in the patient presenting with blurred vision, ocular pain, and hypopyon, is imperative, to allow for timely and sight-saving intervention.

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**References**

1. Pleyer U. Immunobiology of the cornea. In: Pleyer U, Zierhut M, Behrens-Baumann W, eds. *Immuno-ophthalmology*. Basel: Karger AG, 1999.

2. Jackson TL, Paraskevopoulos T, Georgalas I. Systematic review of 342 cases of endogenous bacterial endophthalmitis. *Surv Ophthalmol* 2014; 59: 627–35.

3. Wallang BS, Das S, Sharma S, Sahu SK, Mittal R. Ring infiltrate in staphylococcal keratitis. *J Clin Microbiol* 2013; 51: 354–5.

4. Jiang C, Sun X, Wang Z, Zhang Y. Acanthamoeba keratitis: clinical characteristics and management. *Ocul Surf* 2015; 13: 164–8.

5. Lorenzo-Morales J, Khan NA, Walochnik J. An update on *Acanthamoeba* keratitis: diagnosis, pathogenesis and treatment. *Parasite* 2015; 22: 10.

6. Malhotra S, Sharma S, Bhatia NJK, Hans C, Kumar P. Bacterial endophthalmitis. In: Rumelt S, ed. *Advances in Common Eye Infections*. Rijeka: InTech, 2016 p. Ch. 02.

**Publication output target for ophthalmology subspecialty fellows in Australia**

Clinical fellowship is an opportunity for advanced surgical and research training in ophthalmic subspecialties. Whilst the minimum requirement for the number of surgical procedures and fellows’ surgical outcomes has received much attention,\(^1\)–\(^4\) there are no data on the outcomes of research training during ophthalmic subspecialty fellowship. The goal of this study was to evaluate the publication track record of fellows in Western Australia (WA) over a period of 28 years as a metric of clinical research training\(^5\) during ophthalmic subspecialty training and to establish a reasonable target for the number of research publications that can be expected from fellows during and after their fellowship training. A secondary objective was to examine whether publication track record prior to commencing fellowship has an impact on future bibliometric.

Ethics approval to obtain the names of subspecialty fellows in WA and Victoria was obtained from the ethics committee of the Royal Victorian Eye and Ear Hospital (RVEEH). We compiled a list of the fellows who had completed 1–2 years of subspecialty fellowship in WA from 1985 to 2012 inclusive. For comparison of bibliometric track record with an Eastern state cohort, a list of the Fellows who had completed subspecialty fellowship at the RVEEH between 2001 and 2012 was also compiled. The number of PubMed indexed articles from each fellow was counted (by co-author HAS and verified independently by FKC) regardless of the position of authorship (http://www.ncbi.nlm.nih.gov/pubmed [accessed Jan 2017]). For the subspecialty fellows in WA, their gender, country in which primary ophthalmic training was completed, subspecialty and hospital were also recorded. Mann–Whitney *U*-test was used for comparison, and a *P* value of <0.05 was considered statistically significant.

We identified 76 and 92 subspecialty fellows from WA and the RVEEH, respectively. Amongst the WA fellows, 7 (9%) were female, 36 (47%) received primary ophthalmic training in the United Kingdom and 9 (12%) stayed for 2 years. There were 12 (16%) fellows with Australian primary ophthalmic training, and the remaining 64 (84%) were overseas trained doctors from Asia, America, New Zealand, Ireland, Israel and South Africa. Two types of fellowship subspecialties are offered in WA: posterior or anterior segment and the RVEEH cohort (Table 1). The distribution of the number of publications during and through each of the 4 subsequent years after fellowship were 1.5, 1.0, 1.2, 1.0 and 1.1, respectively, similar to the control RVEEH cohort (Fig. 1). The distribution of the number of publications during and after fellowship is similar between anterior and posterior segment fellows in WA and the RVEEH cohort (Fig. 1). We compared the output of those who had never published (63, 38%) to those who had (105, 62%) prior to fellowship. There was a statistically significant difference in publication numbers between the two groups during the

