in Gloucester. Screening is delivered locally in line with national quality standards and protocols. Each local programme co-ordinates screening for its population and organises invitation letters, screening clinics, result letters and referrals to hospital eye services. Local screening programmes inform GPs when people are invited for screening. GPs are also informed of their patients' screening results.

All people with type 1 or type 2 diabetes are at risk of developing sight-threatening retinopathy, whether their diabetes is controlled by diet, tablets or insulin. The most at risk are those who have had diabetes for a long time, have poorly controlled diabetes or high blood pressure.

10.1.1 How many people's sight could be saved by screening?

There are more than 2.5 million people with diabetes identified by GP practices in England. Using figures from a study in Scotland, it is estimated that in England every year 4,200 people are at risk of blindness caused by diabetic retinopathy and there are 1,280 new cases of blindness caused by diabetic retinopathy.

It is estimated that screening could save more than 400 people per year from sight loss in England.

10.1.2 How common is diabetic retinopathy?

A 1998 study reported baseline retinopathy levels (where there are microaneurysms or worse lesions in at least one eye) were present in 39% of men and 35% of women with newly-diagnosed Type 2 diabetes.

10.1.3 Uptake for diabetic retinopathy screening in 2011-2012:

- 2,587,000 people in England aged 12 and over were identified with diabetes.
- 2,362,000 were offered screening for diabetic retinopathy.
- 1,911,000 received screening, an uptake of 81%.

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129 http://diabeticeye.screening.nhs.uk/national
10.1.4 Local Diabetic Eye Screening Programme

The diabetes National Services Framework (NSF), Standards 10, 11, and 12 state that all young people and adults with diabetes will receive regular surveillance for the long-term complications of diabetes. The NHS will develop, implement and monitor agreed protocols and systems of care to ensure that all people who develop long-term complications of diabetes receive timely, appropriate and effective investigation and treatment to reduce their risk of disability and premature death. All people with diabetes requiring multi-agency support will receive integrated health and social care.

The local programme follows the guidelines set up by the National Screening for Diabetes programme. Everyone with diabetes who is 12 years old or over should have their eyes examined once a year for signs of damage. The service carries out the recommended annual screening for all patients with diabetes as well as surveillance of patients with diabetic retinopathy which may involve more frequent examinations at either three or six months.

There is a centralised database of patients who are diagnosed with diabetes held by the retinal screening team. Patients under the care of ophthalmologist are not screened by the local service, and patients whose eyes cannot be photographed for technical reasons are examined by a quality assured Trust Optometrist.

Between April 2012 and September 2013, Local Diabetic Eye screening information that 88.8% of those who were diagnosed with diabetes have attended retinal screening. Table 51 illustrates the prevalence of diagnosed diabetes among persons aged 17+ on the QOF GP disease registers for 2012/13. It can be seen that there were 51,408 patients aged 17+ diagnosed with diabetes that should be eye screened annually. The local figures for Diabetic Eye Screening should be slightly higher as the diabetes QOF GP disease registers does not include those aged 12-16 years.

If the national reported diabetic retinopathy screening in 2011-2012 uptake rate of 81% applied to the GP practice registers for patients aged 17+ diagnosed with diabetes during 2012/13 there would an estimated 35,781 person aged 17+ received screening across Norfolk (Table 70). In addition to that there is a small proportion among those aged 12-16 years who could have received the diabetic screening retinopathy but it is difficult to estimate the figures.
Table 70: Number and percentage of patients (17+) diagnosed with diabetes and included on the GP diabetes disease registers 2012/13 for Norfolk and Waveney, 2012/13

<table>
<thead>
<tr>
<th></th>
<th>Estimated number 17+</th>
<th>Numbers</th>
<th>Prevalence %</th>
<th>Expected number of people being screened based on the national 81% uptake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Yarmouth and Waveney</td>
<td>190,385</td>
<td>13,261</td>
<td>7.0</td>
<td>10,741</td>
</tr>
<tr>
<td>* Great Yarmouth</td>
<td>83,534</td>
<td>6,027</td>
<td>7.2</td>
<td>4,882</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>141,742</td>
<td>9,025</td>
<td>6.4</td>
<td>7,310</td>
</tr>
<tr>
<td>Norwich</td>
<td>171,972</td>
<td>8,138</td>
<td>4.7</td>
<td>6,592</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>181,914</td>
<td>10,563</td>
<td>5.8</td>
<td>8,556</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>137,287</td>
<td>10,421</td>
<td>7.6</td>
<td>8,441</td>
</tr>
<tr>
<td><strong>Norfolk and Waveney</strong></td>
<td><strong>823,300</strong></td>
<td><strong>51,408</strong></td>
<td><strong>6.2</strong></td>
<td><strong>41,640</strong></td>
</tr>
<tr>
<td><strong>Norfolk</strong></td>
<td><strong>716,449</strong></td>
<td><strong>44,174</strong></td>
<td><strong>6.2</strong></td>
<td><strong>35,781</strong></td>
</tr>
</tbody>
</table>

* Great Yarmouth and Waveney (Health East) CCG consists of 27 practices of which 13 located in Great Yarmouth (Norfolk) and 14 located in Waveney (Suffolk). In this category we only looked at prevalence of diabetes among the 13 practices located in Great Yarmouth as it is part of Norfolk.
10.2 Childhood visual screening

Screening is aimed at the primary prevention of visually impairing disease (e.g. cicatricial retinopathy of prematurity) as well as reducing the impact of already established disease (e.g. early detection and treatment of congenital cataracts)\textsuperscript{132}. The beneficial effects of early identification of vision problems are far reaching as childhood visual impairment or loss can have a significant developmental, emotional and social impact\textsuperscript{133}. The majority of children with severe visual impairment (6/60 or worse) have additional sensory, motor or learning impairments with or without chronic disease. More ‘minor’ problems such as an undiagnosed refractive error can be at the root of a cascade of events defining a child's future, e.g. poor performance at school may contribute to the child's self-confidence and their career.

New born babies and children are routinely checked for problems with their vision and hearing to identify any problems early on in their development. Although serious hearing and vision problems during childhood are rare, early testing ensures that any problems are picked up and managed as early as possible. It is important that hearing and vision problems are identified early because any problems can affect speech and language development, social skills and educational development\textsuperscript{134}.

Baby’s eyes are examined within 72 hours of birth. This simple examination is used to check for obvious physical defects. They will have a second eye examination when they are between six and eight weeks old, which will usually be carried out by local GP.

Shortly before or after having a baby, all new mums are given a Personal Child Health Record (PCHR), which highlights developmental milestones for vision.

The child’s vision may also be checked when they start school at around five years of age, but this varies depending on where the child lives.

10.2.1 Pre-school screening

Currently, all 4-5 year olds should have a vision check prior to school entry or as part of the school entry programme (this policy is due to be reviewed but is not expected to change)\textsuperscript{135}. This check is carried out by the school nurse or by an orthoptist, depending on local policy. Most 4 year-olds can co-operate with a test of visual acuity; there are a number of different assessment methods appropriate for young children, varying from picture or shape tests to matching tests and, for those children able to, the Snellen chart. This said, there is increasing scepticism on the value of this test with systematic reviews showing mixed evidence to support its effectiveness\textsuperscript{136, 137}.

\textsuperscript{132} http://www.patient.co.uk/doctor/Vision-Testing-and-Screening-in-Young-Children.htm
\textsuperscript{134} The UK NSC policy on Vision defects screening in children, UK National Screening Committee (2006). \url{http://www.nhs.uk/Conditions/hearing-and-vision-tests-for-children/Pages/introduction.aspx}
\textsuperscript{135} Pre-school vision screening, Bandolier.
10.2.2 Screening in school-aged children

There are not currently any national guidelines set out for the screening of these children. The main issue lies in detecting refractive errors. Unnoticed, these can cause a number of problems ranging from the specific problems (e.g. chronic headaches) to underachievement academically. This in itself has a very broad impact on the child's future. However, the benefits of screening at this age are still not clear and at present it is not recommended that new programmes be set up for this age group.

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139 Ophthalmic Services for Children, Royal College of Ophthalmologists; Scroll down the list to locate.
Chapter 11: Supporting People - Services Locally

11.1 The Norfolk & Norwich Association for the Blind (NNAB)\textsuperscript{140}

With nearly 208 years of successfully caring for visually impaired and blind people, the Norfolk and Norwich Association for the Blind (NNAB) has a proven record of providing specialist care and help both in the community and within their own Residential Home and Sheltered Housing accommodation. The organisation is independent and funded solely by private donations.

The NNAB mission is to help Norfolk's 20,000 people with poor sight remain independent and confident. Sight loss affects all age groups and the Association supports everyone from new born to those over 100 years of age. Last year the community workers made nearly 7,000 separate visits to individuals in their homes and there were over 6,000 visitors to the NNAB Equipment centres.

The NNAB was founded in 1805 and is the fifth oldest voluntary blind society in the UK. The aims are to provide:

- Accommodation and care.
- Community visiting services.
- Educational and recreational facilities.
- Advice and practical support

The NNAB offers various services such as:

**Equipment & Information Centres**

The NNAB has a county-wide spread for provision of Assistive Equipment and information for the visually impaired. There is a main Equipment Centre in Norwich and centres in Great Yarmouth and King’s Lynn which are open daily, one in Cromer which is open once a week and one in Watton operating monthly.

There is also an outreach system through a mobile showroom which travels throughout the county visiting supermarket car parks, Social Centres and other public spaces and events. It offers equipment, advice and contact for people unable to travel to the Equipment Centres.

**Community Workers**

NNAB has ten community workers providing a county-wide visiting, advice and support service to those in the community with sight problems. Their main role is to encourage and enable the visually impaired to live a full and independent life.

**Hospital Eye Clinics Information Service**

This service provides local and national information of a non-medical nature to those attending the eye clinics, as either patients or carers, about the services available for people with poor sight in Norfolk.

**Volunteers**

NNAB has 200 Volunteers who it relies upon for essential support to deliver in all its departments and in all its activities.

\textsuperscript{140} \url{http://www.nnab.org.uk/}
**Education and Leisure**

NNAB run braille\(^{141}\), moon\(^{142}\), craft, computer, painting and art appreciation classes\(^{143}\). In addition it organises trips to the theatre and heritage visits as well as book clubs, discussion groups, holidays and a gardening club.

**Visual Awareness Training**

The Association offers various visual awareness training sessions to other organisations and local businesses as well as courses for individuals and volunteers.

**Young Eyes**

“Young Eyes” is the name of the group for young vision-impaired people, aged up to 16 years old, and their families. To date NNAB have over 100 young people on its mailing list who receive news about events that are especially organised for them and their families.

As mentioned earlier there were around 20,000 people affected by sight loss in Norfolk, The Norfolk & Norwich Association for the Blind (NNAB) estimates that only 20% of those (4,000) people use their services. The number of people using the Equipment Centres stands around 6,000 visits per year, but there is a big variation between individuals. Some people might visit up to three times per month and others could only visit the centre once per year. Around 30% of regular visitors will use the NNAB service once a month. NNAB provide support for people who ask for help whether they are registered in their records or not.

In line with national figures most of the people who use the facilities have less severe sight disabilities. Only 3% of those are completely blind. People in different localities of Norfolk access the services equally and represent the expected proportion of elderly people in each locality. It is estimated that there may be 5-10% of people with sight problems who may also have dementia issues. The NNAB teams noticed that the major health issues related to people with eye sight difficulties are related to physical mobility, social isolation and depression, especially for those living in rural areas.

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\(^{141}\) Braille is a system of raised dots which can be used by blind people to read and write by touch with each character formed from of up to six dots. In this way all letters, numbers and punctuation can be shown in braille. The braille codes for maths, science, music and each language has its own code - and all this just from six dots!

The Norfolk and Norwich Association for the Blind offers classes in Braille and Moon to everybody from complete beginners to those who wish to improve their skills. The Braille teaching is based on the 'Fingerprint' course, published by RNIB. The books used for teaching Moon are 'Journey Round the Moon' and 'Moon Journey', both published by the RNIB. Students may learn as little or as much as they want to and each person learns at their own pace. Tutors are experienced Braille and Moon users. The classes are held in our Bradbury Activity Centre, Norwich.

\(^{142}\) Moon is a method of reading by touch based on shaped characters which is more intuitive and easier to feel. Many of the characters are the same as, or similar to, printed letters, which makes them easy to recognise and remember. All letters, numbers and punctuation can be shown in Moon. Some special Moon characters stand for groups of letters or whole words.

\(^{143}\) Working with blind and visually impaired people means scrapping the accepted definitions of what art is all about, and looking at how other senses can compensate and be stimulated. Feel, smell, sound, and even taste can provide new sensations that allow blind and sighted people alike to share an experience and give them a whole new way of appreciating art (http://www.eveningnews24.co.uk/news/derekjames/bringing_new_senses_to_the_world_of_art_1_1170636).
People aged 55 and over with sight loss are more likely to use the facilities (around 90% of the total users are above 60). Most common eye sight problems are macular degeneration, cataract and glaucoma.

The NNAB offers a 37 bed residential home for the care of people who have sight loss, a high proportion of which are nearing the end of their life. Furthermore, NNAB has 21 sheltered flats for those with eye sight problems of any age. People are referred through GPs, opticians, ophthalmologist, social services, local authorities, and by self-referral. NNAB also provide a wide range of services to help people on their daily activities such as large print documents, computer programs, magnifiers, brail, social events and computer training.

NNAB has some challenges reaching their target groups; there are around 16,000 people in Norfolk with sight loss who are not using NNAB services. It is vital to the work of the NNAB to raise public awareness to reach all visually impaired in order to offer assistance, especially those who are completely without help or have limited support.

Office for National Statistics census data in 2011 showed that less than 10% of the total Norfolk population were from BME communities. BME groups with eyesight loss are still a target group for NNAB but these groups are hard to reach because of either language or cultural barriers. In the case of recent immigrant groups it appears that people with eye sight problems tend to return to their native countries for support.

Due to the size of Norfolk there are severe transport difficulties, the cost is high and transportation is only offered in exceptional circumstances. The NNAB also face the common difficulties of building structures solely dependent on volunteers. Financial constraints mean the organisation works with old equipment, especially computers.

11.2 Macular Disease Society Norwich Group

The Macular Disease Society (Norwich Group) is a social club and support group for people in Norwich who suffer from macular disease. The Macular Disease Society Norwich Group offers practical support in a social setting.

11.3 Guide Dogs for the Blind Association

Guide Dogs provide mobility and freedom to blind and partially sighted people. The Charity also campaigns for the rights of people with visual impairment, educate the public about eye care and fund eye disease research.

