



Obstacles to improving visual health in older people.

Why does screening for remediable eye disease in older people not lead to improvements in the older population's visual function?

This publication summarises findings from research funded by Thomas Pocklington Trust and carried out at the Research Department of Primary Care and Population Health, University College London, by Professor Steve Iliffe, Kalpa Kharicha and Sybil Myerson.

Summary

The extensive unmet need amongst the older population with visual function loss is well documented. Between 12% and 50% of older people have undetected visual loss and a substantial proportion of this visual impairment is due to remediable causes such as refractive errors and cataracts. The UK Vision Strategy, launched in April 2008, aims to improve the eye health of the nation by eliminating avoidable sight loss.

There is still an incomplete understanding of the best methods of identifying those with unrecognised visual loss and persuading them to take up services that will potentially improve their eyesight and quality of life. Research has shown that screening for asymptomatic visual impairment does not lead to improved visual function in the older population. Opportunistic case-finding – that is, identification of unrecognised visual function loss during routine encounters in primary care – may be a more productive way of addressing the problem of unrecognised, remediable eye disease in older people.

However, we do not know enough about the characteristics of people with unassessed or untreated visual function loss to be able to describe a clinically obvious group for targeted assessment. We do not have an explanation for the limited uptake of services by older people with identified visual impairment, even where such services are offered and are effective. Furthermore, we do not fully understand the lack of response in routine general practice to evidence of visual impairment in older patients.

A mixed methodology approach was taken to address these questions using longitudinal data on a cohort of primary care patients aged 65 and over using the Health Risk Appraisal for Older people (HRA-O) tool, which includes a short version of the Visual Function questionnaire. Qualitative data were collected from older people who had completed the HRA-O questionnaire, and from general practitioners, practice nurses, opticians and optometrists.

Key findings from this study are:

- Those with undiagnosed visual function loss are more likely to have had only basic education, to be at risk of social isolation, to have depressed mood, to be in need of assistance with one or more Basic Activities of Daily Living (BADL) and Instrumental Activities of Daily Living (IADL), to have impaired memory and to describe their health as only fair or poor. This description is clinically useful as a recognisable pattern that can trigger further investigation.
- Reports of difficulty with close vision hobbies and in reading newsprint predict future visual function deterioration in those with apparently unimpaired vision; questions about these activities could be the basis for a brief screening tool suitable for use in routine primary care encounters.
- No individual characteristics predict failure to have eye checks in the quantitative analysis, but the qualitative analysis suggested a complex model of decision making based on three axes: positive attitudes to preventive care versus attribution of change to normal ageing; decisiveness about action versus avoidance or denial; and trusting professional skills and judgements versus distrust of commercial motives. This model can also contribute to pattern recognition, for the identification of older people at high risk of visual loss.
- Recommendations to have eye checks are taken up more by those whose vision is unimpaired than by those whose vision is impaired, and also by those under 75 years of age.
- Visual function loss is part of a package of disabilities, and may be a marker for imminent disablement.

These findings, along with evidence from the literature on educational interventions in primary care, have been combined to propose a prototype to increase the uptake of eye examinations in older people using an heuristic to orientate clinical thinking towards identification of unrecognised visual function loss in older people attending their general practice.

Background

Despite the availability of free NHS eye examinations for those aged 60 and over, there is extensive unmet need amongst the older population with visual function loss, much of which is tractable. A north London study of 1547 people aged 65 and over found that 30% were visually impaired and that 72% of this impairment could potentially be improved by surgery or spectacles.¹ The UK Vision Strategy, launched in April 2008, aims to improve the eye health of the nation by eliminating avoidable sight loss.

There is still an incomplete understanding of the best methods of identifying those with unrecognised visual loss and persuading them to take up services that will potentially improve their eyesight and quality of life. Given the lack of evidence of benefit from population screening, an alternative approach might be to foster opportunistic case-finding – that is, identification of unrecognised visual function loss during routine encounters in primary care. This case-finding approach would work best if general practitioners or practice nurses were able to target brief vision assessments at individuals at highest risk of having undetected impairment. This study explores the possibilities for characterising those at highest risk, and developing a brief vision assessment compatible with routine encounters in primary care.

Primary care and vision screening

The reason for the lack of response in routine general practice to evidence of visual impairment in older patients is not clear. We do know from the 2002 MRC Trial of Assessment and Management of Older People in the Community, and other studies, that general practitioners are not acting systematically on the results of visual screening, even in research projects where there is an emphasis on intervention.^{2,3} There are a number of possible reasons for this, which need to be explored. They include not recognising a pattern of symptoms as indicative of visual impairment, not knowing the prevalence of tractable eye disease and thereby underestimating the

¹ Reidy A, Minassian DC, Valfidis G, Joseph J, Wu J, Desai P, Connolly A (1998) *Prevalence of serious eye disease and visual impairment in North London: population based, cross-sectional study*. *BMJ*, 316: 1643-1646.

² Evans JR, Fletcher AE, Wormald RPL, Siu-Woon Ng E, Stirling S, Smeeth L, Breeze E, Bulpitt CJ, Nunes M, Jones D, Tulloch A (2002) *Prevalence of visual impairment in people aged 75 years and older in Britain: results from the MRC Trial of Assessment and Management of Older People in the Community*, *British Journal of Ophthalmology*, 86: 795-800.

³ Evans JR, Fletcher AE, Wormald RPL (2004) *Causes of visual impairment in people aged 75 years and older in Britain: an add-on study to the MRC Trial of Assessment and Management of Older People in the Community*. *British Journal of Ophthalmology*, 88: 365-370.

probabilities of attenders having undiagnosed visual function loss, perceived lack of diagnostic skills, negative perceptions of older people's willingness to seek treatment, and perceived lack of local specialist resources

Currently, visual assessment is only required under the Quality and Outcomes Framework (QOF), the annual incentive programme for disease management in general practice for patients with diabetes. However, QOF requirements are evolving and it would be potentially useful if an educational programme could be tested and refined before eyesight assessment in non-diabetic patients becomes part of QOF.

The Health Risk Appraisal for Older people tool (HRA-O) and the National Eye Institute Visual Function Questionnaire (NEI-VFQ)

An example of a case-finding tool for the older population is the Health Risk Appraisal for Older people. It is the most extensively evaluated health promotion tool for this population. The tool assesses health and lifestyle behaviours using a self-completion questionnaire, and risks are identified using evidence-based logic software. Personalised feedback is produced both for the older person and their general practitioner. The development, feasibility and testing in the UK have been reported elsewhere.^{4,5,6,7,8}

The HRA-O questionnaire is comprehensive and uses standardised and validated instruments to collect data on vision as well as co-morbidities, medication use, health service use and uptake of preventive services (including opticians' eye tests), the experience of pain, depression and memory problems, social networks and risk of

⁴ Stuck AE, Elkuch P, Dapp U, Anders J, Iliffe S, Swift CG (2002) *Feasibility and yield of a self-administered questionnaire for health risk appraisal in older people in three European countries*. *Age and Ageing*, 31: 463-467.

