

The Prevalence of Visual Impairment in Dementia (PrOVIDe)



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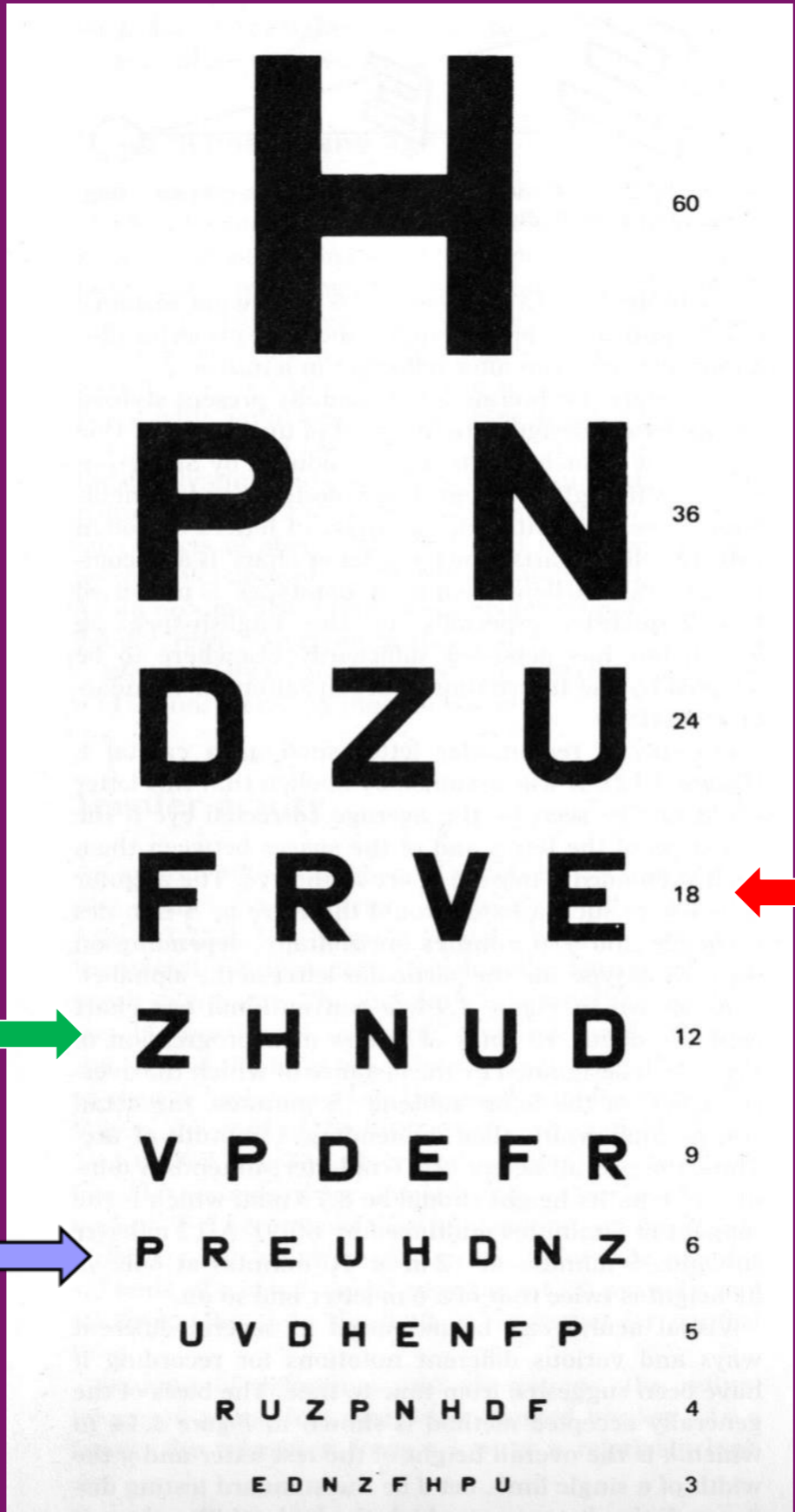


How is Visual Impairment (VI) defined?