They have been training guide dogs for more than 75 years, providing many thousands to blind and partially-sighted people of all ages and from all walks of life. They also deliver confidence-building rehabilitation services to adults, young people and children - including long cane mobility training, communication and daily living skills.

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144 http://www.dotcomunity.co.uk/dcu3_resources_for_disabled.php?type=Provider&id=8842&l2=1&l3=3&l4=15&area=25&local=Norfolk
In Norfolk, at the beginning of 2014 there were 97 people using the guide dogs of which 45 (46.4%) were in Norwich. At the end of 2012 83 people were using a guide dog, of which 34 (41%) were in Norwich.¹⁴⁶

Guide Dogs for the Blind Association have a steady but healthy demand for dogs based upon personal referral, professional referral and 3rd party referral.

People contact Guide Dogs for the Blind Association for the mobility and assessment process which highlights the most appropriate mobility aid for them as well as indicating future need.

There are more than sufficient dogs in their system of training to meet local need. However, time is the element of which there is a finite resource. Dogs need developing and maturing, during which time they can identify the right match both physically and environmentally for their future handler.

As a team the Guide Dogs for the Blind Association are currently one Guide Dog Mobility Instructor short, however, they are developing apprentice Trainee Guide Dog Mobility Instructors and so this shortfall is temporary. There is sufficient ‘production’ of guide dog partnerships from the team to meet the numbers of people waiting for dogs on their waiting list - 2014 production 39; current waiting list 34.

The Guide Dogs for the Blind Association are also providing people with other forms of mobility to meet their needs as a guide dog is not suitable for everyone. Other mobility will be long cane mobility, orientation with technology and sighted guiding (training sighted guides both with external partners as well as directly delivering ourselves).

¹¹.⁴ Norfolk County Council Sensory Support Unit

The sensory support unit (SSU) receives around 500 referrals a year directly from the Norfolk hospitals following the diagnosis and certification of a permanent and substantial sight loss. A social care assessment is conducted in order to identify the impact on daily living needs; and where appropriate, a rehabilitation programme is provided.

Referrals are also received from other pathways where substantial or critical needs have been identified which may affect a person’s safety or well-being. The rehabilitation programmes are time limited but not time prescribed. The programmes are provided to maximise peoples’ independence and to restore confidence in managing their life.

A rehabilitation officer delivers individually tailored programmes such as orientation and mobility; personal care; activities of daily living and communication.

The Sensory support also hold the register of blind and partially sighted people and are involved in regional and national groups where they help shape the UK Vision Strategy.

Chapter 12: Further considerations

This section outlines considerations and suggested outcomes that should be considered for inclusion as part of the actions of a JSNA:

- Inclusion of eye health and sight loss in the Health and Wellbeing Strategy; data collected to meet the Public Health Framework for Sight Loss may support this work.

- Eye health needs analysis to be conducted alongside a review of local eye care pathways to ensure the efficient and effective use of existing assets. This should include looking at medical and social aspects of the eye care journey.

- Conduct a review of existing systems, processes and services relating to the main eye conditions, including glaucoma follow-up appointments and treatment policies for AMD, to ensure patients have access to preventative services.

- Better integration of “Early Intervention Services” which provide support at time of sight loss including rehabilitation support, counselling services or Eye Care Liaison Officer to help people adjust to sight loss.

- Incorporating eye health messages into health campaigns concerning obesity, smoking cessation and the management of diabetes and glaucoma.

- Delay in treatment following diagnosis of diabetic retinopathy after screening.

- Develop a targeted Public Health campaign to raise awareness of the importance of regular sight tests, particularly around at risk groups such as older people or BME communities.

- Development of a local Eye Health Strategy group, based around the strategic outcomes of the UK Vision Strategy, to include partners like Local Professional Networks, health and social care professionals, patients and customers, voluntary sector and Local Optical Committees.
Acknowledgments:

- Dr Tim Winters, Head of Public Health Intelligence, Norfolk County Council.
- Judy Lomas, JSNA / Norfolk Insight Team Manager, Norfolk County Council.
- Paul Bowerbank, County Manager - Sensory Services, Norfolk County Council.
- Emily Papaleo, RNIB Regional campaigns officer - East of England.
- Holly Gilbert, Advanced Public Health Information Officer, Norfolk County Council.
- Sarah Mossop, NHS Screening and Immunisation Manager.
- Jamie Scott, Public Health Screening and Immunisation coordinator.
- Claire Gummerson, Advanced Public Health Information Officer, Norfolk County Council.
- Josh Robotham, Analyst (Road Casualty Reduction), Norfolk County Council.
- Simon Marshall, Manager Equipment and Information centre, Norfolk and Norwich Association for the Blind (NNAB).
- Edward Bates, Norfolk and Norwich Association for the Blind (NNAB).
- Derek Heffer, Macular Disease Society Norwich Group.
- Pete Smith, Service Delivery Manager, Peterborough Mobility Team, Guide Dogs for the Blind Association.
- Philippa Stubbs, Peterborough Mobility Team, Guide Dogs for the Blind Association.
- Tony Harrison, Data Management Officer, Norfolk County Council.
- Robert Mouland, Principal Business Intelligence Analyst (Commissioning Support Unit CSU).
- All those in partner organisations who provided data and information for this report.
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- NICE CG85 Glaucoma: diagnosis and management of Chronic Open angle Glaucoma and Ocular Hypertension http://www.nice.org.uk/C85


- Diabetic eye screening http://diabeticeye.screening.nhs.uk/


- AMD Alliance International campaign report 2005; Awareness of Age-related Macular Degeneration and Associated Risk Factors


- Thomas Pocklington 2007 (Feb), Dementia and Sight Loss


Eye health and sight loss; statistics and information for developing a Joint Strategic Needs Assessment

Glossary

95% Confidence Interval
This is a measure of whether a result that differs from the average is likely to be real or merely a chance fluctuation. 95% CI is the range within which the true value is likely to occur.

Age related Macular Degeneration (AMD)
Definitions of age related macular degeneration. Ideally the ICD 16 definition of AMD, including Geographical AMD (GAMD) and neo-vascular AMD (NVAMD), should be used. However, as some studies were conducted before the existence of this definition, “geographical/dry/atrophic/nonexudative/late” AMD was used to denote GAMD, and “neovascular/exudative/wet,” NVAMD.

Centile
When results are ranked in order from lowest to highest, they can be divided into equal-sized groups. If divided into one hundred groups, these are called 'centiles'. (See inter-quartile)

Certificate of Vision Impairment (CVI)
The document signed by the ophthalmologist to identify someone as being 'sight impaired' or 'severely sight impaired'.

Crude rate
A crude rate is a rate that applies to the population as a whole, and that hasn’t been adjusted to account for differences in population structures such as age and sex. It is calculated using this formula: \[ \text{Crude Rate} = \frac{\text{Number of Events}}{\text{Total Number of People in a Population}}. \]

Deciles
When results are ranked in order from lowest to highest, they can be divided into equal-sized groups. If divided into ten groups, these are called 'deciles' (see inter-quartile)

DSR
Directly Age-Standardised Rate

Episode of care
The description and measurement of the various health care services and encounters rendered in connection with an identified injury or period of illness.

Episode
The period in which a health problem or illness exists, from its outset to its resolution.

Health inequality
Differences in health experiences and health outcomes between different population groups

Health inequity
Differences in opportunity for different population groups which result in unequal life chances, access to health services, nutritious food, adequate housing, education, and so on

HES
Hospital Episode Statistics
Incidence
Rate of occurrence of new cases of disease (within a given population over a given time period)

Inter-quartile range
This is the range within which the middle 50% fall. One-quarter of the values are below this range and one-quarter above (see quartile)

International Classification of Diseases (ICD 10)
ICD-10 is an abbreviation for the International Statistical Classification of Disease and Related Health Problems (10th revision). It is used in the NHS acute sector to record diseases and health-related problems (the diagnosis or reason for a patient episode of healthcare). The codes are mandatory for use across England.

ICD-10 was endorsed by the Forty-third World Health Assembly in May 1990 and came into use in WHO Member States as from 1994. The classification is the latest in a series which has its origins in the 1850s. The first edition, known as the International List of Causes of Death, was adopted by the International Statistical Institute in 1893. WHO took over the responsibility for the ICD at its creation in 1948 when the Sixth Revision, which included causes of morbidity for the first time, was published.

The ICD has become the international standard diagnostic classification for all general epidemiological and many health management purposes. These include the analysis of the general health situation of population groups and monitoring of the incidence and prevalence of diseases and other health problems in relation to other variables such as the characteristics and circumstances of the individuals affected.

It is used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and hospital records. In addition to enabling the storage and retrieval of diagnostic information for clinical and epidemiological purposes, these records also provide the basis for the compilation of national mortality and morbidity statistics by WHO Member States.

Life expectancy
The average length of life or life expectancy at birth is the average number of years a group of individuals can expect to live.

Is a statistical measure of the average life span (average length of survival) of a specified population, It most often refers to the expected age to be reached before death for a given human population (by nation, by year of birth, or by other demographic variables). Life expectancy may also refer to the expected time remaining to live, and that too can be calculated for any age or for any group.

Morbidity
Morbidity means the situation of living with a disease, and it is often measured in terms of incidence and prevalence.

ONS

Prevalence
Proportion of the population with existing disease (it is defined as the proportion of current cases in a population at a given point of time).

**Prognosis**
Likely outcome.

**Primary Care Trust (PCT)**
The NHS organisations responsible for organising primary care (e.g. general practice, community nurses, opticians, pharmacists) and commissioning secondary care (e.g. from acute hospitals and mental health services).

**Quality and Outcomes Framework (QOF)**
The Quality and Outcomes Framework (QOF) is a component of the new General Medical Services contract for general practices, introduced from 1 April 2004. The QOF rewards practices for the provision of quality care, and helps to fund further improvements in the delivery of clinical care.

**Quartile**
When results are ranked in order from lowest to highest, they can be divided into equal-sized groups. If divided into four groups, these are called 'quartiles' (see inter-quartile).

**Quintile**
When results are ranked in order from lowest to highest, they can be divided into equal-sized groups. If divided into five groups, these are called 'quintiles'.

**Sight impaired**
The term used to identify someone who has been assessed by an ophthalmologist as being "substantially and permanently handicapped by defective vision caused by congenital (present at birth) defect, illness or injury."

**Sensory impairment**
The term used to encompass visual impairment (those who are sight impaired or severely sight impaired) and hearing impaired (those who are profoundly deaf, deafened or hard of hearing). Sensory impairments may be congenital or acquired at any age.

**Severely sight impaired**
The term used to identify someone who has been assessed by an ophthalmologist as being "so blind as to be unable to perform any work for which eyesight is essential."

**Spells**
A hospital spell is defined as the total continuous stay of a patient using a hospital bed during which medical care is the responsibility of one or more consultants, or where the patient is receiving care in a ward. The spell may be as a result of an elective admission. The consultant responsible for the patient on admission may not be the same as the consultant responsible on discharge.

**Super Output Area (SOA)**
SOAs are a unit of geography used in the UK for statistical analysis. They are developed and released by Neighbourhood Statistics.
SOAs were created with the intention that they would not be subject to frequent boundary changes. This makes SOAs more suitable than other geography units (such as electoral wards) because they are less likely to change over time, and thus SOAs are more suitable to change over time analysis.

There are three layers of SOAs (i.e. three different but related geography boundaries). These are:

1. **Lower Layer.**
   Minimum population 1000, mean population 1500. This is built from groups of Output Areas. Commonly known as Lower Layer Super Output Area (LSOA). There are 34,378 LSOAs in England and Wales.

2. **Middle Layer.**
   Minimum population 5000, mean population 7200. This is built from Lower Layer SOAs. Commonly known as Middle Layer Super Output Area and abbreviated to MSOA. There are 7,193 MSOAs in England and Wales.

3. **Upper Layer.**
   Commonly known as Upper Layer Super Output Area (USOA).

Source of Information: [http://www.cryer.co.uk/glossary/s/soa.htm](http://www.cryer.co.uk/glossary/s/soa.htm)

**WHO**
World Health Organisation.
### Appendix 1: Programme Budgeting categories and descriptions

<table>
<thead>
<tr>
<th>PBC</th>
<th>Description</th>
<th>Expanded Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Infectious Diseases</td>
<td>All disease caused by infectious organisms, excluding tuberculosis and sexually transmitted infections</td>
</tr>
<tr>
<td>2</td>
<td>Cancers &amp; Tumours</td>
<td>All cancers and tumours, malignant and benign. Including those with suspected or at risk of developing cancer</td>
</tr>
<tr>
<td>3</td>
<td>Blood Disorders</td>
<td>Disorders of the blood and blood forming systems</td>
</tr>
<tr>
<td>4</td>
<td>Endocrine, Nutritional and Metabolic Problems [ENM]</td>
<td>Disorders of internal metabolism and its regulation</td>
</tr>
<tr>
<td>5</td>
<td>Mental Health Problems</td>
<td>Problems of mental health including patients with Alzheimer's syndrome</td>
</tr>
<tr>
<td>6</td>
<td>Learning Disability Problems</td>
<td>Patients where the primary issue is the problem of learning disability</td>
</tr>
<tr>
<td>7</td>
<td>Neurological System Problems</td>
<td>Problems relating to the Neurological system</td>
</tr>
<tr>
<td>8</td>
<td>Eye/Vision Problems</td>
<td>Problems relating to the eye and vision</td>
</tr>
<tr>
<td>9</td>
<td>Hearing Problems</td>
<td>Problems relating to the ear and hearing and balance</td>
</tr>
<tr>
<td>10</td>
<td>Circulation Problems</td>
<td>Problems relating to the heart, and the circulation of blood in central and peripheral vessels</td>
</tr>
<tr>
<td>11</td>
<td>Respiratory System Problems</td>
<td>Problems of respiration, including tuberculosis and sleep apnoea</td>
</tr>
<tr>
<td>12</td>
<td>Dental Problems</td>
<td>Problems due to the teeth, including preventive checks and community surveys</td>
</tr>
<tr>
<td>13</td>
<td>Gastro Intestinal System Problems</td>
<td>Problems of the gastro intestinal systems</td>
</tr>
<tr>
<td>14</td>
<td>Skin Problems (Including Burns)</td>
<td>Problems of the skin, including breast.</td>
</tr>
<tr>
<td>15</td>
<td>Musculo Skeletal System Problems (excluding Trauma)</td>
<td>Problems of the Musculo Skeletal system, excluding trauma</td>
</tr>
<tr>
<td>16</td>
<td>Trauma &amp; Injuries</td>
<td>Problems of Trauma &amp; Injuries</td>
</tr>
<tr>
<td>17</td>
<td>Genito Urinary System Disorders (except infertility)</td>
<td>All Genito urinary problems except for those relating to infertility</td>
</tr>
<tr>
<td>18</td>
<td>Maternity &amp; Reproductive Health</td>
<td>Maternity and problems associated with reproduction</td>
</tr>
<tr>
<td>19</td>
<td>Neonates</td>
<td>Conditions of babies in the neonatal period.</td>
</tr>
<tr>
<td>20</td>
<td>Poisoning</td>
<td>Poisoning, toxic effects and other adverse events, whether accidental or deliberate</td>
</tr>
<tr>
<td>21</td>
<td>Healthy Individuals</td>
<td>Individuals who have no current problems but who are involved in programs for prevention of illness and promotion of good health</td>
</tr>
<tr>
<td>22</td>
<td>Social Care Needs</td>
<td>Problems related to life-management difficulty and problems related to care-provider dependency</td>
</tr>
<tr>
<td>23</td>
<td>Other</td>
<td>Other conditions</td>
</tr>
</tbody>
</table>
Appendix 2A: RNIB Sight Loss Data Tool Version 2: Guidance Notes

Sight Loss Data Tool Version 2: Guidance Notes

John Slade
Research Officer, RNIB

April 2014
Version 2.0

The Guidance can be accessed through RNIB Sight Loss Data Tool on:

Appendix 2B: Preventing avoidable sight loss in Norfolk (RNIB report)

Don’t Lose Sight…

In 2011 there were approximately 32,110 people living with sight loss in Norfolk. This is set to increase by 24% to 39,840 by 2020.