⁵ Stuck AE, Kharicha K, Dapp U, Anders J, von Renteln-Kruse W, Meier-Baumgartner HP, Harari D, Swift CG, Ivanova K, Egger M, Gillmann G, Higa J, Beck JC, Iliffe S (2007a) *Development, feasibility and performance of a health risk appraisal questionnaire for older persons*. *BMC Medical Research Methodology*, 7:1

⁶ Stuck AE, Kharicha K, Dapp U, Anders J, Von Renteln-Kruse W, Meier-Baumgartner HP, Iliffe S, Harari D, Bachmann MD, Egger M, Gillmann G, Beck JC, Swift CG (2007b) *The PRO-AGE study: An international randomized controlled study of health risk appraisal for older persons based in general practice*. *BMC Medical Research Methodology*, 7:2

⁷ Iliffe S, Kharicha K, Harari D, Swift CG, Stuck AE (2005) *Health risk appraisal for older people in general practice using an expert system: A pilot study*. *Health Soc Care Comm*, 13: 21-29.

⁸ Harari D, Iliffe S, Kharicha K, Egger M, Gillmann G, von Wenteln-Kruse W, Beck J, Swift C, Stuck A (2008) *Promotion of health in older people: a randomised controlled trial of health risk appraisal in British general practice*. *Age and Ageing*, 37: 565-571.

social isolation, self-efficacy, smoking and alcohol consumption, functional ability and falls history, hearing, physical activity and nutrition. Demographic information includes questions on educational attainment, income, previous employment, ethnicity and current living arrangements. Vision data are based on responses to the following questions from the National Eye Institute Visual Function Questionnaire (NEI-VFQ)^{9,10,11,12}

- How much difficulty do you have reading ordinary print in newspapers?
- How much difficulty do you have doing work or hobbies that require close vision?
- Because of your eyesight, how much difficulty do you have going down steps, stairs or kerbs in dim light or at night?
- Because of your eyesight, how much difficulty do you have noticing objects off to the side while you are walking along?
- Because of your eyesight, how much difficulty do you have finding something on a crowded shelf up close to you?
- Are you limited in how long you can work or do other activities because of your eyesight?

Respondents are also asked to rate vision (from excellent, good, fair, poor, very poor, and blind); how much they worry about their eyesight; whether they have noticed any recent worsening of their eyesight, and their experience of driving. Information is also collected on diagnoses of cataract, glaucoma and irreversible retinal disease, and whether they have had an eyesight check-up in the last year. The time period of one year was used in the original health promotion studies because it corresponded with recommendations for eye testing in the USA, Switzerland and Germany.

⁹ Breslow L, Beck JC, Morgenster H et al. (1997) *Development of a Health Risk Appraisal for the elderly (HRA-E)*. American Journal of Health Promotion, 11: 337-343.

¹⁰ Clemons TE, Chew EY, Bressler SB, McBee W et al. (2003) *National Eye Institute Visual Function Questionnaire in the Age-related Eye disease study*. Arch Ophthalmol, 121: 211-217.

¹¹ Mangione CM, Lee PP et al. (1998) *Psychometric properties of the National Eye Institute Visual Function Questionnaire (NEI-VFQ)*. NEI-VFQ Field Test Investigators. Arch Ophthalmol, 116: 1496-1504.

¹² Mangione CM, Lee PP, Gutierrez PR, Spritzer K, Berry S, Hays RD (2001) *Development of the 25 item National Eye Institute Visual Function Questionnaire*. Arch Ophthalmol, 119: 1050-1058.

Research aims and objectives

The aim of this study was to explore the obstacles to improving visual health in an ageing population.

The objectives of the study were:

- To describe the characteristics of community-dwelling people aged 65 and over with unmet need in visual function.
- To identify predictors of visual impairment and uptake of vision testing.
- To measure the effect of advice on vision testing.
- To measure the contribution of visual impairment to other disabilities.
- To explore how general practitioners, practice nurses and community opticians understand patients' reasoning about the significance and tractability of visual loss.
- To identify 'professional barriers' to improving visual function in later life.
- To identify 'patient barriers' to the take-up of remedial vision services

Methods

A mixed methodology approach was used in this study, with a patient population already enrolled in a study of health promotion in later life (the ProAge and SWISH studies)^{13,14,15} using the HRA-O tool, including the short version of the Visual Function Questionnaire. Participants were community-dwelling, non-disabled, aged 65 and over recruited from three primary care group practices located in outer London and two Primary Care Trusts. Those with severe physical or mental health problems, cognitive impairment or receiving palliative care were identified by their clinician and excluded.

Eligible patients were posted an HRA-O questionnaire in 2001, 2002

¹³ Stuck AE, Kharicha K, Dapp U, Anders J, Von Renteln-Kruse W, Meier-Baumgartner HP, Iliffe S, Harari D, Bachmann MD, Egger M, Gillmann G, Beck JC, Swift CG (2007b) *The PRO-AGE study: An international randomized controlled study of health risk appraisal for older persons based in general practice*. BMC Medical Research Methodology, 7: 2.

¹⁴ Iliffe S, Kharicha K, Harari D, Swift CG, Stuck AE (2005) *Health risk appraisal for older people in general practice using an expert system: A pilot study*. Health Soc Care Comm, 13: 21-29.

¹⁵ Harari D, Iliffe S, Kharicha K, Egger M, Gillmann G, von Renteln-Kruse W, Beck J, Swift C, Stuck A (2008) *Promotion of health in older people: a randomised controlled trial of health risk appraisal in British general practice*. Age and Ageing, 37: 565-571.

and 2005. Participants completed the questionnaire up to three times over four years. The quantitative analysis for this study was based on secondary analysis of this longitudinal dataset. Data were analysed using SPSS 13. Descriptive analysis was carried out using Chi-Square, independent samples t-test and Mann-Whitney U statistical tests as appropriate. The technique of regression modelling was used to adjust for confounding factors, i.e. factors which could distort or confuse the results, and to identify the characteristics of those who do and do not take up vision testing.

For the qualitative work, eligible and consenting primary care patients who completed the HRA-O in 2005 were stratified by age, sex, ethnicity, socio-economic status, self-rated visual impairment and recent vision testing, and invited to participate in interviews or focus groups, according to their preference.

Topics in the semi-structured interview schedule included experiences of changes in vision, how people knew when to get their eyesight checked, why some people tolerate worsening eyesight more than others, whether sight loss was considered an unavoidable part of getting older, experiences of visiting opticians, and discussions with primary care about their eye health.

General practitioners and practice nurses at the participating group practice and local community opticians gave their views, in focus groups or individual interviews, on their understanding of patient obstacles and their own responses to older people with newly recognised visual loss. Perceptions of tractability of visual loss in older people, skills required to detect and respond to visual loss, and the place of visual testing in general practice were explored.

All interviews and focus groups were tape-recorded, transcribed and subjected to thematic analysis. The results from each approach were put to an expert panel including older people and representatives of Thomas Pocklington Trust, alongside evidence from the existing literature, to try and achieve a consensus on the factors that impede patient and professional action on visual impairment.

From this a prototype of an educational intervention that addresses the obstacles identified in the earlier phase of research was developed, and tested for face validity with the same expert group, using a modified Delphi methodology applied in other studies of unmet need.¹⁶

NHS research ethics and governance approval was obtained as appropriate for this study.

¹⁶ Iliffe S, Lenihan P, Orrell M, Walters K, Drennan V, See Tai S and the SPICE research team (2004) *Involving the public in changing clinical practice: the development of a short instrument to identify common unmet needs in older people in general practice*. BJGP, 54: 914-918.

Results

Quantitative findings

Secondary analysis of the longitudinal data described above was conducted. Response rates and sample sizes varied at each data collection point, in line with the trial design and loss of people to follow-up over time. Data available for analysis is outlined in Table 1 below.

