What data sources do ophthalmologists trust?

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Abstract

To survey ophthalmologists regarding sources they trust when incorporating new medical knowledge into their practice. The survey was distributed primarily to US-based ophthalmologists. Questions were derived based on the lead author's research experience from congresses and discussions and from mentions in the medical literature. In total, 77 physicians completed the survey of 1886 sent (4% response rate). Regarding study design, physicians preferred a well-controlled, randomised, double-masked trial (99%) with multicentred investigational site across a wide geographical area (80%). Authorship of a research article was most desired from a well-known key opinion leader (KOL) (75%) or any KOL leader at a university (75%). The most selected journal type was a subspecialty publication (86%) and second a multispecialty high impact journal (77%). Study sponsorship was most desired from the NIH or other government agencies (71%) or a university (71%). Doctors preferred clinical opinions from an ophthalmic medical society (75%). For the source of new clinical data, physicians indicated an unsponsored peer-reviewed journal article (77%) or a lecture at a large ophthalmic congress (74%) as the preferred source. Ophthalmologists generally desire sponsors, study designs and opinions that appear free of bias on which to base their clinical practice decisions.

Introduction

Medical studies are key resources in advancing medical knowledge and educating physicians who are practising in the field about the latest advances.[1 2] Nonetheless, how physicians view the quality of medical research potentially may vary depending on a number of characteristics, especially on sponsorship and study design.[3 4] Little information exists, however, regarding exactly how ophthalmologists view these study parameters and their trust in the data.

We surveyed ophthalmologists regarding which study design features they most trust when incorporating new medical knowledge into their practice.

Methods

The survey was distributed to each physician from an internal database of ophthalmologists that was created from professional contacts (n=500) and authors from ophthalmic abstracts on PubMed (n=1500). Survey questions were developed internally. Questions were derived based on the lead author's research experience from congresses and discussions and from mentions in the medical literature.[3 4] Each survey requested the top three responses. The survey questions can be seen in the table 1.

The survey was distributed three times within a 6-week period between February and March 2016. No compensation was provided for participation. The survey was linked to Survey Monkey (www.surveymonkey.com). The data presentation was descriptive and no statistical analyses were performed.

Results

In total, there were 2000 emails in the database. There were 114 returned to sender, leaving 1886 sent. We received 77 responses (4% response rate). Notable demographic information was that most often physicians had been in practice between 21 and 30 years (43%) and about two-thirds claimed a subspecialty, most often glaucoma (56%).

Most all physicians preferred a study design that is well-controlled, randomised, double-masked investigation (99%), then a review article (60%) or meta-analysis (53%). For clinical investigators, respondents desired a multicentred group across a wide geographical area (80%). The secondary preference was for a smaller group of well-known investigators at several different sites (67%) and then a well-known individual investigator at an academic site (63%).

For study authorship, a well-known key opinion leader (KOL) (75%) or any KOL leader at a university (75%) were most selected. A private practice-based KOL (47%) was third.

The chosen publication type was a subspecialty journal (86%), while a multispecialty high-impact American journal was second (77%) and a European multispecialty journal (36%) third. Geographically, physicians indicated the USA (92%), Western Europe (66%) and then Canada (44%) as the region from where trusted data were derived.

Regarding desired study sponsorship, the NIH or other government agencies (71%) and university-based sponsor (71%) were cited most often, while a regulatory trial backed by a pharmaceutical company (55%) was third.

In terms of collegial recommendations, an ophthalmic society had the highest rating (75%), but the opinion of an independent well-known KOL (51%) or a trusted colleague also was respected (45%). For the source of new medical data, most physicians preferred a non-sponsored peer-reviewed journal article (77%) or a lecture at a large ophthalmic congress (74%). An Internet search was third (36%).

Discussion

The survey data indicated that ophthalmologists have a strong preference from where they gain new medical information. This desire for independence was manifested on three basic levels.

First, *information sources*. Most doctors preferred medical recommendations with a consensus from their leading academic colleagues. Respondents also mentioned as helpful opinions from key individual opinion leaders. In contrast, they desired new clinical

