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Optometrist prescribing of therapeutic agents: findings of the AESOP survey

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Abstract

Throughout the USA and in some parts of Australia and Canada, licensed optometrists may prescribe therapeutic agents for certain eye conditions. However, this role is not currently available to European optometrists. The extension of prescribing rights to new professional groups was the subject of a UK government-commissioned review, which cited optometrists as potential candidates. A recent literature review found limited evidence to assess the appropriateness of eye care delivered by different health care providers. To inform the UK decision, we therefore conducted a national postal survey to explore how optometric practice might change with the introduction of therapeutic prescribing. The Anonymous Enquiry of the Scope for Optometrist Prescribing (AESOP), was sent to a random 10% sample of registered optometrists. Over 80% of respondents indicated that optometrists should be able to train as therapeutic prescribers. Most respondents were willing to undergo training, periodic re-accreditation and continuing education, as well to participate in simple professional audit of their prescribing. Respondents anticipated that referrals to general practitioners (GPs) would be reduced by nearly 40% and to ophthalmologists via a GP by nearly 20%. Optometrist participation could increase patient access to therapeutic ocular care by between 29% and 50%. Authorising UK optometrists to prescribe therapeutically for eye diseases would appear to make good use of their existing skills and improve patient access to eye care, while relieving pressures upon other healthcare providers. Tentative economic analysis suggests that the introduction of independent optometrist prescribing may be cost neutral. However, adequate comparative research on the performance of optometrists as prescribers is needed and the issue of reimbursement will require careful consideration. © 2002 Elsevier Science Ireland Ltd. All rights reserved.

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1. Introduction

In the USA and in some Canadian and Australian provinces, optometrists may be licensed to prescribe certain therapeutic pharmaceutical agents for their patients [1–3]. In Europe, however, optometrists may not routinely prescribe any medicines [4]. Legally authorised prescribers in the UK include doctors and dentists. Nurses and some other health professionals also supply and administer medicines under ‘patient group directions’, but the legality of this practice is unclear and amendments to the law are proposed [5]. UK optometrists are restricted to measuring eyesight, prescribing corrective lenses and detecting and referring a range of ocular disease, with scope for prescribing therapeutics only in emergencies. The recent Crown Report recommends the extension of prescribing authority to new professional bodies, who may act independently of or dependently upon clinicians. Optometrists are cited as potential candidates for independent prescribing for emergency and non-threatening eye conditions, due to their expertise and use of specialist diagnostic instruments [6].

In the UK, minor or acute eye conditions are routinely seen at primary care level by a General Practitioner (GP). More urgent cases, particularly those involving trauma, are managed initially by the accident and emergency department (A&E) of local hospitals, which may or may not involve a specialist eye clinic. Chronic or more serious eye conditions are typically managed in secondary care, although the patient’s GP and/or optometrist may be involved in a shared care arrangement with the consultant. Optometrist prescribing of medicines would involve a change in the treatment setting: certain patients may attend their local optometric practice instead of the GP surgery, A&E or Hospital Eye Service (HES). Such a change may ease the burden on currently overstretched healthcare providers, and improve access to care for patients. However, this may be an adverse change for optometrists, who largely operate in a commercial environment, if reimbursement does not cover the necessary time and additional infrastructure costs to deliver an appropriate quality of care.

In 1999, there were 7517 optometrists and Ophthalmic Medical Practitioners (OMPs), working in 6566 practices in the UK. On average each optometrist conducted 1250 NHS sight tests, and prescribed 487 pairs of glasses per year at a cost to the NHS of £36,100. However, 32.7% of tests were privately funded [7], giving a total of 1857 tests per optometrist per year or 155 per month. Assuming the same rate of spectacle prescribing for private and NHS funded consultations, an English optometrist prescribes on average 60 pairs of glasses per month.