Table 1:
Response rates and sample sizes for HRA-O data over time

Data collection	Response
2001 (Pro-Age baseline)	1090/1240 (87.9%)
2002 (Pro-Age follow-up)	2491/3139 (79.4%)
2005 (SWISH eligibility check of patients from participating practices. 3 practices in SWISH n=1789)	1387/1789 (77.5%)
2005 (SWISH follow-up at 3/4 years)	838/1387 (60.4%)

Prevalence of eye disease

From the 2491 sample, information was available on diagnosed eye disease in 2429 individuals. Of this group, 1792 (73.8%) reported no eye disease, 432 (17.8%) had cataracts, 62 (2.6%) had glaucoma, 34 (1.4%) had irreversible/untreatable retinal disease, and 109 (4.5%) had more than one condition.

Objective 1: To describe the characteristics of community-dwelling people aged 65 and over with unmet need in visual function.

In a sample of 1792 people with no diagnosis of eye disease, 1079 (60.2%) reported vision-related difficulty as measured by the short Visual Function Questionnaire (VFQ). Those with visual problems were significantly more likely to:

- Be female
- Be over 75
- Be poorer
- Be less educated
- Live alone
- Be at risk of social isolation
- Be depressed

- Need assistance with one or more Basic Activities of Daily Living (BADL), e.g. eating, bathing, dressing, and Instrumental Activities of Daily Living (IADL), e.g. cleaning, shopping
- Take four or more repeat medications
- Have two or more chronic conditions
- Have impaired memory
- Have changed and reduced their activity in the previous 12 months
- Report fair or poor rather than good or excellent health.

To adjust for the interactions between these characteristics, a binary logistic regression analysis was carried out with all significant associations entered in a single step. This showed that those with visual problems remained significantly more likely to:

- Have only basic education
- Be at risk of social isolation
- Have depressed mood
- Need assistance with one or more BADL and IADL
- Have impaired memory
- Report fair or poor health.

In the same population, a similar analysis of characteristics of those reporting or not reporting an eye check in the previous twelve months showed that having only basic education significantly reduces the likelihood of having an eye examination, and taking four or more repeat medications or having two or more chronic conditions significantly increases it. After adjustment in a binary logistic regression analysis, being less educated and having two or more chronic conditions, respectively, remain significantly associated with having or not having an eye check.

Objective 2: To identify predictors of visual impairment and uptake of vision testing through analysis of longitudinal data from 2001, 2002 and 2005.

Predictors of visual impairment

To maximise the sample size, predictors of visual impairment over three years (2002 to 2005) were analysed. Of 596 (72.6%) individuals with no eye disease in 2002, 400 (87.7%) had no vision problems (defined by the short VFQ) in 2002. Three years later, 230 (62.5%) reported vision problems.

Individual characteristics in 2002 which are significantly associated with vision-related difficulty in 2005 are:

- Fair/poor/v poor/blind self-rated vision (vs. excellent/good)
- Having a little or more difficulty with reading newspaper print
- Having a little or more difficulty with close vision hobbies.

After adjusting for socio-demographic factors and significant associations, those reporting a little or more difficulty with close vision hobbies were 4.5 times more likely to have vision-related difficulty three years later ($p=0.004$, 95% CI 1.615-12.734).

The analysis was repeated using self-rated vision (excellent/good vs. fair/poor/v poor/blind) rather than the score on the short VFQ. Of the 505 (85.6%) people with no eye disease who reported excellent/good vision in 2002, 61 (12.1%) reported fair/poor/v poor vision or being blind in 2005.

Significant associations with fair or poor vision in 2005 were found with:

- Living alone (in 2005)
- Reporting a little or more difficulty reading newspapers (in 2002)
- A little or more difficulty with steps/stairs in dim light/night (in 2002)
- Fair/poor self-reported health (in 2002).

A number of associations (in 2002) were very close to statistical significance, including:

- Reporting a little or more worry about eyesight
- Having a little or more difficulty with close vision hobbies
- Having impaired memory
- Having changed and reduced activity in the previous 12 months.

After adjustment for socio-demographic factors and the above significant and almost significant associations, those reporting little or more difficulty with reading newspaper print in 2002 were 2.5 times more likely to have worse self-reported vision in 2005 ($p=0.03$, 95% CI 1.080-6.002).

Predictors of uptake of vision testing

Of the 212 (36.1%) people without eye disease who had not had an eye examination in the previous 12 months when asked in 2002, 109 (51.4%) reported that they had not had an eye examination in the preceding 12 months when asked again in 2005.

Significant associations with not having had an eye check in 2005 are poorer self-reported vision and not having had an eyesight

check in 2002. However, after adjustment, there were no significant associations to predict take-up of eye examinations. In other words, those who do not have eye checks are not different from those who do in terms of education, economic status, self-reported visual function or any of the other characteristics that we measured. Only the qualitative data (see below) help us to understand more about this group

Objective 3: To measure the effect of advice on vision testing given in 2001 on uptake of vision testing at 1 year and likelihood of diagnosed eye disease at 4 years.

Of 204 people with no eye disease in 2001, 101 (49%) had measurable visual impairment and/or no eye test in the previous 12 months and were given advice to have an examination and/or see their GP about their eyesight (as part of the feedback in the ProAge trial). When followed up in 2002, 58 (59.8%) had had an eye test and 39 (40.2%) had not ($p=0.001$). Those who had had their eyes checked were significantly more likely to be younger (under 75) and have better self-rated vision.

Three years later, in 2005, those who had eye examinations in 2002 were significantly more likely to have a diagnosis of eye disease (glaucoma, cataracts or irreversible / untreatable retinal disease) (24.8% vs. 12.1%, $p=0.05$). Eye disease was also significantly associated with being aged over 75 (16.8% vs. 29.4%, $p=0.04$).

Binary logistic regression with eye examination in 2002 as the dependent variable and age, gender, income and education entered in a single step, show that those who had eye examinations in 2002 were 2.5 times more likely to have diagnosed eye disease in 2005 ($p=0.044$, 95% CI= 1.023-6.337) and those aged 75 and over were less likely ($p=0.41$, 95% CI=0.191-0.863) to have diagnosed eye disease (corresponding to the finding that 65–74-year-olds were more likely to have eye checks than those aged 75 and over).

Objective 4: To measure functional ability, co-morbidity, depressed mood, cognitive impairment, falls and social network outcomes at 4-year follow-up of those identified as having visual impairment (without a diagnosis of eye disease) at baseline.

In a 2002 sample of 596 people with no eye disease, 56 (9.4%) had vision-related difficulty according to their short VFQ scores. Analysis of data from broader HRA-O domains shows that three years later, this group is significantly more likely to:

- Be at risk of social isolation

- Be depressed
- Have difficulty with one or more 'basic' and 'instrumental' activities of daily living (BADL and IADL)
- Report impaired memory
- Describe their health as fair or poor
- Have two or more chronic conditions
- Have changed and decreased the type of activity they undertook in the previous 12 months
- Limit activities for fear of falling
- Report that they have not had an eye check.

However, comparison of these characteristics in 2002 shows that they remained constant over three years (i.e. all the above characteristics were significantly associated with vision-related difficulty in both 2002 and 2005).

Therefore, although vision-related difficulty is significantly associated with a range of co-morbidities three years later, these co-morbidities had persisted over the same period of time.