To obtain more detailed prevalence statistics for Norfolk visit: www.rnib.org.uk/datatool

Sight Loss can have a huge emotional and financial impact. It can prevent people from undertaking paid employment, driving, preparing food safely and socialising.

In 2008, the direct and indirect costs of sight loss were £6.5 billion and this is estimated to have risen to £7.9 billion in 2013.

RNIB are calling upon local authorities and health and wellbeing boards to work with Clinical Commissioning Groups to ensure that people do not lose their sight unnecessarily.

1. Sight loss in your area

Sight loss prevention is a clear public health priority and a sight loss prevention indicator is included in the NHS Public Health Outcomes Framework.

The indicator measures the number of Certificates of Visual Impairment (CVI); which relates to the number of people certified as partially sighted or blind due to diabetic retinopathy, age-related macular degeneration (AMD) and glaucoma. These certificates are completed by doctors in hospital eye clinics and sent to Moorfields Eye Hospital to be collated.

Tackling these three conditions is the primary public health challenge in eye care. They are the biggest causes of certifiable blindness in England but, with the right care, at the right time, people can be treated effectively and, in many cases, their sight saved.
The levels of CVI data in Norfolk compared to the rest of England are:

- AMD: Similar
- Diabetic retinopathy: Similar
- Glaucoma: Similar
- CVI data for avoidable sight loss: Higher

**Recommendation One**
Public health, Health and Wellbeing Board members and commissioners should monitor data relating to the sight loss prevention indicator and take action to reduce avoidable sight loss in their area.

2. Information for public health professionals

Joint Strategic Needs Assessments and Health and Wellbeing Strategies

JSNA provides information about the needs of the local population. Commissioners are meant to reference the JSNA when commissioning services. The current JSNA for Norfolk does not include information on either those at risk of developing sight loss or those with sight loss.

This oversight potentially makes it more difficult to commission services for the 32,110 people believed to be living with sight loss in Norfolk and as a result could increase health inequalities.

**Recommendation Two**
Norfolk council and Health and Wellbeing Board should include information on people with or at risk of sight loss in their Joint Strategic Needs Assessment. RNIB, as part of the UK Vision strategy, has produced guidance on eye health and sight loss information to include within a JSNA: 
[http://www.commissioningforeyecare.org.uk/jsnaguidance](http://www.commissioningforeyecare.org.uk/jsnaguidance)

**Older people and falls**

The risk of sight loss increases with age and Norfolk has an ageing population. It is estimated that there are 132,100 people over the age of 70 and this is set to rise to 176,000 by 2020. Older people should be encouraged to have regular eye tests to ensure they are wearing the correct prescription glasses and to identify any signs of early eye disease.

Older people with sight loss are more prone to falls than their sighted peers. The risk of injury from falls is nearly twice as high and so is the rate of hip fractures. In 2009, falls due to sight loss cost the NHS £25 million and this does not include long-term institutional care.
**Recommendation Three**
A multi-disciplinary falls strategy is produced which clearly sets out a plan for both preventing falls in people with sight loss and supporting those who experience a fall.

**Smoking cessation programmes**
The link between smoking and AMD is as strong as the link between smoking and lung cancer. Smoking is also linked to other eye diseases. Evidence suggests that highlighting the link between smoking and sight loss is a strong incentive for people to give up or reduce their smoking.

Norfolk currently has a similar level to the national average of adults over the age of 18 who smoke at 20.3%.

**Recommendation Four**
Smoking cessation programmes should include messages about the link between sight loss and AMD.

**Diabetic eye screening**
Diabetic Retinopathy is the leading cause of sight loss in the UK among working age people. Retinopathy, as with other diabetic eye diseases, is often preventable if diabetes is managed and people attend regular screening to detect any early signs of eye disease.

Recent figures published by the Department of Health from January to March 2013 show that

**Norfolk did not provide any data on the percentage of people identified as qualifying who were invited to attend screening**

**Norfolk did not provide any data on the percentage of people invited who took up screening; the recommended minimum is 80%**

**Norfolk did not provide any data on the percentage of people who were excluded from screening**

**Recommendation Five**
Local diabetic eye screening programmes should achieve 100 per cent rates of invitation to screening, and meet and maintain rates of 80 per cent and above take-up. Programmes should also monitor rates of exclusion and address any problems if the level is high.
3. Information for commissioners

Lack of capacity in eye hospitals is a major concern across England and it affects the outcome of treatment for glaucoma, wet AMD, diabetic eye disease, cataract and other treatable eye conditions.

**Recommendation Six**
Commissioners must have a clear picture of capacity issues in their area and they should ask themselves the following key questions to ensure patients have timely access to diagnosis and treatment: http://tinyurl.com/eyecarecommissioning.
Treatment of wet Age–related Macular Degeneration

Around 40,000 people per year develop wet AMD. The condition affects central vision which is used for reading and recognising faces. Sight loss due to wet AMD is rapid but can be halted with treatment. Royal Collage of Ophthalmologist guidelines state that patients should be diagnosed within one week of presentation and treated within a further seven days.

Norfolk and Norwich University Hospitals NHS Foundation Trust has a rapid referral scheme in place and a mean referral to treatment time of 0-14 days which suggests patients are able to access treatment for wet AMD within the recommended two week timeframe.

James Paget University Hospital NHS Foundation Trust has a rapid referral scheme in place and a mean referral to treatment time of 15-21 days which suggests change is required to ensure patients are able to access treatment for wet AMD within the recommended two week timeframe.

Cataract surgery

In 2012/13, 340,809 cataract operations were performed by the NHS. A cataract is the clouding of the natural lens which causes vision to appear to be washed out. It also produces glare from lights. A cataract can be easily treated with a replacement artificial lens in a 30 minute operation and is one of the most cost-effective surgical procedures carried out by the NHS.

Many CCGs restrict access to surgery using arbitrary thresholds.

NHS Great Yarmouth & Waveney CCG has a cataract treatment policy which is restrictive but that also includes a range of exemptions. The number of patients receiving cataract operations in the area in 2012/13 was 749 per 100,000 people compared to the national average of 700. This suggests that patients should be able to access surgery when they need it.

NHS South Norfolk CCG, NHS Norwich CCG and NHS North Norfolk CCG have cataract treatment policies which are restrictive but that also consider exemptions for glare, work and driving.

In the area covered by NHS South Norfolk CCG the number of patients receiving cataract operations in 2012/13 was 850 per 100,000 people compared to the national average of 700. This suggests that patients should be able to access surgery when they need it.

In the area covered by NHS West Norfolk CCG the number of patients receiving cataract operations in 2012/13 was 1033 per 100,000 people compared to the national average of 700. This suggests that patients should be able to access surgery when they need it.

In the area covered by NHS Norwich CCG the number of patients receiving cataract operations in 2012/13 was 689 per 100,000 people compared to the national average of 700. This suggests that patients should be able to access surgery when they need it.

In the area covered by NHS Norwich CCG the number of patients receiving cataract operations in 2012/13 was 1145 per 100,000 people compared to the national average of 700. This suggests that patients should be able to access surgery when they need it.
Monitoring Glaucoma follow-up appointments

Approximately 266,000 people are living with detected glaucoma in the UK and a further 191,000 people do not know they have the condition. Glaucoma affects peripheral vision, which is used for navigation and avoiding obstacles. The condition is caused by raised but pain free eye pressure and can lead to significant visual field loss without the sufferer being aware. An eye test can detect raised eye pressure before it causes damage and the condition can be effectively managed with daily eye drops to prevent or limit further damage. However, patients must have access to timely follow-up appointments in order to make sure that their medication is working.

We do not have any data on the number of glaucoma follow-up appointments that are delayed or cancelled by Norfolk and Norwich University Hospitals NHS Foundation Trust as it did not respond to our freedom of information request on this subject submitted in 2011/12,

We do not have any data on the number of glaucoma follow-up appointments that are delayed or cancelled by James Paget University Hospitals NHS Foundation Trust as it did not respond to our freedom of information request on this subject submitted in 2011/12,
**Next Steps…**

**For further information and advice on how to meet the recommendations set out in this briefing, please contact:**

Emily Papaleo | Regional Campaigns Officer, East of England  
Tel: 01603 455 767  
Email: [emily.papaleo@rnib.org.uk](mailto:emily.papaleo@rnib.org.uk)

Fiona Austin | Campaigns Officer, Public Health  
Tel: 0117 9341 725  
Email: [fiona.austin@rnib.org.uk](mailto:fiona.austin@rnib.org.uk)

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Tel: 020 7391 2123  
Email: [saveoursight@rnib.org.uk](mailto:saveoursight@rnib.org.uk)
Appendix 2C: Royal National Institute of Blind People (RNIB) Sight Loss Data Tool for 2010/11

Royal National Institute of Blind People (RNIB) has produced a sight loss data tool which provides factual statistics on sight loss broken down to a local authority level for England. It is a free tool and provides information on:

- Certification and registration numbers.
- Estimations of number of people living with sight loss in 2012 and predictions for 2020.
- Those who are at risk of losing their sight.
- Those at risk of sight threatening eye conditions including age-related macular degeneration, glaucoma, cataracts and diabetic retinopathy.

Most of the data presented here are best estimates. The information has been modelled to each local area using estimates for how common sight loss is and for some eye conditions. In most cases, at least gender and age have been factored into these calculations. However, the modelling does not take into account a number of factors that may influence the results for each area. For example: BME communities; local good practice on the eye care pathway, deprivation and so on.

Where applicable, definitions for each indicator are given in Appendix 2B (Page 133). In addition, a summary of the type of data used is also given - either official statistic or RNIB estimate.

In Norfolk there are 5 NHS hospitals with eye clinics, 3 hospital locations with Eye Clinic Liaison Officers or early reach support, 4 Rehabilitations Officers - Visual Impairment (Table A).

There were 310 children and young people aged 0-16 recorded as blind and partially sighted during 2010/11, and 185 children and young people aged 17-25 reported as blind and partially sighted in Norfolk (Table A).
Eye health and sight loss; statistics and information for developing a Joint Strategic Needs Assessment

Table A: Range of indicators related to sight loss for Norfolk, East of England and England

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Number</th>
<th>rate per 100,000 residents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ENGLAND</td>
<td>EASTERN</td>
</tr>
<tr>
<td>Total number of people registered blind</td>
<td>147,810</td>
<td>16,050</td>
</tr>
<tr>
<td>Total number of people registered partially sighted</td>
<td>151,010</td>
<td>14,415</td>
</tr>
<tr>
<td>Total number of people registered as blind or partially sighted</td>
<td>298,820</td>
<td>30,465</td>
</tr>
<tr>
<td>Number of people newly certified as Severely Sight Impaired (blind) in 2010/11</td>
<td>9,964</td>
<td>1,210</td>
</tr>
<tr>
<td>Number of people newly certified as Sight Impaired (partially sighted) in 2010/11</td>
<td>11,938</td>
<td>1,335</td>
</tr>
<tr>
<td>Total number of Certification of Vision Impairment in 2010/11</td>
<td>22,501</td>
<td>2,626</td>
</tr>
<tr>
<td>Rate of Certifications of Vision Impairment issued per 100k population in 2010/11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated number of people living with sight loss in 2011</td>
<td>1,564,340</td>
<td>184,170</td>
</tr>
<tr>
<td>Percentage of people living with sight loss compared to overall population in 2011</td>
<td>1,903,330</td>
<td>230,170</td>
</tr>
<tr>
<td>Estimated number of people predicted to be living with sight loss in 2020</td>
<td>6,152,300</td>
<td>729,900</td>
</tr>
<tr>
<td>Percentage of people living with sight loss compared to overall population in 2020</td>
<td>7,877,000</td>
<td>968,000</td>
</tr>
<tr>
<td>Estimated number of people aged 70 and over in 2011</td>
<td>3,232,980</td>
<td>368,200</td>
</tr>
<tr>
<td>Estimated number of people living with age-related macular degeneration</td>
<td>512,300</td>
<td>61,130</td>
</tr>
<tr>
<td>Estimated number of people living with wet age-related macular degeneration</td>
<td>349,200</td>
<td>41,660</td>
</tr>
<tr>
<td>Estimated number of people living with dry age-related macular degeneration</td>
<td>163,200</td>
<td>19,470</td>
</tr>
<tr>
<td>Estimated number of people living with cataract</td>
<td>488,700</td>
<td>56,130</td>
</tr>
<tr>
<td>Estimated number of people living with glaucoma</td>
<td>462,800</td>
<td>52,320</td>
</tr>
<tr>
<td>Estimated number of people living with ocular hypertension</td>
<td>1,057,700</td>
<td>119,580</td>
</tr>
<tr>
<td>Estimated number of people living with background diabetic retinopathy</td>
<td>905,200</td>
<td>103,100</td>
</tr>
<tr>
<td>Estimated number of people living with non proliferative and proliferative diabetic retinopathy</td>
<td>103,500</td>
<td>11,780</td>
</tr>
<tr>
<td>Number of NHS hospitals with eye clinics</td>
<td>333</td>
<td>27</td>
</tr>
<tr>
<td>Number of hospital locations with Eye Clinic Liaison Officers or early reach support</td>
<td>149</td>
<td>16</td>
</tr>
<tr>
<td>Number of Rehabilitations Officers - Visual Impairment</td>
<td>378</td>
<td>30</td>
</tr>
<tr>
<td>Number of blind and partially sighted children and young people aged 0-16</td>
<td>21,343</td>
<td>2,364</td>
</tr>
<tr>
<td>Number of blind and partially sighted children and young people aged 17-25</td>
<td>12,735</td>
<td>1,275</td>
</tr>
</tbody>
</table>

In 2010/11 there were 6,205 (72.3 per 100,000) people registered as blind or partially sighted in Norfolk; 3,295 (38.4 per 100,000) registered blind, 2,910 (33.9 per 100,000) registered partially sighted. The data shows that 204 (2.4 per 10,000) people were diagnosed as newly certified as
Severely Sight Impaired (blind). These rates were higher compared to East of England and England average rates (Table A).