A recent systematic review searched for evidence of the appropriateness of care for a range of ocular conditions provided by optometrists and other primary healthcare providers [8]. The review found little adequate research—in particular, no directly relevant comparative study. In countries where optometrist prescribing has been introduced, no rigorous investigation has been made of either performance or impact. Studies in the UK have mainly examined the accuracy of GP or optometrist diagnoses and referrals when assessed by an ophthalmologist. A problem with these studies is that a referral with an inaccurate diagnosis may not be an inappropriate one and in many instances practitioners make reasonable referrals because of diagnostic doubt. The review concluded, on limited evidence, that optometrists performed as well as, or better than, GPs in terms of accuracy of diagnosis and appropriateness of referral. This has some face validity: data from a range of sources indicate that GPs conduct, on average, 14 consultations each month for eye disease, referring 20–25% of patients; optometrists conduct, on average, 200 sight tests per month referring 6% of consultations [9]. Although differences in training and level of contact provide one explanation for these referral patterns, there are a number of confounding explanations, including patient case-mix and different legal requirements.

Optometrist therapeutic prescribing could take two forms: firstly, independent prescribing for infection and inflammation and, secondly, dependent (clinician-initiated) prescribing to extend shared care between ophthalmologists and optometrists for stable chronic ocular conditions, such as glaucoma, cataract and retinopathy. We conducted a survey in pursuit of representative data to describe how optometric practice might change with the introduction of therapeutic prescribing. Surveys can be a good indicator of values or beliefs, but may not correspond well to subsequent behaviour. In the absence of more robust research, it was felt a survey could establish the feasibility of the introduction of therapeutic prescribing by optometrists.

2. Methods

The Anonymous Enquiry of the Scope for Optometrist Prescribing (AESOP) consisted of 22 questions in five sections, covering basic demographic details, the nature of optometrists' work, and their views on prescribing, reimbursement and audit (Table 1). Survey questions either had simple tick box answers or required numeric estimates.

The General Optical Council supplied names, addresses and demographic details of UK registered optometrists from their database. Individuals with incomplete details, or with a date of birth on or before 31/12/29, were excluded. Subsequently, a random 10% sample was derived to receive the survey. After a piloting phase, the survey was mailed in September 2000 with a return postage-paid envelope and a reminder was sent in October 2000. No incentive to respond was offered. Data were analysed as simple proportions of all valid responses; 'don't know' was included as a valid response.

Table 1
Contents of the AESOP survey

Questions	Responses
<i>About you</i>	
1. In which year did you first register?	
2. Please indicate your gender	Male, Female
3. Please give the postcode where you most often work	
4. Please indicate if you work full time, or part time, in any of the following types of practice:	Sole practitioner, Partnership, Hospital, Locum, Non-practising, Franchise, Multiple, Other, Small Group, Academic, Retired
<i>About your work</i>	
5. Does your main employment involve you in providing full eye examinations?	Yes, No
A variety of 'shared-care' schemes operate between optometrists and other health care professionals, for the long-term management of conditions such as glaucoma and diabetic retinopathy	
6. Are you involved in a local shared-care scheme?	Yes, No, Don't know
7. Approximately how many patient consultations, for any reason, do you conduct in a typical month?	< 50, 50–99, ..., 200–249, 250+
8. Approximately how many referrals, for any reason, would you make in a typical month to the following health professionals?	GP, Ophthalmologist via GP, Ophthalmologist via A&E, Ophthalmologist privately
9. Approximately how many patients would you refer each year with the following conditions?	Dry eyes, Infective conjunctivitis, Allergic conjunctivitis, Blepharitis, Glaucoma, Diabetic retinopathy, Cataract, Other
<i>Your views about prescribing</i>	
In future, UK optometrists may opt to receive additional accredited training, allowing them to prescribe from a designated formulary of therapeutic agents. Prescribing rights for optometrists may be introduced at two levels. Firstly, optometrists may be able to prescribe independently for infection and inflammation. Secondly, dependent (clinician-initiated) prescribing may facilitate shared care between ophthalmologists and optometrists for stable chronic ocular conditions	
10. In principle, do you agree that optometrists should be able to train to become independent prescribers?	Yes, No, Don't know

Table 1 (Continued)