Using responses to the short VFQ, and after adjusting for age, gender, income, education and each co-morbidity in 2002, those with visual function related difficulty in 2002 were:

- 5.3 times more likely to have changed the way they do certain activities ($p < 0.001$, 95% CI=2.168-12.821),
- 7.3 times more likely to have decreased certain activities ($p < 0.001$, 95% CI=4.332-12.214),
- and 4.0 times more likely to limit their activities for fear of falling ($p < 0.001$, 95% CI=1.916-8.249).

These three characteristics (changing activities, reducing activities, limiting activities through fear of falling) predict future disability. The association between visual function loss and these three characteristics suggests that visual function loss may also be a predictor for future disability. This requires further study.

These results were replicated for all variables except impaired memory, when using self-rated vision instead of short VFQ-rated visual function.

Qualitative findings

Preliminary analysis of the interviews with primary care, community optometry and older people is presented in line with the objectives of the study. We conducted:

- 8 face-to-face or telephone interviews with primary care professionals (6 GPs and 2 practice nurses);
- 7 telephone interviews with optometrists or dispensing opticians (2 optometrists, 2 dispensing opticians, 2 who practised as both optometrists and dispensing opticians and 1 optical assistant);
- 6 focus groups with older people from one practice, who had completed the questions on visual function in 2005;
- 18 face-to-face interviews with 21 older people from the same group practice, who did not wish to attend a focus group.

These interviews were tape-recorded and transcribed. This report contains a preliminary analysis of these focus groups and interviews.

The trustworthiness of the data and our analysis of it¹⁷ will be framed in terms of its:

- credibility to others with experience of the topic;
- transferability to other settings;
- dependability (depth of description of methods, peer analysis of data, third party evaluation of data gathering); and
- confirmability (by independent review of the data).

Confirmability was sought by separate analysis of the data by the research team and will be further sought by discussion and inclusion of the comments of volunteers who have listened to the tapes. The credibility, transferability and dependability was tested by presenting our findings to the project's multidisciplinary Advisory Group.

Objectives 5 and 6: To explore how general practitioners, practice nurses and community opticians understand patients' reasoning about the significance and tractability of visual loss, and to identify 'professional barriers' to improving visual function in later life.

A) Findings from interviews with general practitioners and practice nurses

When do patients go to primary care with eye-related issues?

- For 'medical reasons' – acute changes such as sudden vision loss, double vision, retinal detachment; migraines; conjunctivitis, sty, itchy or red eyes.
- For information – clarification of issues after seeing an optician (e.g. 'early cataracts' or macular degeneration – patients find it difficult to believe that nothing can be done about either of these immediately).

¹⁷ Guba EG, Lincoln YS (1981) *Effective evaluation: Improving the usefulness of evaluation results through responsive and naturalistic approaches*. Jossey-Bass, San Francisco.

- If friends/family have had eye-related conditions and they are concerned about themselves.

When do primary care practitioners ask about vision in a consultation about another issue?

- As part of a protocol, e.g. diabetes/falls (usually part of review and carried out by nurse).
- In connection with hypertension management, if family history, if housebound or have temporal arthritis.
- Headaches – despite acknowledged lack of evidence.
- Following an acute event such as a fall, falls-related e.g. bruising, or pain in the head.
- When patient appears not to be coping, e.g. home is in a mess / when checking that they are taking their medication / enquiring about how people are managing with everyday life.
- Following reports by third party e.g. District Nurses, Community Matron – especially if seen at home.
- Time is limited in a consultation. Vision (and hearing) more likely to be done in a review by a nurse.

Other groups (identified by primary care) who don't ask about vision:

- Those who are stoical and / or don't want to bother anyone.
- Those who routinely regularly look after themselves (i.e. access eye services directly), possibly better educated.

Primary care perceptions and knowledge of visual problems in older age:

- Not seen as an inevitable part of ageing (cataracts and glaucoma can be remedied and hypertension changes managed), though some deterioration is associated with changes in acuity.
- Frequency of checks: if not referred to in terms of protocols, then recommendations to have an eye examination vary between annually to twice, three or five times yearly.
- All were aware of free checks for this group, but didn't think the patients themselves were.
- Most mentioned vouchers and were aware of availability of help for those on low income (and where to get further information on this).
- Clear about roles / responsibilities of what optometrists do and their own input as generalists.

Perceptions of why older people tolerate deteriorating vision:

- It is an inevitable part of ageing.

- They don't want to bother anyone.
- Cost, lack of knowledge of free test and subsequent cost of frames/lenses.
- Some don't notice as deterioration is gradual and not seriously affecting everyday life.
- Some are housebound.
- Other health problems are more serious.
- Some have dementia.
- Some people 'don't get round to it'.
- Some make do with 'ready readers'.

How to prompt people to respond to changes in vision?

Suggestions were:

- Incentivise GPs.
- Raise awareness through media campaigns on TV and radio.
- Reminders through surgery notice boards and libraries.

Access

This was not seen as an issue because there is a large choice of optometrists and patients will travel far to see the same person. But there was concern that people with English as a second language may not know that they can walk straight in to see an optometrist without a referral letter from their GP.

B) Findings from interviews with optometrists and dispensing opticians

What prompts older people to go and get their eyes checked?

- Noticing a change in reading and close vision work is a key prompt, as is driving, but respondents acknowledged that many people don't notice or respond to these changes.
- 'We don't get that many new people to be honest'. Most people visit after a reminder.
- If people notice a minor change, they go and see their optician rather than their GP.
- Following advice from GP or GPs telling them that 'eye checks' are free.

Why don't people respond to changes in their eyesight?

- There was a range of views about knowledge that the eye check is free, from 'only 50% know of age limit' to 'well the ones I see, they all know they are going to get a free eye test'. Government needs to advertise free eye examinations – only optometrists do this at present. Similarly there were mixed responses to

awareness amongst older people about vouchers amongst those who are eligible for them.

- Some older people are scared or worried about what the results will be, even for treatable conditions like cataracts.
- Cost of new glasses – (see below).
- The name matters. Being known as an ‘eye-sight check’ and not an ‘eye examination’ implies that it is all about vision and glasses and not about eye health.
- People are busy.
- People living alone are more likely to ignore change.
- Poor eyesight is part of being old.

Cost and how this is handled:

- **By older people:** The cost of glasses and frames is a key reason for older people not having their eyes checked and / or allowing a longer time between check-ups as they think a change of frame / lens is inevitable.
- **By optometry services:** Discussion about costs is common and practitioners acknowledge that there will be many who avoid discussions about money. Opticians felt they could tell if someone was apprehensive. They tended to:
 - ask directly what sort of budget they were working to
 - offered a range of frames
 - pointed out the budget section
 - pointed out the 25% reduction for over-60s
 - told people about buy one get one free
 - informed people they could pay instalments
 - buy certain frames in bulk and offer them as ‘subsidised’

‘We supply from £45 for a complete pair’.

In smaller practices optometrists would help with choosing frames, and it was often easier to have a discussion about money having spent time with the person already. Smaller practices offer fewer ‘buy 1, get 1 free’ but tend to have better-priced individual frames.

- Getting people to have more than one pair of glasses was very difficult.
- Attitude towards eyesight and spending money on it was a problem.

Deciding where to go (as a patient) is influenced by:

- Loyalty amongst older population.
- Different optometrists have different equipment and / or are known to specialise in certain areas, e.g. gas permeable lenses, designer frames.
- Word of mouth recommendations.

- Being based on the High Street helps, whereas having internal stairs may be a deterrent. Some offer home visits, some offer free transport.
- Having 'NHS' written on the door.
- Special offers / list of services clearly written in the window helps.
- Knowing that you can go in and get the screws tightened / free clean of glasses.