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fellowship and throughout each of the 4 years thereafter (Table 2). Amongst those with no prior publications, 38–39% still did not publish during or throughout the 4 years after fellowship (Fig. 2). In contrast, only 11–13% of those who published prior to fellowship failed to publish anything during or throughout the 4 years after the fellowship (Fig. 2). The proportion of fellows with no publications dropped from 35–41% prior to fellowship to 13–16% at 4 years after fellowship (Fig. 3). Conversely, the proportion of fellowship with more than 10 papers increased from 7–9% to 24% (Fig. 3).

There is a large variation in publication output numbers prior to, during and after subspecialty training in WA. Given the similarity to the data from fellows at RVEEH in Victoria, our findings could be generalized to the rest of Australia. Subspecialty fellows had one to two publications during the period of their 1–2 years of fellowship. Australian ophthalmic subspecialty fellowship programmes differ significantly in their emphasis on clinical training, scholarly activities, teaching duties and community service. Because there is no equivalent body to the Association of University Professors of Ophthalmology Fellowship Compliance Committee in the United States,1 each programme director determines the emphasis of the individual training programme. Even in the same centre, each fellow may come with a different set of learning objectives depending on his/her background and motivation. Some may already be surgically competent and therefore have more time to devote to teaching and research whilst others may have already done a

### Table 1. Comparison between WA and RVEEH fellow publication output

|                        | WA (N = 76) | RVEEH (N = 92) | P value‡ |
|------------------------|-------------|----------------|----------|
| Prior to fellowship    | 1 (4.0, 0–92) | 1 (4.4, 0–78) | 0.86     |
| During fellowship†     | 0 (1.5, 0–22) | 0 (0.9, 0–17) | 0.17     |
| First year after fellowship completion | 0 (1.0, 0–21) | 0 (0.9, 0–11) | 0.50     |
| Second year after fellowship completion | 0 (1.2, 0–23) | 0 (1.0, 0–7) | 0.85     |
| Third year after fellowship completion | 1 (1.0, 0–29) | 0 (1.0, 0–13) | 0.47     |
| Fourth year after fellowship completion | 0 (1.1, 0–37) | 0 (0.8, 0–22) | 0.36     |

†9 of 76 (12%) fellows from WA and 7 of 92 (8%) fellows from RVEEH had completed a 2-year fellowship, and the remaining completed a 1-year fellowship. ‡Mann–Whitney U-test. RVEEH, Royal Victorian Eye and Ear Hospital; WA, Western Australia.

### Table 2. Comparison between those without and those with prior publications from WA and RVEEH cohorts

|                        | No prior publication (N = 63) | With prior publication (N = 105) | P value† |
|------------------------|------------------------------|---------------------------------|----------|
| Prior to fellowship    | 0 (0.00, 0–0)                | 3 (6.80, 1–92)                 | <0.001   |
| During fellowship      | 0 (0.25, 0–4)                | 0 (1.70, 0–22)                 | <0.001   |
| First year after fellowship completion | 0 (0.25, 0–2) | 1 (1.40, 0–21) | <0.001   |
| Second year after fellowship completion | 0 (0.62, 0–5) | 1 (1.38, 0–23) | 0.006    |
| Third year after fellowship completion | 1 (0.54, 0–7) | 0 (1.27, 0–29) | 0.043    |
| Fourth year after fellowship completion | 0 (0.21, 0–3) | 0 (1.43, 0–37) | <0.001   |

†Mann–Whitney U-test. RVEEH, Royal Victorian Eye and Ear Hospital; WA, Western Australia.
postgraduate degree either before or after primary ophthalmic training and prefer to develop clinical and surgical skills. Those fellows who have already completed a prior subspecialty fellowship elsewhere may have already started a research project with publication prior to and during the period of their fellowship. To examine the potential confounder of prior research experience, we compared the publication outputs from those with and without prior publication before the commencement of their fellowships.