Table 1 Survey questions and responses

Demography	Per cent	Count
Years in practice		
0–5	8%	6
6–10	7%	5
11–20	13%	10
21–30	43%	33
>30	29%	22
Geographical location		
USA-Northeast	20%	15
USA-Southeast	20%	15
USA-Midwest	18%	14
USA-Southwest	16%	12
USA-Rocky Mountains	5%	4
Pacific	9%	7
Europe	11%	8
Asia	3%	2
Type of practice		
General ophthalmology	20%	15
General and subspecialty	16%	12
Subspecialty	65%	50
Survey questions	**Per cent**	**Count**
In making medical treatment decisions, I typically make my choice on data from the following (please mark top three choices)		
Opinions from the following doctors or groups		
Government-based treatment recommendations	23%	18
Ophthalmic society-based treatment recommendations	75%	58
Independent key opinion leader's treatment recommendations	51%	39
Key opinion leader treatment opinion from lecture, round table or monograph sponsored by a pharmaceutical company	36%	28
National survey of treatment patterns of ophthalmologists	19%	15
Trusted colleague	45%	35
Peer-reviewed articles	16%	12
Type of study design		
Meta-analyses	53%	41
Review paper	60%	46
Well-controlled, multicentre, randomised, double-masked study	99%	76
Single-masked, multicentre, randomised study	31%	24
Single-centre, investigator-initiated study	19%	15
Retrospective comparison	17%	13
Case series	17%	13
Case report	10%	8
Studies sponsored by the following		
Regulatory trial sponsored by a pharmaceutical company	55%	42
Marketing study sponsored by a pharmaceutical company	10%	8
National Institute of Health or other government agency	70%	54
Independent private society or granting agency	43%	33
University-based investigator(s)	70%	54
Private practice-based investigator(s)	30%	23
Types of investigators		
Multicentre geographically diverse investigator team	80%	61
Small group of well-known investigators within a subspecialty	67%	51
Well-known university investigator(s) within a subspecialty	63%	48
Private practice investigator(s)	30%	23
Data derived from		
Lecture at a large congress	74%	57
Lecture at a private pharmaceutical meeting	18%	14
Pharma-sponsored monograph	8%	6
Unsponsored peer-reviewed journal article	77%	59
Pharma-sponsored, peer-reviewed journal article	25%	19
WebMD	13%	10
Internet search	36%	28
Blog or comment post	3%	2
Pharma field representative information given in office	10%	8
Type of journal		
High-impact multispecialty American journal	77%	59
European multispecialty journal	36%	28
Other international journal	21%	16
Subspecialty journal	86%	66
Trade journal or magazine	16%	12
Type of author		
Top key opinion leader within a subspecialty	75%	58
University-based key opinion leader	75%	58
Private practice-based key opinion leader	47%	36
Non-academic investigator	21%	16
Pharmaceutical employee	4%	3
Geographical region		
USA	92%	71
Canada	44%	34
Central and South America	5%	4
Western Europe	60%	46

Continued

Table 1 Continued

Demography	Per cent	Count
Eastern Europe	9%	7
Israel	16%	12
Russia	3%	2
China	5%	4
India	8%	6

data from a non-sponsored peer-reviewed article or from a lecture at a large congress.

For authorship of a journal article, ophthalmologists selected either a top opinion leader or any opinion leader based at a university. Overwhelmingly, they preferred articles in a subspecialty journal or a high-impact multispecialty publication. Journals were regarded as the most important source of information, while a lecture at a large congress was also highly rated.

Second, *clinical study design*. Ophthalmologists recognised that clinical trials were important and desired a study design that was well controlled, double masked and randomised, including investigational sites across a large geographical area. Interestingly, this preference for a multicentred study was somewhat greater than for a review article or a meta-analysis. Although inconsistent, evidence-based medicine rankings may place the meta-analysis at the top of the confidence scale and the well-controlled, multicentred study ranked second.[5] Perhaps ophthalmologists value the real-time input of multiple investigators versus one or two authors analysing multiple past studies.

Last, *study sponsors*. Eye doctors again expressed their desire for non-biased sources by indicating sponsorship of clinical trials by the NIH or a university-based investigator who would at least outwardly be free of monetary payments from a for-profit company. This apparent aversion to pharmaceutical company influence was mitigated somewhat by the acceptance of data from a regulatory trial. Such trials differ from Phase IV postcommercialisation studies because they are carefully monitored, often by an independent contract research organisation. Further, the Food and Drug Administration reviews the findings of such trials, may audit the data and trial conduct and must approve the licence of the product for commercialisation.

Nonetheless, little data yet suggest that pharmaceutical-sponsored studies are biased yet concern persists.[6] One study indicated that pharma-sponsored studies more often had positive results than non-sponsored studies.[7] A number of academic leaders have called for availability of complete data listings for regulatory studies but this suggestion remains controversial.

Overall, the data from our survey are not surprising and suggest that ophthalmologists are very attuned to bias and want non-pharmaceutical company-sponsored design and authorship, which implies data free from influences that would distort the results or conclusions.

The study suggests that ophthalmologists generally prefer sponsors, study designs and opinions that appear free of bias on which to base their clinical practice decisions.

This study was limited in the geographical area representated and the over representation of subspecialists, especially in glaucoma. Further, although survey response rate was consistent with this research team's past surveys it was low at 4%. The reason for the low response is not known, but may be due to the general busyness of physicians and no compensation was provided.

With all the above factors considered, the survey results may not completely reflect the ophthalmic community's opinions. More research is needed to better understand physician's opinions regarding published research.

Contributors WCS was responsible for the idea development and editing. JAS was responsible for editing. LAN was responsible for data collection.

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