Two commonly used definitions for VI are:

- Visual Acuity in the better eye worse than 6/12
- Visual Acuity in the better eye worse than 6/18





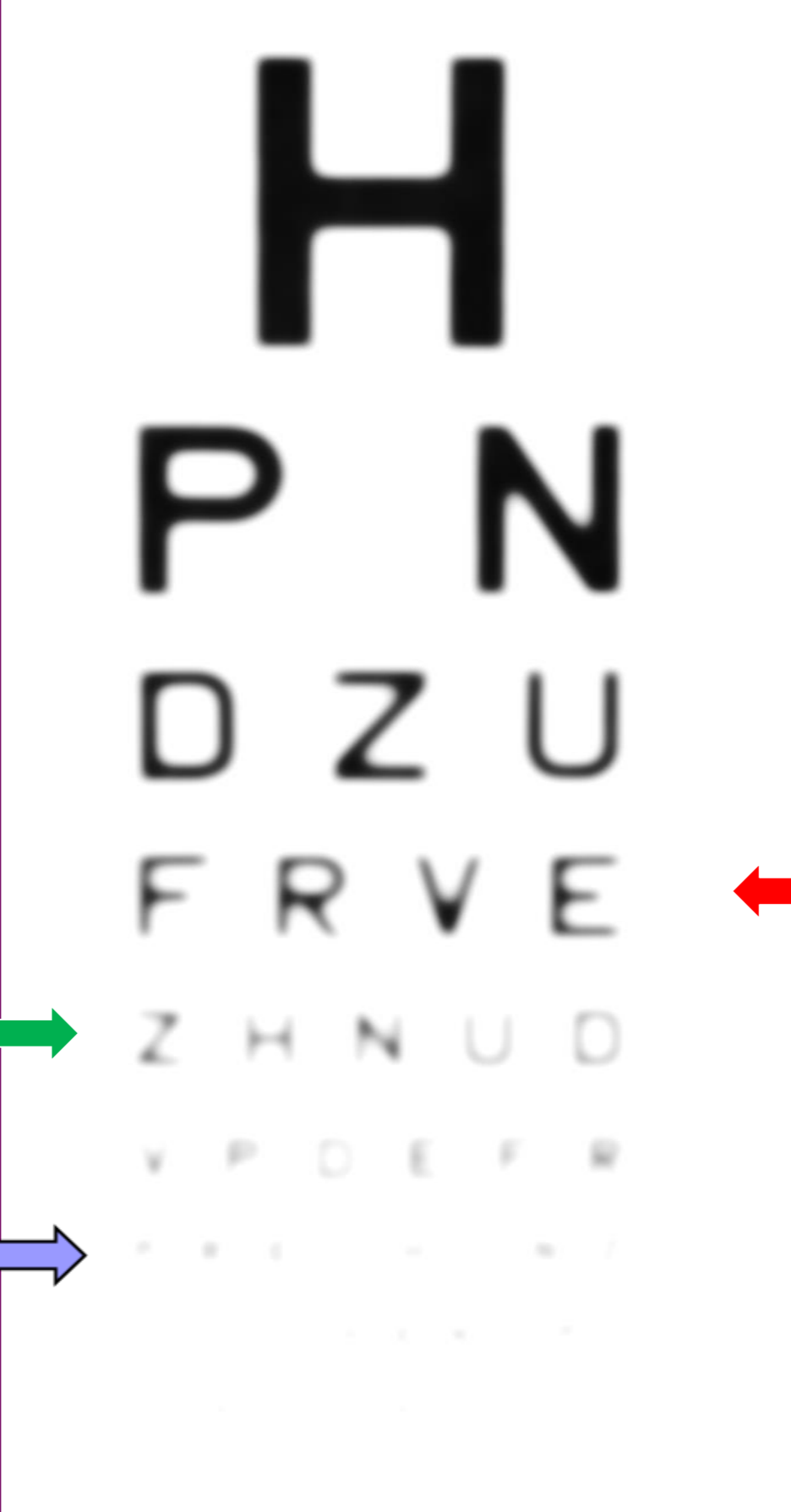
6/12
line

6/6 line
(20/20)



6/18
line





6/12
line

6/6 line
(20/20)

6/18
line



Primary Objectives of PrOVIDe discussed today:

1. To measure the prevalence (or 'how much') of visual impairment in people with dementia
2. To compare the prevalence of visual impairment in people with dementia with the prevalence of visual impairment in the general population of older people
3. To identify ways to improve eye care for people with dementia



Secondary Objectives of PrOVIDe discussed today:

1. To identify any differences in the prevalence of visual impairment between people living in their own homes and people living in care homes
2. To estimate the percentages of people with dementia likely to be able to perform successfully key elements of the eye examination



Design of research:

Stage 1: Prevalence study

708 participants with dementia aged 60 – 89 years

389 lived in their own homes - median age 80 years

319 in care homes – median age 83 years

A full domiciliary eye examination by an experienced optometrist was attempted on each participant

