Summary Vision Screening Data: England & Wales

Produced as part of Work Package 3

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Contents

1 Glossary of Terms: Vision Screening

Abnormal test result	A test result where a normal "pass" response could not be detected under good conditions. The result on screening equipment may indicate "no response," "fail," or "refer."
Attendance rate	The proportion of all those invited for screening that are tested and receive a result: • Invited for screening includes all those that are offered the screening test. • Tested and receive a result could be a "pass" or "referral to diagnostic assessment". Attendance rate provides information on the willingness of families to participate in screening.
Compliance with referral (percentage)	The percentage of those who are referred from screening to a diagnostic assessment that actually attend the diagnostic assessment. Percentage of compliance provides information on the willingness of families to attend the diagnostic assessment after referral from screening.
Coverage	The proportion of those eligible for screening that are tested and receive a result: • Eligible for screening includes those within the population that are covered under the screening or health care programme. • Tested and receive a result could be a "pass" or "refer to diagnostic assessment". Factors such as being offered screening, willingness to participate, missed screening, ability to complete the screen, and ability to document the screening results will influence the coverage.
False negatives	The percentage of children with a visual deficit (defined by the target condition) that receive a result of "pass" during screening. Example: If 100 children with visual deficit are screened, and 1 child passes the screening, the percentage of false negatives is 1%.

False positives	The percentage of children with normal vision that are referred from screening to a diagnostic assessment.
Guidelines	Recommendations or instructions provided by an authoritative body on the practice of screening in the country or region.
Vision screening professional	A person qualified to perform vision screening, according to the practice in the country or region.
Inconclusive test result	A test result where a normal "pass" response could not be detected due to poor test conditions or poor cooperation of the child.
Invited for screening	Infants/children and their families who are offered screening.
Outcome of vision screening	An indication of the effectiveness or performance of screening, such as a measurement of coverage rate, referral rate, number of children detected, etc.
Untreated amblyopia	Those children who have not received treatment for amblyopia due to missed screening or missed follow-up appointment.
Persistent amblyopia	Amblyopia that is missed by screening, or present after the child has received treatment.
Positive predictive value	The percentage of children referred from screening who have a confirmed vision loss. For example, if 100 babies are referred from screening for diagnostic assessment and 10 have normal vision and 90 have a confirmed visual defect, the positive predictive value would be 90%.
Prevalence	The percentage or number of individuals with a specific disease or condition. Prevalence can either be expressed as a percentage or as a number out of 1000 individuals within the same demographic.
Programme	An organised system for screening, which could be based nationally, regionally or locally.
Protocol	Documented procedure or sequence for screening, which could include which tests are performed, when tests are performed, procedures for passing and referring, and so forth.
Quality assurance	A method for checking and ensuring that screening is functioning adequately and meeting set goals and benchmarks.
Referral criteria	A pre-determined cut-off boundary for when a child should be re-tested or seen for a diagnostic assessment.

Risk babies / Babies at-risk	All infants that are considered to be at-risk or have risk-factors for vision defects/ophthalmic pathology according to the screening programme. Two common risk factors are admission to the neonatal-intensive care unit (NICU) or born prematurely. However, other risk factors for visual defects may also be indicated in the screening programme.
Sensitivity	The percentage of children with visual defects that are identified via the screening programme. For example, if 100 babies with visual defects are tested, and 98 of these babies are referred for diagnostic assessment and 2 pass the screening, the sensitivity is 98%.
Specificity	The percentage of children with normal vision that pass the screening. For example, if 100 babies with normal vision are tested, and 10 of these babies are referred for diagnostic assessment and 90 pass the screening, the specificity is 90%.
Target condition	The visual defect you are aiming to detect via the screening programme.
Well, healthy babies	Infants who are *not* admitted into the NICU or born prematurely (born after a gestation period of less than 37 weeks).

2 Abbreviations

BAPM	British Association of Perinatal Medicine
BIOS	British and Irish Orthoptics Society
CCG	Clinical Commissioning Group
GDG	Guideline Development Group
GDP	Gross Domestic Product
GP	General Practitioner
LA	Local Authority
NHS	National Health Service
NICU	Neonatal-intensive care unit
NIPE	Newborn and Infant Physical Examination
NSC	National Screening Committee
ONS	Office of National Statistics
PHE	Public Health England
PPP	Purchasing Power Parity
RCOphth	Royal College of Ophthalmologists
RCPCH	Royal College of Paediatrics & Child Health
ROP	Retinopathy of Prematurity
SIG	Special Interest Group
UK	United Kingdom
VA	Visual Acuity
WHO	World Health Organisation