Questions	Responses
11. In principle, do you agree that optometrists should be able to train to become dependent prescribers?	Yes, No, Don't know
12. Would you personally wish to prescribe therapeutic agents independently?	Yes, No, Don't know
13. Would you personally wish to prescribe therapeutic agents dependently?	Yes, No, Don't know
14. Would you be prepared to undertake further training to allow you to prescribe?	Yes, No, Don't know
15. In future, do you think the right to prescribe therapeutic agents should be a basic entitlement of registration?	Yes, No, Don't know
16. If you could prescribe therapeutically and a patient presented with a suspected inflammatory or infectious eye condition, how often would you feel it was necessary to conduct a full eye examination (including refraction) as part of such a consultation?	Always, Usually, Sometimes, Occasionally, Never, Don't Know
17. What percentage of all your referrals might be avoided if you could prescribe therapeutic agents?	Visual Analogue Scale 0–100% for GP, Ophthalmologist via GP, Ophthalmologist via A&E
<i>Your views about reimbursement</i>	
The standard general ophthalmic service (GOS) fee is intended solely for routine eye examinations although in some Health Authorities it may be used to pay for participation in co-management schemes. Other Health Authorities have separate non-GOS payments for non-routine examinations	
18. In general, do you think current methods of reimbursement for optometrists are:	Very satisfactory, Satisfactory, Unsatisfactory, Very unsatisfactory, Don't know
Reimbursement for optometrists with prescribing rights could be organised in a number of ways	
19. Please indicate which of the following would be acceptable forms of reimbursement:	
a. No special fee	Yes, No, Don't know
b. An annual payment to provide a therapeutic service, negotiated with a local body such as a Primary Care Group or Trust	Yes, No, Don't know
c. An enhanced fee for all eye examinations, reflecting the time and resources spent on therapeutic consultations	Yes, No, Don't know
d. A simple predetermined fee for each therapeutic consultation	Yes, No, Don't know

Table 1 (Continued)

Questions	Responses
e. A schedule determining the fee for each therapeutic consultation reflecting its complexity in diagnosis and management	Yes, No, Don't know
<i>Your views about audit</i>	
GPs receive prescribing analyses and cost (PACT) or Scottish prescribing analysis (SPA) data, comparing their own prescribing activities against local, regional and national behaviour: this provides a level of self audit. Local health authorities may call to attention GPs prescribing habits when these are unusual: a type of simple professional audit. Visiting auditors, assessing a GP's prescribing for a sample of patients by note review, would provide detailed professional audit (with increasing computerisation and standardisation of patient records this may become common)	
20. For an optometrist trained in therapeutic prescribing, at which level should audit occur?	
a. Self audit	Yes, No, Don't know
b. Simple professional audit	Yes, No, Don't know
c. Detailed professional audit	Yes, No, Don't know
21. How often should re-accreditation of therapeutic prescribing occur?	Never, Every: 10 years, 5 years, 3 years, yearly, Don't Know
22. How often should optometrists receive continuing education to up date therapeutic prescribing?	Never, Every: 10 years, 5 years, 3 years, yearly, Don't Know

3. Results

The response rate was 57%, with responders being demographically similar to all registered optometrists (Table 2). Most respondents (84%) worked either full or part time in high street premises providing full eye examinations (95%) as the main employment activity; 45% were involved in local shared-care schemes. Respondents conducted an average of 200 examinations a month, matching national figures. On average, each optometrist referred 250 patients (10%) each year, about 100 to a GP and 130 to an ophthalmologist via a GP with small numbers of emergency and private referrals. The most commonly named reasons for referral were suspected cataract (33%), glaucoma (13%), and retinopathy (10%). Anterior eye conditions (conjunctivitis, blepharitis and dry eyes) together accounted for 26% of referrals.