Each participant's level of cognitive impairment was assessed by the standardised Mini-Mental State Examination (sMMSE)

Stage 2: Qualitative study



Stage 1 Prevalence study: Types of VI

Presenting VI

The participant was visually impaired when wearing their current distance spectacles (or without glasses if they have no spectacles)

Post-refraction (or best corrected) VI

The participant was visually impaired even when wearing the up-to-date prescription determined by the PrOVIDe optometrist

Uncorrected or under-corrected VI

Participants who had presenting VI but who were not visually impaired when wearing the up-to-date prescription determined by the PrOVIDe optometrist



Prevalence of Visual Impairment :

Type of Visual Impairment	VA worse than 6/12 % [95% CI]	VA worse than 6/18 % [95% CI]
Presenting	32.4% [28.7, 36.5]	16.3% [13.5, 19.6]
Uncorrected or under-corrected	14.3% [11.7, 17.5]	7.7% [5.7, 10.2]
Post-refraction	18.1% [15.2, 21.5]	8.6% [6.6, 11.3]

Almost 50% of presenting visual impairment was correctable with up-to-date spectacles



How do these results add to what we already know?

Previous UK prevalence data on VI in older people

- is at least 15 years old
- is only reliable for Presenting VI
 - Because, in previous studies the up-to-date spectacle prescription was not usually determined - unlike in PrOVIDe
- has little information on care home residents
- rarely separately identifies participants with dementia

Presenting VI in the best comparator study (Ref 1):

Prevalence was 28.3% compared with 33.5% (age adjusted) in PrOVIDe

Care home residents 24% compared with PrOVIDe 44%



Comparing care home residents with those living in their own homes:

VI (of all types) was approximately 2 to 2½ times more common in those living in care homes

In particular, the prevalence of uncorrected and under-corrected VI was statistically significantly greater in those living in care homes when adjusted for age, gender and sMMSE score

Odds Ratio = 2.19 [95% CI 1.30-3.73, $p < 0.01$]



VA worse than 6/18				
Type of Visual Impairment	Full sample N = 708 % (n) [95%CI]	Group 1 N = 389 % (n) [95%CI]	Group 2 N = 319 % (n) [95%CI]	Difference in proportions between Groups 1 & 2 [†] [95% CI]
Presenting	16.3 (96) [13.5, 19.6]	10.6 (40) [7.8, 14.3]	26.4 (56) [20.7, 33.0]	-15.8 [-22.8, -8.7] p<0.001
Missing data % (n)	16.9 (120)	3.3 (13)	33.5 (107)	
Uncorrected or under-corrected	7.7 (45) [5.7, 10.2]	5.1 (19) [3.2, 7.9]	12.4 (26) [8.4, 17.8]	-7.3 [-12.7, -2.0] p<0.01
Missing data % (n)	17.2 (122)	3.3 (13)	34.2 (109)	
Post-refraction	8.6 (51) [6.6, 11.3]	5.6 (21) [3.6, 8.5]	14.2 (30) [9.9, 19.7]	-8.6 [-14.2, -3.0] p<0.001
Missing data % (n)	16.7 (118)	2.8 (11)	33.5 (107)	