We showed that a track record of any publication prior to fellowship is associated with a greater number of publications during the fellowship and at years 1 and 4 after completion of the fellowship. The lower rate of publication in those without prior track record may be due to the following reasons. These fellows may not have the opportunity to participate in research during their primary ophthalmic training, and therefore, they may not have research writing skills. Some of these fellows are from regions where English is not spoken. Nevertheless, over 60% of these fellows do eventually publish during or within the 4 years after their fellowships. Furthermore, we noted almost a quarter of the WA and RVEEH cohort had more than 10 publications by 4 years after fellowship with the highest being over 220 publications. On completion of fellowship training programmes, some of these fellows may go on to do another clinical fellowship elsewhere, begin private clinical practice or establish a clinician-academic career. The latter would require continuous publication output to maintain viability of their research career because bibliometric is a key measure of research track record.

Our study is only a snap shot of the WA and RVEEH fellow publication history with 4 years of follow-up. Some papers may be missed because of variations in spelling or initials of names. The 9% female cohort may have published under both maiden and married names, which are unknown to us. We did not differentiate publications arising from fellows' affiliation with other subspecialty or general ophthalmic training programmes elsewhere. Authorship order,
citation number and journal impact factors were not examined. However, with the relatively low number of articles overall and the fact that publication number is only one measure of research experience and training during a clinical fellowship, we consider these other metrics less important in this initial exploratory analysis. Given the recent positive association found between publication track record and clinical skills assessment scores amongst residents in training, further work is needed to examine the relationship between surgical outcomes, clinical competency and research output amongst subspecialty fellows. In conclusion, we demonstrated evidence of clinical research training in our fellowship programme and recommend setting a target of one to two publications during or soon after subspecialty training for ophthalmic fellows in Australia.

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REFERENCES

1. Keltner JL, Fine SL, Abrams GW, Mondino B. Subspecialty fellowships: standardizing and enhancing the educational experience. Ophthalmology 2007; 114: 628.e1-3.
2. Kuryan J. Cornea fellowship training and refractive surgery: standard requirements. Curr Opin Ophthalmol 2012; 23: 246–50.
3. Rahimy E, Pitcher JD 3rd, Gee CJ et al. Diabetic tractional retinal detachment repair by vitreoretinal fellows in a county health system. Retina 2015; 35: 303–9.
Number of ocular syphilis cases creeps to record high

We would like to bring to the readers’ attention the sharp increase in incidence of syphilis in Australia and the corresponding increase in the number of ocular syphilis presentations to the Royal Victorian Eye and Ear Hospital (RVEEH) over the past 10 years.

The incidence of syphilis notifications to the national notifiable disease surveillance system has tripled in the past 10 years in Australia, from approximately 4.3 per 100 000 in 2006 to 13.4 per 100 000 in 2016.1 We report a corresponding increase in ocular syphilis cases in RVEEH over the same period (Fig. 1). Our internal audit has shown an increase from 2 cases per year in 2006 to 9 cases in 2016. This is out of proportion to population growth, which increased from 5.13 million in 2006 to 5.94 million in 2016. The estimated prevalence rate of ocular syphilis among syphilis cases is estimated to be 0.6%.2

Ocular syphilis with its varied presentations (Fig. 2) has been previously described.3,4 In light of the current syphilis epidemic in Australia, we would like to remind the ophthalmic community that we will likely continue to see increasing numbers of ocular syphilis cases, and thus, a high index of suspicion is needed. We recommend that ophthalmologists routinely test for syphilis in newly diagnosed uveitis cases, take a sexual history to identify the high-risk group of men who have sex with men and also test for HIV in confirmed cases of syphilis, given the high rates of co-infection.2

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References
1. Australian National Notifiable Diseases Surveillance. Number of notifications of syphilis <2 years. Accessed April 2017. Available from: http://www9.health.gov.au/cda/source/rpt_2.cfm