Over the same period there were 521 (6.1 per 100,000) people newly certified of Vision Impairment, of which 303 (3.5 per 100,000) people newly certified as Sight Impaired - partially sighted (again higher than East of England and England average rates).

The percentage of elder population in Norfolk is much higher than East of England and England average percentages. Therefore, one would expect Norfolk’s sight loss rates to be higher than the national average due to its increased elder residents. So it is also useful to compare Norfolk’s rates to similar geographical areas to determine how Norfolk is doing in relation to other similar areas. It is also useful to examine the rates in local areas where much higher levels of deprivation and areas where much higher than average proportion of elderly people.

A Diabetes-related eye conditions

Diabetes occurs when the body doesn't produce enough of the hormone "insulin" or because the insulin that is produced has a reduced effect. Insulin regulates the way the body uses the food the person has eaten. The people with diabetes cannot cope in the usual way with sugar and other carbohydrates that they are eating.

Nearly one person in 25 in the UK has diabetes mellitus. Some children have diabetes but developing diabetes is much more common later in life. Diabetes can cause complications which affect different parts of the body, including the eye. The two main types of diabetes mellitus are known as Type 1 and Type 2 diabetes.

A1: Type 1 diabetes
This type of diabetes commonly occurs before the age of 30 and is the result of the body producing little or no insulin. Type 1 diabetes is primarily controlled by insulin injections so it is sometimes called insulin dependent diabetes.

A2: Type 2 diabetes
This type of diabetes commonly occurs after the age of 40. In this type of diabetes the body does produce some insulin, but the amount is either not sufficient or the body is not able to make proper use of it. Type 2 diabetes is generally controlled by diet, exercise and/or tablets. Although some people in this group will use insulin injections it is sometimes referred to as non-insulin dependant diabetes.

A3: South Asian communities and diabetes
People from India, Pakistan, Bangladesh and Sri Lanka (South Asian communities) have a four or five times greater risk of developing diabetes than someone from a European community. Around 20 to 25 per cent of South Asian adults aged 50 or over in the UK develop Type 2 diabetes.

At the moment the reasons why people from these communities are more at risk of Type 2 diabetes are not fully understood. There are thought to be a number of factors involved. As well as genetic make up these include diet, being overweight and not doing enough exercise.

http://www.rnib.org.uk/eyehealth/eyeconditions/eyeconditionsdn/Pages/diabetes.aspx
People from South Asian communities can also have problems using the insulin their bodies produce, making it more difficult for them to regulate the sugar in their blood. It also appears that they are more likely to put on weight around their middles, known as central obesity. This can put stress on the parts of the body that produce insulin meaning it isn’t able to work properly.

**A4: Gestational diabetes mellitus (GDM)**

GDM is a type of diabetes that sometimes arises during the second or third trimester of pregnancy. For most women this diabetes goes away after pregnancy but it increases the chances of developing type 1 or type 2 diabetes in later life.

**A5: Local GP practice QOF diabetes disease registries, 2012/13**

As part of the GP GMS contract introduced in 2004, General Practices obtain points for achievements against a range of indicators. The system is known as the Quality and Outcomes Framework (QOF) and is used for calculating financial payment. One of the achievements is forming registers of patients with specific diseases, including diabetes.

The information for the QOF is extracted from the GP systems using the Quality Management and Analysis System (QMAS), and is provided at GP level for all practices throughout England via the Health and Social Care Information Centre (HSCIC). The information is available in the September after the end of the financial year. As it is a financial payment system to allow payments to be made by the end of April following the end of the financial year, the list size is taken as at 1st January. The register indicators are extracted from the QMAS on the 14th February, and the ongoing care indicators are extracted on the 31st March. Patients who have joined the practice within the last three months of the financial year are automatically excluded from the register and ongoing care indicators. The prevalence is calculated as at 14th February (based on the list size on 1st January). It has been assumed that the difference between the denominator for a specific ongoing care indicator and the number of patients on the register are the number of exceptions.

The practice list size and number of persons on the stroke register is known for all practices, but the resulting prevalence from QOF is not adjusted for age in any way. Therefore, practices with particularly young patients such as those predominantly serving student populations, as in UEA Medical Centre, will have a much lower prevalence rate than those serving older populations such as practices with a high number of nursing home patients.

Royal National Institute of Blind People (RNIB) has estimated 58,500 (681.8 per 100,000) adults with diabetes in Norfolk. It estimated 16,380 people living with background diabetic retinopathy at a rate of 190.9 per 100,000 residents; this would translate to 28% of all people with diabetes. RNIB also estimated around 1,870 people living with non proliferative and proliferative diabetic retinopathy at a rate of 21.8 per 100,000 residents; 3.2% of all people with diabetes.

While the GP practice QOF diabetes disease registries for 2012/13 shows that only 44,174 (6.2%) patients aged 17+ years diagnosed with diabetes in Norfolk which is slightly higher than England average (6%). Rates of diabetes show variations within CCGs, the highest in West Norfolk CCG 7.6% (10,421 people) and lowest in Norwich CCG 4.7% (8,138 people) among persons aged 17+ years diagnosed with diabetes.

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148 Patients can be made exceptions from a particular indicator if it is medically inappropriate for that particular person or if that particular patient did not attend a particular review. This was introduced so that practices are not penalised, as some of the on-going care indicators depend on achieving a specified percentage of patients receiving the designated level of care.
B: Age-related macular degeneration (AMD)\textsuperscript{149, 150}

Age-related macular degeneration (AMD) is a painless eye condition that leads to the gradual loss of central vision.

Central vision is used to see what is directly in front of the person, during activities such as reading or watching television for example.

The central vision becomes increasingly blurred leading to symptoms including:

- Difficulty reading printed or written text (because it appears blurry).
- Colours appear less vibrant.
- Difficulty recognising people's faces.

AMD usually affects both eyes, but the speed at which it progresses can vary from eye to eye.

What causes AMD?

Macular degeneration develops when the macula (the part of the eye responsible for central vision) is unable to function as effectively as it used to.

It is still unclear what causes the macula to become damaged, but getting older, smoking and a family history of AMD are known to increase the risk of developing the condition. Macular degeneration does not affect the peripheral vision (outer vision), which means it will not cause complete blindness.

Table B: Diagnosed prevalence of Diabetes on Norfolk’s General Practice registers, 2012/13

<table>
<thead>
<tr>
<th></th>
<th>Estimated number of persons\textsuperscript{17+}</th>
<th>Diabetes Mellitus prevalence (17+)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Great Yarmouth and Waveney CCG</td>
<td>190,385</td>
<td>13,261</td>
</tr>
<tr>
<td>* Great Yarmouth</td>
<td>83,534</td>
<td>6,027</td>
</tr>
<tr>
<td>North Norfolk CCG</td>
<td>141,742</td>
<td>9,025</td>
</tr>
<tr>
<td>Norwich CCG</td>
<td>171,972</td>
<td>8,138</td>
</tr>
<tr>
<td>South Norfolk CCG</td>
<td>181,914</td>
<td>10,563</td>
</tr>
<tr>
<td>West Norfolk CCG</td>
<td>137,287</td>
<td>10,421</td>
</tr>
<tr>
<td>Norfolk</td>
<td>823,300</td>
<td>51,408</td>
</tr>
<tr>
<td>Norfolk</td>
<td>716,449</td>
<td>44,174</td>
</tr>
<tr>
<td>Midlands and East of England Commissioning Region</td>
<td>850,280</td>
<td>6.3</td>
</tr>
<tr>
<td>England</td>
<td>2,703,044</td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{*} Great Yarmouth and Waveney (Health East) CCG consists of 27 practices of which 13 located in Great Yarmouth (Norfolk) and 14 located in Waveney (Suffolk). In this category we only looked at prevalence of diabetes among the 13 practices located in Great Yarmouth as it is part of Norfolk.

\textsuperscript{149} http://www.rnib.org.uk/eyehealth/eyeconditions/conditionsac/Pages/amd.aspx
\textsuperscript{150} http://www.nhs.uk/Conditions/Macular-degeneration/Pages/Introduction.aspx
At the moment, the exact cause for AMD is not known. Some risk factors are thought to increase the chances of developing AMD:

- **Age:** AMD develops as people grow older and is most often seen in people over the age of 65, although it can develop in people who are in their 40s and 50s.

- **Gender:** more women have AMD than men, probably because women tend to live longer than men.

- **Genes:** some genes have been identified which seem to be linked to the development of AMD in some people. This has been discovered by looking at families with more than one member who has AMD, but not all AMD is thought to be inherited.

- **Smoking:** smoking greatly increases the risk of developing AMD. Studies also show that stopping smoking can reduce the risk of developing AMD.

- **Sunlight:** some studies suggest that exposure to high levels of sunlight (particularly the UV light contained in sunlight) throughout life may increase risk of developing AMD. Wearing sunglasses to protect the eyes from the UV light in sunlight is important to decrease the chance of getting AMD.

- **Food habits:** a number of studies have looked at diet as a risk factor for someone developing AMD. At the moment there isn't agreement on how much of a risk factor diet is. There is some evidence that vitamins A, C and E and zinc may help to slow the progression of AMD in people who already have the condition.

Although it is not easy to change age or genes, current thinking is that protecting the eyes from the sun, eating a balanced diet with plenty of fresh fruit and vegetables, and stopping smoking may all help to keep the eyes as healthy as possible. Unfortunately, because the exact cause of AMD is not known some people may develop this condition even if they don’t have any of these risk factors.

**B1: Types of AMD**

There are two main types of AMD:

**B1.1: Dry AMD**
Dry AMD develops when the cells of the macula become damaged due to lack of nutrients and a build-up of waste products called drusens. It is the least serious type of AMD. The loss of vision is gradual, occurring over many years.

**B1.2: Wet AMD**
Wet AMD develops when abnormal blood vessels form underneath the macula and damage its cells (doctors sometimes refer to wet AMD as neo-vascular AMD). Wet AMD is more serious and without treatment, vision can deteriorate within days.

**B1.3: Both types of AMD**
Wet and dry AMD have things in common. They usually affect both eyes, though sometimes one eye may be affected long before the other. Both wet and dry AMD only affect the central vision and won't affect the vision around the edge of the sight. So neither type of AMD will cause loss of all sight.
Some people diagnosed with dry AMD find, with time, new blood vessels grow and they develop wet AMD. Some people may have wet AMD in one eye and have dry AMD in the other which doesn't develop into wet AMD. Most people, however, have the same type of AMD in both eyes.

Confusingly, people who have had wet AMD for a long time, causing bad scarring on their retina, may be told that their wet AMD has "dried up". This usually means that there are no new blood vessels growing and the macula has been badly scarred. At this stage of wet AMD, the treatment is not helpful.

AMD is not painful and it never leads to a complete loss of vision. Most people with AMD keep their peripheral vision (everything around the edge).

**B2: Epidemiology of AMD**
- AMD is the most common cause of severe visual impairment in older adults in the developed world.
- The two main late AMD phenotypes geographic atrophy and exudative AMD are responsible for two thirds of registrations of visual impairment or blindness in the UK.
- The estimated prevalence of late AMD in the UK is 4.8% of those over 65 years of age and 12.2% of those aged 80 years or more.
- About 60% of people with intermediate or late AMD have the neovascular type (wet AMD), and 40% have non-neovascular AMD (mainly geographic atrophy).
- The prevalence is increasing in line with an ageing population.

**B3: Local figures for AMD**
The Royal National Institute of Blind People (RNIB) provided in Table 3 the estimated number of people living with age-related macular degeneration in 2011. Prevalence rates for age-related macular degeneration have been applied to 2011 Census data for local populations aged 50 and over.

It is estimated that around 10,990 people per year in Norfolk have a suspected AMD. It can be seen that there are large discrepancies between Norfolk (128.1 per 100,000 residents) and East of England average rate (104.5 per 100,000 residents) or England average rate (96.6 per 100,000 residents). During the same period the number of people living in Norfolk with wet age-related macular degeneration is considerably higher than with dry age-related macular degeneration: 7,490 (87.3 per 100,000 residents) compared to 3,500 (40.8 per 100,000 residents).

**C: Cataract**
Cataracts are cloudy patches in the lens that can make vision blurred or misty. They are a very common eye condition. Cataracts can develop in one or both eyes, and one eye can often be more affected than the other. The lens is the transparent structure positioned at the front of the eye. It is normally clear and allows light to pass through to the back of the eye. However, if parts of the lens become cloudy (opaque), light is unable to pass through the cloudy patches.

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152 Prevalence rates for age-related macular degeneration as outlined in the Future Sight Loss UK 2 have been applied to 2011 Census data for population aged 50 and over.
Over time, the cloudy patches become bigger, and more of them develop. As less light is able to pass through the lens, the person’s vision is likely to become blurry or cloudy. The cloudier the lens becomes, the more the person’s sight will be affected.

**Who is affected?**
Cataracts are the main cause of impaired vision worldwide, particularly in developing countries. They affect men and women equally. Cataracts are more common in older people. Cataracts that affect older people are known as age-related cataracts. In the UK, more than half of people who are over 65 have some cataract development in one or both eyes. In rare cases, babies have cataracts when they are born, or children develop them at a young age. If we assumed that 50% of the population over 65 have some sort of cataract and applied the rate to the GP practice registered population (at April 2013), it estimated that around 112,090 people aged 65 and over in Norfolk suffer from Cataracts of which 51,599 were males and 60,491 were females Table 5.