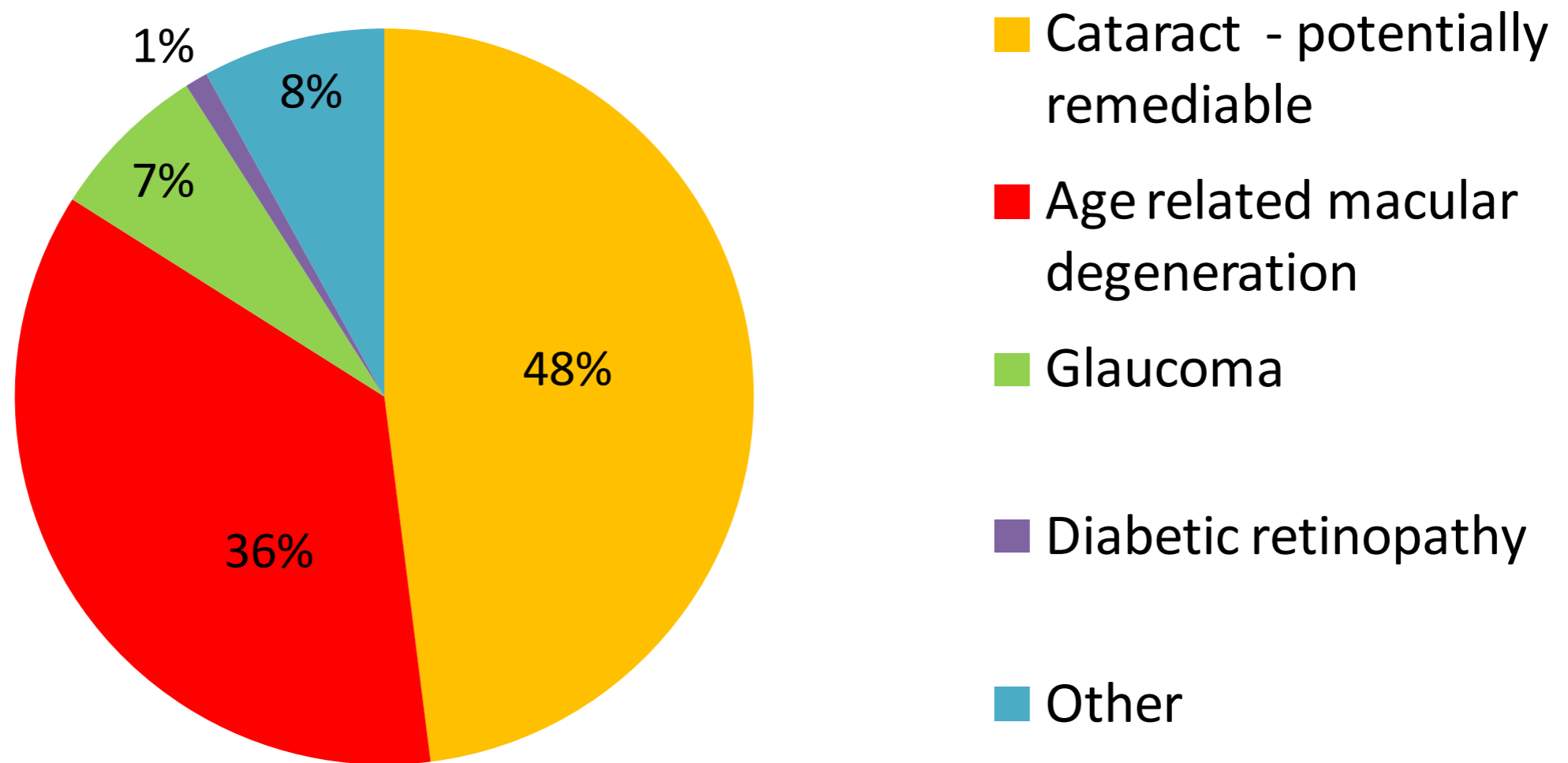
VA worse than 6/12

Type of Visual Impairment	Full sample <i>N</i> = 708 % (n) [95%CI]	Group 1 <i>N</i> = 389 % (n) [95%CI]	Group 2 <i>N</i> = 319 % (n) [95%CI]	Difference in proportions between Groups 1 & 2%* [95% CI]
Presenting	32.5 (191) [28.7, 36.5]	21.8 (82) [17.8, 26.4]	51.4 (109) [44.5, 58.3]	-29.6 [-37.9, -21.3] p<0.001
Missing data % (n)	16.9 (120)	3.3 (13)	33.5 (107)	
Uncorrected or under-corrected	14.3 (84) [11.7, 17.5]	10.6 (40) [7.8, 14.3]	21.0 (44) [15.8, 27.2]	-10.4 [-17.0, -3.6] p<0.01
Missing data % (n)	17.2 (122)	3.3 (13)	34.2 (109)	
Post-refraction	18.2 (107) [15.2, 21.5]	11.4 (43) [8.4, 15.1]	30.2 (64) [24.2, 36.9]	-18.8 [-26.1, -11.5] p<0.001
Missing data % (n)	16.7 (118)	2.8 (11)	33.5 (107)	



Causes of post-refraction VI (for VA worse than 6/12 criterion):

A single cause has been identified for each participant



Ability to carry out key elements of the eye examination in people with dementia

Most key tests were possible in over 80% of participants

The key health tests of tonometry (95%) and examination of the eye with an ophthalmoscope (91%) were usually possible

Participants who were unable to do most key tests:

were significantly more likely to live in care homes
had significantly lower sMMSE scores



Near vision loss:

16.2% of participants could not read standard newspaper size print (N8) with their current reading spectacles

almost $\frac{2}{3}$ of these participants could read this print when wearing the correct spectacles for reading

Near vision loss was significantly greater for those living in care homes, after correcting for age and gender

Improvements of more than three lines of print on the reading chart occurred in **7.2%** of those in care homes



Design of research:

Stage 1: Prevalence Study

Stage 2: Qualitative study to explore participants', carers' and optometrists' views of eye care for people with dementia.