3 Population and Healthcare Overview

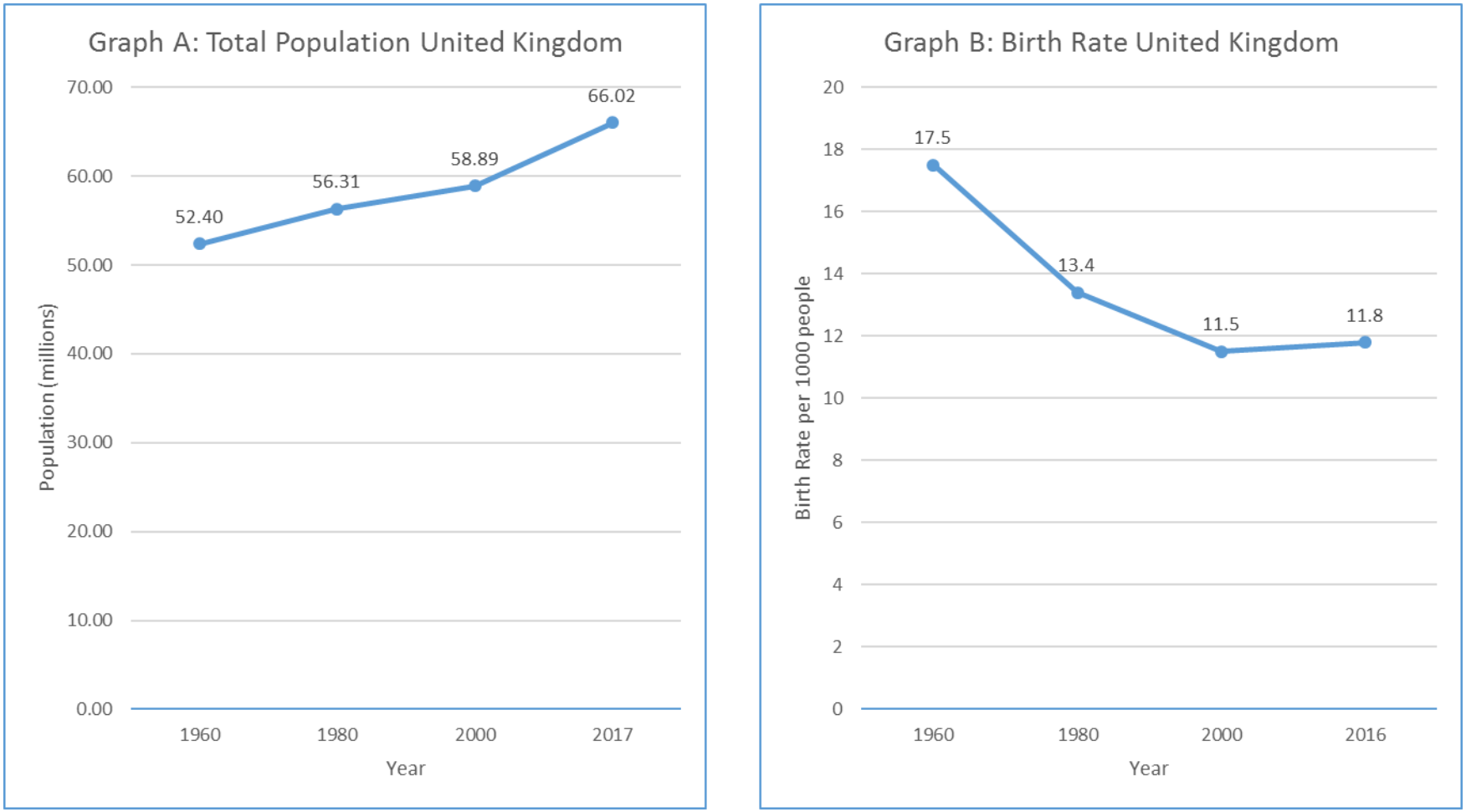
The population of the United Kingdom (UK), including England, Wales, Scotland and Northern Ireland, is estimated at 66,022,273 (World Bank, 2018a) and the birth rate in 2016 was estimated at 11.8 births/1,000 population (World Bank, 2018b).

In 2017, England had a reported population of 55,619,400 and Wales had a reported population of 3,125,200 (McMullan, 2018). The UK has a reported population density of 272.90 people per square kilometre (World Bank, 2018c). When considering England alone this is 427 people per square kilometre and 151 in Wales (Statista, 2018). Infant mortality in the UK as a whole, is estimated at 3.7 deaths/1,000 live births (World Bank, 2018d).

The average life expectancy in the whole of the UK is estimated to be 81 years (World Bank, 2018e), with a death rate of 9.1 deaths/1,000 population in 2016 (World Bank, 2018f). Between 2012 and 2014, the average life expectancy in England was estimated as 80 for men and 83 for women; in Wales it was 79 for men and 82 for women (Ons.gov.uk, 2018).

The UK has a gross national income per capita (Purchasing Power Parity - PPP int. $, 2013) of $35,000 (WHO, 2016). The estimated total expenditure on health per capita in 2014 was $3,377 (Intl $) and the total expenditure on health as percentage of GDP was 9.1% in 2014 (WHO, 2016).

Figure 1: Change in the Total Population and Birth Rate in the United Kingdom between 1960 and 2017



Source: Information sourced from World Bank (2018)

4 Vision Screening Commissioning and Guidance

In England and Wales, vision screening is organised either nationally or regionally, depending on the type of screening. Premature babies are screened through a service commissioned by local Clinical Commissioning Groups (CCGs). CCGs are clinically led, statutory National Health Service (NHS) bodies responsible for the planning and commissioning of health care services for their local area. There are now 195 CCGs in England. They assess local needs, decide priorities and strategies, and then buy services on behalf of the population from providers such as hospitals, clinics or community health bodies. Screening of all babies is commissioned by a national programme through Public Health England (PHE). This is a standardised programme with a national specification and national monitoring of standards. Screening for reduced vision is organised regionally by each Local Authority (LA), although not all regions provide this recommended vision screening. Mapping of services throughout the UK was completed by the British and Irish Orthoptic Society (BIOS) in 2014, these maps show areas that do not offer visual acuity screening (Appendix 1 – Vision Screening Map B). There have been some changes to these services over the last 4 years but there is no ongoing system in place to record these changes.