**Table 5: Estimated number of people aged 65+ and over with some cataract development in Norfolk and Waveney, 2013 (50% rate applied to local GP practice registers population, April 2013)**

<table>
<thead>
<tr>
<th></th>
<th>Population 65+</th>
<th>Estimated number of people aged 65+ with cataracts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Health East</td>
<td>24,891</td>
<td>29,022</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>21,688</td>
<td>25,214</td>
</tr>
<tr>
<td>Norwich</td>
<td>15,588</td>
<td>19,501</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>22,301</td>
<td>25,404</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>18,730</td>
<td>21,840</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>103,198</td>
<td>120,981</td>
</tr>
</tbody>
</table>

**Who’s at risk?**
As well as the age, there are several things that may increase the risk of developing a cataract, including:
- A history of cataracts in the family.
- Smoking.
- Lifestyle factors, such as poor diet.
- Overexposing the eyes to sunlight.
- Taking steroid medicines (medicines that contain powerful chemicals called hormones) for a long time.
- Certain health conditions, such as diabetes.

**Treating age-related cataracts**
If cataracts are mild, stronger glasses and brighter reading lights may enable people to live with the condition. If left untreated, cataracts can cause blindness. However, this is very rare in developed countries\(^{154}\).

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\(^{154}\) [http://www.rnib.org.uk/eyehealth/eyeconditions/conditionsac/Pages/cataract.aspx]
Once cataracts start interfering with daily activities such as cooking or getting dressed, surgery is usually recommended. It’s estimated that around 10 million cataract operations are performed around the world each year.

C1: Local figures for Cataract
The lower estimate for the number of people living with cataract identified in National Eye Health Epidemiological Model (NEHEM) has been applied to 2011 Census data for population aged 40 and over to estimate the number of people living with cataract. Table 3 shows there were 8,940 people living in Norfolk with cataract at a rate of 104.2 per 100,000 residents which is higher than East of England average rate or England average rate 96 and 92.2 per 100,000 residents aged 40+ years respectively.

D: Glaucoma
Glaucoma is a term that describes a group of eye conditions that affect vision. Glaucoma often affects both eyes, usually in varying degrees. One eye may develop glaucoma quicker than the other. Glaucoma occurs when the drainage tubes (trabecular meshwork) within the eye become slightly blocked. This prevents eye fluid (aqueous humour) from draining properly.

When the fluid cannot drain properly, pressure builds up. This is called intraocular pressure. This can damage the optic nerve (which connects the eye to the brain) and the nerve fibres from the retina (the light-sensitive nerve tissue that lines the back of the eye).

Types of glaucoma
There are four main types of glaucoma:

- Chronic open-angle glaucoma – this is the most common type of glaucoma and develops very slowly.
- Primary angle-closure glaucoma – this is rare and can occur slowly (chronic) or may develop rapidly (acute) with a sudden, painful build-up of pressure in the eye.
- Secondary glaucoma – this occurs as a result of an eye injury or another eye condition, such as uveitis (inflammation of the middle layer of the eye).
- Developmental glaucoma (congenital glaucoma) – this is rare but can be serious. It is usually present at birth or develops shortly after birth. It is caused by an abnormality of the eye.

Treating glaucoma
Glaucoma can be treated with eye drops, laser treatment or surgery. However, early diagnosis is important because any damage to the eyes cannot be reversed. Treatment aims to control the condition and minimise future damage. If left untreated, glaucoma can cause visual impairment. But if it is diagnosed and treated early enough, further damage to vision can be prevented.

D1: Epidemiology of glaucoma
- Glaucoma is one of the most common eye conditions encountered in primary and secondary care.

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155 http://www.eyehealthmodel.org/#
156 http://www.patient.co.uk/doctor/glaucoma-and-ocular-hypertension, Glaucoma Focus; Royal National Institute of Blind People (RNIB) and International Glaucoma Association (IGA)
The World Health Organization estimated that in 2010 glaucoma accounted for 2% of visual impairment and 8% of global blindness. Glaucoma is the leading cause of irreversible blindness in the world.

Disability adjusted life years attributable to glaucoma more than doubled between 1990 and 2010 due to the worldwide increase in the number of older people.

In the UK, glaucoma is the second most common cause for registration of visual impairment, accounting for 9-12% of registrations in people over the age of 65 years.

The social and economic burden of glaucoma is likely to increase in the future because of longer life expectancy and an ageing population.

Primary open-angle glaucoma (POAG) is the most common type of glaucoma, accounting for over 70% of cases.

Ocular hypertension affects 3-5% of the population over 40 years of age but only a small proportion of these people develop glaucoma.

**D2: Local figures for Glaucoma**

Prevalence estimates of glaucoma cases as identified in NEHEM have been applied to 2011 Census data for population aged 30 and over to calculate the expected number of patients with glaucoma. It is estimated that there were around 8,000 people living in Norfolk with glaucoma at a rate of 93.2 per 100,000 residents compared to 89.5 for East of England and 87.3 for England per 100,000 residents (Table 3).

**E: Ocular hypertension**

**What Causes Ocular Hypertension?**

Ocular hypertension occurs when the pressure in the eye (known as intraocular pressure IOP) is above the range considered normal (often defined as above 21 mm Hg). It is distinguished from glaucoma, a more serious eye condition, in that there are no detectable changes in vision, no evidence of visual field loss, and no damage to the optic nerve. Patients diagnosed with ocular hypertension have an increased risk of developing glaucoma\(^{157}\).

In many cases people with glaucoma also have a raised pressure within their eyes and it does mean that someone with ocular hypertension is at increased risk of developing glaucoma, which is why it is most important for people with ocular hypertension to be monitored carefully in order that any glaucoma that does develop is detected at the earliest possible stage when treatment is most effective\(^{158}\). Surveys show that 20-52% of patients with glaucoma have IOP within the normal range. Patients with statistically normal IOP who develop the characteristic changes associated with open-angle glaucoma are said to have low tension or normal pressure glaucoma\(^{159}\).

**What Causes Ocular Hypertension?**

Ocular hypertension is the result of inadequate drainage of the aqueous humor (a fluid inside the eye). Essentially, this means that too much fluid enters the eye without being drained, causing high amounts of pressure to build up.


\(^{158}\) [http://www.glaucoma-association.com/other-eye-conditions/ocular-hypertension.html](http://www.glaucoma-association.com/other-eye-conditions/ocular-hypertension.html)

It occurs most commonly in people with a family history of ocular hypertension, people who are near sighted, and people with diabetes.

**Symptoms of Ocular Hypertension**
Because there are no symptoms with ocular hypertension, it is impossible for a patient to notice it on their own. However, if a regular eye exam schedule is maintained, an eye care professional can find it in routine testing.

During a regular eye exam, intraocular pressure is measured using a device called a tonometer. If elevated pressure is measured above 21 mm Hg twice, an eye care professional may diagnose ocular hypertension.

**Treatment for Ocular Hypertension**
Considering that the condition may put one at higher risk for glaucoma, careful and frequent monitoring by an eye care professional is recommended for those with ocular hypertension.

**E1: Local figures for Ocular Hypertension**
Prevalence estimates for the current number of people living with ocular hypertension as identified in NEHEM at national level and have been applied to 2011 Census data for local populations aged 30 and over to provide an estimate.

It is estimated around 18,280 (213.1 per 100,000 residents) people aged 30 years and over are living in Norfolk with ocular hypertension. The ocular hypertension prevalence rate for those aged 30 and over per 100,000 residents in Norfolk was higher than the East of England (204.5) and England (199.5) average rates per 100,000 residents (**Table 3**).
### Appendix 2D: Sight loss tool definitions for each indicator

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Source</th>
<th>Calculations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total number of people registered blind</td>
<td>Registered blind and partially sighted people</td>
<td>Total number of registered blind people as per official statistics</td>
</tr>
<tr>
<td>2. Total number of people registered partially sighted</td>
<td>Registered blind and partially sighted people</td>
<td>Total number of registered partially sighted people as per official statistics</td>
</tr>
<tr>
<td>3. Total number of people registered as blind or partially sighted</td>
<td>Registered blind and partially sighted people</td>
<td>Combined totals for registered blind and partially sighted people.</td>
</tr>
<tr>
<td>4. Number of people newly certified as Severely Sight Impaired in 2010/11</td>
<td>Certifications Office, Moorfields Eye Hospital</td>
<td>Total number of Certificates of Vision Impairment issued in 2010/11 where visual status = severely sight impaired</td>
</tr>
<tr>
<td>5. Number of people newly certified as Sight Impaired in 2010/11</td>
<td>Certifications Office, Moorfields Eye Hospital</td>
<td>Total number of Certificates of Vision Impairment issued in 2010/11 where visual status = sight impairment</td>
</tr>
<tr>
<td>6. Total number of Certification of Vision Impairment in 2010/11</td>
<td>Public Health Outcomes Framework Data Tool</td>
<td>Total = including area unknown and visual status not stated</td>
</tr>
<tr>
<td>7. Rate of Certifications of Vision Impairment issued per 100k population in 2010/11</td>
<td>Public Health Outcomes Framework Data Tool</td>
<td>See &quot;Definitions&quot; tab on PH Outcomes website</td>
</tr>
<tr>
<td>8. Estimated number of people living with sight loss in 2011</td>
<td>1. Future Sight Loss UK 1; 2. 2011 Census</td>
<td>Prevalence rates for the leading causes of sight loss from Future Sight Loss UK 1 have been applied to 2011 Census data by local authority area to give an estimate of the number of people living with sight loss in each area</td>
</tr>
<tr>
<td>9. Percentage of people living with sight loss compared to overall population in 2011</td>
<td>2011 Census and RNIB calculations</td>
<td>Percentage for a given area calculated by dividing the estimated number of people living with sight loss as calculated in Indicator 7 by overall population for that area</td>
</tr>
<tr>
<td>10. Estimated number of people predicted to be living with sight loss in 2020</td>
<td>1. Future Sight Loss UK 1; 2. National population projections, 2010-based projections</td>
<td>Prevalence rates for the leading causes of sight loss from Future Sight Loss UK 1 have been applied to population estimates for each local authority to give an estimate of the number of people living with sight loss in 2020.</td>
</tr>
<tr>
<td>11. Percentage of people living with sight loss compared to overall population in 2020</td>
<td>2011 Census and RNIB calculations</td>
<td>Percentage for a given area calculated by dividing the estimated number of people living with sight loss as calculated in Indicator 9 by overall population for that area</td>
</tr>
<tr>
<td>12. Number of people aged 70 and over in 2011</td>
<td>2011 Census, Population and Household Estimates for England and Wales</td>
<td>People aged 70 and over identified in the 2011 Census</td>
</tr>
<tr>
<td>13. Estimated number of people aged 70 and over in 2020</td>
<td>National population projections, 2010-based projections</td>
<td>Estimated number of people aged 70 and over as identified in 2010-based population projections</td>
</tr>
<tr>
<td>14. Estimated number of adults with diabetes</td>
<td>1. Diabetes in the UK 2012; 2. 2011 Census</td>
<td>Prevalence rates for diabetes taken from a Diabetes UK publication, which were originally sources from the Health Survey for England 2010. These prevalence rates were then</td>
</tr>
</tbody>
</table>

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Eye health and sight loss; statistics and information for developing a Joint Strategic Needs Assessment
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Data Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. Average score on indices of deprivation (higher score = more deprived)</td>
<td>The English Indices of Deprivation 2010</td>
<td>The English Indices of Deprivation measures relative levels of deprivation in small areas of England called Lower Layer Super Output Areas. Most of the indicators used in these statistics are from 2008. The information presented here is taken from local authority summaries, and is an average across many different indices of deprivation.</td>
</tr>
<tr>
<td>16. Estimated number of people living with age-related macular degeneration</td>
<td>1. Future Sight Loss UK 2; 2. 2011 Census</td>
<td>Prevalence rates for age-related macular degeneration as outlined in the Future Sight Loss UK 2 have been applied to 2011 Census data for population aged 50 and over.</td>
</tr>
<tr>
<td>17. Living with wet age-related macular degeneration</td>
<td>1. Future Sight Loss UK 2; 2. 2011 Census</td>
<td>Prevalence rates for wet age-related macular degeneration as outlined in the Future Sight Loss UK 2 have been applied to 2011 Census data for population aged 50 and over.</td>
</tr>
<tr>
<td>18. Living with dry age-related macular degeneration</td>
<td>1. Future Sight Loss UK 2; 2. 2011 Census</td>
<td>Prevalence rates for dry age-related macular degeneration as outlined in the Future Sight Loss UK 2 have been applied to 2011 Census data for population aged 50 and over.</td>
</tr>
<tr>
<td>19. Estimated number of people living with cataract</td>
<td>1. NEHEM; 2. 2011 Census</td>
<td>The lower estimate for the number of people living with cataract identified in NEHEM has been applied to 2011 Census data for population aged 40 and over.</td>
</tr>
<tr>
<td>20. Estimated number of people living with glaucoma</td>
<td>1. NEHEM; 2. 2011 Census</td>
<td>Prevalence estimates for the number of mean estimated prevalence of glaucoma cases as identified in NEHEM have been applied to 2011 Census data for population aged 30 and over.</td>
</tr>
<tr>
<td>21. Estimated number of people living with ocular hypertension</td>
<td>1. NEHEM; 2. 2011 Census</td>
<td>Prevalence estimates for the number of people living with ocular hypertension as identified in NEHEM have been applied to 2011 Census data for population aged 30 and over.</td>
</tr>
<tr>
<td>22. Estimated number of people living with background diabetic retinopathy</td>
<td>Future Sight Loss UK 2 and RNIB estimates</td>
<td>Prevalence rates for background diabetic retinopathy as outlined in the Future Sight Loss UK 2 have been applied to the estimated number of diabetics in each area (as identified in indicator 13).</td>
</tr>
<tr>
<td>23. Estimated number of people living with non-proliferative and proliferative diabetic retinopathy</td>
<td>Future Sight Loss UK 2 and RNIB estimates</td>
<td>Prevalence rates for non-proliferative and proliferative diabetic retinopathy as outlined in the Future Sight Loss UK 2 have been applied to the estimated number of diabetics in each area (as identified in indicator 13).</td>
</tr>
<tr>
<td>24. Number of NHS hospitals with eye clinics</td>
<td>RNIB mapping data on early reach support in eye clinics</td>
<td>Mapping of eye clinics in the UK. The postcode of each hospital with support was mapped to local authorities using CACI software.</td>
</tr>
<tr>
<td>25. Number of hospital locations with Eye Clinic Liaison Officers or early reach support</td>
<td>RNIB mapping data on early reach support in eye clinics</td>
<td>Mapping RNIB-group ECLOs and eye clinic support provided by other organisations to hospital locations. The postcode of each hospital with support was mapped to local authorities using CACI software.</td>
</tr>
<tr>
<td>27. Number of blind and partially sighted children and young people aged 0-16</td>
<td>1) RNIB survey of VI services ; 2) Census 2011</td>
<td>Prevalence estimates for partially sight and blindness applied to Census 2011 data.</td>
</tr>
<tr>
<td>28. Number of blind and partially sighted children and young people aged 17-25</td>
<td>1) RNIB survey of VI services ; 2) Census 2011</td>
<td>Prevalence estimates for partially sight and blindness applied to Census 2011 data.</td>
</tr>
</tbody>
</table>
Appendix 3: Snellen scale\textsuperscript{160, 161},

The consultant has rules to follow when completing the Certificate of Vision Impairment (CVI), the form used in England. Other certification forms use similar rules.