Table 2
Baseline characteristics

	Population, UK (1)		Random sample (2)		Respondents (3)	
	No.	%	No.	%	No.	%
Total	7438	100	758	10	432	57
<i>GOC area</i>						
Inner London	516	7	54	7	19	5
Outer London	557	7	58	8	30	8
England (not London)	5011	67	510	67	255	72
Scotland	717	10	73	10	25	7
Wales	386	5	39	5	16	5
Northern Ireland	251	3	24	3	8	2
Chi-square goodness-of-fit: (1) vs. (2), $P = 0.99$; (2) vs. (3), $P = 0.26$; (1) vs. (3), $P = 0.23$						
<i>Gender</i>						
Female	3400	46	340	45	180	43
Male	4038	54	418	55	240	57
Test for difference in proportions, exact test: (1) vs. (2), $P = 0.64$; (2) vs. (3), $P = 0.50$; (1) vs. (3), $P = 0.25$						
<i>Date of registration</i>						
–1960	267	4	35	5	24	6
1961–65	375	5	37	5	11	3
1966–70	397	5	46	6	23	6
1971–75	550	7	54	7	30	7
1976–80	882	12	92	12	64	15
1981–85	921	12	96	13	63	15
1986–90	1035	14	115	15	67	16
1991–95	1274	17	105	14	59	14
1996–2000	1737	23	178	23	75	18
	Mean	95%CI	Mean	95%CI	Mean	95%CI
Date of Registration	1985	(84 to 85)	1985	(84 to 85)	1984	(83–85)

3.1. Optometrist views about therapeutic prescribing

Most respondents thought optometrists should be able to train as therapeutic prescribers, whether this was independently for infection and inflammation (87%), or dependently, participating in clinician-initiated prescribing (87%). Over two-thirds of respondents wished personally to participate in prescribing either independently (67%) or dependently (69%). Most respondents (90%) would be willing to undergo further training to be able to prescribe therapeutically, but only half of respondents thought it should be a basic entitlement following from registration (51%).

The Crown Report states that benefits to patients should include improvements in patient access to treatment and in convenience for the user [6]. Assuming survey responders are representative of all optometrists, uptake of prescribing by optome-

trists may be as high as 68% (mid-point of responses to questions about personal participation in independent or dependent prescribing). If the reason for non-response to AESOP was assumed to be lack of interest in prescribing, then uptake may be as low as 39% (68% wishing to prescribe \times 57% survey response rate).

With scope to prescribe therapeutically, respondents estimated that they would avoid 39% of referrals to a GP, 18% of referrals to an ophthalmologist via a GP, and 9% of emergency referrals. Combining responses to questions, a prescribing optometrist could avoid about 60 referrals to or via a GP each year.

If a patient presented with a suspected eye infection, optometrists held widely differing views about the need to conduct a full eye examination as part of a therapeutic consultation. The majority of respondents reported that they would always (27%) or usually (29%) conduct a full examination in this circumstance.

Few respondents were satisfied (11%) or very satisfied (1%) with current methods of reimbursement; most were dissatisfied (41%) or very dissatisfied (44%). It is then unsurprising, when asked about the acceptability of alternative methods of funding, that only 4% of respondents would accept prescribing without any additional reimbursement. Only 24% of respondents supported the idea of an annual payment to provide a therapeutic prescribing service. Respondents were more equally divided about the desirability of an enhanced sight test fee for all routine examinations, with 42% in favour.

The two preferred forms of funding were a simple fee per therapeutic consultation or a fee schedule reflecting complexity, with 69% and 65% of respondents indicating that these would be acceptable respectively.

Simple professional audit might involve each optometrist receiving a PACT listing, similar to GPs, comparing their own prescribing activities against local, regional and national behaviour, with guidance provided by local authorities for unusual prescribing habits. Simple professional audit was most acceptable to optometrists with 77% responding yes, compared to 52% for self audit and 24% for detailed professional audit.

Most respondents felt that re-accreditation of therapeutic prescribing should occur every 3 or 5 years (40 and 37%, respectively), and that continuing education should be on an annual basis (68%).

3.2. Economic considerations

The Crown Report lists a number of expected 'clear benefits' to patients that could result from the extension of prescribing rights to groups of professionals who are not at present authorised to prescribe [6]. These include a more effective use of the skills and experience of these professionals; an improvement in patient access to advice and treatment; and quality assurance through continuing education and clinical audit. In addition to these 'clinical outcomes', an increase in user convenience and the enhancement of inter-professional relationships are predicted.