Despite UK National Screening Committee (NSC) recommendations for screening to test visual acuity (VA) at age 4 to 5 years being in existence since 2003 (GOV.UK, 2018d), there are differences in vision screening protocols for reduced vision between regions, concerning the professionals who conduct screening, the age screened, the tests used, referral criteria, referral pathways and the funding. Visual acuity screening should be funded by each region's LA. The content of the programme is decided upon by a LA, based on individual service specifications. To address these differences PHE produced national guidance and specifications for visual acuity screening at age 4 to 5 years in November 2017 (described more fully in section 3 below). But as this screening is not mandatory, LAs may not adopt these guidelines. It is too early to evaluate whether this guidance has led, or will, lead to improved standardisation and equity in service provision.

The National Newborn Infant Physical Examination (NIPE), which includes screening of the eyes, was implemented in its current form in 2008. Revisions to the recommendation are made by the NSC and funded by the Government Department of Health. Revisions take place based on published evidence and review by the committee and experts. Quality monitoring is imposed by the government using standards devised by experts for PHE; these were last updated in August 2018 (GOV.UK, 2018b).

For visual acuity screening, it is not known when each of these services was implemented as services vary across the country. The UK NSC first recommended screening for visual acuity at age 4 to 5 years of age in 2003. A review of evidence was carried out in 2013 and the recommendations were reapproved at that stage. A review of evidence and revision to the recommendation by the UK NSC is expected in 2019. Revisions to the recommendation made by the NSC are funded by the Government via the Department of Health. Revisions take place

based on published evidence and review by a committee and experts. Currently there are no methods for quality monitoring imposed by the government and quality assurance is dictated by service agreements of the LA with service providers, which are usually hospital orthoptic departments. PHE have commissioned development of standards to advise the LA and to standardise the approach taken to this.

There have been surveys for mapping and collection of outcome data conducted, regarding the screening programmes across the UK, by the British and Irish Orthoptic Society (BIOS) (Griffiths, Carlton and Mazzone, 2017; Griffiths, Carlton and Mazzone, 2018) and private companies investigating automated screening. There has also been a cost-effectiveness analysis (Carlton et al., 2008). Local department audits have been conducted to determine the effectiveness of the vision screening programme in the UK. It is not known how many vision screening professionals there are in the UK per million population. Nurses, Healthcare Assistants and Orthoptic Assistants conduct screening in some areas, no other general healthcare professionals have been identified that do not screen, but could do so with additional training. There is specific training to perform vision screening, this is usually completed by non-eye health professions using an official training package, such as the BIOS training tool. This training can take between 1-4 months to complete, but it is dependent on the individual. Competency assessments, quality assurance and training updates take place annually, however, this training is not accredited or certified; it is agreed ad-hoc by the provider and commissioners of each service and has been adapted to local packages in some case. PHE has commissioned a standardised training package based on the BIOS training. This will be available in 2019.

5 Screening programme

The target conditions screened for in England and Wales are:

- Retinopathy of prematurity (ROP)
- Congenital eye disorders at birth - primarily congenital cataracts but also any additional risk factors for eye disease or other incidental findings, for example, aniridia, coloboma and retinoblastoma
- Reduced vision at the age of 4 to 5 years of age, specifically due to amblyopia but may also include uncorrected refractive error

There are evidence-based guidelines for the screening and treatment of ROP. There were developed in 2008 (RCOphth, 2018) by a multidisciplinary guideline development group (GDG) of the Royal College of Paediatrics & Child Health (RCPCH) in collaboration with the Royal College of Ophthalmologists (RCOphth), British Association of Perinatal Medicine (BAPM) and the premature baby charity BLISS. It provides 25 evidence-based recommendations and 21 good practice points. This guideline has been produced specifically for use within the UK and supersedes a previous guideline.

Vision screening in well health babies is combined with a general screening programme (NIPE) (GOV.UK, 2018c). The UK NSC recommends that all eligible babies should be offered the NIPE screen. The screen is undertaken and completed within 72 hours of birth and then again at 6 to 8 weeks of age. The NHS NIPE Screening Programme aims to reduce morbidity and mortality by:

- identifying and referring all children born with congenital abnormalities of the eyes, heart, hips, and testes, where these are detectable, within 72 hours of birth
- identifying those abnormalities that may become detectable by 6 to 8 weeks of age, at the second physical examination

The UK NSC (2013) continues to recommend vision screening for reduced vision at the age of 4 to 5 years offered by an Orthoptic-led service and provided by Local Authorities as part of the Healthy Child Programme (GOV.UK, 2018a). Public Health England (PHE) produced guidance in 2017 to support Local Authorities in commissioning this recommendation (GOV.UK, 2018d). This guidance includes a service specification, screening competencies for personnel delivering screening, a screening pathway including referral criteria, information leaflets for parents and teachers and letters to invite and inform parents.

The health care professionals delivering vision screening, venue for screening and tests used vary depending on the age of the child as shown in Tables 1, 2 and 3 respectively. Specific details of the screening offered within each age group are described more fully in sections 5.1 to 5.4 below.

5.1 Vision screening - Preterm babies

Preterm babies up to the age of 3 months are screened by an ophthalmologist in a neonatal ward or in the ophthalmology outpatient department of a hospital following the Royal College of Ophthalmologists guidelines (RCOphth, 2018). The tests conducted at this age include eye inspection and retinal examination. The sequence of these tests is:

- Babies born before 27 weeks' gestational age (i.e. up to 26 weeks and 6 days) - the first ROP screening examination should be undertaken at 30 to 31 weeks' postmenstrual age
- Babies born between 27 and 32 weeks' gestational age (i.e. up to 31 weeks and 6 days) - the first ROP screening examination should be undertaken between 4 to 5 weeks (i.e. 28-35 days) postnatal age.
- Babies >32 weeks' gestational age but with birth weight <1501 grams – the first ROP screening examination should be undertaken between 4 to 5 weeks (i.e. 28-35 days) postnatal age.
- Minimum frequencies of screening should be weekly when:
    - the vessels end in zone I or posterior zone II; or
    - there is any plus or pre-plus disease or
    - there is any stage 3 disease in any zone.
- Minimum frequencies of screening should be every 2 weeks:
    - In all other circumstances until the criteria for termination have been reached.
- All babies <32 weeks gestational age or birth weight <1501g should have their first ROP screening examination prior to discharge.