These rules take into account:

\textsuperscript{160} http://www.rnib.org.uk/livingwithsightloss/registeringsightloss/Pages/vision_criteria.aspx
\textsuperscript{161} http://www.keratoconus-group.org.uk/snellen/
Eye health and sight loss; statistics and information for developing a Joint Strategic Needs Assessment

- Visual acuity: central vision, the vision the person uses to see detail.
- Visual field: how much a person can see around the edge of vision, while looking straight ahead.

The visual acuity is measured by reading down an eye chart while wearing any glasses or contact lenses that a person may need. This is known as a Snellen test. The field of vision is measured by a 'field of vision test'.

Measuring visual acuity and visual field helps the ophthalmologist to decide whether a person eligible to be registered as severely sight impaired (blind) or sight impaired (partially sighted).

**Snellen scale**

Visual acuity is measured using the Snellen scale. A Snellen test usually consists of a number of rows of letters which get smaller as read down the chart.

On the Snellen scale, normal visual acuity is called 6 / 6, which corresponds to the bottom or second bottom line of the chart. If a person can only read the top line of the chart then this would be written as 6 / 60. This means he/she can see at 6 metres what someone with standard vision could see from 60 metres away.

The figures 6 / 60 or 3 / 60 are how the result of a Snellen test are written. The first number given is the distance in metres from the chart where the person sits when he/she reads it. Usually this is a 6 (for 6 metres) but would be 3 if the person were to sit closer to the chart, i.e. 3 metres away.

The second number corresponds to the number of lines that the person is able to read on the chart. The biggest letters, on the top line, correspond to 60. As to read down the chart, the numbers that correspond to the lines get smaller, i.e. 36, 18, 12, 9 and 6. The bottom line of the chart corresponds to the number 6. Someone with standard vision who can read to the bottom of the chart would have vision of 6 / 6.

For example, a person with standard vision would be able to read the second line on the chart when 36 metres away. However, if he/she had a Snellen score of 6 / 36, that person would only be able to read the same line at 6 metres away. In other words he/she need to be much closer to the chart to be able to read it. Generally the larger the second number is, the worse the sight is.
Appendix 4: National Eye Health Epidemiological Model (NEHEM)

Total number of people estimated to have glaucoma, glaucoma suspects, and ocular hypertension cases by local authority for Norfolk, 2012/13

<table>
<thead>
<tr>
<th></th>
<th>Glaucoma Cases (30+ years)</th>
<th>Glaucoma Suspects</th>
<th>Ocular Hypertension 30+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Breckland</td>
<td>1,254</td>
<td>772</td>
<td>1,773</td>
</tr>
<tr>
<td>Broadland</td>
<td>1,237</td>
<td>758</td>
<td>1,748</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>960</td>
<td>590</td>
<td>1,357</td>
</tr>
<tr>
<td>King's Lynn and West Norfolk</td>
<td>1,500</td>
<td>928</td>
<td>2,129</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>1,279</td>
<td>795</td>
<td>1,818</td>
</tr>
<tr>
<td>Norwich</td>
<td>1,110</td>
<td>691</td>
<td>1,584</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>1,158</td>
<td>707</td>
<td>1,629</td>
</tr>
<tr>
<td>Waveney</td>
<td>1,277</td>
<td>793</td>
<td>1,814</td>
</tr>
<tr>
<td>Norfolk</td>
<td>8,498</td>
<td>5,241</td>
<td>12,038</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>9,775</td>
<td>6,034</td>
<td>13,852</td>
</tr>
</tbody>
</table>

Note: This is the best estimate from the available evidence.

Cataract prevalence rate among people aged 40+ years by local authority in Norfolk, 2001

<table>
<thead>
<tr>
<th></th>
<th>Prevalence (%)</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low Estimate</td>
<td>High Estimate</td>
</tr>
<tr>
<td>Breckland</td>
<td>2.05</td>
<td>7.24</td>
</tr>
<tr>
<td>Broadland</td>
<td>1.99</td>
<td>7.09</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>2.10</td>
<td>7.36</td>
</tr>
<tr>
<td>King's Lynn and West Norfolk</td>
<td>2.12</td>
<td>7.49</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>2.35</td>
<td>8.05</td>
</tr>
<tr>
<td>Norwich</td>
<td>2.23</td>
<td>7.57</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>1.95</td>
<td>6.99</td>
</tr>
<tr>
<td>Waveney</td>
<td>2.29</td>
<td>7.81</td>
</tr>
<tr>
<td>Norfolk</td>
<td>8,861</td>
<td>31,079</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>10,234</td>
<td>35,770</td>
</tr>
</tbody>
</table>

Note: two cataract estimates, a higher and lower, based on two well designed population prevalence studies (Frost et al study and McCarty et al study).
Estimated prevalence among people aged 50+ years with Drusen disorder and Age Related Macular Degeneration AMD (Wet AMD and Dry AMD) across Norfolk and Waveney, 2001

<table>
<thead>
<tr>
<th>Local authority</th>
<th>AMD Cases</th>
<th>NV-AMD Cases</th>
<th>Geographic Atrophy Cases</th>
<th>Drusen Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prevalence (%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breckland</td>
<td>2.5</td>
<td>1.8</td>
<td>0.9</td>
<td>11.4</td>
</tr>
<tr>
<td>Broadland</td>
<td>2.5</td>
<td>1.7</td>
<td>0.9</td>
<td>11.2</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>2.6</td>
<td>1.8</td>
<td>0.9</td>
<td>11.5</td>
</tr>
<tr>
<td>King's Lynn and West Norfolk</td>
<td>2.5</td>
<td>1.8</td>
<td>0.9</td>
<td>11.6</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>2.7</td>
<td>1.9</td>
<td>1.0</td>
<td>11.9</td>
</tr>
<tr>
<td>Norwich</td>
<td>2.9</td>
<td>2.0</td>
<td>1.0</td>
<td>12.1</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>2.4</td>
<td>1.7</td>
<td>0.8</td>
<td>11.1</td>
</tr>
<tr>
<td>Waveney</td>
<td>2.8</td>
<td>2.0</td>
<td>1.0</td>
<td>11.9</td>
</tr>
<tr>
<td><strong>Number</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breckland</td>
<td>1,194</td>
<td>843</td>
<td>418</td>
<td>5,368</td>
</tr>
<tr>
<td>Broadland</td>
<td>1,163</td>
<td>822</td>
<td>405</td>
<td>5,302</td>
</tr>
<tr>
<td>Great Yarmouth</td>
<td>930</td>
<td>657</td>
<td>326</td>
<td>4,133</td>
</tr>
<tr>
<td>King's Lynn and West Norfolk</td>
<td>1,423</td>
<td>1,004</td>
<td>497</td>
<td>6,493</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>1,284</td>
<td>907</td>
<td>449</td>
<td>5,592</td>
</tr>
<tr>
<td>Norwich</td>
<td>1,115</td>
<td>787</td>
<td>394</td>
<td>4,672</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>1,081</td>
<td>764</td>
<td>377</td>
<td>4,990</td>
</tr>
<tr>
<td>Waveney</td>
<td>1,282</td>
<td>905</td>
<td>450</td>
<td>5,509</td>
</tr>
<tr>
<td><strong>Norfolk</strong></td>
<td>8,190</td>
<td>5,784</td>
<td>2,866</td>
<td>36,550</td>
</tr>
<tr>
<td><strong>Norfolk and Waveney</strong></td>
<td>9,472</td>
<td>6,689</td>
<td>3,316</td>
<td>42,059</td>
</tr>
</tbody>
</table>
Appendix 5: Summary

These slides were given as part of the presentation at the Vision Strategy group held at Norfolk County Council, 8\textsuperscript{th} May 2014.

Chapter I: Programme Budgeting

- The average Programme spend per head on problem of visions programmes in 2011/12 was £52.45 for (North Norfolk, Norwich, South Norfolk, West Norfolk CCGs) and £53.80 for Great Yarmouth and Waveney CCG compared to the England average £42.84. Therefore expenditure in Norfolk and Waveney was comparatively higher than England.

<table>
<thead>
<tr>
<th>Cost of sight loss for Norfolk, 2011/12</th>
<th>£</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total programme budget spend on problems of vision</td>
<td>£45,016,013</td>
</tr>
<tr>
<td>Total estimated indirect cost of sight loss</td>
<td>£90,757,000</td>
</tr>
<tr>
<td>Programme budget spend on problems of vision per person</td>
<td>£51.96</td>
</tr>
<tr>
<td>The estimated indirect cost of sight loss per person</td>
<td>£105.79</td>
</tr>
</tbody>
</table>

Why we spend higher:
- Higher elder population
- Vision services particularly matching needs
Chapter 2: National frameworks
New Certifications of Visual Impairment (CVI) due to age-related macular (AMD, 65+)

4.12i – Prevalent sight loss – age related macular degeneration (AMD)

<table>
<thead>
<tr>
<th>Area</th>
<th>Value</th>
<th>95% Lower CI</th>
<th>95% Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>116.5</td>
<td>109.3</td>
<td>124</td>
</tr>
<tr>
<td>Hertfordshire</td>
<td>115.8</td>
<td>108.2</td>
<td>124</td>
</tr>
<tr>
<td>Norfolk</td>
<td>115.6</td>
<td>106.7</td>
<td>126</td>
</tr>
<tr>
<td>Essex</td>
<td>103.4</td>
<td>96.9</td>
<td>109</td>
</tr>
<tr>
<td>Central Bedsford</td>
<td>99.3</td>
<td>91.4</td>
<td>106</td>
</tr>
<tr>
<td>Suffolk</td>
<td>93.1</td>
<td>86.0</td>
<td>100</td>
</tr>
<tr>
<td>Luton</td>
<td>95.9</td>
<td>89.6</td>
<td>103</td>
</tr>
<tr>
<td>Thurmack</td>
<td>95.9</td>
<td>89.6</td>
<td>103</td>
</tr>
<tr>
<td>Peterborough</td>
<td>91.7</td>
<td>83.8</td>
<td>98.7</td>
</tr>
<tr>
<td>Bedford</td>
<td>91.5</td>
<td>83.8</td>
<td>98.7</td>
</tr>
<tr>
<td>Southend-on-Sea</td>
<td>81.9</td>
<td>73.0</td>
<td>91.8</td>
</tr>
<tr>
<td>Cambridgeshire</td>
<td>80.9</td>
<td>73.0</td>
<td>91.8</td>
</tr>
</tbody>
</table>

Source: Calculated by Public Health England Knowledge and Intelligence Team (West Midlands) from data provided by Moorfields Eye Hospital and Office for National Statistics

Is this due to ophthalmologists and eye clinic in Norfolk are more aware of the impact of sight loss or to other factors i.e. smoking, high blood pressure and abnormal cholesterol.

Chapter 2: National frameworks
People aged 40+ who have sight loss due to glaucoma

4.17i – Prevalent sight loss – glaucoma

<table>
<thead>
<tr>
<th>Area</th>
<th>Value</th>
<th>95% Lower CI</th>
<th>95% Upper CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>12.8</td>
<td>11.4</td>
<td>14.3</td>
</tr>
<tr>
<td>Peterborough</td>
<td>14.5</td>
<td>12.9</td>
<td>16.0</td>
</tr>
<tr>
<td>Southend-on-Sea</td>
<td>10.2</td>
<td>9.0</td>
<td>11.6</td>
</tr>
<tr>
<td>Suffolk</td>
<td>16.2</td>
<td>14.5</td>
<td>18.0</td>
</tr>
<tr>
<td>Norfolk</td>
<td>12.4</td>
<td>10.9</td>
<td>14.8</td>
</tr>
<tr>
<td>Essex</td>
<td>11.9</td>
<td>10.5</td>
<td>13.6</td>
</tr>
<tr>
<td>Luton</td>
<td>11.2</td>
<td>9.8</td>
<td>12.8</td>
</tr>
<tr>
<td>Hertfordshire</td>
<td>10.9</td>
<td>9.5</td>
<td>12.2</td>
</tr>
<tr>
<td>Bedford</td>
<td>9.1</td>
<td>7.7</td>
<td>10.5</td>
</tr>
<tr>
<td>Southend-on-Sea</td>
<td>6.8</td>
<td>5.4</td>
<td>8.1</td>
</tr>
<tr>
<td>Cambridgeshire</td>
<td>6.1</td>
<td>4.7</td>
<td>7.8</td>
</tr>
<tr>
<td>Thurmack</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Calculated by Public Health England Knowledge and Intelligence Team (West Midlands) from data provided by Moorfields Eye Hospital and Office for National Statistics

There was a substantial decrease in the number of people aged 40+ who have sight loss due to glaucoma. It has been a heated controversy over whether this is entirely due to chance or due to the preventative interventions or other factors. The number of people in Norfolk who had sight loss due to glaucoma in 2010/11 was 68 (1.0 per 100,000 residents) compared to 38 (0.6 per 100,000 residents) in 2011/12 (it is higher, but Norfolk is improving).

Glaucoma screening – eye test among people with family history.
**Chapter 2: National frameworks**

### People aged 12+ years registered with sight loss due to diabetic eye disease

#### 4.12iii - Preventable sight loss - diabetic eye disease

<table>
<thead>
<tr>
<th>Area</th>
<th>Value</th>
<th>Lower CI 95%</th>
<th>Upper CI 95%</th>
<th>Crude rate - per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>1.8</td>
<td>1.7</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Bedford</td>
<td>1.7</td>
<td>1.3</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>Southend-on-Sea</td>
<td>4.0</td>
<td>2.8</td>
<td>11.4</td>
<td></td>
</tr>
<tr>
<td>Peterborough</td>
<td>4.5</td>
<td>1.8</td>
<td>9.3</td>
<td></td>
</tr>
<tr>
<td>Cambridgeshire</td>
<td>4.5</td>
<td>2.9</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>Norfolk</td>
<td>4.2</td>
<td>2.9</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>Luton</td>
<td>4.2</td>
<td>1.7</td>
<td>8.6</td>
<td></td>
</tr>
<tr>
<td>Suffolk</td>
<td>2.7</td>
<td>2.4</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>Central Bedfordshire</td>
<td>2.7</td>
<td>1.3</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>Essex</td>
<td>3.1</td>
<td>2.2</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>Hartlepool</td>
<td>1.8</td>
<td>1.8</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Thurrock</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Source: Calculated by Public Health England Knowledge and Intelligence Team (West Midlands) from data provided by Moorfields Eye Hospital and Office for National Statistics.