Frequency of testing:

- All follow Primary Care Trust guidelines.
- Some variation amongst practitioners –

"If they come in to me and they've got ... possible glaucoma, I will see them every six weeks or every three months for a pressure and a field check ... all free of charge."

Views on eye examination itself: NHS vs. private

There are variations between practitioners in what they will do during the eye examination. NHS doesn't allow optometrists enough time for eye examinations; this could be a problem for busy High Street branches. Money has to be recouped via frames / lenses.

How to increase knowledge about eye examinations:

Advertising on TV, radio, GP surgeries, to carers as well as older people; population-wide government advertising would help.

Objective 7: To identify 'patient barriers' to the take-up of remedial vision services.

Findings from interviews and focus groups with older people

The focus groups of older people were a rich source of ideas, and provided all the themes reported here. The interviews, whilst producing some interesting examples and quotes, only validated these themes, and added no new ones.

These groups of older people, when asked to think about why some people did not seek investigation or treatment for their worsening eyesight, debated three themes, each of which had a dichotomous content. The themes were:

- The capacity of individuals to take decisions and act on them effectively versus a collection of factors which acted as obstacles to older people taking care of their eyesight.
- The belief that prevention is better than cure versus the view that deteriorating vision is an inevitable part of old age.
- The incongruence between the professionalism and personalised approach of opticians and the commercialisation of their services.

Since the main focus of this study is to answer the research question about failure to seek investigation or treatment for worsening eyesight, this report will concentrate on the first theme before discussing a model of thinking and behaviour that incorporates all three themes.

Theme 1. Deciding when to seek help

Decisions about getting eye tests done or treatment started seemed to hinge on significant events.

"I made the decision, when I was about to cross the road, there was a car coming and I could not see it properly. I had the operation then." [FG1]

Other important changes that were mentioned were difficulty in watching television, driving (especially at night), and difficulty in reading bus numbers. Some participants were able to talk about how they decided when to have eye checks..

"I've had the same prescription now for probably about ten years ... (If I had not lost my glasses) I probably would not have gone (to the optician) because ... there appeared to be no change, I could still read at the same distance, the same size of print." [FG6]

Obstacles to service uptake

The main factors which explain the failure of older people to seek investigation or treatment for deteriorating eyesight were seen as:

- **Denial:** possibly a feature of not accepting ageing or limitations in activity, but resulting in worsening vision being described as normal.

"There's a natural inclination to put things off as long as possible." [FG3]

- **Fear:** this could be part of denial but also a feeling that everyone had, to some extent, before seeking investigation or treatment. This fear could be specific (about what might be found) or general (about professionals and hospitals).

"It's a little bit of the fear of the unknown, because ... the idea that somebody is messing about with your eyes, it's really frightening." [FG3]

- **Costs:** Despite free eye examinations for this age group, the cost of buying and updating lenses and glasses was raised by most participants. Mechanisms for managing these costs were also discussed.

"You made an interesting statement ... that the services were free. It cost me £300 the last time I was there!" [FG1]

Despite this, costs were seen as only a partial barrier (by this largely middle-class population), operating to reinforce other themes that inhibited help-seeking.

Who avoids eye tests and treatment?

How these factors interacted when combined was unclear from the discussions, but sometimes the groups were able to predict which sorts of people would not seek investigation or treatment for worsening vision. They were described as people who are:

"Living on their own, they have no family nearby to keep chivvying them up, keep an eye on them ... they may not be very mobile either." [FG3]

Mobility might have an impact on this, and there may be a gender difference too:

"There's a general group of people, I think men are more likely to be in it than women, who don't go to the doctor for many things that they ought to. I think with men it is a sort of slur on their manhood." [FG3]

An alternative view, only occasionally expressed, saw the difference between those who had tests and treatment and those who did not in psychological terms.

"It depends very much on the person ... whether they've got an open mind." [FG4]

Theme 2. Screening versus attribution of change to ageing

There was a widespread view that preventive care was important and helpful. Some people attributed all changes in eyesight to normal ageing, and therefore did not act on any changes they experienced:

"There is a class of older person maybe on their own, who thinks that their deteriorating sight is part and parcel of getting older." [FG3]

Theme 3. Professionalism versus commercialisation

There was a strong sense of incongruence between trusting the skills and professionalism of opticians and distrusting the commercial motivation of the industry in which they worked. The focus groups were very vocal about the commercialism of optical services.

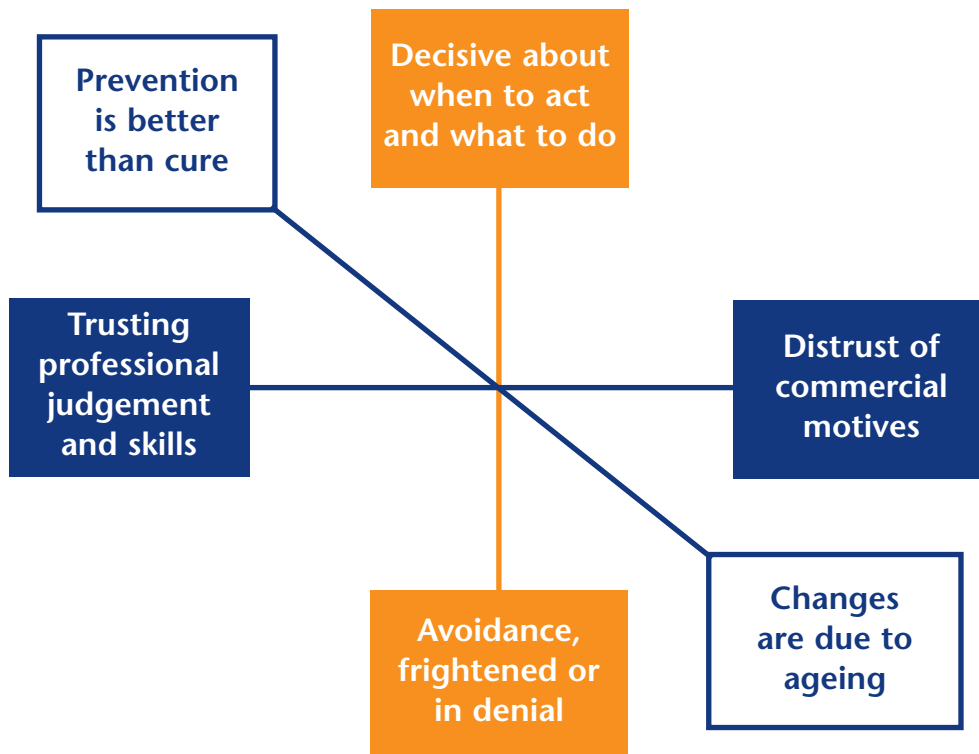
“They only call me back every year because they are looking for business.” [FG1]

However, there were also contrary views about the significance of commercialisation.

“I was quite favourably impressed with the commercial optician because they did seem to pick up the fact that there was something wrong at an early stage.” [FG1]

These three themes have been combined into a three-dimensional model to illustrate why eye services are not used by some people (see Figure 1).

Figure 1: Visual impairment in later life: a model of factors influencing decisions & actions



No individual characteristics predict failure to have eye checks in the quantitative analysis, but the qualitative analysis suggested a complex model of decision making based on three axes: positive attitudes to preventive care vs. attribution of change to normal ageing; decisiveness about action vs. avoidance or denial; and trusting professional skills and judgements vs. distrust of commercial

motives. This model can also contribute to pattern recognition for the identification of older people at high risk of visual loss.