5.2 Vision screening - Birth to 3 months

Well, healthy babies up to the age of 3 months are screened by a paediatrician or a specialist nurse in a hospital or at the home of the child. The tests conducted at this age include eye inspection, fixation, red reflex testing, eye motility, pursuit movements and pupillary reflexes. Fundus red reflex examination to diagnose a white pupil is performed only by the paediatrician. The sequence of these tests is:

- Within the first 72 hours from birth: Eye opening, presence of eyes, position and symmetry, size and colour, presence of red reflex.
- Repeated between 6-8 weeks from birth: As above with the addition of eye motility and fixing and following.

Babies are referred after one failed screening tests, however there is no definition as to how many inconclusive tests necessitate referral for further diagnostic examination.

5.3 Vision screening - 3 months to 36 months

There is no population-based vision screening recommended by PHE in this age group.

5.4 Vision screening - 36 months to 7 years

Children aged 36 months up to 7 years of age are screened once at age 4 to 5 years. There are no guidelines or recommendations for children in other age groups to receive vision screening.

The screening is delivered by either a school nurse, healthcare assistant, orthoptic assistant or an orthoptist, this varies depending on the area and the contract agreed by the LA.

In most areas the vision screening takes place in schools but rarely it may take place in hospital clinics or community clinics.

The UK PHE recommended test to be conducted at age 4 to 5 years is a visual acuity measurement with the Keeler Crowded logMAR test and this is used in most areas. Some areas use Sheridan Gardiner singles test (Snellen), Kay Pictures (single or crowded depending on co-operation and ability) or Sonksen Silver crowded logMAR test.

The PHE guidance is that any child not achieving 0.2 logMAR on the Keeler Crowded logMAR test should be referred after one screen even if it is suspected to be due to poor cooperation.

In some areas the vision screening offered varies from the UK NSC and PHE recommendation as follows:

Not all areas receive primary vision screening (Appendix 1 - Vision Screening Map A). Some areas commission screening at pre-school aged 3 years (Appendix 1 - Vision Screening Map C). Some areas provide visual acuity and an orthoptic assessment; this includes cover test, ocular movements, convergence, stereotests (Frisby test), prism reflex test (Appendix 1 - Vision Screening Map B) and in rare cases includes automated screening. Some areas have a local arrangement to routinely offer a second screening prior to referral, for those children who fail the test. The number of inconclusive results prior to referral may also differ based on the area.

Table 1: Healthcare professionals who conduct vision screening in each age group

Table 1	Ophthalmologist	Orthoptist	Specialist nurse	Doctor	Orthoptic/Healthcare assistant
Preterm babies	✓	×	×	×	×
0 to 3 months	×	×	×	✓	×
3 to 36 months	×	×	×	×	×
3 to 7 years	×	✓	✓	×	✓

Table 2: Vision screening tests used in vision screening for each age group

Table 2	Eye inspection	Fixation	Red reflex	Eye motility	Hirschberg	Retinal exam	Pursuit movements	Pupillary reflexes	Cover test	Visual acuity
Preterm babies	✓	✓	✓	x	x	✓	x	✓	x	×
0 to 3 months	✓	✓	✓	✓	✓	×	✓	✓	✓	×
3 to 36 months	×	×	×	×	×	×	×	×	×	×
3 to 7 years*	×	×	×	×	×	×	×	×	×	✓

*: Variable screening conducted by different CCGs and LAs. Information given in the table represents the national PHE guidance. – This also applies to Table 1. Some regions carry out VA and Orthoptic assessment including cover test, ocular motility and stereoacuity.

Table 3: Location of vision screening for each age group

Table 3	GP Clinic	Home	Hospital	Child healthcare centre	School
Preterm babies	×	×	✓	×	×
0 to 3 months	✓	✓	✓	✓	×
3 to 36 months	×	×	×	×	×
3 to 7 years	×	×	×	✓	✓

6 Automated Screening

Automated vision screening is achieved using handheld, portable devices designed to detect presence of refractive error from 6 months of age. It provides objective results and is used to detect amblyopic risk factors. This differs from other methods used to screen children for amblyopia which focus on detection of the actual condition and the resulting visual loss. Automated vision screening devices are not recommended in vision screening at any age in the UK. A small number of LAs offer screening that include the use of automated devices, however, there is no further information on this.

7 Provision for Visually Impaired

In England, there are 11 schools for blind or visually impaired children, the costs per child and the specialist support provided for children who attend mainstream primary school are not known. There is no information concerning Wales.

8 Knowledge of existing screening programme

8.1 Prevalence/Diagnosis

There is no national data available on prevalence of amblyopia, strabismus or congenital eye disease in England and Wales. In a population-based cohort study of children, data were available for 7825 seven-year-old children. Of these 2.3% (95% CI 2.0% to 2.7%) had manifest strabismus, 3.6% (95% CI 3.3% to 4.1%) had past/present amblyopia, and 4.8% (95% CI 4.4% to 5.3%) were hypermetropic (Williams et al., 2008). Bruce et al (2016) reported, from a northern city population in England, that the prevalence of strabismus, defined as manifest esotropic, exotropic or vertical deviation, is 2.4% at age 4-5 years. The NIPE screening handbook (GOV.UK, 2018e) states that approximately 2 or 3 in 10,000 babies have problems with their eyes that require treatment.