- During 2011/12 the number of people aged 12+ years registered with sight loss due to diabetic eye disease was 32 (4.25 per 100,000 residents) which is considerably lower than the 44 (5.88 per 100,000 residents) recorded in the previous financial year (2010/11). Norfolk is the fifth highest county in the East of England for the rate of sight loss due to diabetic eye disease in those aged 12+ per 100,000 residents. It is higher than the England average rate but does not differ significantly.

### New people certified with visual impairment

#### 4.12iv - Preventable sight loss - sight loss certifications

<table>
<thead>
<tr>
<th>Area</th>
<th>Value</th>
<th>Lower CI 95%</th>
<th>Upper CI 95%</th>
<th>Crude rate - per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>44.3</td>
<td>43.9</td>
<td>45.0</td>
<td></td>
</tr>
<tr>
<td>Suffolk</td>
<td>55.7</td>
<td>54.6</td>
<td>56.8</td>
<td></td>
</tr>
<tr>
<td>Norfolk</td>
<td>55.6</td>
<td>54.0</td>
<td>57.2</td>
<td></td>
</tr>
<tr>
<td>Bedford</td>
<td>47.5</td>
<td>37.4</td>
<td>59.5</td>
<td></td>
</tr>
<tr>
<td>Southend-on-Sea</td>
<td>47.1</td>
<td>37.4</td>
<td>58.4</td>
<td></td>
</tr>
<tr>
<td>Peterborough</td>
<td>41.9</td>
<td>34.9</td>
<td>54.1</td>
<td></td>
</tr>
<tr>
<td>Essex</td>
<td>41.7</td>
<td>30.3</td>
<td>54.0</td>
<td></td>
</tr>
<tr>
<td>Hartlepool</td>
<td>38.9</td>
<td>35.4</td>
<td>42.6</td>
<td></td>
</tr>
<tr>
<td>Luton</td>
<td>37.3</td>
<td>29.4</td>
<td>46.7</td>
<td></td>
</tr>
<tr>
<td>Cambridgeshire</td>
<td>35.8</td>
<td>31.3</td>
<td>40.3</td>
<td></td>
</tr>
<tr>
<td>Central Bedfordshire</td>
<td>35.2</td>
<td>28.3</td>
<td>43.1</td>
<td></td>
</tr>
<tr>
<td>Thurrock</td>
<td>29.7</td>
<td>23.8</td>
<td>35.9</td>
<td></td>
</tr>
</tbody>
</table>

Source: Calculated by Public Health England Knowledge and Intelligence Team (West Midlands) from data provided by Moorfields Eye Hospital and Office for National Statistics.

- During 2011/12 there were 435 new people certified with visual impairment in total, at a rate of 50.82 per 100,000 residents in Norfolk which is lower than its previous figure seen in 2010/11, 521 at a rate of 51.00 per 100,000 residents. Norfolk is the second highest county in the East of England with people certified with visual impairment in 2011/12, and is significantly higher than England average rate. (Maintain this good work, Eye clinics in hospitals to improve completion the Referral of Vision Impaired Patient Form RVI, full time job eye clinic liaison officer.)
Chapter 3: Prevalence of sight loss (RNIB)

In 2011, the estimated prevalence of sight loss in Norfolk is 3.7%, which compares to an estimated UK prevalence of 3% (Norfolk is higher due to the proportion of older population is higher). Despite good work, the numbers continue to increase.
Chapter 3: Prevalence of sight loss (RNIB) 
Certification of Vision Impairment (CVI)

Rate per 100,000 population for Certification of Vision Impairment (CVI) for Norfolk, East of England and England, 2011/12

- 435 certificates of vision impairment were issued in 2011/12 of which 204 were severely sight impaired. This represents a decrease of -17.1% when compared to the rate of certification in 2010/11.

UK Sight Tests in Norfolk, 2012/13

- 5 out of 4 hospitals providing outpatient ophthalmology appointments have some form of early intervention support available in the eye clinic.
- A Social Care Association (SCA) survey estimated that the number of Rehabilitation Officers - Visual Impairment working in Norfolk was 5 (this is a survey estimate - current number is 7).
- There was an additional 330 people in receipt of new services as a direct consequence of their sight loss following an assessment by local authority rehabilitation teams during 2011/12.
- 57 blind and partially sighted people are claiming Disability Living Allowance significantly under estimate, many have got multiple disabilities.
Chapter 3: Prevalence of sight loss (RNIB)
Certification of Vision impairment (CVI)

Other health conditions and/or disabilities that are relevant when thinking
about services for blind and partially sighted people in Norfolk, 2011

- Falls were directly attributable to sight loss: 1,380
- People are living with dementia: 4,402
- People are living with the consequences of a stroke: 5,053
- People are living with a profound hearing impairment: 2,351

Chapter 4: Modelled prevalence, The National Eye Health Epidemiological Model (NEHEM) - Glaucoma, 2012/13

Glaucoma Cases (55 years)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Those under 65</td>
<td>2,276</td>
<td>1,384</td>
<td>3,268</td>
</tr>
<tr>
<td>Those 65 to 74</td>
<td>1,154</td>
<td>1,079</td>
<td>1,319</td>
</tr>
<tr>
<td>Those over 75</td>
<td>1,315</td>
<td>1,184</td>
<td>1,478</td>
</tr>
</tbody>
</table>

For Norfolk:

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Those under 65</td>
<td>2,276</td>
<td>1,384</td>
<td>3,268</td>
</tr>
<tr>
<td>Those 65 to 74</td>
<td>1,154</td>
<td>1,079</td>
<td>1,319</td>
</tr>
<tr>
<td>Those over 75</td>
<td>1,315</td>
<td>1,184</td>
<td>1,478</td>
</tr>
</tbody>
</table>

Norfolk and Waveney:

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Those under 65</td>
<td>2,276</td>
<td>1,384</td>
<td>3,268</td>
</tr>
<tr>
<td>Those 65 to 74</td>
<td>1,154</td>
<td>1,079</td>
<td>1,319</td>
</tr>
<tr>
<td>Those over 75</td>
<td>1,315</td>
<td>1,184</td>
<td>1,478</td>
</tr>
</tbody>
</table>
### Chapter 4: Modelled prevalence, The National Eye Health Epidemiological Model (NEHEM) - Cataract among people aged 40 and over, 2012/13

<table>
<thead>
<tr>
<th></th>
<th>Prevalence (%)</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low Estimate</td>
<td>High Estimate</td>
</tr>
<tr>
<td>Health East</td>
<td>2.20</td>
<td>7.59</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>2.35</td>
<td>8.05</td>
</tr>
<tr>
<td>Norwich</td>
<td>2.11</td>
<td>7.33</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>2.00</td>
<td>7.12</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>2.12</td>
<td>7.49</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>2.20</td>
<td>7.59</td>
</tr>
</tbody>
</table>

---

### Chapter 4: Modelled prevalence, The National Eye Health Epidemiological Model (NEHEM) - Drusen disorder and Age Related Macular Degeneration (AMD) (Wet AMD and Dry AMD) among people aged 50 and over, 2012/13

<table>
<thead>
<tr>
<th></th>
<th>AMD</th>
<th>Wet-AMD</th>
<th>Dry-AMD</th>
<th>Drusen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health East</td>
<td>2,660</td>
<td>1,881</td>
<td>333</td>
<td>11,624</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>2,238</td>
<td>1,619</td>
<td>301</td>
<td>9,683</td>
</tr>
<tr>
<td>Norwich</td>
<td>1,844</td>
<td>1,303</td>
<td>548</td>
<td>8,048</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>2,234</td>
<td>1,578</td>
<td>778</td>
<td>10,152</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>1,865</td>
<td>1,320</td>
<td>548</td>
<td>8,515</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>10,850</td>
<td>7,701</td>
<td>3,808</td>
<td>48,312</td>
</tr>
</tbody>
</table>
Chapter 5: Registered Blind and Partially Sighted People - England, Year ending 31 March 2011

- Number of Blind and Partially sighted people registered (6,205) (of which 3,295 (53%) were blind, and 2,910 (47%) were Partially sighted).

Chapter 5: Registered Blind and Partially Sighted People with other disability, Year ending 31 March 2011

<table>
<thead>
<tr>
<th></th>
<th>Blind people registered with / who are</th>
<th>Partially Sighted people registered with / who are</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Mental health</td>
<td>75</td>
<td>6.5</td>
</tr>
<tr>
<td>Learning disability</td>
<td>10</td>
<td>4.3</td>
</tr>
<tr>
<td>Physical disability</td>
<td>310</td>
<td>27.7</td>
</tr>
<tr>
<td>Deaf with speech</td>
<td>530</td>
<td>45.9</td>
</tr>
<tr>
<td>Deaf without speech</td>
<td>120</td>
<td>10.4</td>
</tr>
<tr>
<td>Hard of hearing</td>
<td>35</td>
<td>4.8</td>
</tr>
<tr>
<td>Norfolk</td>
<td>1,155</td>
<td>35.1</td>
</tr>
<tr>
<td>England</td>
<td>49,300</td>
<td>33</td>
</tr>
</tbody>
</table>

- 81% of Blind or Partially Sighted registered People are aged 65 or over.
- There is under estimation in these groups.
Chapter 6: Adults and People aged 65 and over predicted to have visual impairment (PANSI and POPPI), 2014-2020

Chapter 7: Populations where potential inequity may be present (registered population, April 2013)

Evidence shows that there is a link between people on low incomes and living in deprivation and people living with sight loss; three out of four blind or partially sighted people are living in poverty or on its margins.
Chapter 7: Populations where potential inequity may be present (Ethnicity)

The risk of developing glaucoma is higher in African and African-Caribbean populations. People from South-East Asia and China are at higher risk of angle-closure glaucoma.

Evidence shows that people from the Asian population are at a higher risk of developing cataracts. African, African-Caribbean and Asian populations are at a higher risk of developing diabetic eye disease.

Evidence indicates that targeting preventative sight loss amongst people from black and ethnic minority (BME) communities can form part of a cost effective prevention programme.

![Norfolk County Council](image1)

Chapter 7: Learning disabilities

Diagnosed prevalence of Learning Disabilities Register (ages 18+) on Norfolk and Waveney General Practitioner register, trends over time by CCG (number and percentage on registers), 2009/10 - 2012/13

<table>
<thead>
<tr>
<th>CCG</th>
<th>2009/10</th>
<th>2011/12</th>
<th>2013/14</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Norfolk</td>
<td>1,094</td>
<td>109</td>
<td>1,100</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>843</td>
<td>95</td>
<td>972</td>
</tr>
<tr>
<td>Norwich</td>
<td>682</td>
<td>63</td>
<td>409</td>
</tr>
</tbody>
</table>

Estimated number of blind or partially sighted people and those who require glasses amongst adults aged 18+ with learning disabilities by CCG across Norfolk and Waveney, 2012/13

<table>
<thead>
<tr>
<th>CCG</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Norfolk</td>
<td>875</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>875</td>
</tr>
<tr>
<td>Norwich</td>
<td>932</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>943</td>
</tr>
<tr>
<td>Overall</td>
<td>4,643</td>
</tr>
</tbody>
</table>

![Norfolk County Council](image2)
### Chapter 8: Health determinants (stroke)

#### Diagnosed prevalence of Stroke or Transient Ischaemic Attacks (TIA) on Norfolk and Waveney General Practice registers, trends over time by CCG (number and percentage on registers), 2009/10 – 2012/13

<table>
<thead>
<tr>
<th>CCG</th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>GW/SW</td>
<td>4,707</td>
<td>2.0</td>
<td>4,681</td>
<td>1.3</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>3,922</td>
<td>2.2</td>
<td>4,047</td>
<td>1.6</td>
</tr>
<tr>
<td>Norwich</td>
<td>1,410</td>
<td>1.6</td>
<td>1,597</td>
<td>1.7</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>1,405</td>
<td>1.9</td>
<td>1,354</td>
<td>1.0</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>1,017</td>
<td>2.2</td>
<td>1,184</td>
<td>2.1</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>32,339</td>
<td>8.1</td>
<td>32,142</td>
<td>7.3</td>
</tr>
<tr>
<td>Out of England</td>
<td>37,920</td>
<td>1.6</td>
<td>101,364</td>
<td>4.1</td>
</tr>
<tr>
<td>England</td>
<td>100,000</td>
<td>1.7</td>
<td>244,595</td>
<td>3.4</td>
</tr>
</tbody>
</table>

#### Estimated number of people with visual dysfunction among those who were on the Stroke or Transient Ischaemic Attacks (TIA) on Norfolk and Waveney General Practice registers, 2012/13

<table>
<thead>
<tr>
<th>CCG</th>
<th>Number of people with stroke or TIA</th>
<th>Estimated number of people with visual dysfunction following stroke or TIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>GW/SW</td>
<td>4,707</td>
<td>2,080</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>3,922</td>
<td>2,135</td>
</tr>
<tr>
<td>Norwich</td>
<td>1,410</td>
<td>1,622</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>1,405</td>
<td>2,062</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>1,017</td>
<td>1,844</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>32,339</td>
<td>29,321</td>
</tr>
</tbody>
</table>

During 2012/13, there were 12,576 people with stroke or TIA that may have visual dysfunction in Norfolk and Waveney. This figure was estimated by applying rate of the 80% of stroke survivors having some sort of visual dysfunction following stroke to the Stroke or Transient Ischaemic Attacks (TIA) on the Norfolk and Waveney General Practice registers.