The study comprised:

- 36 interviews with people with dementia
- 33 family carers who took part in 5 focus groups
- 34 optometrists in 5 focus groups
- 16 care workers (11 interviews and 1 focus group)



Stage 2 Qualitative study: Views on eye examinations:

Most participants had regular eye tests and were in general satisfied with them.

General agreement that eye examinations are important BUT carers were unsure about how much of the eye test is possible with people with dementia.

Optometrist is often not informed in advance that the person they are about to test has dementia.

Presence of an informed carer is invaluable



Stage 2 Qualitative study: Views on domiciliary eye care:

Optometrists want more information, training and guidance on examining people with dementia

Most of those interviewed and family carers were unaware of availability of domiciliary eye care for people with dementia before the study

PrOVIDe domiciliary exams were perceived as more thorough, not rushed, and less stressful



Stage 2 Qualitative study: Views on spectacles and spectacle wearing:

People with advanced dementia are often reluctant to wear spectacles

Interviewees often said spectacles were “not needed”

Missing and broken spectacles are an issue

Especially for people living in care homes

Labelling glasses with name and purpose is good practice

It is good practice to minimise change when dispensing new spectacles



Stage 2 Qualitative research: Views on cataract surgery:

Interviewees said they would have cataract surgery if advised .

Mixed views from focus group participants.

Potential benefits versus distress/discomfort caused

We asked: “Would you favour earlier than usual (expedited) cataract surgery?”

Person would have capacity and be more adaptable

Expedited surgery was supported by family carers

Many optometrists were in favour of early surgery but sceptical about it happening in their area



Some conclusions and key messages (1) :

Approximately one in three participants were visually impaired for the VA worse than 6/12 definition, and one in six for VA worse than 6/18

Almost 50% of this presenting visual impairment was correctable with spectacles

Approximately 50% of visual impairment NOT correctable with glasses was caused by cataract

The disproportionately high prevalence of VI in those living in care homes should be addressed



Some conclusions and key messages (2):

People with dementia and their carers would benefit from more information regarding availability of domiciliary eye examinations and the eye examination itself

Communication between optometrists and carers could be improved

The eye examination should be tailored to meet the needs of the individual

Optometrists would welcome and could benefit from further training on dementia and on the examination of people with dementia



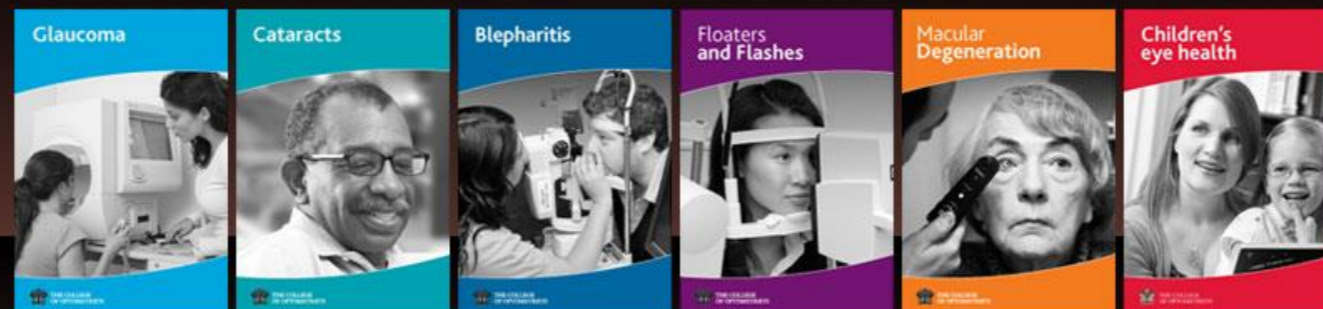
Equipment – Domiciliary Examination:

- **Computerised Test Chart**
- Near Vision Test Chart
- Trial case (Cross Cyls and 0.25/0.50/1.00 confirmation tests)
- Trial frames
- Retinoscope/Ophthalmoscope
- Portable slit lamp
- **Battery operated focimeter**
- **iCare/ Perkins Tonometer**
- Confrontation test and/or Visual Field Screener
- Occluder
- Amsler Chart
- Dilating drops



Advice and Conclusion:

- Advice on findings to patient and/or carer
- Reassurance
- Written advice for patients with difficulty with memory and comprehension
- Leaflets
- Consideration of patients' mobility and likelihood of falls when prescribing
- Other visual conditions
- Tints



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