8.2 Coverage

The proportion of eligible babies who received screening of the eyes within 72 hours of birth (coverage) is recorded by PHE. In the year from 01/04/17 to 31/03/18, they report that of 602,364 newborn babies in England, 574,812 (95.4%) had the eye screening within 72 hours of birth (Gov.UK, 2018e).

The mean coverage using pooled data across regions submitted to a BIOS national audit of vision screeening at age 4-5 years for the 2016-2017 academic year was 93%, with a range of 69.7% - 99.8% between regions (Griffiths, Carlton & Mazzone, 2018). These figures relate to a total of 175,407 eligible children reported of whom 162,868 received vision screening (Griffiths, Carlton & Mazzone, 2018).

8.3 Screening evaluation

At 4-5 years, the mean referral rate has been determined from national data submitted from 50 regions to the BIOS national audit. However, the data was not always complete and as such, some regions were excluded from further analysis due to insufficient data. Therefore, the number of children does not always incorporate all children in all regions. However, of 111,295 children screened 14,508 failed (13%) and were referred for diagnostic assessment (Griffiths, Carlton & Mazzone, 2018). Outcome data was available for 4,060 children who failed screening and were referred for diagnostic testing. The percentage of true positives was 81% and the percentage of false positives was 19% (Griffiths, Carlton & Mazzone, 2018). There is no data concerning the number of false negatives, true negatives, positive predictive value, the sensitivity or specificity of screening.

Griffiths, Carlton & Mazzone (2018) were able to determine the mean percentage of diagnoses in a population of 995 children seen for diagnostic testing following failed vision screening at age 4-5 years:

- The percentage of children diagnosed with refractive error only - 71%

- The percentage of children identified as having manifest strabismus only - 5%
- The percentage of children identified as having manifest strabismus and refractive error - 5%
- The percentage of children identified as having an ocular motility defect only - 2%
- The percentage of children identified as having poor convergence only - 2%
- The percentage of children identified as having no confirmed abnormality but needing review as borderline/ poor cooperation - 6%
- The percentage of children identified as having ophthalmic pathology only (e.g. ptosis) - 0.45%
- The percentage of children identified as having ophthalmic pathology with reduced vision - 7%

The mean percentage of patients who required an ophthalmic opinion (n=885; N=7937) was approximately 11%. The other 89% of referrals were managed by joint Orthoptist and Optometrist clinics (Griffiths, Carlton & Mazzone, 2018).

8.4 Treatment success

Optometrists and ophthalmologist prescribe glasses for children under the age of 7 years. Other treatment options include patching, penalisation with glasses and atropine. All eligible children are offered treatment, but not all receive treatment due to unattended appointments. No data is available concerning treatment outcomes.

The percentage of children treated for congenital eye disorders, strabismus and amblyopia is unknown.

9 Costs of vision screening in children

9.1 Cost of vision screening

The salary costs (range) per year (37 hours per week) for vision screening professionals are:

- Health Care Assistant Band 2: £15,516 - £17,978 (17,451 – 20,220 Euros*)
- Health Care Assistant / Orthoptic Assistants Band 3: £16,968 - £19,852 (19,085 – 22,329 Euros*)
- School Nurse/Orthoptists Band 5: £21,909 - £28,462 (24,643 – 32,013 Euros*)
- School Nurse/Orthoptists Band 6 £26,302 - £35,225 (29,587 – 39,614 Euros*)
- The salary costs per hour can be calculated from this.

The costs to train vision screening professionals from leaving secondary education to qualification are:

- Orthoptist/Nurse (3 year degrees) - tuitions fees would cost £27,750 (31,208 Euros*), but screening would only be a small part of their overall role.
- Healthcare assistant require NVQ/BTEC level 4 in healthcare. Approximate cost of £2,500 (2,811 Euros*) - variable depending on college selected.
- The total screening costs per year and per child-per year for vision screening are not known.

9.2 Cost of treatment for amblyopia

The costs for treatment of typical patients with refractive and strabismic amblyopia including follow-up has been estimated based on the country representatives own hospital departmental pathway:

- New Appointment tariff (Orthoptic/Optometry) = £110 (x1 visit) = £110 (123 Euros*)
- Orthoptic only tariff = £50 (x13 visits) = £650 (731 Euros*)
- Optometry (refraction) tariff = £186 (209 Euros*)
- Patches = £10 (x5 boxes average) = £50 (56 Euros*)
- Glasses voucher = average £49 (dependant on prescription) (x4) = £196 (220 Euros*)
- **Grand total = approximately £1,192 (1,340 Euros*)**

9.3 Cost of Treatment for strabismus

The estimated costs of strabismus surgery including follow-up is £1000-£1600 (1,124 – 1,799 Euros*).

9.4 Cost of treatment for cataract

No data available.