One of the ways in which this model can be used is to consider which axis is the most easily modified, so that early efforts to change the situation are more likely to be fruitful. For example, one way to reduce avoidant behaviour may be to reduce the perceived commercial interests of optometrists, by making their relationship with the NHS more visible.

Discussion

This mixed methods study aimed to characterise the older population with unmet need in visual function and propose a case-finding tool for primary care practitioners, which takes into account both practitioners' and patients' views on vision in older age and barriers to the take-up of services.

In this study, the older population with unrecognised loss of visual function was likely to be less educated, more vulnerable (at risk of social isolation, depressed and with impaired memory) and have poorer physical functioning, needing assistance with both basic and instrumental activities of daily living. Having less education decreased the likelihood of having eye examinations, whereas having two or more chronic conditions increased the likelihood. This description is clinically useful as a recognisable pattern that can trigger further investigation.

In determining key predictors of deterioration in visual function over a period of three years, we found that those reporting a little or more difficulty with close vision hobbies were four and a half times more likely to have vision-related difficulty three years later and those reporting little or more difficulty with reading newspaper print in 2002 were two and a half times more likely to have worse self-reported vision in 2005. Questions about these activities could be the basis for a brief screening tool suitable for use in routine primary care encounters.

No individual characteristics predict failure to have eye checks in the quantitative analysis, but the qualitative analysis suggested a complex model of decision making based on three axes: positive attitudes to preventive care versus attribution of change to normal ageing; decisiveness about action versus avoidance or denial; and trusting professional skills and judgements versus distrust of commercial motives. This model can also contribute to pattern recognition for the identification of older people at high risk of visual loss.

Visual impairment did not predict decline in other co-morbidities over three years, but was found to be part of a package of other disabilities which remain constant over this period of time. This finding should give weight to the inclusion of discussion on visual impairment in consultations with older people who have other disabilities.

In line with the quantitative findings, optometrists reported that older people were prompted by changes in their close vision to get their eyes checked. However, they acknowledged and corroborated older people's views that fear of underlying pathology and costs of frames and glasses were a key deterrent. Although it is widely known that the eye examination is free, there is less understanding that the examination is about eye health rather than a sight test alone. This fact was seen as a potential lever to encourage older people to have regular checks.

The findings of this study must be placed in context of the limitations of secondary data analysis. The data were originally collected for a trial of health promotion in which the frailest older people were excluded, and the primary care teams from which people were recruited were located in relatively affluent areas of London. Hence the findings are likely to have underestimated the prevalence of visual impairment in the older general population and the impact of socio-economic factors may well also be under-emphasised. Despite this, the sample of this longitudinal dataset is large and allowed analyses in which demographic and socio-economic variables could be controlled. The use of a mixed methodology has also helped in gaining a greater understanding of the patient and professional barriers to addressing the unrecognised loss of visual function in the older age groups. We do not claim that the populations studied were representative of the nation, but we do argue that our findings are authentic and likely to be transferable to other groups within the population.

These findings, along with evidence from the literature on educational interventions in primary care, have been combined to propose a prototype to increase the uptake of eye examinations in older people.

Educational Intervention

Principles

To increase the uptake of eye tests among older people by increasing awareness of visual loss in general practice we need to work out what needs to be learned, how that learning can be

facilitated, and in what forms knowledge should be organised for maximum impact on clinical practice.

What needs to be learned?

There are two groups in the older population whose visual function losses may be unrecognised.

- Our study suggests that small changes in visual function are associated with the early physical changes that lead to frailty. Identifying early visual function loss will not only allow general practitioners and practice nurses to encourage take-up of visual function testing and promotion of eye health, but also alert them to other changes in the individual that may be equally tractable.
- In addition we know from other research that frail older people themselves may have undetected visual impairment, making attention to vision a central part of the assessment of frailty.

How can learning be facilitated?

The current emphasis on evidence-based medicine suggests that guidelines based where possible on rigorously evaluated evidence should be the core of any postgraduate training. However, there is anecdotal and empirical evidence to question this approach¹⁸ and the greatest change in practice may occur when the evidence is weak but the implementation strategy is strong.¹⁹ Our focus will be on the strength of the educational intervention; that is, its attractiveness as a problem-solving tool for practitioners.

The effectiveness of educational interventions is influenced by personal factors such as learning styles; external factors such as caseload and demography of practices; confounding factors such as other clinical, educational or managerial demands; the skills of tutors or facilitators, and opportunities for learning from others.²⁰ The 'ideal' educational intervention would allow the practitioner to build upon existing clinical expertise and knowledge within a busy and demanding work schedule.²¹

Treatment of patients requires the clinician to be influenced by many factors apart from scientifically derived knowledge, including the patient's own knowledge of the treatment, consent, the

¹⁸ Taylor D, Buterakos J (1998) *Evidence based medicine: not as simple as it seems*. *Academic Medicine*, 73: 1221-1222.

¹⁹ Ferlie E, Fitzgerald L, Wood M (2000) *Getting evidence into clinical practice: an organisational behaviour perspective*. *J Health Services Research & Policy*, 5: 96-102.

²⁰ Hutchinson, L (1999) *Evaluating and researching the effectiveness of educational interventions*. *BMJ*, 318: 1267-1269.

²¹ *BMJ* editorial (1999) "I don't know": the three most important words in education, 318.

meaning of the illness, the significance of adverse effects from treatment, family or social support and, in some instances, cost.²²

The aim should be to offer knowledge that can be applied in the normal milieu of practice as a form of 'soft technology'; that is, a taken-for-granted skill that is brought to bear in routine clinical tasks.²³ Effective educational methods are practice- and community-based rather than didactic.²⁴ Reminder systems (in computerised medical records), academic detailing (visiting practitioners in their workplaces) and multiple interventions are amongst the strongest approaches to changing practice.²⁵

What format?

Practitioners recognise patterns in symptoms that patients describe, comparing what they hear and see to templates for disease processes that are best understood as 'illness scripts'.²⁶ These 'scripts' are more or less complex, more or less accurate, and amenable to change. The objective of an educational intervention, therefore, should be the modification of 'illness scripts' by offering more complex, and more accurate, pictures of the clinical problem.

In the case of the difficult, complex and sometimes ill-defined problems encountered with patients who do not act on symptoms that are affecting their lives (as visual impairment does), learning how to manage such situations and improve outcomes for the patient can be viewed as the essence of professionalism.²⁷ Such learning should focus on solving problems,²⁸ and must explicitly recognise the complexities, uncertainties and conflicting values that underlie the problems.²⁹

²² Downie R, McNaughton J (2000) *Clinical judgement; evidence in practice*. OUP, Oxford.

²³ May C, Gask L, Atkinson T, Ellis N, Mair F, Esmail A (2001) *Resisting and promoting new technologies in clinical practice: the case of telepsychiatry*. *Soc Sci Med*, 52: 1889-1901.

²⁴ Davis DA, Taylor-Vaisey A (1997) *Translating guidelines into practice. A systematic review of theoretic concepts, practical experience and research evidence in the adoption of clinical practice guidelines* [see comments]. *CMAJ*, 157: 408-416.

²⁵ Thomson O'Brien MA, Oxman AD, Davis DA, Haynes RB, Freemantle N, Harvey EL (1999) *Audit and feedback versus alternative strategies: effects on professional practice and health care outcomes* (Cochrane Review). In: *The Cochrane Library: Update Software* (3) Oxford.