UK optometrists undergo a 3- or 4-year degree course, followed by a mandatory pre-registration year and subsequent completion of Professional Qualifying Examinations [10]. Optometrist accuracy of diagnoses and appropriateness of referral is

heavily influenced by legal requirements upon optometrist practice. Despite this, optometrists perform as well as or better than GPs on these counts [8]. In addition, optometrist offices are typically well equipped to conduct a full eye examination [11], whereas this may not always be true of GP offices [12,13].

There are currently 6566 optometric practices in England [7], of which between 2560 and 4465 would participate taking low and high estimates from the survey. Consequently, access to therapeutic eye care in 8944 general practices across the UK [14] would be extended by 29–50%. Since access to traditional routes to eye care would not be curtailed (patients could still visit their GP, A&E or Hospital Eye Service), the introduction of optometrist therapeutic prescribing may be argued to increase patient choice and reduce the cost of access to services. A caveat of this finding is that surveys alone provide self-reported estimates without objective validation. However, survey responses to levels of current ophthalmic activities are consistent with other published sources, enhancing the credibility of findings.

In terms of the process of care, there are scant data to assess how patients may feel about receiving more care from optometrists rather than from other healthcare providers, or how this may change the costs of obtaining care in terms of time and travel. One small experimental study suggests that, having once received care from optometrists, 55% (45/82) of patients preferred to consult an optometrist for eye care in the future. This compared with 15% (12/82) of patients who preferred to consult a GP [13].

Quality assurance in primary care rests upon appropriate accreditation, continuing education and audit. Respondents to the AESOP survey indicated a willingness to participate in supervised audit, re-accreditation and continuing education at reasonable intervals.

Finally, the Crown Report [6] anticipates that expected improvements in professional relationships, with greater clarity regarding the roles and responsibilities of each profession, should also result in more integrated care, a central government objective for the British National Health Service (NHS) [15]. Nearly half of survey respondents were involved in local shared-care schemes, i.e. working with hospital departments to manage certain aspects of eye disease. Optometrist therapeutic prescribing should serve to rationalise existing inter-professional care arrangements that already work well in many areas. The planned introduction of 500 new, one-stop primary care centres by 2004, to accommodate GPs, pharmacists, dentists, opticians, health visitors and social workers under one roof, may both improve patient access and facilitate inter-professional relationships [16].

Expected costs of extended prescribing authority include prescribing costs, training costs and administrative costs. Where there is uncertainty regarding the balance of costs and benefits and, in particular, where the net cost to the NHS is unclear, the Crown Report encourages a thorough economic evaluation. A recent systematic review exposes the inadequacies of the literature to make a formal assessment of the cost-effectiveness of optometrist prescribing [8]. There is no comparative evaluation of the quality-of-care provided or resources used for acute eye conditions by optometrists and GPs. Although optometrist therapeutic prescribing has been introduced in the USA, Canada and Australia, no adequate evaluation has been conducted from which to model changes in the UK.

In the absence of reliable evidence, no robust economic evaluation may be performed. However, a tentative exploration of changes in costs and consequences associated with independent optometrist prescribing is possible and this may be considered at two levels. In the first scenario, the existing patterns of presentation of eye conditions continue: patients present as before to GPs, optometrists, Hospital Eye Service (HES) and to Accident and Emergency departments (A&E). However, when optometrists diagnose inflammation or infection of the anterior eye, then they may prescribe. Prescribing would rise or fall depending upon optometrists' and GPs' relative use of therapeutics. Since there are no adequate comparative data to show how GPs and optometrists may prescribe differently, it has not been possible to model prescribing changes. As optometrists are at least as accurate at diagnosing these conditions, this is unlikely to lead to overall increases in prescribing or inappropriate care.

The main expected increase in cost would be the cost of optometrist training and the administrative costs associated with prescribing. The main expected decrease in NHS cost would be the in the number of GP consultations and in secondary care referrals. The additional time spent by the optometrist for each patient would be small, since an eye examination and diagnosis are assumed to have already taken place. Changes in referral may be estimated from the AESOP survey (Table 3). There is good correlation between levels of referrals by optometrists estimated from the survey and from the literature [17]. Survey estimates of avoidable referrals are similarly supported [13]. Total savings are estimated to amount to £2730 (95%CI: 2510–2962) per optometrist, per annum.