**Currency conversion as of 20/11/2018*

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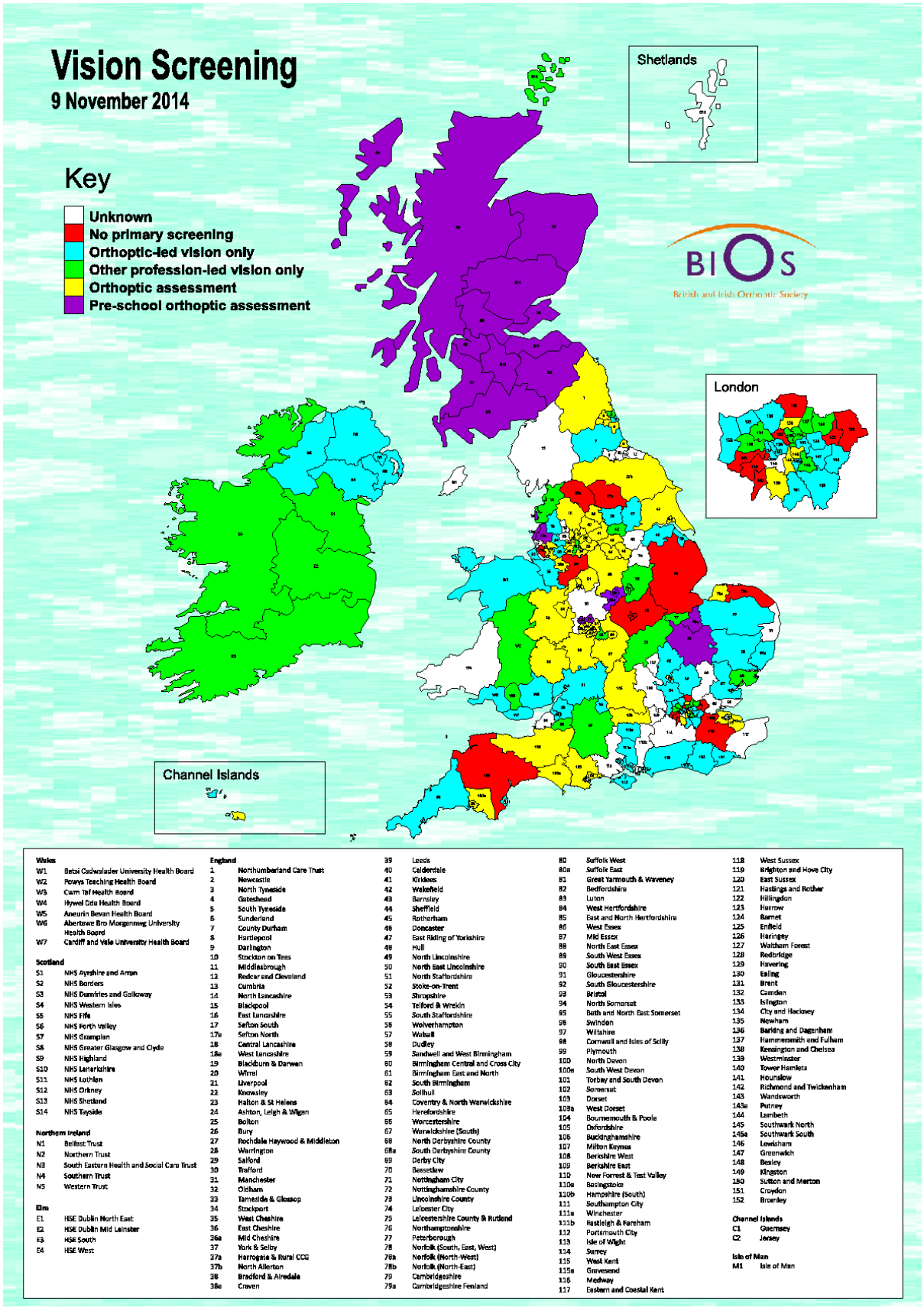
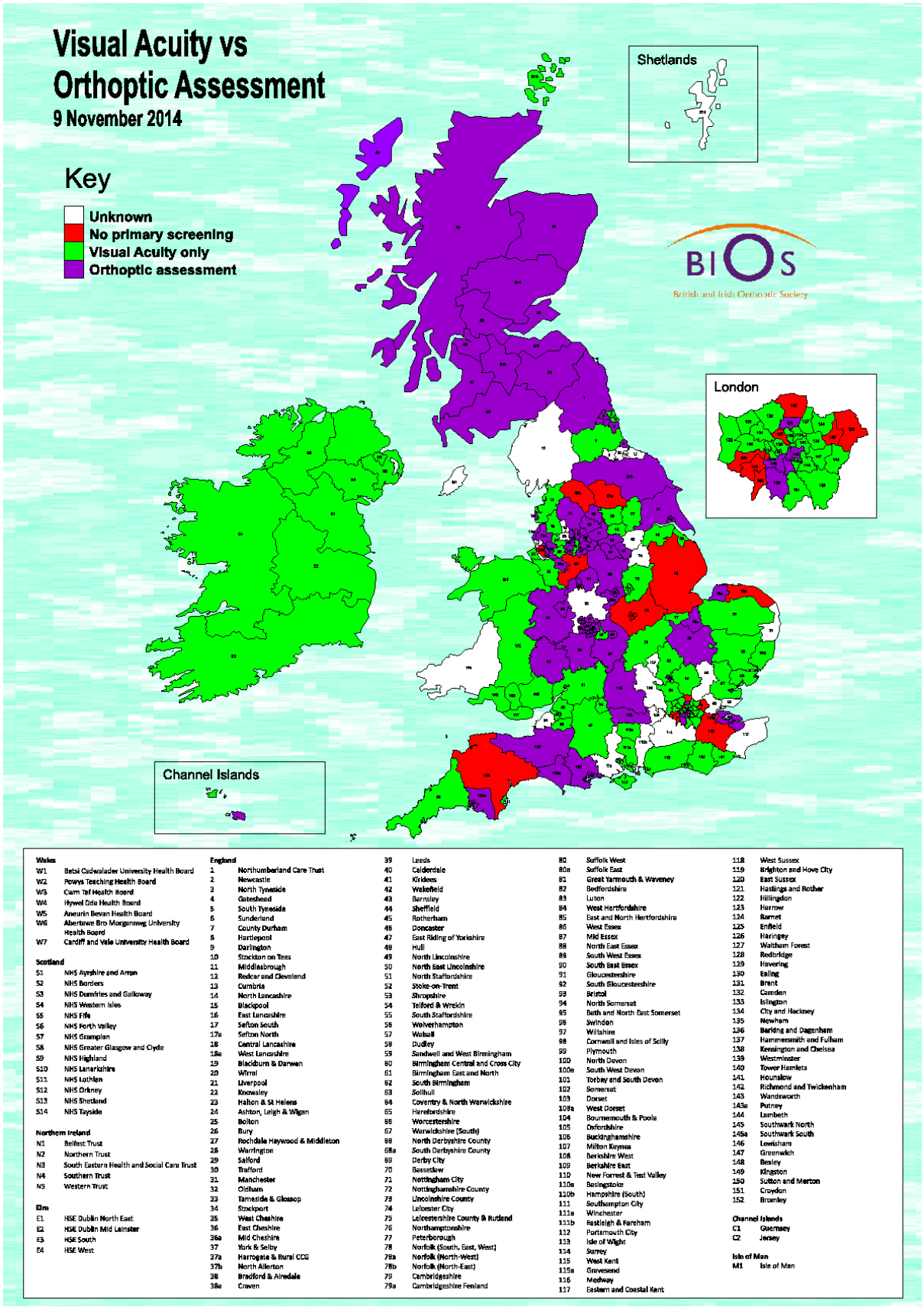
Appendix 1