²⁶ Feltovitch PJ, Barrow HS (1984) *Issues of generality in medical problem solving*. In Schmidt HG & De Volder ML (eds) *Tutorials in problem-based learning*. Van Gorcum, Assen, pp. 128-42.

²⁷ Eraut M (2000) *Developing professional knowledge and competence*. Falmer, London, p. 152.

²⁸ Brookfield SD (1986) *Understanding and facilitating adult learning*. Open University Press, Bucks.

²⁹ Cervero RM (1988) *Effective continuing education for professionals*. Jossey-Bass, San Francisco.

The 'illness script' that we need to produce should:

- characterise the group with most unmet need;
- identify triggers for identification and follow-up of unrecognised visual impairment; and
- help practitioners to understand why older people do not seek help for worsening eyesight.

The complexity of the problems being considered and the need to make educational interventions manageable within busy work schedules may appear to be contradictory, but they are resolvable if two techniques are used: heuristics (rules of thumb) and case-based learning.

Heuristics

Heuristics are similar to the pattern recognition that relies on 'illness scripts', and can be seen as schematic patterns that can be applied in complex situations. They function as prompts to thinking and action. Heuristics are brief and easy to remember and lead to action. The heuristics that general practitioners use in making clinical decisions shape performance more powerfully than any form of formal training,³⁰ explaining why educational activities can increase knowledge without changing practice.³¹ The task for this project is to develop an heuristic that helps practitioners to focus on unrecognised visual function loss.

Case-based learning

Given the variety of factors that influence clinical encounters,³² it is not surprising that learning tends to occur more readily through case discussion than through separate consideration of theory divorced from practice.³³

The application of an heuristic to problem cases seems likely to be the best way to enhance clinical practice. To introduce this into existing work routines we will need to create a vehicle that has the following characteristics, derived from studies of the uptake of innovations: Compatibility, Complexity/ Ease of use, Relative advantage, Trialability, Observability /Result demonstrability, Reinvention, Image and Visibility and Voluntariness.^{34,35}

³⁰ Andersson SJ, Lindberg G, Troein M (2002) *What shapes GPs' work with depressed patients? A qualitative interview study*. Family Practice, 19(6): 623-631.

³¹ Andre M, Borgquist L, Foldevi M, Molstad S (2002) *Asking for 'rules of thumb': a way to discover tacit knowledge in general practice*. Family Practice, 19(6): 617-622.

³² Downie R, McNaughton J (2000) *Clinical judgement; evidence in practice*. OUP, Oxford.

³³ Wood M, Ferlie E, Fitzgerald L (1998) *Achieving clinical behaviour change: a case of becoming indeterminate*. Soc Sci Med, 47: 1729-1998.

³⁴ Moore GC, Benbasat I (1991) *Development of an instrument to measure the perception of adopting an information technology innovation*. Information Systems Research, 2: 172-191.

³⁵ Rogers EM (2003) *Diffusion of innovation*. New York Free Press, NY, 5th edn.

Prototype educational intervention

The three key messages for practitioners are:

- **The tractability of eye disease in older people.** Refraction errors and cataracts are treatable with very good outcomes, glaucoma is manageable if identified early enough and profoundly disabling if not, and some forms of macular degeneration are potentially treatable. [This reinforces existing knowledge for general practitioners but may be new knowledge for practice nurses]
- **Unrecognised visual loss** occurs in older people who attribute all changes in themselves to 'ageing', who have avoidant or escapist coping strategies, who fear treatments or who suspect the motives of those offering vision tests. [These characteristics will be recognised by practitioners, who may not have spontaneously identified them as barriers to uptake of preventive eye care]
- **Opportunistic case finding.** There are two sub-populations where assessment of visual function should be undertaken regardless of the patient's presenting complaint.
 - Routine enquiry with older people about early changes in visual function using the two questions that, our findings suggest, predict visual function loss (the questions about close work and hobbies, and reading newsprint). This will be relevant to all practice teams, almost regardless of the demographics of the populations they serve.
 - Visual impairment is part of the pattern of established frailty, so assessment of visual function should be an automatic component of assessments of frailty itself. This will be of particular relevance to practice teams working in areas with older populations, or with patients in care homes.

For opportunistic case finding we propose a two-stage process, the first using an heuristic to frame discussion with the patient, the second entailing some form of examination. We suggest as a provisional heuristic that practitioners be encouraged to FOCUS on unrecognised eye disease and visual impairment. That is, at every encounter with an older patient the general practitioner or practice nurse should consider:

- Frailty; visual impairment is part of frailty, and may predict its development
- Opportunistic Checks using two questions about close vision work or hobbies, or reading newsprint
- Unrecognised visual function loss may be tractable, with significant improvement in the quality of life
- Stoicism and Stigma are barriers to action to improve vision

The second stage would be testing eyesight, which could be done either by a professional, such as the general practitioner who identifies a likely problem with visual function or by an optician/optometrist, or explored using computer-based approaches to vision screening such as those suggested by Evans *et al.*³⁶ The latter approach successfully detected 80% of the cases of correctable visual problems identified by an optometrist in a socially and ethnically diverse population. This second stage of the intervention needs further discussion, and specifying it in detail is beyond the scope of this study.

Next steps

The core of the prototype educational intervention (as described above) needs wider validation and further refinement with a range of different professionals. Once the prototype of the educational intervention has reached an advanced stage that appears acceptable and feasible for use in routine practice, a feasibility trial to measure its effectiveness becomes possible.

Authors

Professor Steve Iliffe

Kalpa Kharicha

Sybil Myerson

Research Department of Primary Care and Population Health,
University College London

³⁶ Evans B, Jessa Z, Thomson D, Rowlands G, Amin M, Sawyerr H, Cooper J (September 2008) *Improving the detection of correctable low vision in older people* Occasional Paper No. 15, Thomas Pocklington Trust.

References

Andersson SJ, Lindberg G, Troein M (2002) *What shapes GPs' work with depressed patients? A qualitative interview study*. Family Practice, 19(6): 623-631.

Andre M, Borgquist L, Foldevi M, Molstad S (2002) *Asking for 'rules of thumb': a way to discover tacit knowledge in general practice*. Family Practice, 19(6): 617-622.

BMJ editorial (1999) *'I don't know': the three most important words in education*, 318.

Breslow L, Beck JC, Morgenster H et al. (1997) *Development of a Health Risk Appraisal for the elderly (HRA-E)*. American Journal of Health Promotion, 11: 337-343.

Brookfield SD (1986) *Understanding and facilitating adult learning*. Open University Press, Bucks.

Cervero RM (1988) *Effective continuing education for professionals*. Jossey-Bass, San Francisco.

Clemons TE, Chew EY, Bressler SB, McBee W et al. (2003) *National Eye Institute Visual Function Questionnaire in the Age-related Eye disease study*. Arch Ophthalmol, 121: 211-217.

Davis DA, Taylor-Vaisey A (1997) *Translating guidelines into practice. A systematic review of theoretic concepts, practical experience and research evidence in the adoption of clinical practice guidelines* [see comments]. CMAJ, 157: 408-416.

Downie R, McNaughton J (2000) *Clinical judgement; evidence in practice*. OUP, Oxford.

Eraut M (2000) *Developing professional knowledge and competence*. Falmer, London, p. 152.