Assuming no change in treatment cost, these referral savings must be set against an optometrist's costs of participation (training, administration, time with patient, overheads) and the costs of providing audit and prescribing feedback. These costs would be divided between an average of 63 patients per optometrist per year. The estimated potential savings suggest that as long as this additional cost is no greater than about £43 per patient, then optometrist therapeutic prescribing will be no more expensive than existing care. In other words, the introduction of independent optometrist prescribing may be cost neutral. Analysis of costs of providing extended shared care in the Bristol Glaucoma study [18] suggests this may be plausible, although the cost components for independent prescribing may differ and further research is required. This first scenario may reasonably describe optometrist activity in the short run immediately after introduction of therapeutic prescribing.

The second scenario considers the long run, when optometrist therapeutic prescribing is established. In addition to optometrists prescribing for existing patients, a certain proportion of patients previously presenting to GPs, HES and A&E will instead present to the optometrist, aware that they are able to provide not just diagnosis but treatment. Again, there are no data to explore the extent of changes in patient healthcare-seeking behaviour. These changes may ease the burden on other over-stretched healthcare providers, but may substantially increase the gate-keeping role of optometrists (displacing the GP as the first port of call for access to eye therapeutics and referral). It is possible that the work content of therapeutic optometrists could alter substantially if patients saw optometrists as

Table 3
Changes in current referral patterns and cost per optometrist per annum, based on the findings of the AESOP survey

Direction of referral	Number (question 8)	% Avoidable (question 17)	Number avoided	Cost/referral (£)	Cost saving (£)
GP	100	39.4% (95%CI: 36.7–42.2%)	39.4 (95%CI: 36.7–42.2)	18 ^a	709 (95%CI: 661–760)
Ophthalmologist via a GP	130	18.1% (95%CI: 16.5–19.7%)	23.5 (95%CI: 21.5–25.6)	18 + 68 ^a	2021 (95%CI: 1849–2202)
All referrals			62.9 (95%CI: 58.2–67.8)		2730 (95%CI: 2510–2962)

^a Ref. [20].

their first port of call for eye conditions. Since optometrists operate in a commercial environment, it is clear that reimbursement will have to cover the necessary time and additional infrastructure costs to deliver a viable service. How optometrists will be reimbursed then becomes a central issue and, unsurprisingly, one about which optometrists have strong views.

The survey findings strongly suggest that optometrists are unhappy about the way they are currently reimbursed and demonstrate a preference for fee-for-service style reimbursement as their role develops. This raises interesting and generic issues. Fee-for-service payment may be relatively expensive to administer and may also embody an incentive to provide therapeutic consultations that is absent from an annual flat rate service payment. A recent systematic review provides evidence that the method of payment of primary care physicians affects their behaviour and the consequent health care provided [19]. An enhanced sight test fee for prescribing optometrists may be a middle ground, but may also be seen as divisive, creating two tiers of optometrists, while failing to address optometrists' dissatisfaction with the current system of reimbursement.

Patients who choose to consult an optometrist instead of a GP for an acute eye condition may expect this consultation to be funded by the NHS, as is the case in general practice. However, for legal or clinical reasons, it may be necessary for optometrists to conduct a full sight test on these patients. As a replacement for a GP consultation, and to ensure quality of care, it may be necessary for the NHS to fund a full sight test in such cases, with some adjustment for therapeutic prescribing. It may not then be possible to differentiate between patients consulting for therapeutic and non-therapeutic reasons, making the current British exemption system for sight tests hard to sustain, though any transfer of costs onto patients may be expected to limit patient utilisation of optometrist therapeutic prescribing. Careful consideration of the reimbursement of optometrist therapeutic prescribing is required.

4. Conclusions

Allowing optometrists to train to prescribe therapeutically for eye diseases would appear to make good use of their existing skills. Patient access to eye care may be considerably enhanced while relieving pressures upon other healthcare providers. Tentative economic analysis suggests that the introduction of independent optometrist prescribing may be cost neutral. However, adequate comparative research on the performance of optometrists as prescribers is needed and the issue of reimbursement will require careful consideration.

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