Vision Screening Map A



Vision Screening Map B



Wales

W1	Betsi Cadwaladr University Health Board
W2	Powys Teaching Health Board
W3	Cwm Taf Health Board
W4	Hywel Dda Health Board
W5	Aneurin Bevan Health Board
W6	Abertawe Bro Morgannwg University Health Board
W7	Cardiff and Vale University Health Board

Scotland

S1	NHS Ayrshire and Arran
S2	NHS Borders
S3	NHS Dumfries and Galloway
S4	NHS Western Isles
S5	NHS Fife
S6	NHS Forth Valley
S7	NHS Grampian
S8	NHS Greater Glasgow and Clyde
S9	NHS Highland
S10	NHS Lanarkshire
S11	NHS Lothian
S12	NHS Orkney
S13	NHS Shetland
S14	NHS Tayside

Northern Ireland

N1	Belfast Trust
N2	Northern Trust
N3	South Eastern Health and Social Care Trust
N4	Southern Trust
N5	Western Trust

Eire

E1	HSE Dublin North East
E2	HSE Dublin Mid Leinster
E3	HSE South
E4	HSE West

England

1	Northumberland Care Trust
2	Newcastle
3	North Tyneside
4	Gateshead
5	South Tyneside
6	Sunderland
7	County Durham
8	Hartlepool
9	Darlington
10	Stockton on Tees
11	Middlesbrough
12	Redcar and Cleveland
13	Cumbria
14	North Lancashire
15	Blackpool
16	East Lancashire
17	Sefton South
17a	Sefton North
18	Central Lancashire
18a	West Lancashire
19	Blackburn & Darwen
20	Wirral
21	Liverpool
22	Knowsley
23	Halton & St Helens
24	Ashton, Leigh & Wigan
25	Bolton
26	Bury
27	Rochdale Haywood & Middleton
28	Warrington
29	Salford
30	Trafford
31	Manchester
32	Oldham
33	Tameside & Glossop
34	Stockport
35	West Cheshire
36	East Cheshire
36a	Mid Cheshire
37	York & Selby
37a	Harrogate & Rural CCG
37b	North Allerton
38	Bradford & Airedale
38a	Craven
39	Leeds
40	Calderdale
41	Kirklees
42	Wakefield
43	Barnsley
44	Sheffield
45	Rotherham
46	Doncaster
47	East Riding of Yorkshire
48	Hull
49	North Lincolnshire
50	North East Lincolnshire
51	North Staffordshire
52	Stoke-on-Trent
53	Shropshire
54	Telford & Wrekin
55	South Staffordshire
56	Wolverhampton
57	Walsall
58	Dudley
59	Sandwell and West Birmingham
60	Birmingham Central and Cross City
61	Birmingham East and North
62	South Birmingham
63	Solihull
64	Coventry & North Warwickshire
65	Herefordshire
66	Worcestershire
67	Warwickshire (South)
68	North Derbyshire County
68a	South Derbyshire County
69	Derby City
70	Bassetlaw
71	Nottingham City
72	Nottinghamshire County
73	Lincolnshire County
74	Leicester City
75	Leicestershire County & Rutland
76	Northamptonshire
77	Peterborough
78	Norfolk (South, East, West)
78a	Norfolk (North-West)
78b	Norfolk (North-East)
79	Cambridgeshire
79a	Cambridgeshire Fenland
80	Suffolk West
80a	Suffolk East
81	Great Yarmouth & Waveney
82	Bedfordshire
83	Luton
84	West Hertfordshire
85	East and North Hertfordshire
86	West Essex
87	Mid Essex
88	North East Essex
89	South West Essex
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91	Gloucestershire
92	South Gloucestershire
93	Bristol
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95	Bath and North East Somerset
96	Swindon
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98	Cornwall and Isles of Scilly
99	Plymouth
100	North Devon
100a	South West Devon
101	Torbay and South Devon
102	Somerset
103	Dorset
103a	West Dorset
104	Bournemouth & Poole
105	Oxfordshire
106	Buckinghamshire
107	Milton Keynes
108	Berkshire West
109	Berkshire East
110	New Forest & Test Valley
110a	Basingstoke
110b	Hampshire (South)
111	Southampton City
111a	Winchester
111b	Eastleigh & Fareham
112	Portsmouth City
113	Isle of Wight
114	Surrey
115	West Kent
115a	Gravesend
116	Medway
117	Eastern and Coastal Kent
118	West Sussex
119	Brighton and Hove City
120	East Sussex
121	Hastings and Rother
122	Hillingdon
123	Harrow
124	Barnet
125	Enfield
126	Haringey
127	Waltham Forest
128	Redbridge
129	Havering
130	Ealing
131	Brent
132	Camden
133	Islington
134	City and Hackney
135	Newham
136	Barking and Dagenham
137	Hammersmith and Fulham
138	Kensington and Chelsea
139	Westminster
140	Tower Hamlets
141	Hounslow
142	Richmond and Twickenham
143	Wandsworth
143a	Putney
144	Lambeth
145	Southwark North
145a	Southwark South
146	Lewisham
147	Greenwich
148	Bexley
149	Kingston
150	Sutton and Merton
151	Croydon
152	Bromley