Evans B, Jessa Z, Thomson D, Rowlands G, Amin M, Sawyerr H, Cooper J (Sept. 2008) *Improving the detection of correctable low vision in older people*. Occasional Paper No. 15 Thomas Pocklington Trust.

Evans JR, Fletcher AE, Wormald RPL (2004) *Causes of visual impairment in people aged 75 years and older in Britain: an add-on study to the MRC Trial of Assessment and Management of Older People in the Community*. British Journal of Ophthalmology, 88: 365-370.

Evans JR, Fletcher AE, Wormald RPL, Siu-Woon Ng E, Stirling S, Smeeth L, Breeze E, Bulpitt CJ, Nunes M, Jones D, Tulloch A (2002) *Prevalence of visual impairment in people aged 75 years and older in Britain: results from the MRC Trial of Assessment and Management of Older People in the Community*. British Journal of Ophthalmology, 86: 795-800.

Feltovitch PJ, Barrow HS (1984) *Issues of generality in medical problem solving*. In Schmidt HG & De Volder ML (eds) *Tutorials in problem-based learning*. Van Gorcum, Assen, pp. 128-142.

Ferlie E, Fitzgerald L, Wood M (2000) *Getting evidence into clinical practice: an organisational behaviour perspective*. J Health Services Research & Policy, 5: 96-102.

Guba EG, Lincoln YS (1981) *Effective evaluation: Improving the usefulness of evaluation results through responsive and naturalistic approaches*. Jossey-Bass, San Francisco.

Harari D, Iliffe S, Kharicha K, Egger M, Gillmann G, von Wenteln-Kruse W, Beck J, Swift C, Stuck A, (2008) *Promotion of health in older people: a randomised controlled trial of health risk appraisal in British general practice*. Age and Ageing, 37: 565-571.

Hutchinson L (1999) *Evaluating and researching the effectiveness of educational interventions*. BMJ, 318: 1267-1269.

Iliffe S, Lenihan P, Orrell M, Walters K, Drennan V, See Tai S and the SPICE research team (2004) *Involving the public in changing clinical practice: the development of a short instrument to identify common unmet needs in older people in general practice*. BJGP, 54: 914-918.

Iliffe S, Kharicha K, Harari D, Swift CG, Stuck AE (2005) *Health risk appraisal for older people in general practice using an expert system: A pilot study*. Health Soc Care Comm, 13: 21-29.

Iliffe S, Kharicha K, Goodman C, Harari D, Swift C, Manthorpe J (2005a) *Smarter working in primary care*. Quality in Ageing, 6(4): 4-11.

Iliffe S, Kharicha K, Harari D, Swift C, Gillman G, Stuck A (2005b) *Self-reported visual function in healthy older people in Britain: associations with age, sex, self-reported health, education and income*. Family Practice, 22(6): 585-590.

Mangione CM, Lee PP et al. (1998) *Psychometric properties of the National Eye Institute Visual Function Questionnaire (NEI-VFQ)*. NEI-VFQ Field Test Investigators. Arch Ophthalmol, 116: 1496-1504.

Mangione CM, Lee PP, Gutierrez PR, Spritzer K, Berry S, Hays RD (2001) *Development of the 25 item National Eye Institute Visual Function Questionnaire*. Arch Ophthalmol, 119: 1050-1058.

May C, Gask L, Atkinson T, Ellis N, Mair F, Esmail A (2001) *Resisting and promoting new technologies in clinical practice: the case of telepsychiatry*. Soc Sci Med, 52: 1889-1901.

Moore GC, Benbasat I (1991) *Development of an instrument to measure the perception of adopting an information technology innovation*. Information Systems Research, 2: 172-191.

Reidy A, Minassian DC, Valfidis G, Joseph J, Wu J, Desai P, Connolly A (1998) *Prevalence of serious eye disease and visual impairment in North London: population based, cross-sectional study*. BMJ, 316: 1643-1646.

Rogers EM (2003) *Diffusion of innovation*. New York Free Press, NY, 5th edition.

Stuck AE, Elkuch P, Dapp U, Anders J, Iliffe S, Swift CG (2002) *Feasibility and yield of a self-administered questionnaire for health risk appraisal in older people in three European countries*. Age and Ageing, 31: 463-467.

Stuck AE, Kharicha K, Dapp U, Anders J, von Renteln-Kruse W, Meier-Baumgartner HP, Harari D, Swift CG, Ivanova K, Egger M, Gillmann, G, Higa J, Beck JC, Iliffe S. (2007a) *Development, feasibility and performance of a health risk appraisal questionnaire for older persons*. BMC Medical Research Methodology, 7:1.

Stuck AE, Kharicha K, Dapp U, Anders J, Von Renteln-Kruse W, Meier-Baumgartner HP, Iliffe S, Harari D, Bachmann MD, Egger M, Gillmann G, Beck JC, Swift CG (2007b) *The PRO-AGE study: An international randomized controlled study of health risk appraisal for older persons based in general practice*. BMC Medical Research Methodology, 7:2.

Taylor D, Buterakos J (1998) *Evidence based medicine: not as simple as it seems*. Academic Medicine, 73: 1221-1222.

Thomson O'Brien MA, Oxman AD, Davis DA, Haynes RB, Freemantle N, Harvey EL (1999) *Audit and feedback versus alternative strategies: effects on professional practice and health care outcomes (Cochrane Review)*. In: The Cochrane Library: Update Software (3) Oxford.

UK Vision Strategy (2008) *Setting the direction for eye health and sight loss services*, RNIB.

Wood M, Ferlie E, Fitzgerald L (1998) *Achieving clinical behaviour change: a case of becoming indeterminate*. Soc Sci Med, 47: 1729-1998.

How to obtain further information

A summary report, in the form of a 'Research Findings' entitled *Obstacles to improving visual health in older people: why does screening for remediable eye disease in older people not lead to improvements in the older population's visual function?* by Professor Steve Iliffe, Kalpa Kharicha and Sybil Myerson is available from:

Thomas Pocklington Trust
5 Castle Row
Horticultural Place
London W4 4JQ

Telephone: 020 8995 0880
Email info@pocklington-trust.org.uk
Web www.pocklington-trust.org.uk

Copies of this report in large print, audio tape or CD, Braille and electronic format are available from Thomas Pocklington Trust.

Background on Pocklington

Thomas Pocklington Trust is the leading provider of housing, care and support services for people with sight loss in the UK. Each year we also commit around £700,000 to fund social and public health research and development projects.

Pocklington's operations offer a range of sheltered and supported housing, residential care, respite care, day services, home care services, resource centres and community based support services.

A Positive about Disability and an Investor in People organisation, we are adopting quality assurance systems for all our services to ensure we not only maintain our quality standards, but also seek continuous improvement in line with the changing needs and expectations of our current and future service users.

We are working in partnership with local authorities, registered social landlords and other voluntary organisations to expand our range of services.

Our research and development programme aims to identify practical ways to improve the lives of people with sight loss, by improving social inclusion, independence and quality of life, improving and developing service outcomes as well as focusing on public health issues.

We are also applying our research findings by way of pilot service developments to test new service models and develop best practice.

In this publication, the terms 'visually impaired people', 'blind and partially sighted people' and 'people with sight loss' all refer to people who are blind or who have partial sight.

Notes

Notes

Notes



5 Castle Row
Horticultural Place
Chiswick
London W4 4JQ
Tel 020 8995 0880

Email info@pocklington-trust.org.uk
Website www.pocklington-trust.org.uk
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