---

### Chapter 8: Health determinants (hypertension)

#### Hypertension prevalence by Clinical Commissioning Group (CCG) and for England between 2009/10 – 2012/13.

<table>
<thead>
<tr>
<th>CCG</th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>GW/SW</td>
<td>50,354</td>
<td>13.9</td>
<td>57,534</td>
<td>16.4</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>27,072</td>
<td>16.2</td>
<td>23,797</td>
<td>16.7</td>
</tr>
<tr>
<td>Norwich</td>
<td>24,731</td>
<td>12.9</td>
<td>24,995</td>
<td>12.2</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>32,196</td>
<td>12.0</td>
<td>33,183</td>
<td>13.3</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>25,260</td>
<td>12.0</td>
<td>25,741</td>
<td>12.5</td>
</tr>
<tr>
<td>NB/SW</td>
<td>148,760</td>
<td>16.6</td>
<td>161,603</td>
<td>16.6</td>
</tr>
<tr>
<td>East of England</td>
<td>546,730</td>
<td>13.7</td>
<td>524,602</td>
<td>13.9</td>
</tr>
</tbody>
</table>

The hypertension prevalence by Clinical Commissioning Group (CCG) and for England between 2009/10 – 2012/13. These rates did not change substantially during this period. At 2012/13 the average rates varied between 12% in Norwich CCG and 10.3% in West Norfolk CCGs, compared to 15.0% across Norfolk and 13.7% in England.
Chapter 8: Health determinants (dementia)

<table>
<thead>
<tr>
<th>CCG</th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>GYSW</td>
<td>1,324</td>
<td>1,702</td>
<td>1,284</td>
<td>1,207</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>1,374</td>
<td>1,467</td>
<td>1,395</td>
<td>1,142</td>
</tr>
<tr>
<td>Norwich</td>
<td>925</td>
<td>935</td>
<td>1,048</td>
<td>1,031</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>1,251</td>
<td>1,345</td>
<td>1,393</td>
<td>1,187</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>225</td>
<td>275</td>
<td>528</td>
<td>1,020</td>
</tr>
<tr>
<td>N&amp;W</td>
<td>2,416</td>
<td>3,110</td>
<td>4,436</td>
<td>7,077</td>
</tr>
<tr>
<td>East of England</td>
<td>57,491</td>
<td>51,976</td>
<td>51,976</td>
<td>NA</td>
</tr>
<tr>
<td>England</td>
<td>249,483</td>
<td>296,987</td>
<td>263,723</td>
<td>210,660</td>
</tr>
</tbody>
</table>

The number of patients on dementia register and the prevalence for Norfolk and Waveney over the period 2009/10 to 2012/13. The number and prevalence are given for the totals (Norfolk and Waveney) and for each of the five local CCGs. For the most recent financial year 2012/2013, there were 7,077 people on the dementia register giving a prevalence of 0.7%. It is not known the percentage of people with dementia that suffer from serious sight loss.

Chapter 8: Health determinants (falls)

<table>
<thead>
<tr>
<th>CCG</th>
<th>Falls Assessments (April 2013 - December 2013 / 9 months)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of falls Assessments</td>
</tr>
<tr>
<td>GYSW</td>
<td>1,673</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>472</td>
</tr>
<tr>
<td>Norwich</td>
<td>619</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>706</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>1,038</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>4,507</td>
</tr>
</tbody>
</table>

It is difficult to obtain reliable estimates of the prevalence of falls caused by blind and partially sighted people in the local population. The total number of falls in Norfolk and Waveney among persons aged 65 and over during April 2013 and December 2013 (nine months) were 4,507, an average of 501 per month, the percentage of persons classified as blind and partially sighted among those who had medical assessments is unknown.
### Chapter 8: Health determinants (depression 18+)

<table>
<thead>
<tr>
<th>CCG</th>
<th>2008/09</th>
<th>%</th>
<th>2009/10</th>
<th>%</th>
<th>2010/11</th>
<th>%</th>
<th>2011/12</th>
<th>%</th>
<th>2012/13</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Yarmouth and Waveney</td>
<td>120,388</td>
<td>13.2</td>
<td>103,251</td>
<td>12.4</td>
<td>92,908</td>
<td>11.7</td>
<td>120,388</td>
<td>15.0</td>
<td>120,388</td>
<td>14.8</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>161,742</td>
<td>8.4</td>
<td>157,917</td>
<td>8.2</td>
<td>161,742</td>
<td>8.9</td>
<td>161,742</td>
<td>8.9</td>
<td>161,742</td>
<td>8.9</td>
</tr>
<tr>
<td>Norwich</td>
<td>161,742</td>
<td>11.1</td>
<td>161,742</td>
<td>11.1</td>
<td>161,742</td>
<td>11.1</td>
<td>161,742</td>
<td>11.1</td>
<td>161,742</td>
<td>11.1</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>161,742</td>
<td>9.5</td>
<td>161,742</td>
<td>9.5</td>
<td>161,742</td>
<td>9.5</td>
<td>161,742</td>
<td>9.5</td>
<td>161,742</td>
<td>9.5</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>161,742</td>
<td>10.2</td>
<td>161,742</td>
<td>10.2</td>
<td>161,742</td>
<td>10.2</td>
<td>161,742</td>
<td>10.2</td>
<td>161,742</td>
<td>10.2</td>
</tr>
<tr>
<td>NNUH</td>
<td>161,742</td>
<td>11.7</td>
<td>161,742</td>
<td>11.7</td>
<td>161,742</td>
<td>11.7</td>
<td>161,742</td>
<td>11.7</td>
<td>161,742</td>
<td>11.7</td>
</tr>
<tr>
<td>East of England</td>
<td>620,039</td>
<td>10.4</td>
<td>607,050</td>
<td>10.8</td>
<td>601,474</td>
<td>11.5</td>
<td>551,968</td>
<td>11.7</td>
<td>551,968</td>
<td>11.7</td>
</tr>
<tr>
<td>England</td>
<td>4,848,357</td>
<td>14.9</td>
<td>4,875,135</td>
<td>15.2</td>
<td>4,878,282</td>
<td>15.7</td>
<td>4,878,282</td>
<td>15.7</td>
<td>4,878,282</td>
<td>15.7</td>
</tr>
</tbody>
</table>

It can be seen during the period 2012/13, there were 47,120 people aged 18+ diagnosed with depression for Norfolk and Waveney (it counted anyone who had a record of unresolved depression, diagnosed since 1 April 2005). However, it is not possible to identify those people with sight loss and depression. With the exception of North Norfolk and Norwich CCGs, all other CCGs had an equal or higher depression rate than England average rate.

### Chapter 8: Health determinants (diabetes 17+)

<table>
<thead>
<tr>
<th>CCG</th>
<th>Estimated number of persons 17+</th>
<th>Diabetes Mellitus prevalence (17+)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Great Yarmouth and Waveney</td>
<td>120,388</td>
<td>7.0</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>161,742</td>
<td>6.4</td>
</tr>
<tr>
<td>Norwich</td>
<td>161,742</td>
<td>4.7</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>161,742</td>
<td>5.5</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>161,742</td>
<td>7.6</td>
</tr>
<tr>
<td>Norfolk</td>
<td>716,440</td>
<td>6.2</td>
</tr>
<tr>
<td>Midlands and East of England Commissioning Region</td>
<td>850,380</td>
<td>6.3</td>
</tr>
<tr>
<td>England</td>
<td>2,700,044</td>
<td>6.0</td>
</tr>
</tbody>
</table>

The GP practice QOF diabetes disease registries for 2012/13 shows that only 44,174 (0.2%) patients aged 17+ years diagnosed with diabetes in Norfolk which is slightly higher than England average (0%). Rates of diabetes allow variations within CCGs, the highest in West Norfolk CCG 7.6% (10,421 people) and lowest in Norwich CCG 4.7% (6,136 people) among persons aged 17+ years diagnosed with diabetes.
Chapter 8: Health determinants (employment)

- 66% of registered blind and partially sighted people of working age are not in paid employment.

- People registered as blind or partially sighted are nearly five times more likely to have been not in paid employment for five years or more than the general population.

- The DWP classify claimants by disease categories. The database does not include information linking claimants registered as blind and partially sighted. People classified as blind and partially sighted could be registered under the ‘other’ category. The number of claimants under the ‘other’ category was 2,130 in Norfolk.

Chapter 8: Health determinants (road casualties)

<table>
<thead>
<tr>
<th>Severity</th>
<th>Accidents Defective eyesight contributory factor</th>
<th>2013 total</th>
<th>Casualties Defective eyesight contributory factor</th>
<th>2013 total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>0</td>
<td>37</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>Serious</td>
<td>3</td>
<td>291</td>
<td>3</td>
<td>350</td>
</tr>
<tr>
<td>slight</td>
<td>2</td>
<td>1,035</td>
<td>3</td>
<td>1,001</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>1,767</td>
<td>6</td>
<td>2,318</td>
</tr>
</tbody>
</table>

Good vision is essential for safe driving and motorcycling. The law sets minimum eyesight standards that drivers and motorcyclists must meet. There are no official estimates of the number of drivers and motorcyclists on the road with eyesight that fails to meet the minimum legal standards. However, some studies suggest 2% to 3% of drivers have vision below the minimum legal standards.
Chapter 9: Hospital eye clinic admissions (April 2010 – March 2013)

<table>
<thead>
<tr>
<th></th>
<th>Norfolk and Norwich University Hospitals</th>
<th>James Paget University Hospitals</th>
<th>The Queen Elizabeth Hospital, King’s Lynn</th>
<th>Wexford</th>
<th>Cambridge University Hospitals</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>1,034</td>
<td>14,953</td>
<td>1</td>
<td>23</td>
<td>20</td>
<td>10</td>
<td>16,126</td>
</tr>
<tr>
<td>North Norfolk</td>
<td>10,424</td>
<td>847</td>
<td>344</td>
<td>7</td>
<td>14</td>
<td>53</td>
<td>11,395</td>
</tr>
<tr>
<td>Norwich</td>
<td>8,422</td>
<td>57</td>
<td>25</td>
<td>4</td>
<td>10</td>
<td>40</td>
<td>9,653</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>10,700</td>
<td>70</td>
<td>68</td>
<td>71</td>
<td>50</td>
<td>83</td>
<td>11,728</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>411</td>
<td>2</td>
<td>7,181</td>
<td>9</td>
<td>170</td>
<td>456</td>
<td>8,884</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>55,017</td>
<td>16,420</td>
<td>5,999</td>
<td>619</td>
<td>387</td>
<td>747</td>
<td>67,772</td>
</tr>
</tbody>
</table>

Chapter 9: Hospital admissions (April 2010 – March 2013)

- The majority of admissions (around 90%) were among those aged 60+ in both males and females. For females the admission percentage was only higher than males after the age of 80 while males had higher rates in all other age bands.
- 5,915 (98.5%) were elective admissions and 33 (1.4%) Emergency.

Norfolk County Council
Chapter 9: Hospital admissions – Cataracts
(April 2010 – March 2013)

There were 25,005 spells (876.7 per 100,000 persons) classified cataract as primary diagnosis; the admission could be for diagnostic reasons or intervention i.e. cataract surgery or follow up. The rate per 100,000 residents among females is 1013.9, but higher by 38% compared to males 735.5.

Chapter 10: Local Diabetic Eye Screening Programme

<table>
<thead>
<tr>
<th></th>
<th>Estimated number 17+</th>
<th>Numbers</th>
<th>Prevalence %</th>
<th>Expected number of people being screened based on the national SNP update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Yarmouth and Waveney</td>
<td>190,335</td>
<td>12,281</td>
<td>7.0</td>
<td>10,741</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>161,702</td>
<td>6,004</td>
<td>6.1</td>
<td>7,915</td>
</tr>
<tr>
<td>North</td>
<td>177,972</td>
<td>8,136</td>
<td>4.7</td>
<td>6,992</td>
</tr>
<tr>
<td>South Norfolk</td>
<td>181,914</td>
<td>10,666</td>
<td>5.8</td>
<td>8,565</td>
</tr>
<tr>
<td>West Norfolk</td>
<td>157,027</td>
<td>10,431</td>
<td>7.0</td>
<td>8,041</td>
</tr>
<tr>
<td>Norfolk and Waveney</td>
<td>223,000</td>
<td>61,408</td>
<td>8.2</td>
<td>41,840</td>
</tr>
<tr>
<td>Norfolk</td>
<td>717,444</td>
<td>44,174</td>
<td>6.1</td>
<td>36,751</td>
</tr>
</tbody>
</table>
Chapter 10: Childhood visual screening

- New born examination.
- 6-8 weeks review by health visitor nurse.
- School entry vision checks.

Chapter 11: Supporting People - Services Locally Others

- Statutory
  - Norfolk County Council Sensory Support Unit

- Voluntary
  - Action for blind people.
  - Great Yarmouth Visual Impaired Peoples group.
  - Guide Dogs for the Blind Association (In Norfolk, at the beginning of 2014 there were 97 people using the guide dogs of which 45 (46.4%) were in Norwich. At the end of 2012 83 people were using a guide dog, of which 34 (41%) were in Norwich).
  - Macular Disease Society Norwich Group (social setting)
  - Norfolk & Norwich Association for the Blind (NNAB)
  - Royal National Institute of Blind People (RNIB)
Chapter 11: Supporting People - Services Locally Others

- Inclusion of eye health and sight loss in the Health and Wellbeing Strategy.

- Eye health needs analysis to be conducted alongside a review of local eye care pathways to ensure the efficient and effective use of existing assets. This should include looking at medical and social aspects of the eye care journey.

- Conduct a review of existing systems, processes and services relating to the main eye conditions, including glaucoma follow-up appointments and treatment policies for AMD, to ensure patients have access to preventative services.

- Better integration of “Early Intervention Services” which provide support at time of sight loss including rehabilitation support, counselling services or eye care liaison officer to help people adjust to sight loss.

- Incorporating eye health messages into health campaigns on obesity, smoking cessation and the management of diabetes and glaucoma.

- Delay in treatment following diagnosis of diabetic retinopathy after screening.

- Development of a targeted Public Health campaign to raise awareness of the importance of regular sight tests, particularly around at risk groups such as older people or BME communities.

- Development of a local eye health strategy group, based around the strategic outcomes of the UK Vision Strategy, to include partners like Local Professional Networks, health and social care professionals, patients and customers, voluntary sector and Local Optical Committees.
Contact information
If there are any errors or you have suggestions for improving the document please contact:

**Dr Kadhim Alabady**, Principal Epidemiologist, Norfolk County Council, County Hall, Martineau Lane, Norwich, Norfolk, NR1 2DH.

- Telephone: 01603 638362.
- Email: Kadhim.alabady@norfolk.gov.uk

**Holly Gilbert**, Advanced Public Health Information Officer, Norfolk County Council, County Hall, Martineau Lane, Norwich, Norfolk, NR1 2DH.

- Telephone: 01603 638363.
- Email: holly.gilbert@norfolk.gov.uk

**Dr Tim Winters**, Head of Public Health Information, Norfolk County Council, County Hall, Martineau Lane, Norwich, Norfolk, NR1 2DH.

- Telephone: 01603 63859.
- Email: tim.winters@norfolk.gov.uk