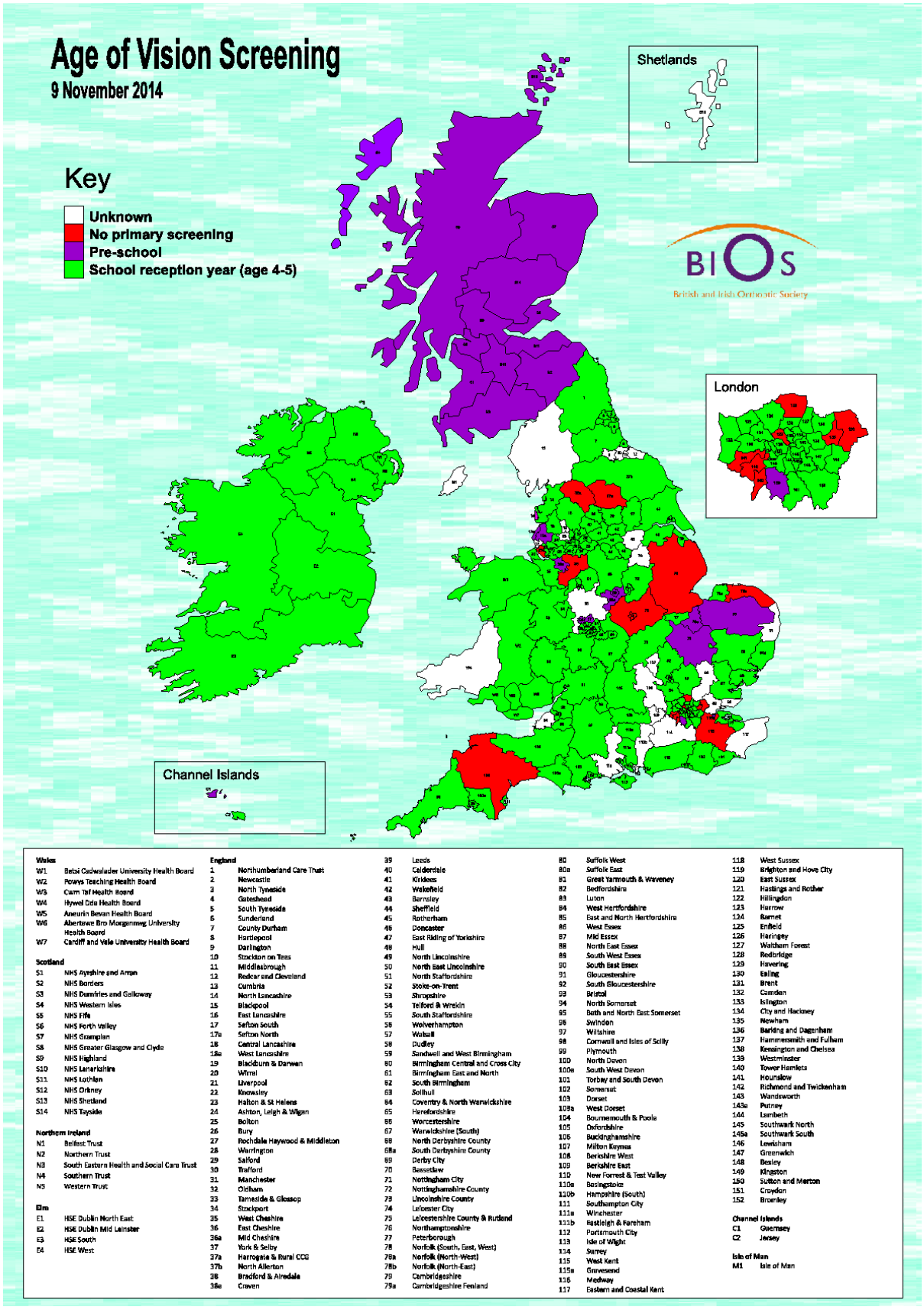
Channel Islands

C1	Guernsey
C2	Jersey

Isle of Man

M1	Isle of Man

Vision Screening Map C



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